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THE STYLE OF SINAN'S DOMED STRUCTURES

*Nations dissent in their taste no
less in architecture than in food
and clothing.*

Fischer von Erlach

Among the great domed buildings of the world must be included a group of Ottoman mosques dating from between the sixteenth and the eighteenth century, whose classical physiognomies have all ultimately to be credited to a single man, Koca Sinan, the chief architect of the Ottoman Empire for half a century (1538-88). Although Sinan's life and a number of his buildings have been written about many times,¹ regrettably no adequate comprehensive presentation of his architecture is available in any language.² Such being the case, one can hardly be surprised that his work remains largely unappreciated and that his style, although synonymous with the classical age of Ottoman architecture, is almost totally ignored in general histories of art.

The main facts of Sinan's life are known, and most of his buildings have survived. Important information about building practices in his time can be found in the account books of the imperial buildings he created.³ But all these make Sinan a documented legend, not an individual. We have poetry that glorifies his art, but no real description of the man himself. Nothing substantial remains to tell us about his ideas or the opinions his contemporaries held of his work. Descriptions comparable to the anonymous passage on the Cathedral at Edessa,⁴ or that of Procopius on Hagia Sophia,⁵ or of Serlio on church plans⁶ are totally lacking for Sinan's masterpieces. Without any contemporary reference to the ideas of his time, we are forced to fall back on the buildings themselves and on what we know generally about the society in which their creator lived.

No less severe a drawback is the total lack for his buildings of original drawings and models. A history of the Selimiye comparable to Geymüller's of St. Peter's cannot be written. Even drawings comparable to Villard de Honnecourt's would be a great blessing for

the art historian. But what the documents do not provide, the imagination and intelligence must fill in, and this leads unavoidably to considerable subjectivity. Obviously the paucity of documentation limits the possibilities for accurate interpretation.

The little information we do have at least tells us something about the nature of the culture in which this architecture was produced. It was a culture in which the physical world served only as a stepping stone to the other, true, world. Man served God and the Sultan. It was his duty to abide by the commandments of his faith, and he was interested in this world only insofar as it pertained to the next. He does not describe it and never attempts to theorize about it, because everything works according to a divine order he cannot know. This absence of an independent objectivity regarding the world led to a basic pragmatism toward every aspect of life, including art and architecture. This gives us a clue for understanding Sinan's style.

To study Sinan, our methodology must be essentially archaeological and our analysis descriptive; comparing Sinan's work to other domed styles can also lead to some constructive insights. Formal analysis will constitute the core of my discussion. That does not mean that historical or cultural content has been relegated to the second rank, but only that it is less in need of further elucidation. What we are seeking to make is a statement about the place Sinan and the Ottomans can claim in the general history of architecture.⁷

When Isidore of Miletus and Anthemius of Tralles decided to cover the central nave of Justinian's basilica at Constantinople with a dome that could form a suitable cover for stately processions, the Near Eastern symbolism that derived from the dome's early mythology was still current.⁸ But by the sixteenth century,

when Ottoman architecture used it, that symbolism had been lost, replaced by a millennium of uninterrupted experience with domed structures that had led to the use of the dome as a roof form for even the smallest spaces. The Ottoman is the only architectural style in which the semi-spherical dome constituted the only form of roofing. This simplicity of basic form was compensated by the development of very elaborate dome-covered spatial structures. Art historians are so used to seeing domes, in both the East and West, associated with ancient symbolism and dressed in magnificent exterior forms that they pay little attention to the peculiar architectural vocabulary elaborated in Turkey. It is easy for a superficial observer to look at Hagia Sophia and decide that Turkish domes are simple imitations of it. To counteract that hasty generalization we have first to remember the style-generating role of the semi-spherical dome.

Domical forms or domes built in all-natural materials have been in use for millennia in all climates, with or without symbolic association. The nomad tent and the round hut may claim to have originated the domical shape, but here I am not concerned with the origin of the form; rather I am talking about the use of a developed brick dome within a structural and spatial concept. Until the advent of the industrial age, brick domes were the most convenient and dependable large-space covers for monumental structures. The difference between the way the Ottomans used the dome and other styles lies first in the Ottomans' use of domes as the sole element for roofing, and second in their emphasis on structural design. In the Islamic, the Byzantine, and the Western architectural traditions, domes were used in combination with other roofing systems, such as vaults in various forms or flat ceilings. In a church interior, a barrel-vaulted nave is visually as important as the dome-covered crossing. In a hypostyle Arabic mosque, the wooden ceilings of the aisles are as important to the spatial perception of the interior as is the dome over the mihrab bay. Structures with heterogeneous roof forms have spatial qualities that are very different from those where the roof system consists entirely of domes.

Modifications in the shape of the dome itself were also characteristic of the style. The use of the drum modifies the direct perception of the dome from the interior, and raising it over the supporting mass, gives it a particular emphasis on the exterior. The use of the double-shell dome further dissociates the dome from its simple structural and geometrical purity. These seem-

ingly minor additions and variations, together with the changes in the form and structure they incur, are of great stylistic importance. They also have theoretical implications. They came about as a result of complex and culturally significant developments in the Islamic world, where the dome and the minaret became symbols of Islam. As a result, Islamic architecture developed a wide range of variations both in shape and in structural and functional use. Examples of variations are the single-shell dome-on-squinch of Central Asian tombs, the multiple rows of small domes over the parallel bays of Indian mosques, domes only enhancing the mihrab bay, and double-shell domes, with or without drums, in the great mausolea of the Seljuks, Timurids, and Mamluks.

In Christian architecture the symbolic associations of the dome played an important role in its adoption as a roof form for religious buildings. But its cultural symbolism eventually turned into a formal symbolism that resulted in domes becoming buildings in themselves. Thus, although apparently minimal when reduced to schematic drawings, the conceptual differences between the great Ottoman mosques, on the one hand, and Hagia Sophia or Santa Maria in Carignano in Genoa, on the other, are immense. They not only express different views of the world, but stylistically they represent opposite ends of the spectrum.

The insistence on keeping the structural form of the dome intact from both inside and outside led to the development of some distinctive characteristics. If western Gothic in its classical period of the twelfth and thirteenth centuries can be characterized as a style exploring the structural and spatial potentialities of the cross-vaulted bay, then Ottoman Turkish architecture can be characterized as a style exhausting the possibilities of the simple spherical dome. To reduce a style to a single motif is a mistake, but to explain the impact of a consistently used form in the conceptual development of a style is necessary. What the classical orders are to Greek, Roman, and European architecture generally, the domed baldachin is to the Turkish.

The place of the Ottoman style so well represented by Sinan's buildings in the universal history of art is still unclear, essentially because historians insist on using the criteria of Western art history even when the so-called non-Western arts are being dealt with.⁹ Although significant progress has been made in breaking down this conceptual deadlock by Western art historians themselves,¹⁰ the non-Western artistic tradition still remains little known, and consequently the

ideas set forth about the Ottoman style in general and Sinan's in particular have not been based on relevant criteria. Althusser once remarked that "new objects and problems are necessarily invisible to a body of existing theory, because they are perforce objects and problems without any necessary relation to the field of the visible as defined in the way the problem was set." Perhaps it is time to define the problem in a new way. As Althusser again points out, "the invisible is the darkness, the blinded eye of the theoretical problematic's self-reflection when it scans its non-objects,"¹¹ in our case, Ottoman architecture.

A range of domed buildings, encompassing Central Asian and Iranian as well as Roman and Byzantine traditions, was available to Sinan. He must have seen all kinds of domical buildings, as he marched from Italy and the Balkans to Azerbaijan and Syria in the various campaigns of the Turkish army in which he served as an officer and engineer. In Syria, examples of early-Christian domed buildings then still survived, as did the earliest of the Muslim shrines, the Dome of the Rock.¹² He saw the great octagonal mausoleum of Uljaytu Khudabanda at Sultaniyya, with its double-shell dome surrounded by eight towers. He had firsthand knowledge of Byzantine architecture, and it is no surprise to find the centralized schemes of Roman mausolea in his work. The Uç Şerefeli mosque at Edirne, the forerunner of great domed structures, had certainly excited his curiosity, for he adopted its plan exactly in the mosque he designed for Grand Admiral Sinan Paşa in Istanbul. The great complexes of Fatih and of Beyazit II, both also in Istanbul and immediate precursors of his buildings, were conscious steps toward centralized plans. They also provided structural experience for the architects of the imperial school.

In the sixteenth century all the monumental buildings in Europe and the lands of Islam were domical. In Islam since the Dome of the Rock, in Byzantine architecture since its beginnings, and in Italy since the great Romanesque cathedrals, the dome had become synonymous with symbolic monumentality. When we recognize this significant role conferred on domical structures at this juncture in history, we can see the dome as a style-generating element, both in its forms and in the connected structural and spatial systems it involves.

There are two basic formal approaches to constructing a dome: single-shell domes whose intrados and extrados have the same shape (examples are found in

early Central Asian, some Indian, and Byzantine styles), and double-shell domes whose intrados and extrados have different shapes (examples are found among later Islamic domed buildings; they are characteristic of all European domes after the Renaissance). In both systems the use of drums further influences the exterior form and the spatial quality of the interior.

In all domed buildings there are also only two possible conceptual approaches for determining the support system: either the roofing system is generated by the plan of the building, which is a tectonic and—as we shall see—formalistic approach; or the roofing system determines the form of the plan, which is an atectonic and structural approach. How the latter could come about may at first glance be difficult to understand, because one would assume that functional or symbolic requirements would first decide the form of the plan. But for reasons that will come clear, the Ottomans conceived domed space from above, from a structural core consisting of a domed baldachin. In the history of architecture, only the style that Sinan created for the Ottomans uses a spatial form that evolved from a system of support and was not defined by the plan. This structural definition is not by itself sufficient to explain his style, but the classical Ottoman style developed out of this concept.

Hagia Sophia was a basilica that could have been covered differently: all centralized Christian churches were conceived first in plan. Arab, Iranian, Indian, and early Anatolian-Turkish mosques were also conceived as plans. Only the great Central Asian and Iranian domed mausolea represent an intermediate concept, where the form could be, and was, conceived in its totality, because they were monumental derivations of the simple domed square, the *qubba*, with its reminiscences of primeval tombs. They were refined tumuli. Sinan placed that ancient totality at the service of mosque interiors. The conceptual source of the design of the great Ottoman mosques is a synthesis of the Islamic dome-on-squinch,¹³ the post-Roman idea of a domed space, and associated with an unchangeable rectangularity of plan, typical of the Islamic mosque tradition. Its symbolism perhaps has a double meaning—heaven-dome, and sultan-dome—identifying both the religious (here Islamic, but essentially pagan) and political (here Islamic, but originally nomadic) source. This synthesis took place in lands that had rather recently been Islamicized. But comparisons between the Ottoman and the early Islamic experience in Syria, where the first great Islamic monuments were

realized, would not be fruitful. Behind the Turks lay a developed Islamic culture of many centuries, and the Anatolian Turks kept their original link with the East until the rise of the Safavids.

What we see after a development of three centuries on Anatolian soil is the persistent use of single-shell semi-spherical domes for every kind of roofing, a use that can be attributed to the influence of earlier Central Asian and Anatolian Byzantine traditions. The Great Mosque at Manisa built in 1366, the early domed square mosques built by Beyazıt I at Çine and Mudurnu, and later all the domed zawiya-mosques at Bursa constituted an experimental stage in the use of large domes. The Üç Şerefeli at Edirne represented a pivotal development (fig. 1 a-c); it gave the central dome the status of a space-generating macro-module, an idea that determined the direction in which the Ottoman style was to develop (fig. 2). The dome was built in its geometrical and constructive simplicity, with no adorn-

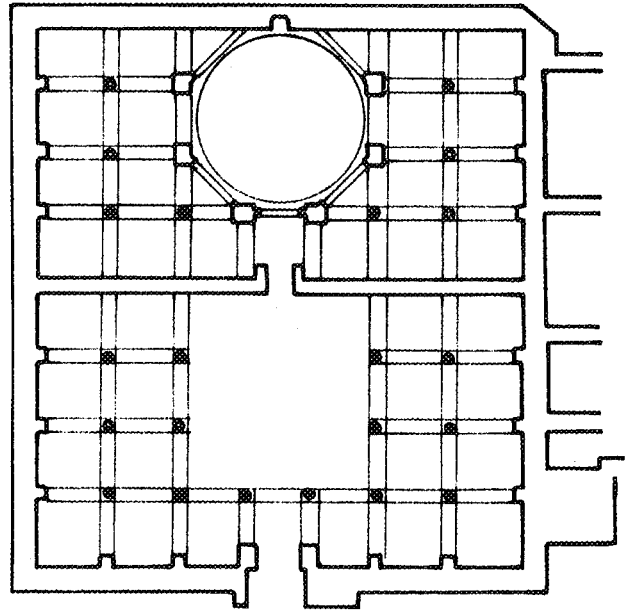


Fig. 1 b. Mudurnu, Yıldırım mosque. Plan.

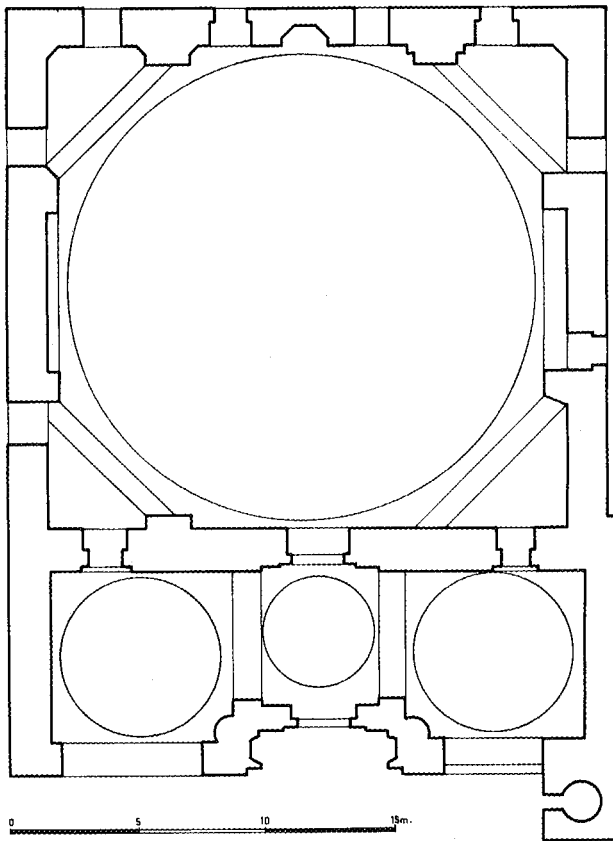


Fig. 1 a. Manisa. Ulucami (the Great Mosque). Plan.

