

Rethinking Ottoman Architecture

HENRY MATTHEWS

Washington State University

During the fifteenth and sixteenth centuries, in Istanbul and Edirne, an astonishing architectural transformation took place. Under the guidance of Ottoman architects, the mosque, which, throughout most of its history had stretched out horizontally behind concealing walls, began to rise dramatically into the sky. The story of the evolution from the Ulu Cami (Great Mosque) in Bursa (1396) (Fig.1) with twenty equal domes on massive supports, to the vast single dome of the Selimiye Mosque in Edirne (1570) (Fig.8) held aloft on eight slender piers, is one of the most fascinating in architectural history. The Selimiye's designer, Mimar Sinan, Chief of Architects to the sultans from 1538 to 1588 experimented boldly with domed structure and interior space in a vast array of mosques. His principal designs offer scope for study because of the vigorous spirit of experimentation in which he worked. Of all the architects of the Renaissance, he enjoyed the greatest opportunity to push boundaries in the creation of structure, space and light. Why then has Ottoman architecture been featured so minimally in university curricula and the commonly adopted surveys of architectural history?

The overriding explanation originates in the historic barrier between Christianity and Islam. Despite progress in Science, mathematics and philosophy in Islamic societies at a time when Christendom slumbered; despite Ottoman tolerance of Christians and Jews while Christians persecuted religious dissenters, the Ottomans and their Moslem predecessors have tended to be dismissed as cruel infidels, and their religious beliefs despised. This fact is enough to explain why, until recently, western architectural theorists and historians generally marginalized Islamic architecture. Ironically, the paganism and polytheism of Egypt, Greece and Rome seemed to offer less threat to European values; indeed we perceive the classical civilizations as the foundations of our culture. It seems that the irresistible lure of the classical ideal blinded western Europeans to the achievements of Ottoman architects. An example of such myopia would be the case of the seventeenth century French architect, François Blondel, whose influence as a classicist lasted over several centuries. In the late 1650s, while holding the post of Professor of Mathematics at the Collège de France, he was sent to Istanbul by Cardinal Mazarin on a lengthy diplomatic mission. There is no evidence in his writings that he considered the architecture significant to Western Europeans. Indeed it was rare before Le Corbusier made his journey to the East in 1911 for western architects to give much thought to the mosques of Istanbul.

A further reason for the neglect of Ottoman architecture that is germane to this paper, is the obsession of architectural historians with theory. A difficulty for any historian of Islamic architecture is the lack of theoretical writings. No equivalent to the treatises of Vitruvius and Alberti has come to light. The documents for the study of this subject are the buildings themselves. Thus historians are forced to emerge from their libraries and witness space, structure and surface. In this paper I intend to focus on the architecture of Mimar Sinan and, as time and circumstances allow, to examine his work with some of central

principles of western theorists as my guide.¹ Although, clearly, the purpose of the mosques is spiritual, my analysis will be largely formal. I will be concerned particularly with harmony and proportion, the honest expression of structure, function, and the issue of scale. I will demonstrate that his mosques belong not on the margins, as the exotic *other*, but in the mainstream of architectural history.

Brunelleschi and Michelangelo designed the two most famous domes of European history, those of Florence Cathedral and St. Peter's, Rome. But both architects were limited by an existing supporting structure, and neither lived to see the completion of his design. Indeed no Italian architect built more than a few domed structures. Sinan, on the other hand, is credited with over a hundred, including twenty-five in Istanbul alone. If we analyze a dozen of his best works we can witness a brilliant exploration of alternative means of enclosing monumental space. Before embarking on my brief analysis, I will give a short account of developments that occurred in Ottoman architecture prior to Sinan's career.

