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LOUIS KAHN'S FIRST UNITARIAN CHURCH: LIGHT AND THE MAKING OF A MONUMENTAL ROOM

Louis Kahn's 1944 account of monumentality in architecture alludes to a building's association with gold. While this informed subsequent designs for interiors, their elevated status stems from light suffused with less venerated colours. His approach can be discerned in the auditorium of the First Unitarian Church (Rochester, 1957-67). This room is enriched by a folded-shell roof, which is made of concrete but can seem to contain light.

Gothic and Early Christian buildings will inform an interpretation of the auditorium. This involves light and the interlocking of all parts of the interior, including the clerestories, walls, shell roof and columns. For Kahn, light that passes through the high openings ultimately resides in the canopy. This form's grey concrete is thereby transformed into a silvery light. The monumentality of the room is represented by luminous colours, which include silver but not gold.

Louis Kahn's auditorium of the First Unitarian Church in Rochester, New York (1957-67) accommodates worshippers who appreciate the cross-shaped canopy because the concrete is heavy but also seems to be weightless. Kahn accentuated the form's solidity and mass by showing the supporting members, which are sturdy columns and flying tie-beams. Constructed in reinforced concrete, this spatial element will be discussed as a modern version of a traditional Christian baldacchino. It is a framed space encased within the room, whose walls rise at the corners to assist in creating towers with clerestories. In the auditorium, light from the high openings transforms the otherwise opaque and dull material of the folded-shell roof. By seeming to absorb light, this canopy's sombre and grey concrete takes on the appearance of silver. It is not mundane but wondrous.

Kahn's 1944 essay titled "Monumentality" introduced the topic with the comment that "Gold is a beautiful material. It belongs to the sculptor." He then attended to his own discipline: "Monumentality in architecture may be defined as a quality, a spiritual quality inherent in a structure which conveys the feeling of its eternity, that it cannot be added to or changed."¹ For Kahn, the monumental status of an edifice can derive from its lustrous colours, most importantly gold. While remaining committed to this conception of architecture, Kahn focused on the hues in daylight that can enrich the exterior and interior of a building. An early achievement was the auditorium within the First Unitarian Church. This sacred space includes the canopy that has assumed the glow of silver. For Kahn, the concept of a monument as outlined in debates from the middle of the 1940s was vital to the auditorium, even though the grey of the concrete was not turned into gold. The monumentality of the sacred room was represented by a silvery light. This set the tone for ensuing designs, where a room's canopy and accompanying space were animated by natural light's colours.

The interiors of renowned historical buildings will be used here to introduce two conceptions of light and structure, which offer insight into Kahn's design for the auditorium. His study in 1959 of Albi's Gothic cathedral (completed in 1492) is relevant to the first account of a luminous room.² The nave of this building and the scheme from 1960 for the auditorium are analysed in terms of a shared compositional logic. This was discussed in 1961, when he explained that an architect's idea about the light of a room informs its design, where apertures and forms interconnect. Different past buildings are germane to the second interpretation of light and structure in the auditorium, which considers the extraordinary character of the canopy. Emphasis is placed on the interiors of Early Christian buildings, where an apse or dome can be enlivened by a decorative program in mosaic that incorporates a radiant cross. The traditional image prompts an inquiry into an aspect of the auditorium, where light resides within the cross-shaped canopy.

1959: The Study of the Nave of Albi Cathedral

Kahn referred to Gothic architecture as a source for the First Unitarian Church in 1961, when he discussed the light and structure of an interior. He addressed the recently resolved design for the auditorium of the church by noting that: "It's very Gothic isn't it? Does it bother you? I like it myself."³ The 1959 trip to Europe provided inspiration for the scheme. Kahn's visit to the town of Albi in the south of France was especially significant, because the cathedral's nave conforms to his emerging theory of an interior, where its diffused light derives from relationships between the windows and imposing built forms.

Kahn's drawings of the monument's exterior convey a regard for forms that have ample proportions, and are therefore unlike those of a contemporary High Gothic building in a town near Paris. The exterior of Amiens cathedral, for instance, is characterised by flying buttresses. With these elements resisting the diagonal forces transmitted from the vaults and roof, the building does not require massive walls and columns. Moreover, light that passes through the clerestories into the interior is hardly impeded by the structural forms. Kahn recognized that the composition is based on a principle in which a design accords with nature, defined in terms of gravitational forces. This determines

the slender dimensions of the structural elements. However, the interior of an historical monument enriching his late projects has a different kind of logic, which involves light that is animated by falling on thick forms, including walls, buttresses and columns. Albi cathedral served as a guide for his mature work.