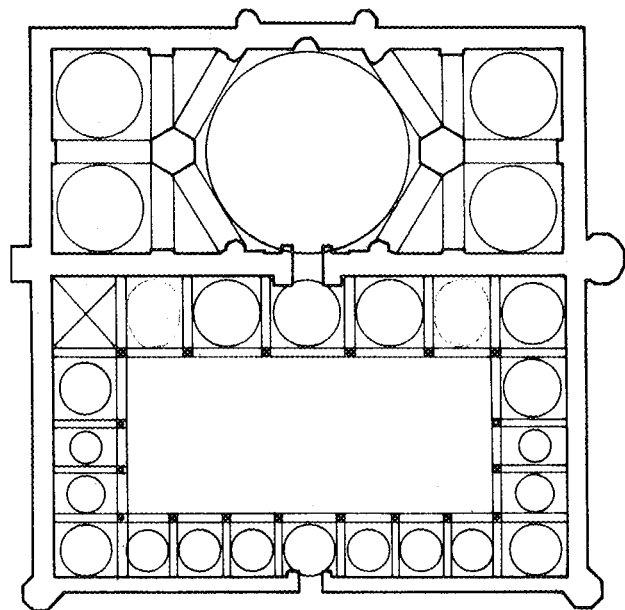


Fig. 1 c. Edirne. Üç Şerefeli mosque. Plan.

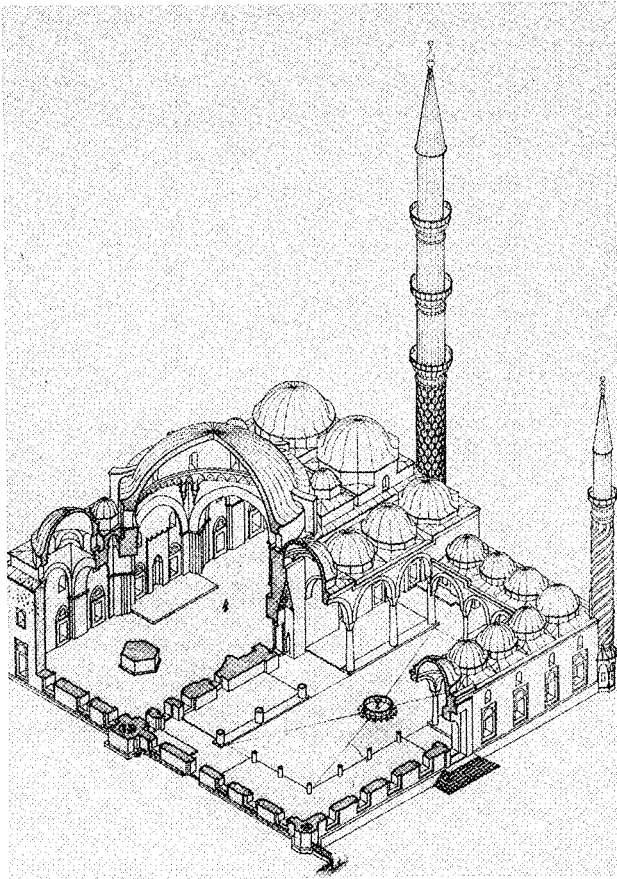


Fig. 2. Edirne. Üç Şerefeli mosque. Axonometric view. (Drawing: Kuzucular.)

ment on the outside. The rationale for this plainness is not easy to determine, since from its earliest beginnings the symbolic meaning attached to the dome encouraged its formal enhancement. The drum elevating the dome over the supporting wall and an exterior shell enhancing its outer profile in various shapes developed alongside the domical structures.

In Sinan's work structural simplicity is gained through a conceptual change. The domed baldachin replaces the dome as the core of the design. The dimensions of the dome and the structural system—comprising a square, hexagonal, or octagonal baldachin with its buttressing elements—dictated the form both of the interior space and of the exterior configuration. This is the essence of the Ottoman style. The central baldachin and its support system could be symmetrical or partly symmetrical to emphasize a particular direc-

tion; the center could be enlarged by half-domes, quarter-domes, or squinches; the main supporting piers could be integrated with the enclosure walls or could remain independent; the transitional elements between the dome and walls could be squinches, dome portions, pendentives; the buttressing arches and uprights could be distributed inside or outside the enclosure walls and enriched by lesser galleries surrounding the main space from inside as well as from outside. All these formal experiments with ancient architectural elements provided an extremely rich potential for spatial variation. To these combinations was added extensive fenestration, which turned the unadorned walls of an earlier period into luminous screen walls. The outer configuration changed with each new building, and achieved a different artistic expression for each. This process created a formal vocabulary that made the Ottoman style immediately recognizable.

Because Sinan's great mosques are regarded as his major works—even though some of his lesser-known buildings are as important as the mosques are to an appreciation of his art—any discussion of his style must necessarily center on them. The claim that Sinan's conceptual approach has an atectonic character comes from the observation that Islamic culture did not produce a single ideal model for any building type, including the mosque. Any ideal type would necessarily, in accordance with Islamic sunna, have come from examples dating from the Prophet's own lifetime, but none existed. As a result, Muslim architects had no liturgically defined mosque plan to which they could refer. Secondly, the mosques built by Sinan show no distinct development toward an ideal plan. The basic enclosure always remained a rectangle, but he experimented with various support systems throughout his life.¹⁴ The starting point was thus, not the plan, but the form of the domed baldachin.

To determine the process that led Sinan to select the models or types he did, we should first look at the cultural ambience in which he worked. Standard, if not ideal, types existed for madrasas, khans, hammams, bedestens, and most other utilitarian buildings, but two building types, the mosque and the mausoleum, were, so to speak, open-ended and allowed for variation, even radical change. The general scheme for a mosque was a covered hall preceded by an open courtyard. In all Muslim countries the haram of a mosque consisted of a rectangular hall of varying proportions, where the worshipers could line up parallel to the qibla wall.

There were no set standards or requirements of space. The only limitation was a rectangular shape, the functional optimization for a covered space. That Sinan avoided the use of any curvilinear elements in his plans, even under the most complex domed roofing, can be attributed to this functional and very old tradition. Though the covering consists only of domes—that is, of curves—the enclosure that comprise the elements of support are all straight lines. Even in the smallest niche he showed a tendency to prefer polygons to circles. This rejection of curves in the plan always produces a tension between the totally curved upper part and the totally straight lower part. The quality of the design is determined by the solution found to reconcile this duality.

Structural decisions seem fairly straightforward. Whether one starts from the center or from the enclosure wall, the first decision is a horizontal and quantitative one about the size of the dome. This dimension was considered together with the geometry of the supporting square, hexagonal, or octagonal baldachin. A decision about the vertical dimension must be made when the support system is selected, because it will be decisive both for determining the dimensions of the support elements and for the formation of space. Sinan's building history clearly shows that he was equally interested in square, hexagonal, or octagonal baldachins. He used all kinds in his mosques built in the same period. The articulation of the interior space starts from the center and unfolds centrifugally. The form and size of the central baldachin determined the depth of the buttressing ambulatory space and the size of its elements. The organization of the enclosure wall and of the pilaster system corresponding to the main supports was the outcome of a structural balancing. All these structural and dimensional decisions were made by the shaping of the enclosure walls.

These observations pertain to process, not style. We know from documentary evidence that Sinan set out to equal the size of the dome of Hagia Sophia, and in fact he achieved that goal in the dome of the Selimiye.¹⁵ To define Sinan's style in structural terms may seem methodologically obsolete, but it is important to remember that Sinan was an engineer as well as an architect, hailed by contemporaries as "the eye of the engineers and Euclid of his time,"¹⁶ or as Viollet-le-Duc would say, a great *artiste-constructeur*. He was an artisan, a carpenter like Antonio da Sangallo the Younger, a man from the profession. He became chief architect after showing his engineering skill in building

temporary bridges for the army. Among his most celebrated constructions are the waterworks and aqueducts of Istanbul. One gathers from some obscure references in his autobiography that he was particularly interested in the constructing of foundations and the proportioning of the great piers of his mosques, and that he was fascinated by the building of large domes. He was called Mimar Aga because of the post he held, but he was just as celebrated as a great engineer because large domed structures were regarded as engineering feats by his contemporaries. That he was more interested in the excellence of the structural scheme than in established forms is amply demonstrated by his adoption of a totally centralized scheme for his first great mosque, the Şehzade. Only after experimenting with this ideal scheme did he attempt to meet the challenge of Hagia Sophia, perhaps on orders from the sultan himself. His continuous experiments with various domed baldachins is sufficient to convince us of his preoccupation with refining structural and spatial schemes. Yet this insistence on structural character alone would not have convinced us of Sinan's greatness, had he not developed the corresponding spatial concepts, architectural vocabulary, and formal artistic expression as well.

In all Sinan's buildings the center under the main dome is strongly accentuated. The system of composition that I call here "centrifugal" generates in the eye of the beholder a counter, or centripetal, movement toward the center of the main space. The articulation of the spatial scheme in all his otherwise varied mosques shows this same emphasis. One enters immediately under the main dome in the first Mihrimah mosque at Üsküdar, the Mihrimah mosque at Edirnekapi, the Sokollu mosque at Kumkapi (fig. 3), and in all the hexagonal and octagonal schemes except the Şehzade and the Süleymaniye. Sinan ended up by preferring hexagonal and octagonal baldachins, probably because of his desire to emphasize the center. Since the ground plan was always a rectangle intended for a single function, there were few ancillary spaces, perhaps because they would have detracted from the basic unity and centralization he sought.

When the main supporting piers are free standing, an ambulatory space can be expected, but the idea of an ambulatory space expressed in plan and elevation apparently did not find a sympathetic response either from Sinan himself or from other Turkish architects. Their ground floors constituted a functional and visual whole. That is why screening the center from the aisles, as was done in Hagia Sophia for example, never

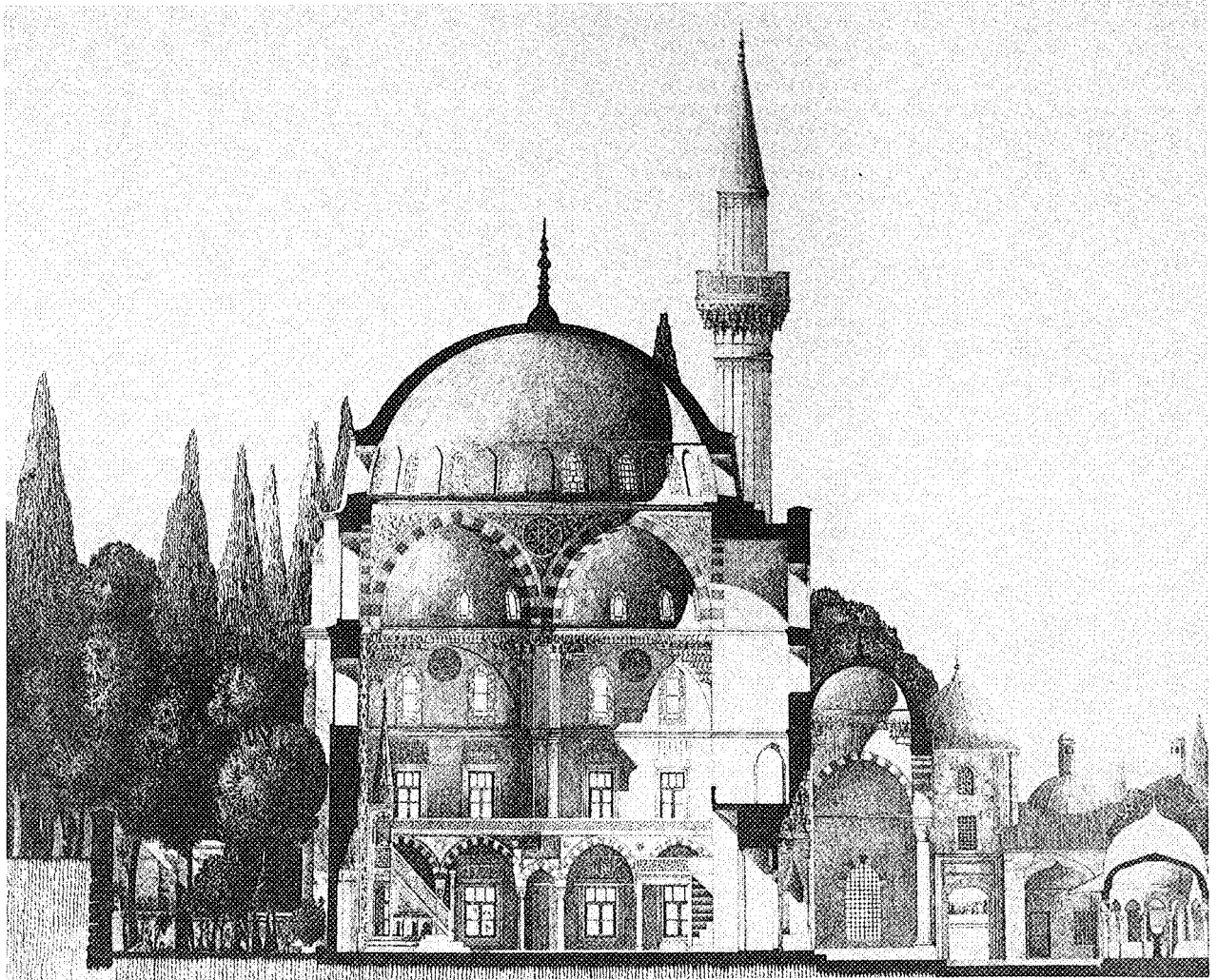


Fig. 3. Istanbul. Sokollu mosque. Section. (Drawing: Sedat Çetintaş.)

appears in Sinan's buildings; it is not even found in the Süleymaniye. His idea of central space was not the theoretical one represented by geometrically centralized plans such as one finds in Roman ambulatory buildings or Christian cruciform structures. Even in mausolea where an ambulatory would have been appropriate, he did not provide one. The ground floors were unarticulated and homogeneous. Accordingly no direction was emphasized unless it was the vertical. Because of the functional orientation toward Mecca, one researcher saw a directional emphasis in the mosque plan,¹⁷ but that is incorrect. Functionally, because of the rows of worshipers, mosques tend to be

used perpendicularly to the direction of the qibla. But the direction of the Ka'ba is a symbolic orientation and has nothing to do with the directioning of space.