The dynasty of sultans founded by Osman (1288?-1324) ruled over a great empire that, at its peak in the sixteenth century, stretched from the Balkans, through the Middle-East, to the shores of the Caspian Sea, south to the Persian Gulf and west along the coast of North Africa to include Egypt and Algeria. Sultans and other high officials considered it their duty to build mosques and by the fifteenth century they were making them part of larger complexes known as *külliyes*. These typically included religious schools (*medreses*), hospitals, hospices, and kitchens to feed the poor. The first Ottoman mosques were small, square structures covered with hemispherical domes and surrounded by plain stone walls. No windows penetrated these domes; the only openings were small ones in the walls. The Alaettin Mosque at Bursa, which is only 8.2 meters square, represents this type. But soon they were built on a larger scale with the addition of further adjacent domes. The Ulu Cami (Friday Mosque) at Bursa multiplies the domes within a four by five bay grid.

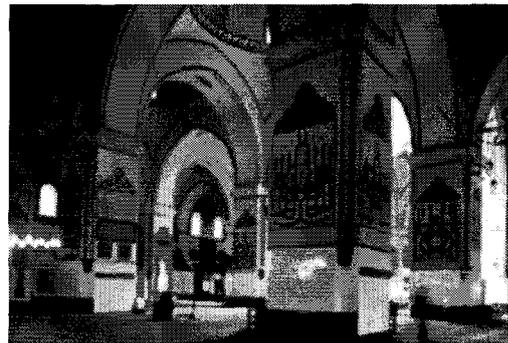


Fig.1. Ulu Cami, Bursa, 1396-9. Interior from the north-east

Twelve great piers and buttresses on the surrounding walls support twenty equal domes on pendentives, lit by small windows, creating pools of light on the floor. The effect here is of an immense horizontal space, whose repeated piers impart a sense of gravity and order. However a more vertical space appears in the Üç Serefeli Mosque in Edirne, (1438-47) where a larger central dome is flanked by two smaller ones on each side. In this pivotal structure, the transition is made towards the higher mosque with a dominant dome that became the hallmark of Ottoman architecture in the time of Sinan.

In 1506 the architect Yakup Shah followed the structural theme of Hagia Sophia in the Sultan Beyazit II Mosque in Istanbul. As in Hagia Sophia he extended the space under the central dome by adding two half domes, but he transformed the character of the interior space. Hagia Sophia was conceived for Christian ritual with the emperor, his court and the clergy in the center, while others were crowded into the aisles and galleries. Thus the separation of nave and aisles by four vast piers, and the columnar screens that join them, presented no problem. But Shah, designing a Muslim prayer hall where the faithful would gather in large numbers for Friday prayers, avoided such hierarchical division. With great engineering skill, he reduced the mass of the piers and virtually eliminated the barrier between nave and aisles. He replaced the dense columnar screen of Hagia Sophia with two broad arches.



Fig. 2. Yakup Shah, Beyazit II Mosque, Istanbul, 1506). View into central space from north-east corner

Sinan, in his first major commission in Istanbul, followed brilliantly in the same path, applying both imagination and engineering skill. In his Sehzade Mosque (1543) (figs. 3-4) he boldly placed half domes on all four sides of the main dome, thus equalizing structural forces at the four points of support and extending the space in an identical manner on all sides. Thus he produced a centralized plan that turned away from the longitudinal axis of Hagia Sophia toward the sacred geometry advocated by Italian Humanists.

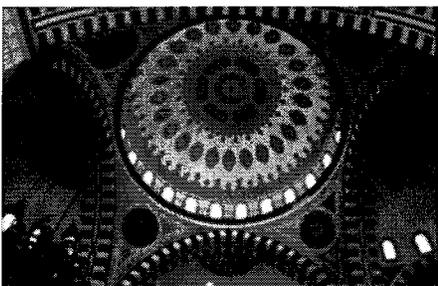


Fig. 3 Mimar Sinan, Sehzade Mosque (1543) View into dome.

The circle and the half circles that define the central dome and the surrounding half domes are based on the same geometry as the quintessential, centralized church, Santa Maria della Consolazione at Todi. (1508) There is however a major difference between the ideal church and the mosque. The first was the realization of a theoretical construct concerning ideal form, based on pure geometry. Its dome is immensely high, but lacking the long nave to hold the congregation, the church is not well suited to Christian worship. The second, with its broad expanse of carpeted floor beneath a hemispherical dome provides space for many worshippers with a good view of the *mihrab*, in which all can follow the movements of the prayer leader at Friday prayers. The dome can be seen as a symbol of the heavens and of spiritual unity under Allah.