When sketching the exterior of Albi cathedral, Kahn was aware that the curved buttresses cannot alone counter the forces emanating from the roof and vaults. For him, these forms lack the requisite depth. The stability of the cathedral depends on the periphery of the interior. This is especially clear in the nave, where the two long sides are defined by powerful straight buttresses, set at right angles to the main axis. These thick forms rise up through two levels to support the quadripartite vaults spanning the main space. Each peripheral volume is open to the nave but has walls on the outer and lateral sides. Kahn could focus on the upper level, where light passing through a window in the external wall falls onto the two adjacent ones. This space, which is set within the buttresses, contains diffused light. The series of such volumes illuminates the high vaults, as well as the central setting. For him, the overall space is characterised by bold forms and layers of subdued light. Albi cathedral's interior contributed to his on-going regard for an interior's light, which depends on a composition of interlinked apertures and imposing built forms, including the buttresses.

1960: The Final Scheme for the Auditorium

The cathedral at Albi was invoked in Kahn's final design from 1960 for the auditorium of the First Unitarian Church. With construction completed two years later, he could appreciate the diffused light of this sacred interior, which derives from the disposition of the clerestories, as well as accompanying forms. An account of Kahn's monumental room begins with office drawings, particularly those that show how forms are essential to the filtering of light.

According to the plan and section of the First Unitarian Church, the auditorium is surrounded on three sides by two levels of corridors and classrooms.⁴ The section shows that these two kinds of spaces are separated by walls, which rise above the second floor to articulate the upper part of the auditorium. Now belonging to the main interior, the walls continue to meet the shell-roof and, at the four corners, assist in creating cubical towers of light. As each of these is only glazed on its two inner sides, the sky is largely removed from a worshipper's view. With glare diminished the nuances of reflected light can be discerned.

Kahn's conception of light within the auditorium involves the clerestories and the cogently supported folded-shell roof, as well as a relationship between the lower concrete block walls, the higher concrete ones and a horizontal form between them. The lower walls, which comprise two skins of concrete blocks, create a human-scaled domain within the overall room. The visible skin is subdivided by vertical slots into segments that differ in size. Such formal variety is enhanced by doors, as well as tapestries designed by Kahn. As shown in the section, the character of the setting also depends on the stepping forward of the concrete block walls. A space is thereby created on the other sides for two levels of corridors. Within the auditorium, a person can look above the inner walls to the slightly set back higher concrete ones. An appreciation of the luminous auditorium depends on the roof of the second storey circulation space. An occupant of the main setting cannot see the horizontal surface. Nonetheless, its contribution to the interior is evident: light from the clerestories falls onto the high concrete walls and the roof of the corridors. Such light is then directed up to the strategically inclined surfaces of the folded-shell roof. As a consequence, the shifting effects of light from the sky outside are revealed and absorbed by the concrete vault. While held up by columns, it can appear to hover, cloud-like, above the congregation.

This canopy is a component of a powerful framed element that has the sheltering quality of a traditional baldacchino. In Kahn's structural solution, each of the four arms of the cruciform shell roof is supported by a pre-stressed concrete motif, which comprises three columns and a flying tie-beam. Although embedded in the auditorium's outer skin of concrete blocks, the thin gaps of the inner one offer glimpses of the vertical members of the motif. Its three columns come into full view when emerging from the lower wall, to stand proud of the upper concrete one. With their tie-beam, Kahn devised a structural motif that is a sculptural object, modelled by light and shade. The four motifs and the shell roof are brought together to constitute the modern baldacchino. Unlike an historical example, his version neither has columns at four corners, nor is it a relatively small element over an altar or sacred object. Moreover, the arms of the shell roof extend beyond their columns to meet the upper wall. The canopy is therefore part of both a framed structure, namely the baldacchino, and the system of concrete block and concrete walls.

The baldacchino's folded-shell roof is supported by vertical members, which are not merely stated but forcefully proclaimed, as their function includes stimulating a beholder's empathy. Due to the sloping surfaces of the canopy, each motif has two tall columns flanking a shorter one. The middle one has a striking capital that marks the connection between the shaft, the tie-beam and the lowest part of the shell, where loads are concentrated. For Kahn, the motif's arresting configuration will be imitated in the posture of the beholder. Feelings accompanying such bodily movement are projected into the structure, which consequently takes on a life-like demeanour. The underlying theory of empathy was later endorsed in the 1971 didactic drawing of *The Room*, where Kahn linked the shapes of the vault, ribs and window to those of the human figures. Architectural elements are emulated by the occupants, who lean towards each other.⁵ While the sketched composition differs from that developed for the church auditorium, a constructed motif was intended to induce an empathetic response. The beholder readily attributes human characteristics to the built forms, so that the capital and tie-beam even appear to be a person's head and shoulders, while two arms reach-up vigorously to sustain and stabilize the concrete shell roof.