Sinan's emphasis on the vertical can be seen as a compromise between the symbolic—qibla—direction and the functional one. The emphasis on the center in Sinan's mosques precludes the spatial horizontal rhythms found in Gothic and early Renaissance churches, or the interpenetration of spaces found in Baroque ones. His purpose was to form space as a unified whole. The treatment of the enclosure walls is a natural outcome of this space concept. The wall could either be part of the support system or a simple screen,

but it had to be a continuous mass, perforated as necessary, and never a plastic element to play with, as in the buildings of Michelangelo, the great brick monuments of Central Asia, or the undulating walls of Baroque. Sinan's walls are not compartmentalized by attached pilasters or articulated by orders or large niches. Aside from the flat qibla wall, the treatment of the enclosures makes it evident that the two-dimensional aspects of the design play only a secondary role in Sinan's architectural concept. Consequently frontal perception and elaboration of symmetrical features are not necessarily emphasized. On the surrounding enclosure the organization of structural elements of various dimensions and on different horizontal and vertical planes, the galleries, arched passages, arches, all with different light filtering through stucco screens or windows, concentrated luminosity and shaded recesses, complement this total architectural spatiality and reveal the intent of the architect whose vision is not distracted by pictorial and sculptural details.

The functional sequence toward the qibla in the design of a mosque, starting from the gate of the courtyard, passing through the gate of the sanctuary, and ending at the mihrab, necessarily implies a main axis in the plan and symmetrical façades perpendicular to this axis and assumes a frontality in treatment. Yet in the actual buildings, we observe that the side façades of the mosques are in fact more elaborate than the main façades. Because of the integration of the courtyard and the prayer hall, the main façade consists of an arcade, in the center of which is another larger archway. The façades on the main axis are therefore accentuated only by gates, as in the Seljuq period, but the side façades of the great mosques—those of the Selimiye, for example—have great visual impact.

An important contribution Sinan made to mosque design was to introduce arcades on the side façades. The Şehzade mosque is the earliest example (fig. 4). The massive wall of earlier times was replaced by a differentiation of elements, by the chiaroscuro obtained from the use of arcades. It radically altered the simple duality of the wall mass and domed superstructure on the outside. Sinan's façades are articulated by structural necessity and textured by masterful fenestration, but there is nothing of the abstract scheme of superficially applied elements so characteristic of Western architecture throughout its history. He did not have a taste for the modular use of column orders. Having rejected this kind of convenient regularizing element, he had to develop a dynamic arrangement for the

façades and achieve plasticity, not by the shape of the individual elements, but by the totality of the building volume.

Compared to any Christian church or a mosque of eastern Islam, an Ottoman mosque is filled with light. Martin Charles once wrote that its brightness inhibited the spirit of religiosity that was required of a place of worship.¹⁸ A mosque is not, however, intended for mystical experiences. Sinan's vision included light because it was a *sine qua non* for viewing the operation of his domed interiors. He manipulated the play of light extremely well. Windows distributed on different levels have different transparencies. On the drum level a continuous band of windows (inspired by Justinian's church) with their stucco screens relieved the massiveness of the dome base and helped to establish the priority of the central dome both as a cap over the space and as a source of light. In the tympanon of the great structural arches, windows of varying sizes and shapes bring in a diffuse and differentiated light. Fenestration on a mihrab wall is a major design consideration, because the worshipers face it, and the wall has almost no articulation aside from the mihrab niche. This is the wall where the vitrail is used. The Mihrimah mosque provides an example of an extremely efficient use of multilayered fenestration in a qibla wall (fig. 5). The ground-level windows open onto individual cells for study and prayer. They are just a step above floor level and act as individual sources of light providing visual communication between the mosque's interior and exterior. Traditional church architecture never allows visual communication with the outside so directly; it would be regarded as a hindrance to devotional concentration.¹⁹

In Sinan's hands, the window became a most compliant element of design. In various shapes and dimensions and in rhythmical series independent of each other on a single wall surface (as, for example, in the Selimiye's side façades), windows were used to achieve variety and rhythmic order through which Sinan produced an extraordinary power of expression. The simple square openings on the façades of the courtyards in the Selimiye madrasas show his mastery of the use of full and void, using an approach akin to Le Corbusier's framing of the landscape in the upper courtyard of his Villa Savoye. On the façades of the Azapkapı mosque in Istanbul, the stucco or marble screened windows produce an exquisite texture on the wall surface without destroying their continuity (fig. 6). Sinan increased the density of light in mosque interiors to reveal all the

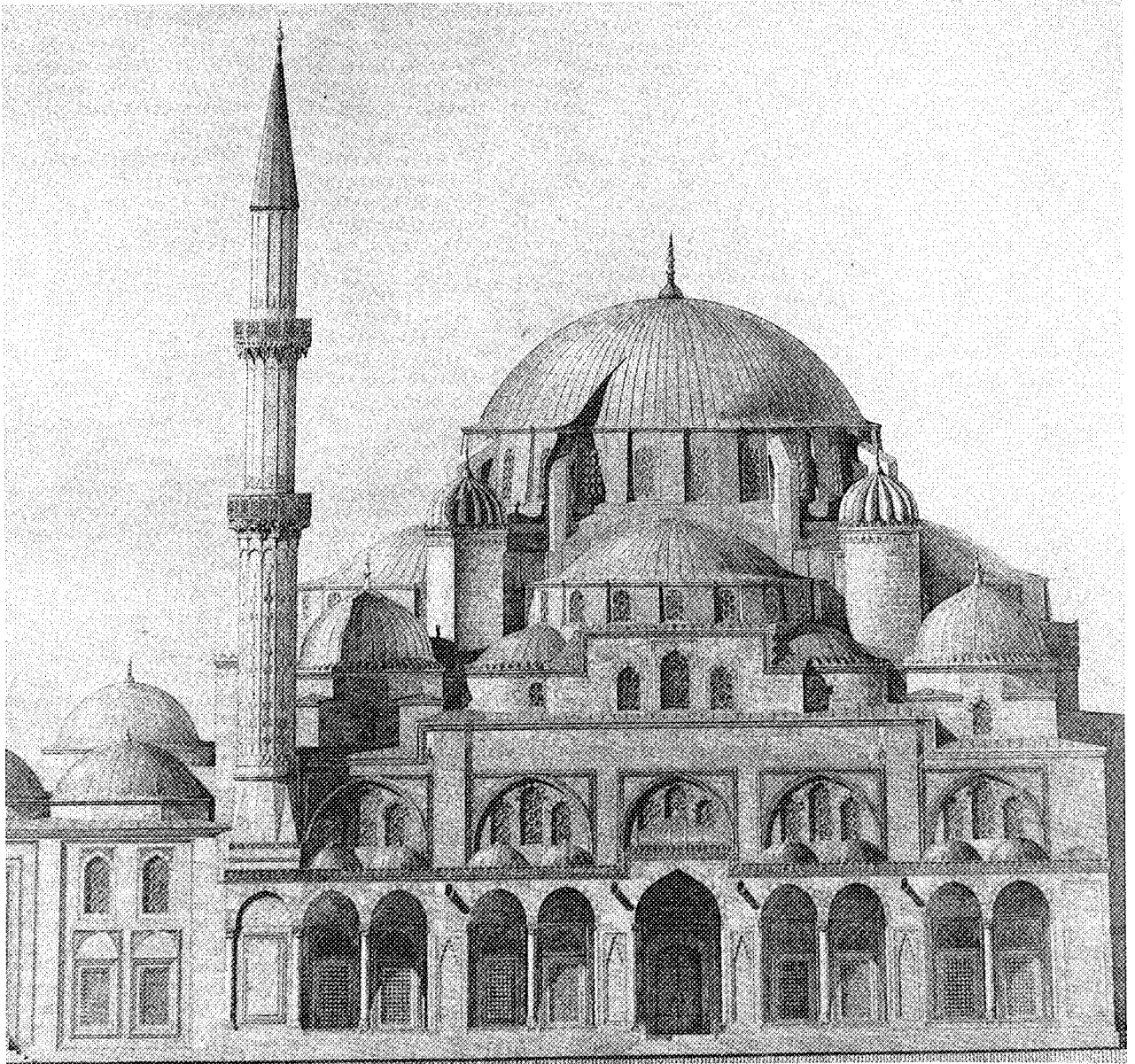


Fig. 4. Istanbul. Şehzade mosque. Side façade. Drawing: Sedat Çetintaş.)

boundaries, and make the viewer comprehend all the articulations of the interior space. His interiors represent optimal solutions for pure visibility, a treatment one looks for in vain in Hagia Sophia.

The modeling of Sinan's mosques does not derive from the play of solid forms within a geometrical abstraction, as one finds in Leonardo's drawings, for example, but from the structural scheme dominated by

a central dome, generally resulting in pyramidal configurations. Without drums²⁰ and without an outer shell formally to enhance its silhouette, the only way to form a composition was to integrate the dome with the lower register of the building, and this was done by using secondary elements, especially towers (fig. 7; see also fig. 14). In all great domed buildings the final exterior effect is concentrated on, and achieved by, the

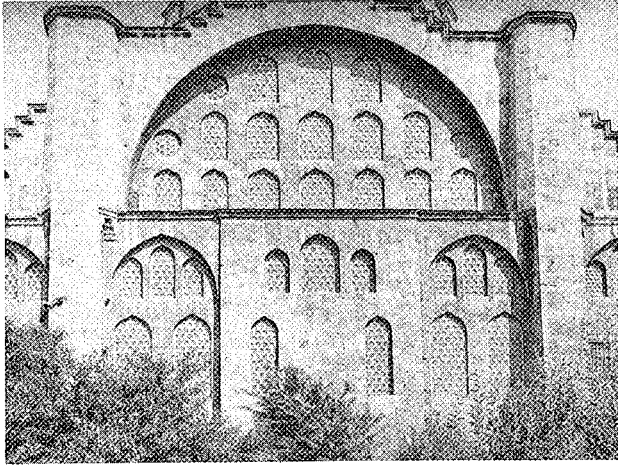


Fig. 5. Istanbul. Mihrimah mosque. Qibla wall. (Photo: Emiroğlu.)

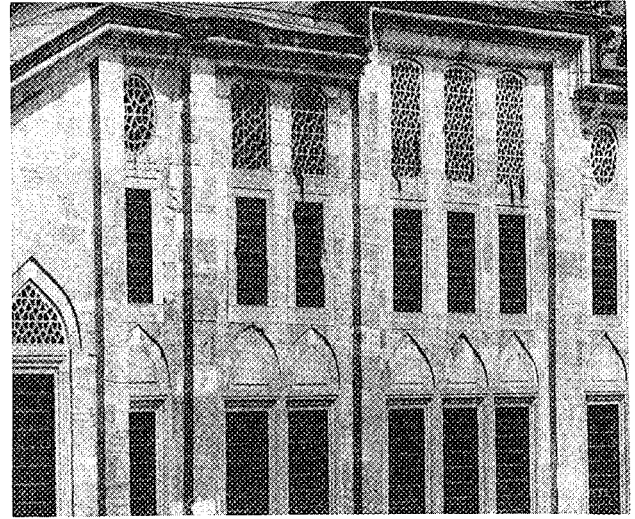


Fig. 6. Istanbul. Azapkapı mosque. Window. (Photo: Emiroğlu.)

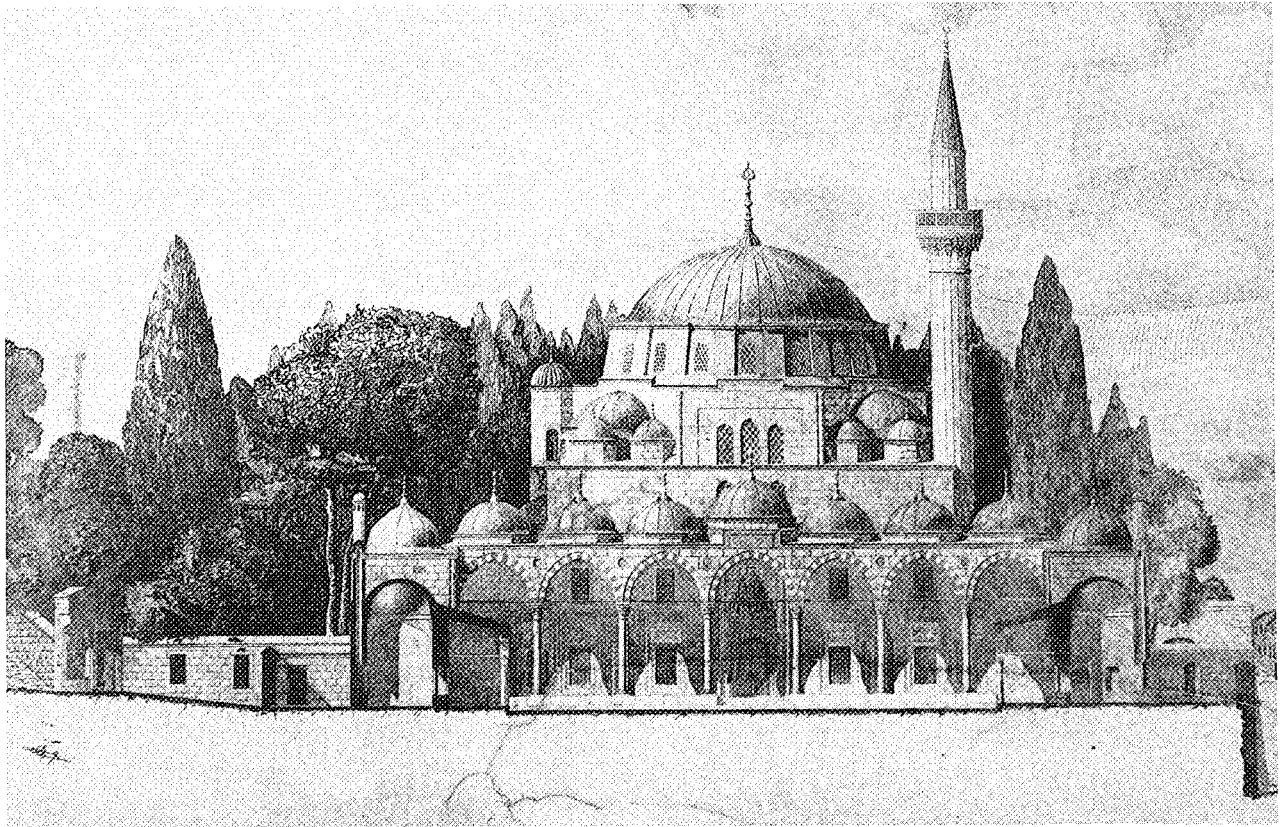


Fig. 7. Istanbul. Sokollu mosque. Entrance façade. (Drawing: Sedat Çetintaş.)

power or graciousness of the outer silhouette of domes crowning the whole.