While Shah had eliminated some of the complexity of Hagia Sophia by eliminating the exedrae flanking the apse, Sinan played variations on the Byzantine theme. He supported each of the half domes on three arches: a central one over a vertical wall, flanked by others of the same radius, which open into smaller half domes. These span the corners like squinches, thus making the transition from rectangle to half circle. (fig.4)

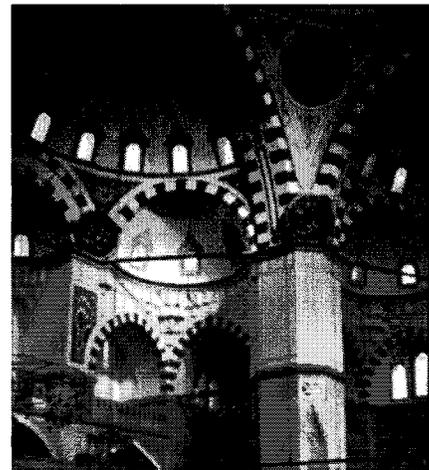


Fig 4. Sehzade Mosque. Detail of the south-east corner

On the tier below, three smaller arches follow the outline of the rectangle. The result is a structure that combines elaboration and a consistency assured by its rigorous proportions and structural logic. He has approached the richness of Justinian's church, but in a more rational manner. In the entire plan there is a progression from twenty-four arches in the lowest tier to twelve on the next and from there to the four that support the central dome. The massive weight of the dome is gradually distributed between a multitude of structural supports and brought gracefully to the foundations. Copious, diffused light flows into the interior through small windows in the bases of the domes and half domes as well as in the vertical walls. It is clear that Sinan admired Hagia Sophia, but, not content to imitate it, he reinterpreted it for Islamic worship and the desires of his own age.

In a series of later designs, Sinan continued with his spatial and structural experimentation. In the vast Süleymaniye Mosque (1550-57), possibly at the request of the sultan,² he reverted to the structural scheme of a central dome and only two half domes, that forms the basis of Hagia Sophia. However he created the most open interior possible, and broke down the barrier between central and surrounding spaces. Although he emphasized the main north-south axis towards the *mihrab*, he also opened up the east-west axis on which many rows of the faithful prostrate themselves in prayer. Eliminating half domes altogether, Sinan built the Mihrimah Sultan Mosque at Edirnekapi and carried the high dome on four huge arches closed by

glowing window walls. In the Rüstem Pasa Mosque (1562), whose interior is beautifully tiled with Iznik tiles, he supported the dome on eight arches rather than four. (Fig. 5)

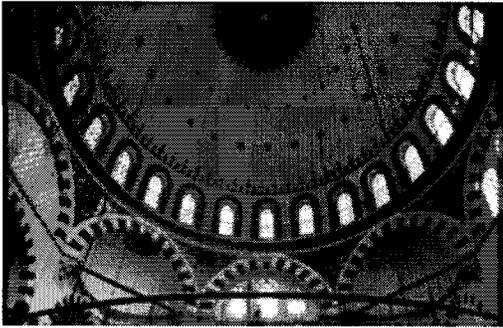


Fig. 5. Mimar Sinan, Rüstem Pasa Mosque, Istanbul (1562) Rüstem Pasa Mosque (1562) View into the dome.

In the Atik Valide Mosque across the Bosphorus in Uskudar, he reduced the support system to six arches.

The Selimiye Mosque at Edirne stands as Sinan's ultimate 'masterpiece'. (Fig. 6) He supported a dome larger than that of Hagia Sophia on eight remarkably slender piers. The exterior form is dynamic in the manner of a perfectly conceived Gothic cathedral.