Why the Turkish architects did not change the simple geometrical form of their domes is difficult to explain. Earlier models using a variety of shapes were known. Sinan obviously knew them because he himself used a double-shell dome in Sultan Süleyman's tomb, but even he did not use a regular drum, a common element in Byzantine architecture. In the great mosques, nevertheless, a powerful expression was achieved by an animated movement of curves and the orchestration of the cluster of domes and towers.

Sinan ties his buildings together with horizontal cornices which underline its tectonic layers and the continuity of contours in each register. In smaller buildings, the same technique takes the form of delicate moldings framing the windows, the arches, and sometimes the edges of wall surfaces, an architectural trick close in spirit to the recessing corners in Mies van der Rohe's structures. Aside from the minarets, no single architectural element is greatly emphasized. There are rare cases—one such is the imposing gateway of the Süleymaniye—that can be regarded as an aberration from that practice, but even the Selimiye does not repeat extravagant dimensions. The coherence that results from the unifying concept is the essence of Sinan's style.

Although Sinan's mosques are extremely animated and open, the volumetric quality of the design is still the dominant trait in his compositions. From a distance their expression lies in their massive monumentality, but they no longer use the massive walls of earlier periods. They are transparent in the sense that their spatial characteristics are similar whether read from without or from within.

Sinan's architectural form can be summarized as follows. His vocabulary is traditional, but his syntax and grammar are not. For example, although his use of decoration is essentially derived from his predecessors, he thoroughly subordinates it to the architecture. Within the traditional vocabulary of decoration, the most Islamic of all characteristics, Sinan is a pure architectural stylist. Geometrical purity of structural form reached its limits in his work; a single domed baldachin becomes the generator of the entire interior and exterior configuration.

Sinan was not prone to fantasy; he was a sober architect who avoided opulence, illusion-giving elements, architectural gimmicks, and the exuberance produced by the addition of decorative elements. Nor

did he seek an other-worldly atmosphere. When reading the great Ottoman mosques, their earth-bound character should be borne in mind so that the mistake of using church architecture for comparative purposes is avoided.

In Sinan's interiors there is a formal tension between the curves above—symbolically connected perhaps to the image of heaven—and the straight horizontal expression at the level of prayer expressing the human dimension. The verticality at the center might symbolize the aspirations of the human soul, if we are looking for symbolic meaning, but the duality between above and below combined with the vast dimensions of the interior space creates its emotional impact.

Sinan's style does not depend on a single act, or on the dome alone; it is based on a hierarchical system in which the domical covering, the support system, and the fenestration are the important units of composition. The simple dome gains its artistic quality through its formal combinations with these other elements. In rendering Sinan's language into words, one finds oneself reiterating the word "dome" to the point of tediousness, but the frequency of its occurrence reflects the dominance of that element in his buildings. Nonetheless, Sinan's buildings show an extraordinary variety. Three of the largest and best known of them, all recognized as milestones in his artistic career, will serve to illustrate the unfolding of his architectural vision.

Sinan's first great mosque, the Şehzade (1544-48) in Istanbul, had been preceded by a continuous, unbroken line of development (fig. 8). It represents the final stage in a series of spatial experiments that began with the Üç Şerefeli at Edirne. In the latter the central space under the large dome is the direct descendant of the dome-covered maqsuras of the great Central Asian musallas which, in the last analysis, in turn descend from the domed maqsuras of the earliest mosques.²¹

The gradual enlargement of the domed bay over the mihrab in hypostyle mosques is a characteristic development of the period of Turkish ascendancy in the Islamic world after the eleventh century. As we have already seen, before the Üç Şerefeli the building concept was still based on masonry and was tectonic. Later, two buildings—the first Fatih mosque and the mosque of Beyazıt II—opened the way to free-standing interior supports. In the Bayazıt mosque the central dome flanked by the two semi-domes adapted from the Hagia Sophia nave was used for the first time. When

one compares the crude geometry of the Beyazıt II mosque with that of Şehzade, the refined taste of Sinan is immediately apparent. The Beyazıt mosque uses a pure, unadulterated modular geometry. As a spatial system it paved the way for a whole series of great imperial mosques. But it was still an archaizing building. Şehzade has a perfectly centralized scheme (fig. 9). The base square of the sanctuary is divided, not by four modules as one might expect, but by five, to give the interior central dome a greater impact. The four main piers have polygonal shapes which reduce their compactness and help visually to unify the interior. The exterior is no longer so massive: on both sides of the prayer hall arcades alleviate the weight of the outside walls (see fig. 5). The hospice buildings that were originally part of the Beyazıt design were removed, and the minarets were integrated into the central mass of the building. In a single stroke, Sinan had eliminated the medieval character of Ottoman architecture and turned it into a conceptually coherent whole.

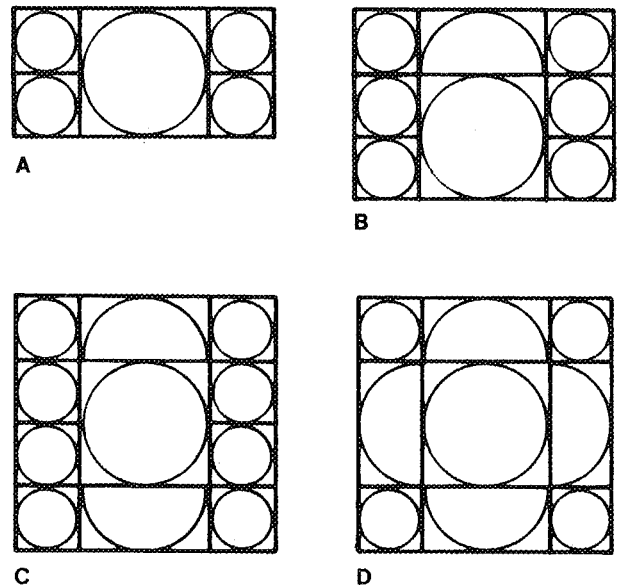


Fig. 8. Conceptual development: (a) Üç Şerefeli, Edirne. (b) Fatih, Istanbul. (c) Beyazıt, Istanbul. (4) Şehzade, Istanbul.

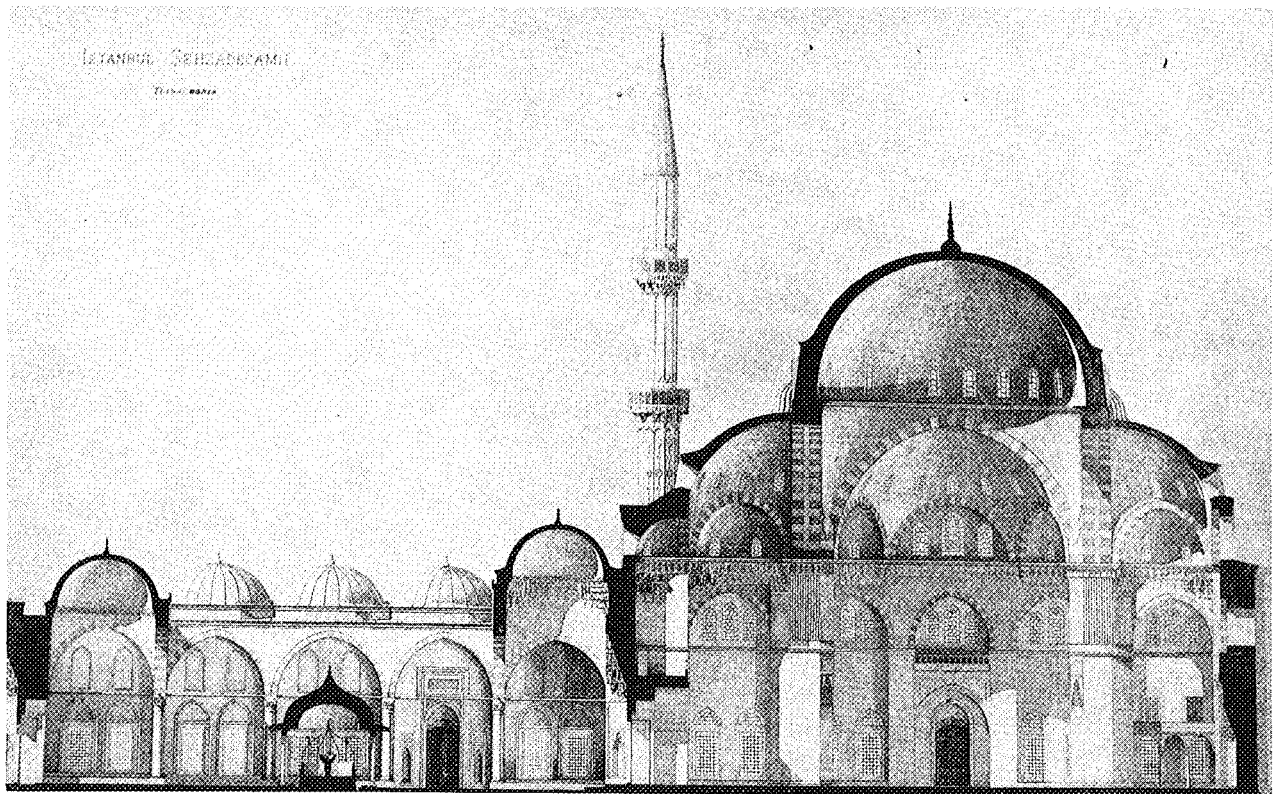


Fig. 9. Istanbul. Şehzade mosque. Longitudinal section. (Drawing: Sedat Çetintaş.)

Şehzade brings up the question of a centralized scheme in domical buildings. A central dome with four corner domes or towers on the diagonals was used symbolically as early as the tenth century in the Samanid tomb at Bukhara. The same form was given Christian symbolism and became a leitmotif of cross-in-square churches in Byzantine and byzantinesque styles throughout Eastern Christendom. As a spatial scheme, the Fatih Paşa mosque at Diyarbakir (1525) precedes Şehzade by a quarter of a century. In Renaissance Europe some early small churches, such as San Giovanni Crisostomo in Venice, and later some larger buildings, such as St. Peter's in Rome and Santa Maria del Carignano in Genoa, use the same symbolism. The history of Renaissance religious architecture can be told partly in terms of the developing concept of centralized building. Şehzade has nothing new in terms of spatial concepts. But because of this universal theoretical and symbolic background, it provides an unambiguous statement about the differences between the Ottoman and other geographically or historically contiguous styles.

When used as a spatial and structural scheme the five-domed plan has two basic solutions: the central dome can be backed up by half-domes or it can be used with barrel vaults. In the latter case the central baldachin is isolated from the aisles; the movement that begins in the central dome continues downward through the piers to the ground. The barrel-vaulted aisles compartmentalize the roof. Instead of continuity between the central dome and the enclosing walls, the central dome and the aisles become separate volumetric entities. This is the main spatial difference between Byzantine cross-in-square buildings and the Şehzade mosque. Two buildings with the same system of central dome combined with four half-domes, the palace chapel Zwartnotz (seventh century) in the ancient Armenian capital of Vagarshapat and Santa Maria della Consolazione at Todi, illustrate the point very well (fig. 10). The theoretical purity of the Italian Renaissance building and the volumetric geometry of the Armenian church contrast with Şehzade's organic and unified approach to the total configuration. Although varying in complexity, all three buildings use plain geometrical shapes. But while at Todi an ideal theory is made concrete, and Zwartnotz reduces the complexity of the interior space to a wall-and-roof combination, Şehzade displays the spatial concept in its functional and structural totality. Sinan's style is well illustrated in this comparative set.

The Süleymaniye (1550-57) represents another attempt by Sinan to revive the Hagia Sophia scheme; he reformulates it, using sixteenth-century technology and past experience. As Mainstone says, Ottoman mosques are a structural criticism of Hagia Sophia.²² In only three mosques was the central nave of Hagia Sophia taken as a model: the Beyazit, built before Sinan's time, the Süleymaniye, and the Kılıç Ali Paşa. Only in the last is the Hagia Sophia concept adopted rather straightforwardly; the Beyazit and the Süleymaniye owe to Hagia Sophia only the roof scheme of the central nave.

If the Süleymaniye is a "structural criticism" of Hagia Sophia, a comparison between them ought to clarify Sinan's approach to the concept of total space.²⁴ Hagia Sophia is acclaimed for the boldness of its construction, but the Süleymaniye represents the rationalization of its scheme (fig. 11 a-b). Justinian's architects were not much concerned with asymmetrical buttressing, or with its notoriously unstable flat dome. But in the Süleymaniye a well-planned and properly dimensioned support system counterbalanced the lateral thrusts of the dome, and the elements of this support system were judiciously integrated into the composition of the enclosure walls from both inside and outside.

The arcaded double-story screen in Hagia Sophia that separates the nave from the aisles does not exist in the Süleymaniye (fig. 12). In Hagia Sophia, space vanishes into the dark boundary of the enclosure walls; in the Süleymaniye the entire ground floor is perceived in its entirety. The completely perceivable form and the volumetric quality of the space replace the so-called immaterialization of Hagia Sophia. In Süleymaniye the piers are not dissipated under the two-dimensional revetment of marble, nor is the volumetry of the domes hidden by the glamour of golden mosaics. All the architectural elements are underlined to clarify the structure that holds the dome above. The neglected and unhewn exterior of Hagia Sophia is replaced by the gracious silhouette of a domical composition. In fact, except for the dome-plus-two-half-domes scheme, the Süleymaniye is stylistically the opposite of Hagia Sophia. The silhouette of the Süleymaniye which dominates the Golden Horn and the buildings of the great compound with their thousand domes (in Evliya's hyperbolic reference) prove once and for all the originality and power of the Ottoman imperial style (fig. 13).

The Selimiye (1569-74) is conceptually Sinan's crowning achievement (fig. 14). It both summarizes and

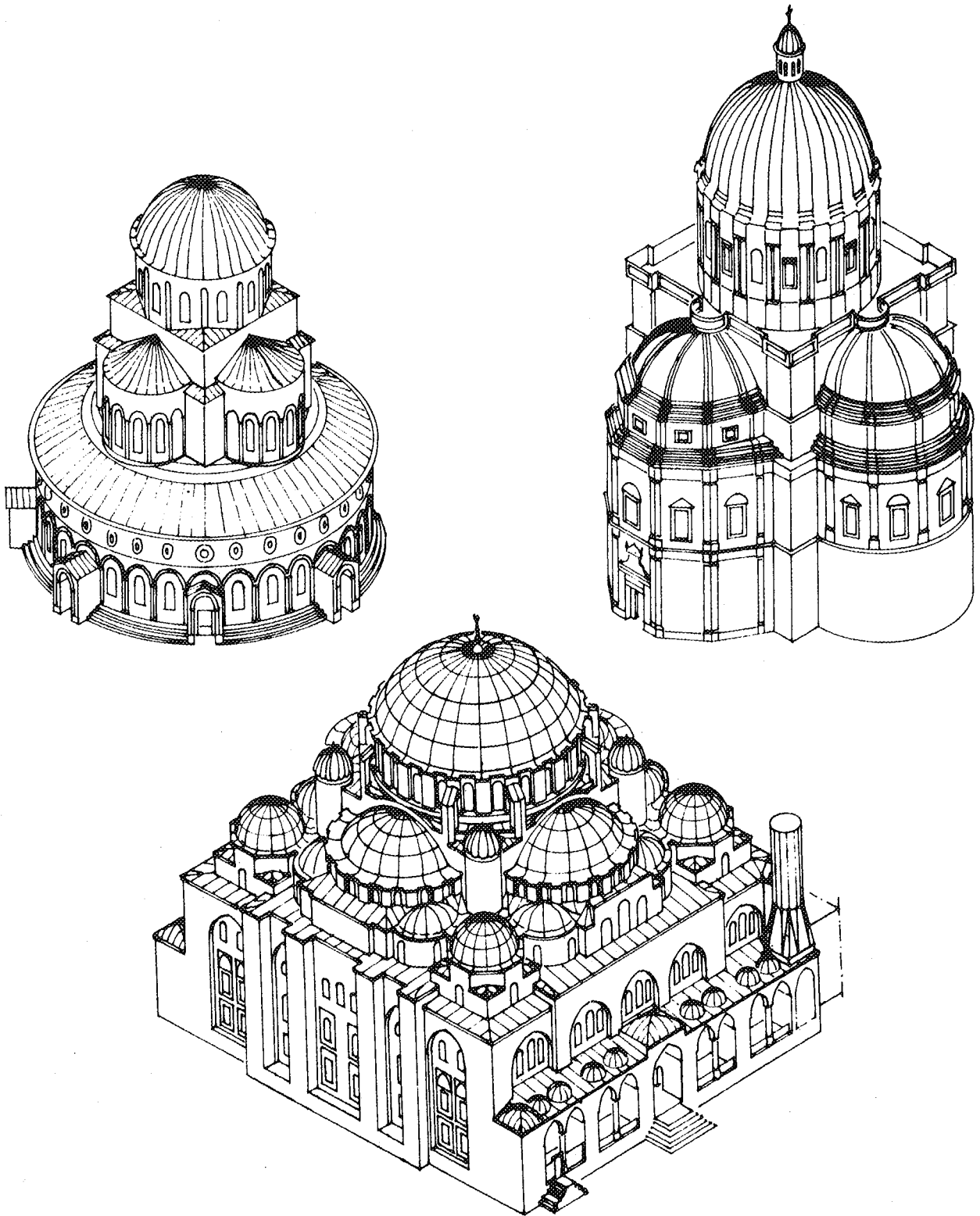


Fig. 10. Comparison: Axonometric views of Zwartnotz, Santa Maria della Consolazione, and Şehzade.

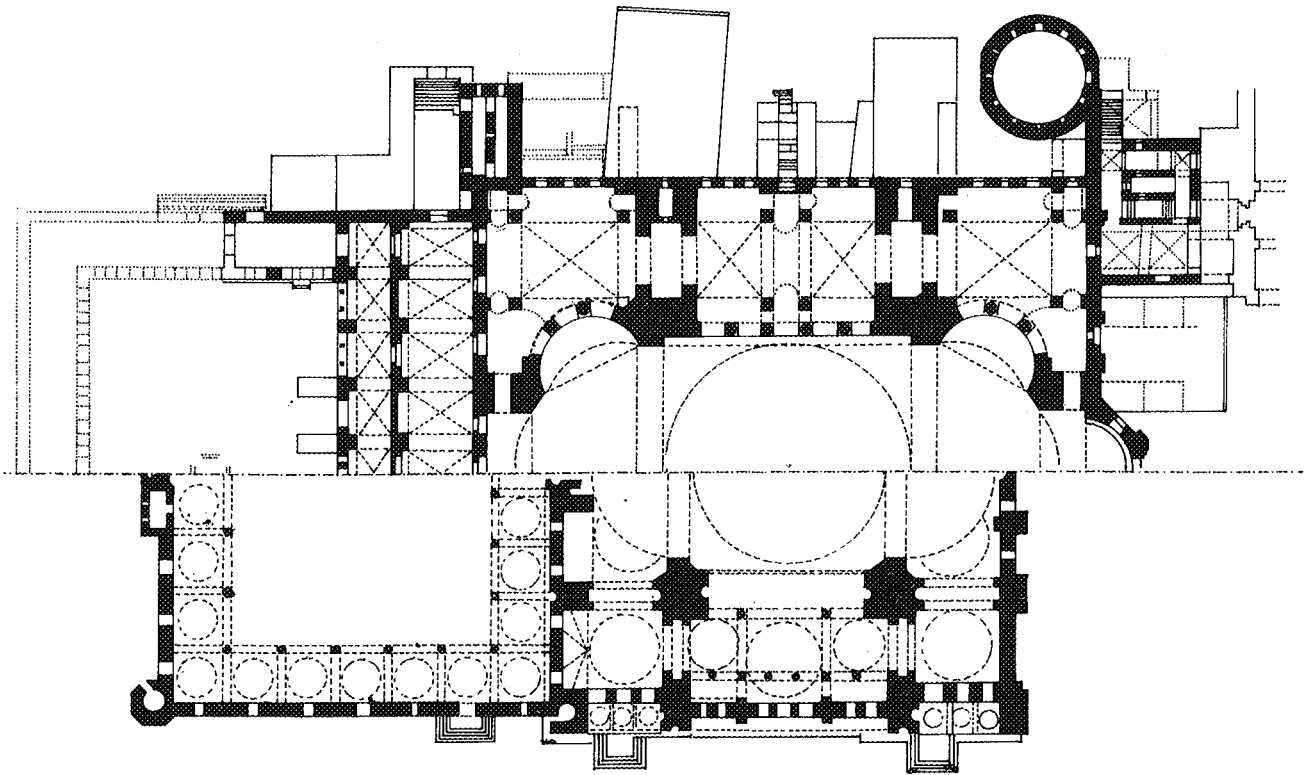


Fig. 11 a. Istanbul. Hagia Sophia and Süleymaniye: plans.

culminates his formal experiments. I am also convinced that it represents the utmost rationality ever reached by sixteenth-century Ottoman culture. It expresses better than any description can convey the most original concept of domed space created in the history of architecture.

The dome is the symbol of perfect and infinite symmetry. The Pantheon represents the most logical, but also the most primitive, scheme of a domed building, expressing beautifully the power of a single dome dominating an entire interior. On a smaller scale, Sasanian and Islamic traditions had also experimented with space dominated by a single dome on squinches. But from the maqsuras of the great Seljuq mosques to the monumental tombs of the sultans—the dome-covered tombs of the Mamluks, such as that of Sultan Hassan in Cairo, for example—the Selimiye reasserts the primitive strength of a single dome in a developed system of supports enclosed in a screen-wall system.

It seems that Sinan was never entirely satisfied with the Şehzade and the Süleymaniye, as numerous

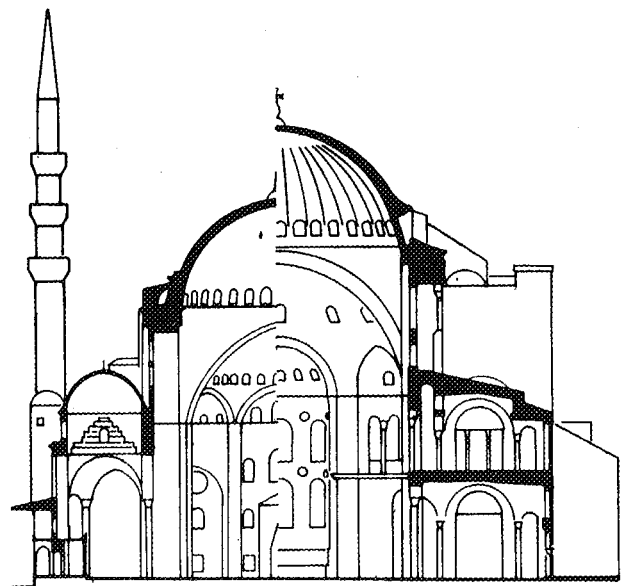


Fig. 11 b. Istanbul. Hagia Sophia and Süleymaniye: sections.

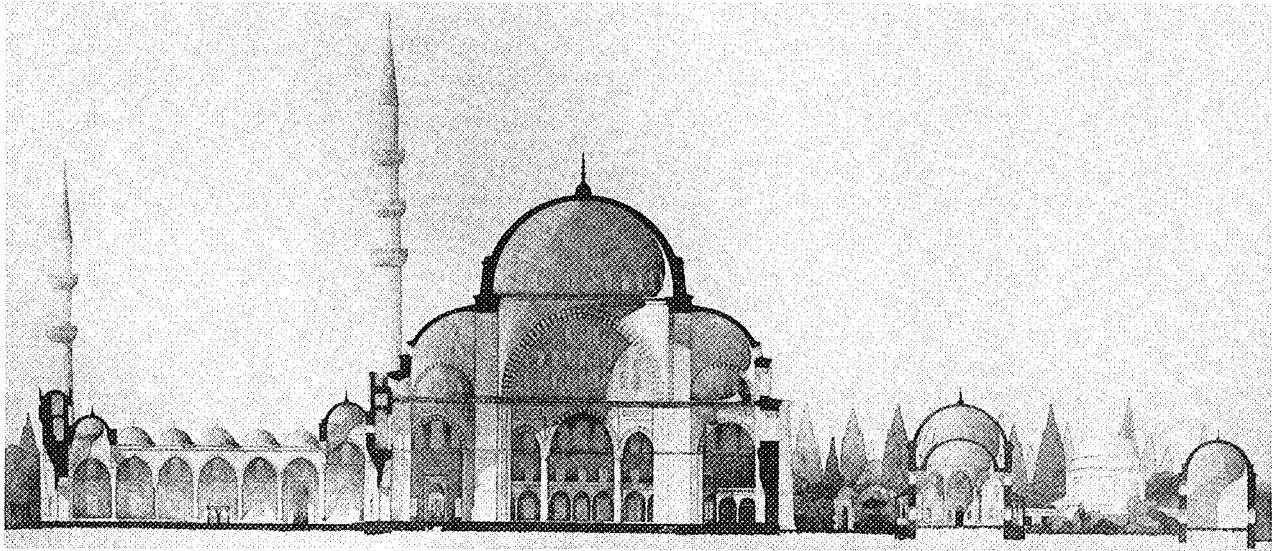


Fig. 12. Istanbul. Süleymaniye. Longitudinal section with the Sultan's mausoleum. (Drawing: Sedat Çetintaş.)

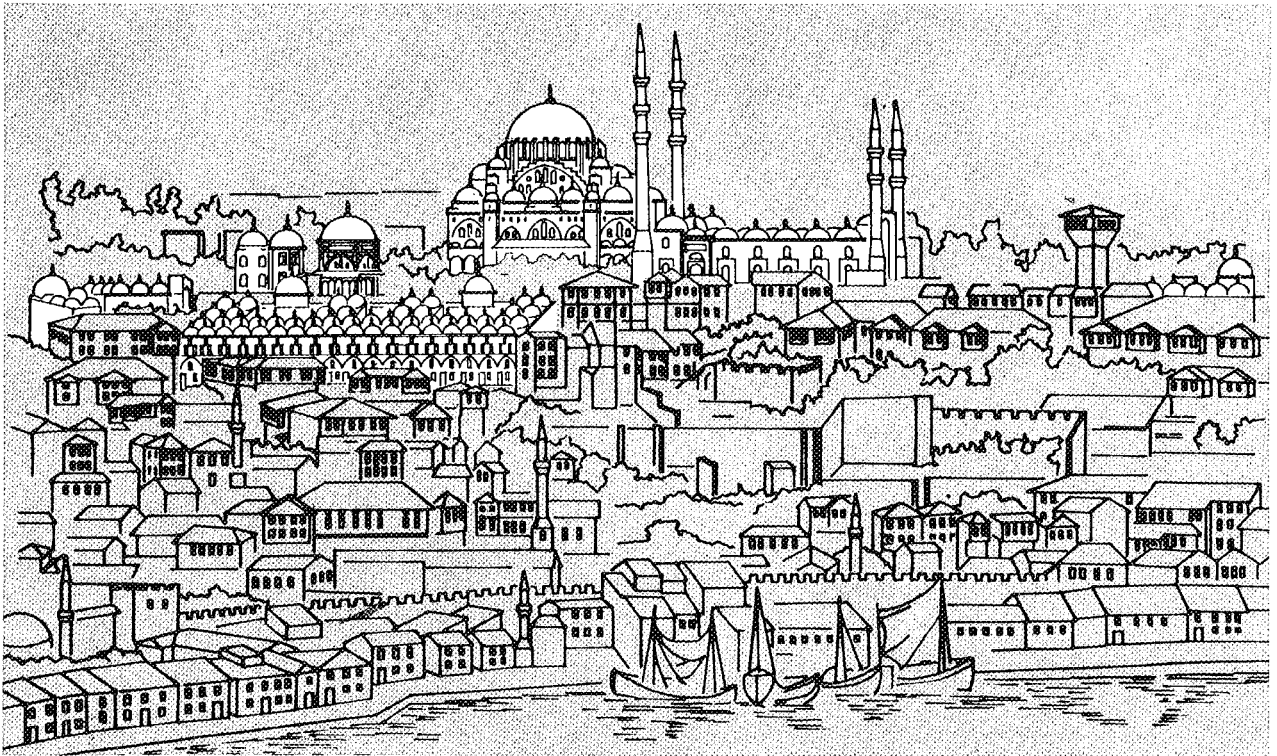


Fig. 13. Istanbul. Süleymaniye complex. Silhouette. (Drawing: Nadide Seçkin.)