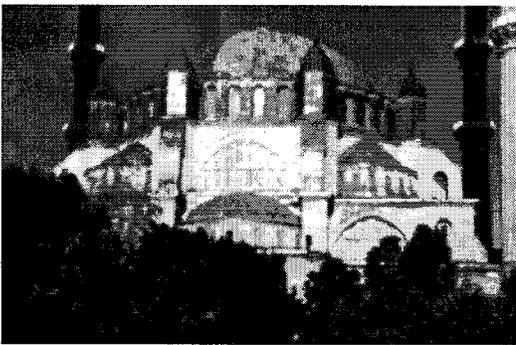


Fig. 6. The Selimiye Mosque, Edirne. (1568-75) The dome from the east.

From the relatively plain lower walls, the structure rises in a series of steps to the drum of the dome and up to the dome itself. Buttresses, weight towers and small half domes cluster around it; each is proportioned for stability and to make a harmonious whole. The many windows at each level demonstrate the manner in which Sinan pared down the structure so as to allow the maximum amount of light to penetrate the entire interior. Le Corbusier when he saw it in 1911 declared with enthusiasm "The Sultan Selim gives the city a tiara of great splendor."³ But Le Corbusier's response seems out of character. What saw was not a decorative embellishment but a structure whose beauty arises from the balance of its forces.

The entry to the Selimiye Mosque reveals another significant aspect of Sinan's design, his handling of scale. Architectural critics have informed us that, after the towering cathedrals of the medieval era, the architects of the Italian Renaissance introduced a human scale. While not denying that there is some truth in this opinion, particularly in Brunelleschi's graceful *quattrocento* arcades, I have often thought it dubious. Standing before such monumental facades as Alberti's Sant' Andrea in Mantua, which combines two overbearing architectural forms, the Roman temple front and the triumphal arch, I have not experienced anything approaching human scale. I concede that the harmonious proportions, and disposition of the orders to break down the façade into smaller elements somewhat mitigates the monumentality. But Alberti's treatment of scale is very different from Sinan's. The Ottoman architect

conceived a vast domed structure, grand enough to honor the most exalted sultan. It dominates the skyline of Edirne, and, from a distance it affirms its identity as a symbol of his spiritual power. However, we enter through a humble gateway in a low wall and pass through a peaceful garden, planted in a relatively informal manner. A second, simple gate (Fig. 7) leads into the arcaded court before the mosque.

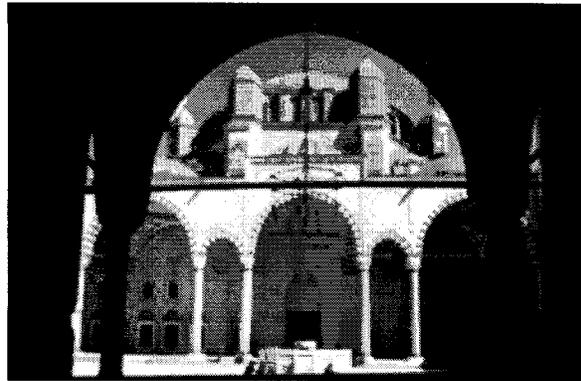


Fig. 7. Entrance to the courtyard of Selimiye Mosque from the west.

The arches of this cloister-like space are lofty, but they mediate with the huge dome. Although it is close enough, from this viewpoint, that we might expect to find it overpowering, the dome is framed in a manner that makes it approachable. Whereas the Gothic cathedral and the Renaissance façade rise before us, cliff-like, the shady arcade before the entrance mediates with the mass of the dome. The weight towers stand forward, partially obscuring it, and, at the same time, offer assurance that it will stand firm. Unlike Michelangelo, who felt obliged to conceal the buttresses around the dome of St. Peter's with coupled Corinthian columns, Sinan expresses these structural elements as exactly what they are. If, rather than entering, we walk through the garden to the south side we look up at the outer walls, we are not confronted with a façade, something 'stuck on' like that of Alberti's Sant' Andrea, but the structural walls that support the dome and admit light from the sky.

The interior of the Selimiye Mosque (Fig. 8) fulfills the promise of the outside view.