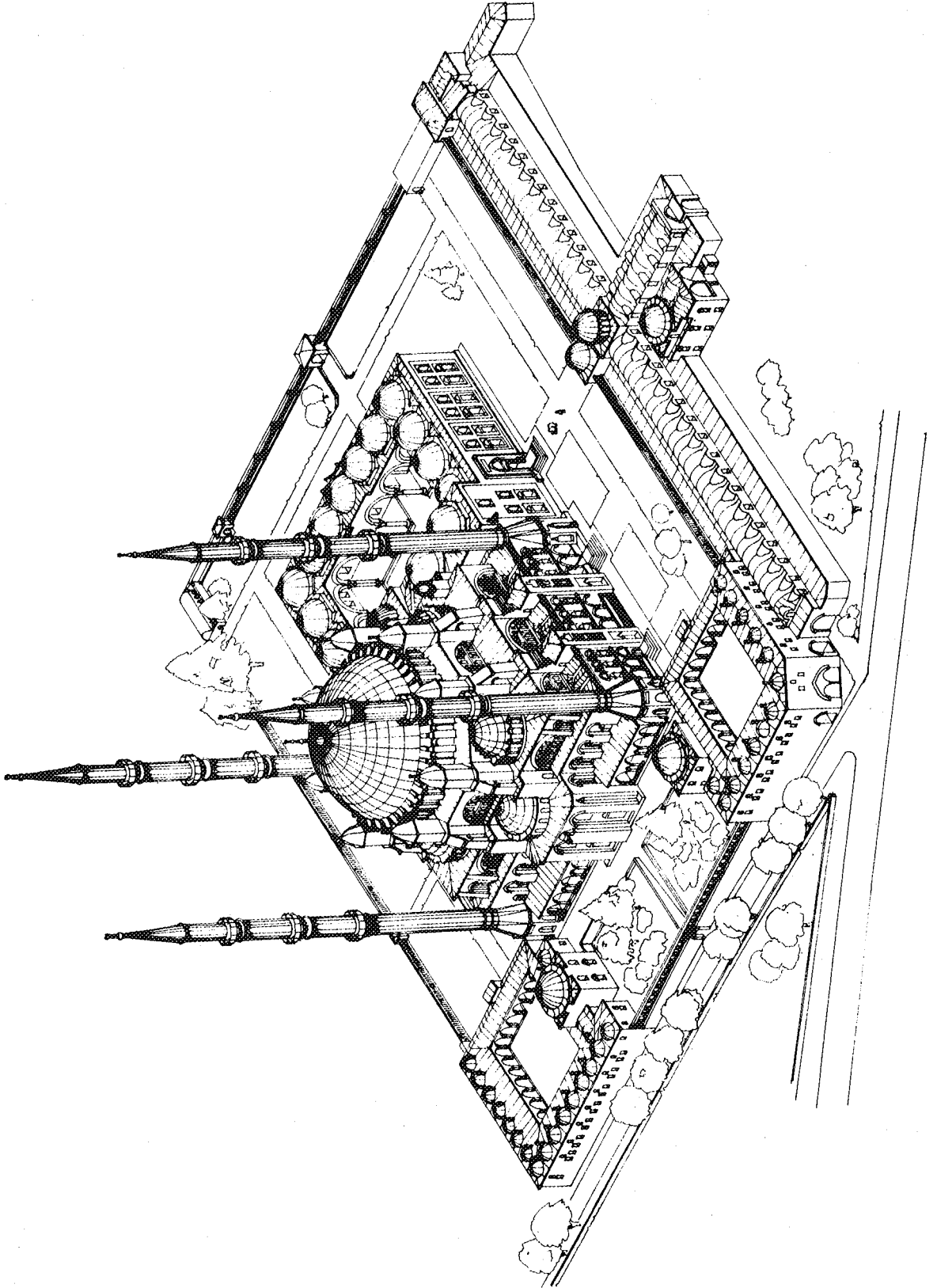


Fig. 14. Edirne. Selimiye mosque. Axonometric view of the complex. (Drawing: Kuzucular.)

experiments with hexagonal and octagonal schemes after them shows. The Selimiye attests to his continued efforts to reach optimal domed space while retaining the vigor of earlier single-domed buildings, a space where the dome's physical and dimensional supremacy would be indisputable and would constitute the formal and expressive basis for a spatial language. He sought also to create an exterior monumentality corresponding to that of the interior.

Some Central Asian tombs, such as the tomb of Alambardara at Astana Baba, used the idea of an octagonal baldachin in a square. Uljaytu's tomb at Sultaniyya is a more monumental example of a later date. The Selimiye seems to encompass all these great images of architecture so distant from each other in time and space. For the shaping of its conceptual framework, the historical and geographical centrality of

the Ottoman Empire evidently provided a magnificent base of accumulated knowledge.

One might suppose that the adoption of the octagonal baldachin was the result of considerations of spatial proportions when dealing with a dome of 31.50 meters (fig. 15 a-d). One can achieve the domination of a single dome over a complex system of supports by reducing the dimensional and consequently visual importance of all the other elements. It seems from his autobiography that Sinan had vowed in the Selimiye to equal the dimensions of Hagia Sophia's dome.²⁴ For this the choice of the octagonal baldachin was the most suitable because the supports were thinner and the connecting arches smaller in comparison to the dome's dimensions, and they had greater stability. Instead of large pendentives on a square base, he used corner squinches of smaller dimensions in the form of half-domes. Once the preeminence of the central dome was established, he still had to solve the problem of integrating the enclosure walls and the buttress system

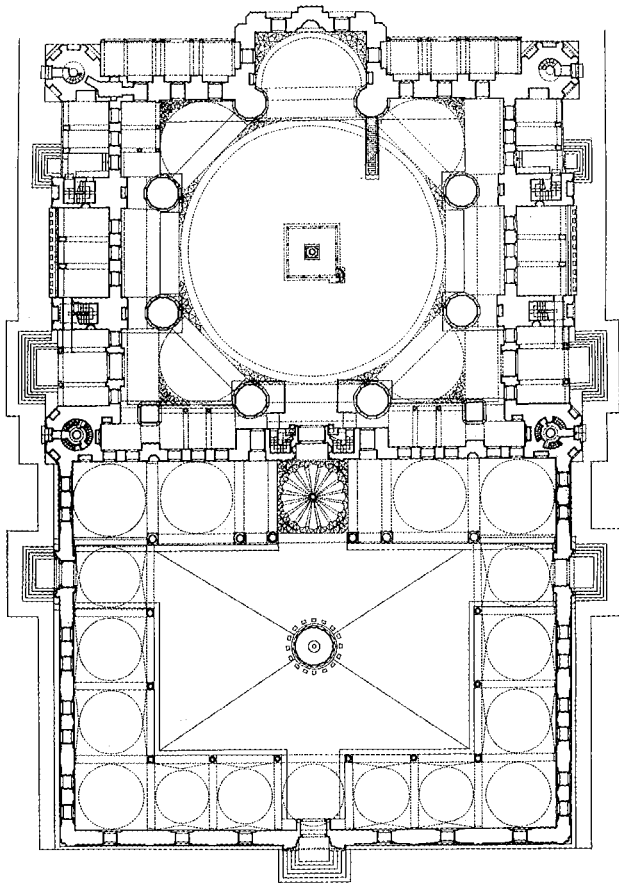


Fig. 15 a. Edirne. Selimiye. Ground floor. Plan.

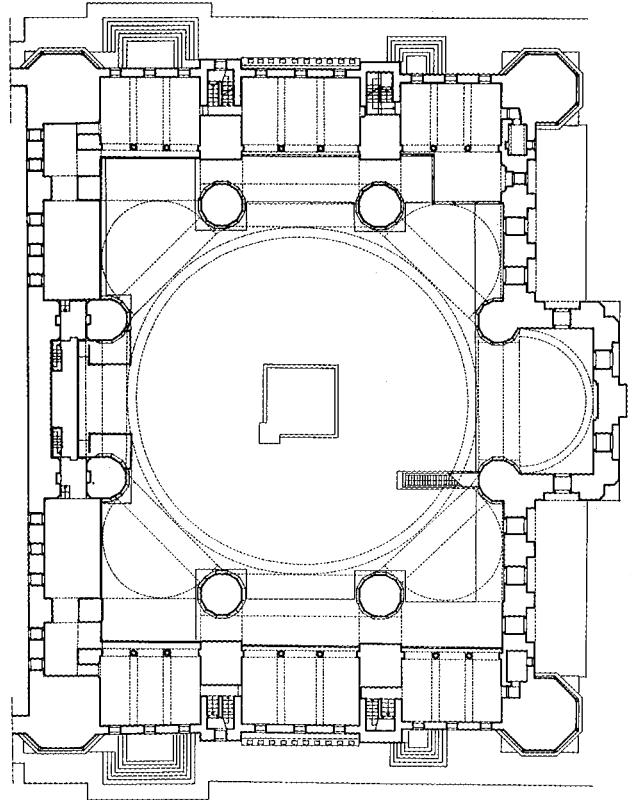


Fig. 15 b. Edirne. Selimiye. Gallery floor. Plan.

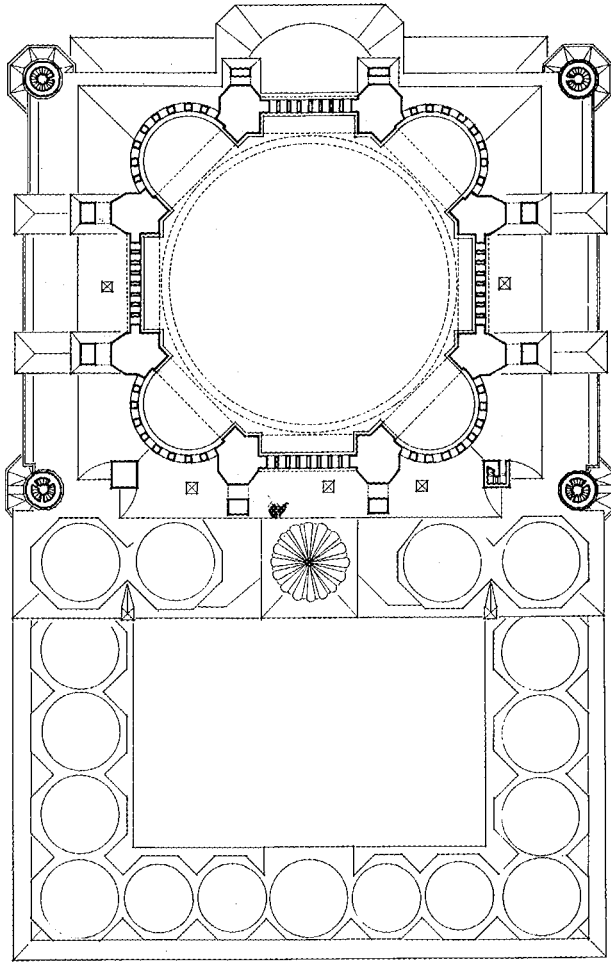


Fig. 15 c. Edirne. Selimiye. Squinch level. Plan.

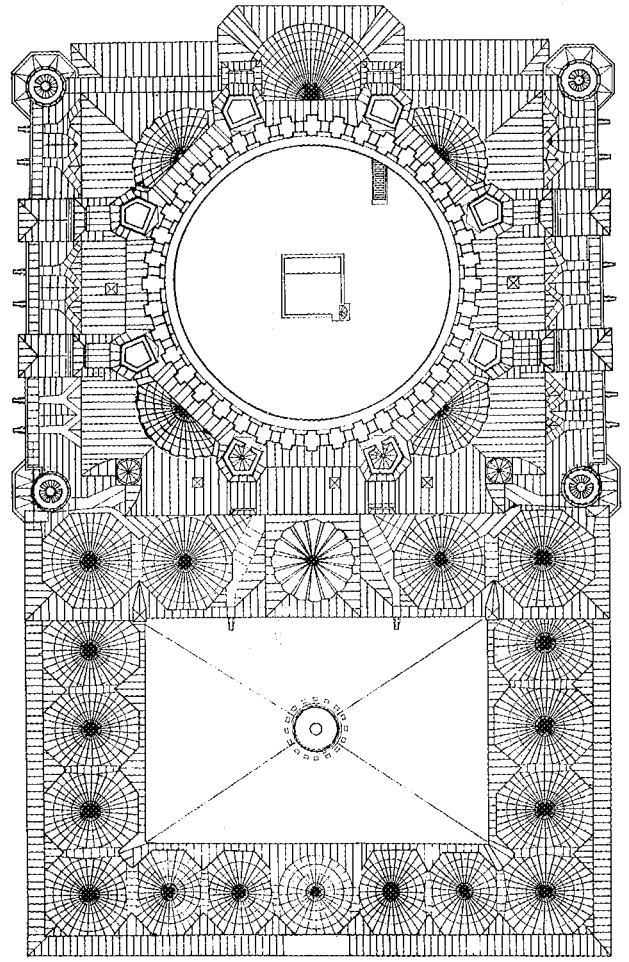


Fig. 15 d. Edirne Selimiye. Roof. Plan.

around the central baldachin. To find a proper architectural solution to this integration was the most difficult point in the design, but the rationality of the conception was impeccable.

Because of the unpretentious treatment of all the elements, the feeling of unity reigns supreme in the interior. Around the emphasized central axis the loftiness of the central dome is strongly felt. Aside from the functional and symbolic orientation toward the qibla, no particular direction is emphasized. The primitive but monumental void of the Pantheon is recreated here within a luminous ambiance. Without asserting itself, the dome, like the Chinese Tao, is everything. Sinan thus reaches his optimal domed space.

However impressive the interior, the grandeur of the Selimiye is still best displayed in its magnificent exterior configuration (fig. 16). All the elements of composition are as beautifully integrated into this pyramidal mass as pieces in a three-dimensional mosaic. Between the bases of the minarets, from the ground to the balustrades connecting them, the lower register is composed like a palace façade. Above this rich base, a second, recessed, register which forms the upper portion of the rectangular enclosure prepares the octagonal and spherical culmination of the total form. The dome is no longer perceived as a simple sphere, because the terminating contour is obtained from the relationship between the main dome and the contiguous towers and arched buttresses surrounding it.

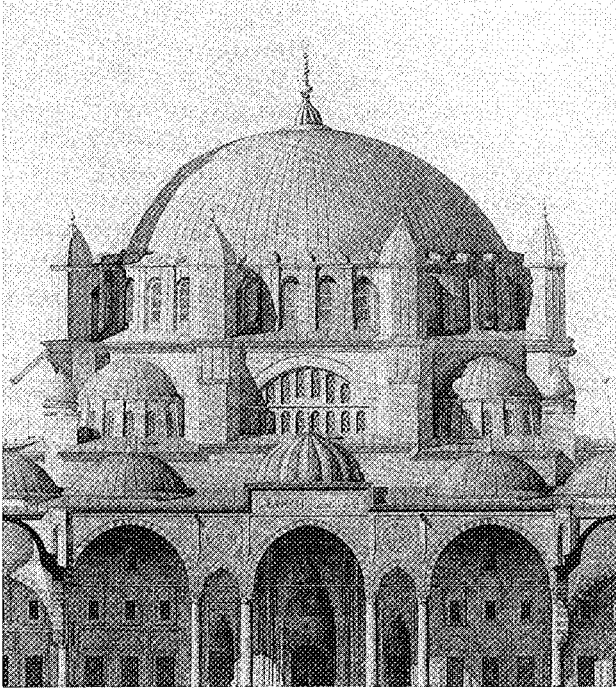


Fig. 16. Edirne. Selimiye. Façade. (Drawing: Sedal Çetintaş.)

Here we observe the transformation of the so-called additive spirit of the former periods. The unity of design is reached by the judicious use of detail related in original ways to the main structural frame.

The Selimiye design marks the end of Sinan's conceptual wanderings (fig. 17). Like all architectures of that period, if it is reduced to its simplest precepts, it is an architecture of mass. But it is not the same as Michelangelo's corporeality. What is perceived in the Selimiye is not the wall mass in its three-dimensional weight, but volumetric totality. Even the fulls and voids, which are designed very efficiently, are kept in the background in the overwhelming plasticity of the total silhouette. The structure and the enclosure, the bone and the flesh, are united in the superb organization of contours. That Sinan reached this totality from a simple geometrical scheme—essentially dome on squinch—is what one may rightly call the touch of architectural genius.

The lesson to be learned from the Selimiye is that an architectural element with distant symbolism can become the generator of a design without being formally emphasized. This is what makes Sinan's style the purest domical style in the history of architecture. It is

the apotheosis of the primitive idea of a domical hollow as shelter. The earliest Mesopotamian domical structures, Zoroastrian fire temples, domed tombs, nomad tumuli, tholoi, and the Pantheon are recalled and re-evoked. Those were the memories of the cultures surviving in the Ottoman Empire which had arisen on the confines between Islam and Christianity, bordered by the Mediterranean, Iran, and the Eurasian steppes.

Sinan is the architect of several hundred known monuments. Although he is rightly most noted for his great mosques, his work was no less attractive and resourceful in his lesser buildings. In addition to medium-sized mosques such as the Mihrimah, Rüstempaşa, and Sokollu, to name but a few, buildings such as the Darüşşifa of Haseki, the fourth madrasa of the Süleymaniye, Süleyman's tomb, the great caravan-serai at Ilgin, and the famed aqueduct of Maglova are architectural masterpieces of the same order as the great buildings. The style is mature and consistent enough to be called a classical style.

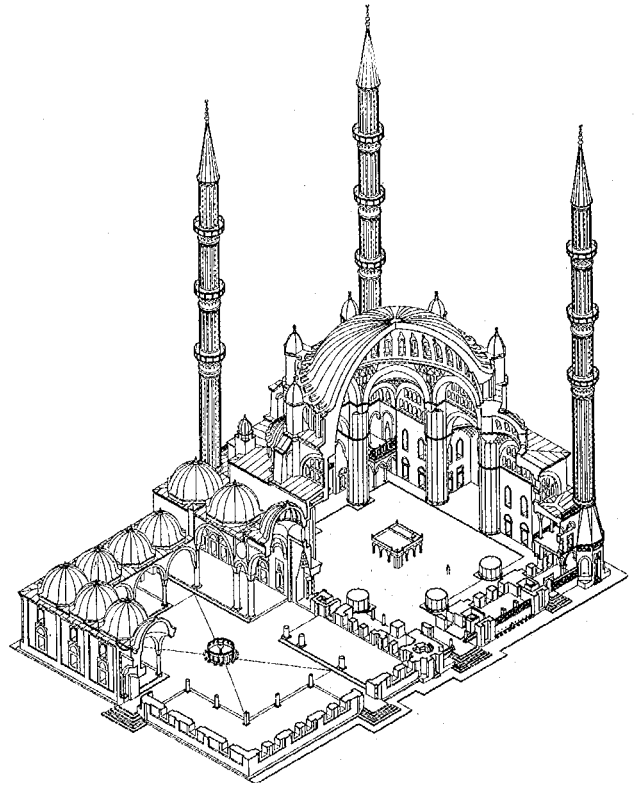


Fig. 17. Edirne. Selimiye. Axonometric view of the interior. (Drawing: Kuzucular.)

Semantic associations between contemporary cultures are often misleading. Especially for someone brought up in a Western milieu, the word "Renaissance" connotes a great and all-inclusive step forward in human history, while the name "Ottoman" conjures up human subjugation and barbarism. That reaction can set off a mechanism of automatic rejection which can thwart any objective judgment. Nevertheless comparison between Renaissance buildings and their Ottoman-Turkish contemporaries can clarify both.²⁵ Philosophically speaking the difference between Sinan's and the Renaissance concept of architecture arises from their contrasting views on man in society and the relation of man to God. Although Sinan might have had more freedom in executing his projects than Michelangelo did, and perhaps was no less conscious of his individuality and talent than any Renaissance architect, essentially the two thought very differently. Papini said of the Renaissance attitude that "man could not be conceived without God, but God as Savior did not wish to remain alone: He created man. . . . The Renaissance gave man back the self-esteem that he had lost, without, however, negating God." For the Renaissance man there was no God without man. This kind of attitude would be inconceivable to a Muslim, and consequently there is scarcely a trace of Western humanism in sixteenth-century Ottoman culture.

The conceptual desire to base architectural practice on theory, which is illustrated so well in the writings of the Renaissance artists themselves, has no parallel in Ottoman culture. Sinan's architecture is not an expression of a new theory of society and man. Even Western medieval attitudes (at least as they were formulated by Panofsky, for example) toward the relationship between Gothic architecture and Scholastic philosophy were based upon a kind of objectivization of relationships between the idea and the creation of an object that had no equivalent in Islamic culture, so far as we know.

Arts and architecture were lavishly used by Muslim rulers, and they did have symbolic content. But even mosque architecture, in which we find the most daring examples of spatial composition, does not seem to emphasize any particular iconology to the extent that Christian churches or Indian temples did. Because Islamic doctrine centers on the necessity of organizing man's life so he can achieve his submission to God, Islam defines the behavior of man in society and toward God. God does not interfere with the affairs of the physical world so long as they do not hinder the correct practice of *din*. It is inherent in the Islamic cultural

outlook that objects remain in their own sphere and undeciphered. Only their relations to man's everyday life is accepted as worth considering. To look for some higher purpose in their shaping—such esoteric meanings as those put forward by modern interpreters including the Swiss Muslim Titus Burckhardt and a few architects—seems to me far-fetched.²⁶

In Sinan's time, numerical symbolism played some part in design,²⁷ but in his attitude toward design Sinan was still essentially pragmatic: he approached it like a nomad did his tent. His keen eye remained on relationships; symbolic gestures were restricted to the decoration of mihrab niches, minbars, inscription friezes, and great decorative signs evoking the names of God, the Prophet, and the caliphs.

Since both Renaissance Italy and Ottoman Turkey gave priority to religious buildings, it seems most reasonable to compare Sinan's mosques with some contemporaneous Italian churches. Commissioning a mosque was a religious act for the patron—whether sultan, vizier, or any other. The sultan's name would be mentioned from the minbar together with that of God and the Prophet. It is not clear at what point the sultan's realm became God's realm; perhaps there was no such distinction to be made. Life, society, and the sultan's power were all the embodiment of the divine will and presence. Accordingly there was no need from a religious point of view for a symbolic gesture to be incorporated into the architecture. Religion was manifested in every aspect of life and was not represented solely by a religious building; religion and government were inseparable, and the mosque was more secular in status than a church. It has no altar, no saint's relics, no liturgy, no priest. In shaping a mosque, pragmatic considerations are therefore not hampered by liturgy or symbolism. If this radical difference in functional and symbolic use is borne in mind, the spatial arrangements and esthetic principles used in the elaboration of these buildings will be better understood.

The Renaissance artist characteristically sought beauty in the abstract. After Brunelleschi and the early Renaissance, Italy presents an architecture of painters and sculptors. The work executed by architects in later periods continued to bear the stamp of the painter's architecture until the advent of the modern style, even in work of people such as Boullée and Ledoux. Although it is true that what the Renaissance is supposed to have gained through mathematics, perspectives, and proportional systems as part of a Neoplatonic concept of the world did not have parallels in the

culture of Sinan's period, one must not forget that Sinan was hailed as the greatest engineer and the Euclid of his time. He may well have not been so different from Leonardo, who said that only those knowing mathematics should read his books. Sinan's knowledge of geometry was certainly part of his professional baggage—though not an instrument of theoretical investigation as was the case with Leonardo—and it is not surprising to discover that some of Sinan's buildings are very close in geometrical spirit to Leonardo's drawings.

The painterly and sculptural attitudes of architects in the High Renaissance blurred the purity of their geometrical vision. Whether the anthropomorphism so plainly advocated by Michelangelo was or was not in conflict with the geometrical concepts of Renaissance architecture is debatable. It seems that the Renaissance always carried within it this contradiction, which was eventually resolved by the Baroque negation of geometrical clarity. In architectural terms, the still lingering geometrical base and Frankl's corporeality were not synthesized until nineteenth-century eclecticism.²⁸ Giovannoni said that "Renaissance architects mainly selected simple schemes—with rare exceptions such as Santa Maria delle Fiore and San Pietro. Art was in the foreground. . . Bramante conceived his plans '*scenograficamente*' and in spatial terms, but never as structures." This is an attitude diametrically opposed to Sinan's. Bramante and his followers, as true representatives of the Renaissance, are hailed by art historians who claim that even technical advances were made by artists.²⁹ This is an argument which bases its premises on the Renaissance itself. The medieval architect, the Muslim architect, and Sinan have no place in it.

Sinan's art was born in a culture where painting and sculpture had no relation to architecture—a point that is basic for the evaluation of architectural style in Islam. That Islamic art rejected painting and sculpture is well known, but the effect that rejection had on architectural design has never been discussed. Sinan did not think of a niche as a place for sculpture, nor did he provide wall partitions to frame scenes from the Qur'an. The decorative scheme was an addition to the architectural framework. He did not finish his balustrades with gigantic figures. The mosque was not a stage for symbolic representation, as was a Byzantine church, which figuratively represented Christian dogma.

In stark contrast to this, the plastic arts always haunt Renaissance architects. When one talks about Michelangelo's treatment of walls as sculpture—corporeal and anthropomorphic in nature—one enters a realm where Sinan's art is by definition excluded. Michelangelo's anthropomorphism has antique and Christian roots, and obviously a sculptor's inspiration. It is doctrinally the opposite of Islamic precepts. Any interpretation based on these non-architectural concepts will never allow us to understand and define Sinan's plasticity. The supremacy of the plastic arts conditioned both the artists and the society to find analogies between architectural and plastic expression, as one can see in the categories and theories of Wölfflin, Panofsky, Frankl, and others, but it was their very absence that conditioned the Ottoman architect's behavior.

These opposite cultural tendencies had a radical influence on artistic concepts, yet there is still room for comparison between Ottoman and Renaissance architectures. In both Italy and Turkey, the fifteenth century saw the rise of new spatial concepts. Both were highly rational, but they were of a different character. The rationalization of Turkish architecture is structural, of the Renaissance theoretical, in nature. The discovery of perspective helped the rationalization of space, but as Müntz said, "The first Renaissance gave up daring structures, and because of its concern with employing antique orders, it was compelled to simplify its plans."³⁰ In Turkey the movement developed toward more daring spatial compositions, but there was no compelling model. The Renaissance organization of space started from the plan. As Weyl remarks, "Leonardo da Vinci engaged in systematically determining the possible symmetries of a central building. His results are essentially the possible finite groups of rotations, proper and improper, in two dimensions."³¹

Essentially preoccupied with abstract schemes, Italian architects used domes for abstract and symbolic reasons. They generally crown their churches, but the roofing is made up of heterogeneous elements, among which the dome may be the main element, as it is in the small church of Santa Maria delle Carceri, or centralized but not dominant, as in St. Peter's. Domes are also always combined with vaults. Since the plan is the constitutive element, the same complexity can be found in any scale.

Again the opposite tendency is observed in Ottoman architecture. The smaller the dimensions, the less com-

plex the plan. Medium-sized mosques were covered by single domes. Even in large buildings a simplified structural scheme was considered to be a sign of architectural mastery. Renaissance abstraction also affects the scale of buildings. In Renaissance buildings the scale is decided on the horizontal, in Turkish mosques on the vertical. In fact, because they saw Man as an abstraction, Renaissance architects did not concern themselves with the human scale as such. Their proportion systems may originate in the human form, but they were never consciously conceived with the human scale in mind. In a Turkish mosque, in contrast, from the dimensions of the doors and windows to the heights of the galleries, the human being is the only factor that governs scale. One might say that Turkish culture opposes man in the flesh to the Renaissance ideal of Man as symbol. The centralization of the Renaissance was the result of a rhetorical exigency. It was opposed to the exigencies of the liturgy and produced compromises. This is what happened to Saint Peter's, which ended with Maderna's nave, and it is significant that art historians discuss the idea of St. Peter's more than they do the actual building. Renaissance building is the volumetrical configuration of a plane geometry where axial formalism reigned supreme.