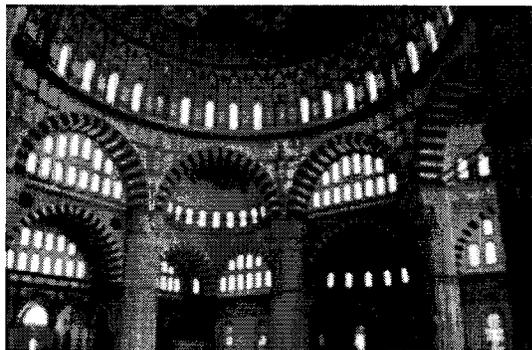


Fig. 8. Interior of the Selimiye Mosque The eight slender piers render the dome virtually weightless.

No interior in western architecture before the twentieth century offers such a sense of unobstructed space. The structure is so well proportioned that Alberti's definition of beauty comes to mind: The harmony and concord of all the parts achieved in such a manner that nothing could be added or taken away or altered except for the worse." However the simple and elegant design of the piers does not recall the work of Italian Renaissance architects. Their insistence on the application of the classical orders with projecting capitals and cornices produced less serene surfaces. The dominance of structure over applied ornament seems more

reminiscent of Sullivan's south side of the Chicago Auditorium or Berlage in his Amsterdam Stock Exchange than of any Renaissance church interior. One is tempted to imagine Augustus Pugin and Eugène Viollet-le-Duc meeting here to debate the merits of Sinan's architecture. Pugin, if he could allow himself to be torn away from Roman Catholic churches to contemplate a house for the worship of Allah, might consider the ornament a little spare. The subtle muqarnas in the pendentives, might qualify as 'structure ornamented with propriety,'⁴ but Pugin was hardly as proto-modernist as some critics have imagined, and prejudice would probably have clouded his judgment. Viollet-le-Duc, on the other hand, being a confirmed agnostic, might have possessed fewer scruples. Despite his obsessions with the details of medieval architecture he was, at heart a functionalist. The logic of Sinan's structure and the daring manner in which reduces the piers to a minimum, so as so as to open the space and maximize the daylight, would surely have impressed him. The handling of scale in the interior is also exemplary. The hierarchy of the structural elements from the largest piers and arches to the smallest subsidiary parts is beautifully controlled. The windows, rather than presenting vast expanses of glass, approach the human scale.

Having hinted, in my analogy with the work of Sullivan and Berlage, at early manifestations of modern principles in Sinan's work, it seems appropriate that I should conclude with a quotation from Le Corbusier. Historians of Modernism frequently invoke his adulation of the buildings on the Athenian Acropolis. Perhaps we should be more aware of his response to Ottoman architecture. When he visited the Süleymaniye Mosque in 1911, although horrified by the painted decoration on the inner surface of the dome, he wrote:

It must be a silent place facing toward Mecca. It needs to be spacious so that the heart may feel at ease, and so high that the prayers may breathe here. There must be ample diffused light so as to have no shadows; the whole should be perfectly simple; and a kind of immensity must be encompassed by these forms ... At a glance one sees the four corners, distinctly feels their presence and then construes the great cube perforated by small windows. ... overhead is a vast space whose size one cannot grasp, for the half sphere has the charm of eluding measurement ... All these things are clothed by a majestic coat of whitewash. The forms stand out clearly; the impeccable construction displays all its boldness.⁵

NOTES

¹For a concise biography of Sinan, a bibliography and further pictures, refer to my website at <http://www.arch.wsu.edu/~slides/ottoman.htm>

²Reha Günay, *Sinan, the Architect and his works*. Istanbul, Yapi Endustri Merkezi Yayinlari, 1998 p.52

³See Atterbury and Wainwright, *Pugin: A Gothic Passion*. Newhaven, Yale University Press 1994. p. 276

⁴Charles E. Jeanneret, Le Corbusier, *Voyage d'Orient: Sketchbooks*. Ed Giuliano Gresleri, New York, Rizzoli. 1988