In Bramante's St. Peter's the dome is an element completing the ideal scheme. The medieval crossing with its tower had not been forgotten, but it was replaced by the great dome on a high drum. The dome simply becomes another expression of the central tower of the churches with transepts. This is why, in the Renaissance, centralization ended in most cases with the equalization of transept and nave. The role the dome plays in Turkish mosques thus bears little or no resemblance to the role it plays in Christian churches. The dictum of Leonardo, "*sempre un edificio vole essere spiccato d'interno e volere dimostrare la sua vera forma,*" was perhaps better realized by Sinan than it was by the Renaissance architects, although a few buildings (Santa Maria della Consolazione at Todi for example) realized the ideal scheme. Many characteristics of Renaissance architecture, influenced as it was by the plastic arts, do not and could not exist in Sinan's work. For example, his architecture was abstracted, not from an interpretation of organic life, but from the rationale of geometric bodies. The process of thinking and designing was organic in spirit, however; in Sinan's buildings we behold a clear vision of an organically unified space. Sinan's octagonal scheme at Selimiye develops into a magnificent spatial organization. Renaissance exam-

ples, such as Santa Maria della Passione at Milan or San Magno at Legnano, present the simple volumetry of an octagonal prism made by exterior support walls and the central space. In Italy the evolution of the square-based domed structures ended with buildings, such as Santa Maria delle Carceri and Consolazione, that have totally unified interior spaces. Yet they are structurally unambitious tectonic buildings without spatial articulation, not very different from their Roman ancestors.

The centralized plans most comparable to Turkish mosques are possibly those of Byzantine origin. Little Venetian churches such as San Giovanni Crisostomo and Santa Felice are close relatives of the cross-in-square Byzantine churches, and the symbolized cross of St. Peter's completes this series. Despite its dimensions, St. Peter's has a simple approach to structure. Bramante did not have any structural concerns; Michelangelo's piers were sufficient in themselves to carry the dome. In spite of their planimetric articulation, the weight and massive support of Roman buildings still remain. There is no structural elegance resulting from an elaborate correspondence between the lateral thrusts of the dome and the articulation of the support system, which was Sinan's central concern.

To formal preoccupations, we should add the design of façades and the idea of frontality. The church has an entrance façade, the importance and exigencies of which are somewhat at odds with the concept of idealized centralization. This dichotomy already existed in the Pantheon. That the façade was regarded as at least as important as any other aspect of a church is attested by the many competitions that were held for church façades. Sinan and other Turkish architects had by contrast little interest in this aspect of a building. Most of their courtyard façades follow an old model already in use on the Üç Şerefeli, though sometimes the proportions change. From above the entrance portico the central dome dominates. The axis of the building is simply indicated by a larger archway at the center. The demand for a courtyard was more important than the demand for an elaborate façade. The courtyard façade shows the same simplicity of treatment. The side façades in Sinan's great buildings are sometimes elaborately treated, and in them Sinan comes closest to the concept of a two-dimensional elaboration of a building façade. But even this treatment is rare. With no elaborate concept of a façade available, no development of frontality could occur. This again indicates the three-dimensional concern of the Turkish architects. In the

West, the concept of architecture always remains somehow related to the concept of façade. One might even say that after the Renaissance all European buildings were elaborations on the single theme of designing façades using antique orders.

In Sinan's work and Ottoman architecture generally, or for that matter in architecture as a whole, façade design was not given this importance. Instead, the functional elements—gates, minarets, entrance iwans—are emphasized. Buildings are conceived as large, functional, structural organisms, but never as façades. Directional and functional approaches at their critical points, e.g., in entrances, were emphasized by architectural elements and dimensional prominence. One concentrated embellishing efforts on the gates, not on the façade as a whole.

A similar observation can be made about decoration. Sinan underplayed the effects of color and texture in his buildings; they were secondary to his designs. That kind of beautification was added by other artists. Here we immediately grasp an architecture totally alien in its intentions to the Western tradition. Ruskin, for whom decoration was the essence of style, could not look favorably upon such a concept. Until the Bauhaus, the façade in European architecture had never lost its importance. Even Le Corbusier, who so much appreciated the great Turkish mosques, showed himself to be a man of two-dimensional proportions in most of his projects.

After the geometrization of the early Renaissance, as Giovannoni put it, "the Renaissance church was an artistic scheme." Sinan's mosque was a spatial structure. The Renaissance church tends to become plastic. If its plan is a painterly composition, its elevation tends to be a sculptural one—this is especially obvious in St. Peter's and the Laurenziana's walls. As Frey says about the Laurenziana, everything was for the plastic figuration of the walls.

All this may seem intellectually uninspiring for a man trained in European culture. Nevertheless Sinan's architecture remains the purest of historical styles and the purest in intention, as Frankl would say, whose equal was not again realized until the twentieth century. At the moment in history when the economic, political, and military might of the Ottoman Empire was at its height, when from the gates of Vienna to the Indian Ocean, from the southern Russian Steppes to Algiers, the center of the old world was dominated by Turkish power, Sinan was appointed chief architect of the imperial domains, or, in our terms, minister of

public works. He served three sultans in this post before his death. The Ottoman state had an efficient and original bureaucracy. The entire state service for the realization of great imperial commissions was under his control. In Sinan we have the man of genius inspired by the power of his time.

After centuries of cross-fertilization as a cultural center, Istanbul had the atmosphere, and its people the self-confidence, the knowledge, and the technology in the sixteenth century to produce great art. By coincidence—or perhaps fate—Sinan was among them. That he was equal to the challenge is attested not only by his long tenure in a demanding office, but by the number, variety, and artistic quality of his buildings and the great esteem shown to him by his contemporaries and by all subsequent generations. His artistic career as the greatest of the Turkish imperial architects was so entwined with his official position that his architecture can be said to express all of Ottoman society in its material and spiritual dimensions.

Although a few facts about his life have been established, Sinan somehow remains an anonymous civil servant, and we can never hope for an interpretation of his art through an analysis of his personality. So far as history is concerned, Sinan is his art, and his style is imperial art. Style is both an attitude and a continuity, or a continuity as expressed in a specific attitude. The continuity of Sinan's style coincides with the continuity and the image of the empire. The elusive individuality of the man can only be grasped from an analysis of his work. But to decide about what belongs to Sinan and what to his culture cannot be determined solely from such an analysis. The general cultural atmosphere of his time must be used to reinforce its results.

A building like the Selimiye perhaps reveals the personality and character of Sinan the man as an explorer and an open-minded individual with an irrepressible urge to experiment, a man of strong convictions, will, and integrity. His vision of architecture was not, and could not be, a personal affair. He must have shared it with his contemporaries. The web of relationships that lead to the conceptual and physical creation of styles and the subtle persuasion of the existing world of forms through the senses and mind cannot be replaced by the genius of a single man. For artists with the sensibility of Sinan, the millennium-long traditions of the eastern Islamic world and the Mediterranean could not be ignored. His domes are Central Asian and Roman; his unambiguous use of architectural elements is medieval Muslim, his concept of total unity of space advanced

beyond that of Renaissance architects. His radical subordination of decoration to architectural form and the total correspondence between the inner and outer forms are akin to development in our own time. But the basic comparative materials must be taken from the Mediterranean tradition. The Pantheon is the oldest remnant of a tradition of monumental space dependent on a single dome; Hagia Sophia is a shaky combination of the basilical and domical traditions of the post-Roman world. In it Roman rationalism and emergent Byzantine mysticism combined in schizophrenic union. The symbolism of the cross and the domed crown preoccupied Byzantine architects, but they never again achieved anything comparable to Justinian's church. Renaissance Italy had the power to build great monuments in which abstract rationalism based on geometrical principles reached an eloquent formalism full of reminiscences.

In its most creative period, the Italian Renaissance rediscovered ancient models. Sometimes the ancient models were mutually contradictory. The classical orders dictate two-dimensional façades. All European monumental architecture, in the last analysis, can be reduced to a diluted image of an ancient temple façade. Yet the Renaissance dome was not Roman. It comes from Romanesque examples, and perhaps from the double-shell domes of medieval Islam.

Against this background of comparative observations, we can begin to appreciate the individuality and originality of the architecture of Sinan. He was not a revivalist, but he was knowledgeable and eager enough for innovation to try old schemes, though in these exercises of reinterpretation he never resorted to formal imitation. The dome, the soundest and most efficient form of shelter, connected in human memory with the primitive hut, the cult of the dead, tumuli, and the symbolism of heaven, found the strongest and perhaps final expression of its basic sphericity, though with an architectonic expression of full maturity, in the Selimiye.

The concept of centrality found in Sinan's buildings cannot easily be attributed to the same theoretical sources as those of the Renaissance, but the ideas of center and unity are a common heritage of humanity and are always related to some transcendental totality. In the case of Islam this could only be God. Whatever the relation that exists between the physical and the transcendental, whether it originated in Islamic mysticism³² or Neoplatonic undercurrents in Ottoman

culture, the concept of spatial unity so fervently pursued by Sinan ultimately had a Mediterranean source.

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NOTES

1. For a recent statement on Sinan's life and work with relevant bibliography, see Doğan Kuban, "Sinan," in *Macmillan Encyclopedia of Architects* (New York: Free Press, 1982), vol. 4, pp. 62-72.
2. A biography on Sinan by A. Kuran will soon be published in Turkish.
3. O. L. Barkan, *Süleymaniye İnşaat Defterleri*, 2 vols. (Ankara, 1972-79).
4. Cyril Mango, *The Art of the Byzantine Empire* (Englewood Cliffs, N. J., 1972), pp. 57-60.
5. Procopius, *Buildings* 1.1.20-77, *Works*, ed. Dowkey, vol. 7, Loeb Classical Library, (London, 1961), pp. 11-31.
6. S. Serlio, *Quinto libro d'architettura*, ed. 1600, p. 202, quoted in Rudolf Wittkower, *Architectural Principles in the Age of Humanism* (London, 1952), p. 17.
7. I have made many of the following observations in earlier, mainly Turkish, publications, but have gathered them here together for the first time to make a general statement on Sinan's art.
8. E. B. Smith, *The Dome: A Study in the History of Ideas* (Princeton, 1971), pp. 85 ff.
9. The term "non-Western" is in itself an expression of this prejudice in its implied Western-non-Western dichotomy and conceptual compartmentalization.
10. Especially those art historians of the Vienna School such as Heinrich Glück, Ernst Diez, and Katherina Otto-Dorn. Specialists in Islamic art resent this kind of criticism and reject the argument, but simple research on the state of art is sufficient to show how inadequate publications in this field are. The blame obviously falls on Turkish scholars.
11. Louis Althusser and Étienne Balibar, *Reading "Capital"* trans. Ben Brewster (London, 1979), p. 26.
12. The Kubbat al-Sakhra (Dome of the Rock) was repaired in the reign of Sultan Süleyman I, when Sinan was chief architect.
13. Here the dome-on-squinch form is not to be taken literally, but is being used as a generic name for a concept of static space. Whether a pendentive or a squinch is used makes little difference in the space concept the Ottoman mosques developed.
14. The search for ideal centrality observed in Leonardo's drawings does not have a parallel in Sinan's work.
15. Selimiye is 31.25 m. on its north-south axis and 31.75 m. on its east-west axis. The base of the dome of Hagia Sophia is very irregular, but its average diameter is 31.30 m. Sai Mustafa Çelebi, *Risale-i Tazkirat al-Abniya*, ed. R. M. Meriç, *Mimar Sinan, Hayati, Eseri I: Mimar Sinan'in Hayatina Eserlerine Dair Metinler* (Ankara, 1965).
17. F. de Miranda, *The Mosque as a Work of Art and as a House of Prayer* (Wassenaar, 1977).

18. Martin Charles, "Hagia Sophia and the Great Imperial Mosques," *Art Bulletin* 12 (1930): 321-44.
19. Alberti advised that windows be placed very high up, so that they would provide no connection with the outside world; quoted by Wittkower, *Architectural Principles*, p. 8.
20. The drum in the curve of a semi-spherical dome cannot be considered a true drum.
21. For the idea of maqsura, see Doğan Kuban, "The Mosque and Its Early Development," *Muslim Religious Architecture*, pt. 1 (Leiden, 1975).
22. R. J. Mainstone, *Developments in Structural Form* (Penguin reprint, 1983), p. 306.
23. Here the line of thought is taken from my encyclopedia entry "Sinan" (cited above, n. 1).
24. This comparison was the subject of my book, *Osmanlı Dini Mimarisinde İç Mekân Teşekkülü* (Istanbul, 1958).
25. Mehmet the Conqueror possibly started such a movement when Italian artists were at his court and he was planning the regeneration of the empire of the caesars. But during the reign of his son Beyazıt II, an Islamic reaction set in which established the cultural direction of the empire.
26. The recent fashion for eastern esotericism in the United States and Europe has stirred the imagination of Muslim architects who are inventing new meanings in Islamic architecture. Symbolic meaning and use of symbolic proportions might have existed in all architectures, but unfounded conjectures misrepresent architectural intent.
27. A recent study on symbolic propositions in Turkish architecture is being carried on by Professor Attila Arpat of Istanbul Technical University. See A. Arpat, "Osmanlı Camilerine Modüler Düzen ve Boyutsal Sembolizm," *Yapı*, no. 54/2 (1984): 40-43; idem, "Sinan Camilerinde Kutsal (mistik) Boyutlar ve Modüler Düzen," *Türk Dünyası Araştırmaları*, no. 28 (February 1984), pp. 1-28.
28. P. Frankl, *Principles of Architectural History* (Cambridge, Mass., 1968), trans. of *Entwicklungsphasen der neueren Baukunst* (Leipzig, 1914). This is another instance of a theory of architecture tailored to fit European development.
29. James S. Ackerman, *The Architecture of Michelangelo* (New York, 1961), pp. xxxiii f.
30. M. E. Müntz, *L'Eta Aurea dell'arte Italiana* (Milan, 1895).
31. Hermann Weyl, *Symmetry* (Princeton, 1952), p. 66.