A worshipper's perception of the auditorium's anthropomorphic motifs and their cruciform shaped canopy could be enhanced by the invocation of a traditional devotional theme, in which one's connection to Christ is based on the idea of carrying his cross. A person familiar with the Bible knows Christ's directive to his disciples: "If any man will come after me, let him deny himself and take up his cross and follow me."⁶ The same exhortation is pertinent to the way Christians identify themselves with the historical figure of Simon of Cyrene, who was instructed by Roman soldiers to carry the cross of Christ on the road to Calvary.⁷ These two biblical references have been expounded upon throughout the centuries by preachers, writers of devotional texts and artists. The auditorium's structural motifs, which hold-up the cross-shaped canopy, therefore prompt a beholder's imaginative involvement in the act of sharing Christ's burden. This adds to one's sense of belonging to a community defined as followers of Christ.

1961: The Theory of Light and Structure

In Kahn's essay from 1961, the reference to the Gothic character of the auditorium is associated with a principle, where the alternative to universal space involves an envisaged quality of light informing the design of a room. He explained that:

[A] space is made...with the consciousness of possibilities of light because when you have a...column or a vault or an arch, you're saying that light is possible. So therefore the means of making space already implies that light is coming in and the very choice that you make of the element of structure should also be the choice of character of the light that you want.⁸

Kahn recalled Gothic buildings, such as Albi cathedral's nave, where the diffused light derives from the interconnected apertures and structural forms. This remained relevant to his scheme for the auditorium. He respected the logic of the interior of Albi cathedral, while taking apart its essential components, including the high windows, walls, buttresses, quadripartite vaults and colonettes. These were reconfigured and reassembled in the auditorium. The Gothic colonettes became the concrete columns of the structural motifs of Kahn's interior. In addition, the traditional groin vault was inverted to create the modern folded-shell roof, whose surfaces are angled upwards to assume a decisive role in the illumination of the auditorium. Gothic architecture was germane to his design of the interior, in which light from the clerestories is revealed by a shell roof and walls made of concrete blocks or concrete. A textural light is engendered by the tightly-knit arrangement of openings and built forms. The nave of Albi cathedral and the design for the auditorium were recalled in his theoretical statement from 1961, where light is critical to the making of a rigorously structured room.

Early Christian Architecture: a Luminous Cross

However, the interiors of earlier Christian buildings, including examples adorned with mosaics representing a silver or gold cross, offer insight into the significance of the auditorium's radiant canopy. Analysis of the historical spaces begins with Kahn's regard for Florence's Romanesque baptistery (1059-1128). For him, the interior is remarkable because it is adorned with sacred scenes in mosaic. In the Gold Medal Acceptance Speech from 1971, he referred

to the interior of the baptistery, where the structure of the dome is concealed behind the representation in mosaic of a narrative cycle, comprising scenes from the Old Testament. He could appreciate the seamless embellishment of the interior. Moreover, Kahn stressed that a depicted figure in a sacred story may "inspire thoughts," in the manner of a conversation between two people.⁹ As a result, a beholder and a Biblical personage are brought together, with the harbouring space of the baptistery providing a suitable setting for their discussion, along with its outcome of a meeting of "vectors." Kahn's response to the dome encompasses sympathy with the illustrated figures, as well as the colours of the layer of mosaic ornament. Its prominent gold *tesserae* link the scenes, while reflecting light and adding to the sacred ambience of the space.

Kahn could also appreciate the role of mosaics in embellishing the interiors of Early Christian buildings. During his stay at the American Academy in Rome during the winter of 1950-51, he had the opportunity to study the city's renowned ancient monuments, as well as Christian ones, such as Santa Pudenziana (4th century). Here, the apse features a mosaic of Christ and the apostles enthroned before the heavenly Jerusalem, with a jewelled cross dramatically silhouetted against the sky. The interior of the Mausoleum of Galla Placidia, Ravenna (5th century) is also compelling, because of the way all the upper surfaces of lunettes, barrel vaults and dome are completely sheathed in mosaic, creating the impression of a heavenly jewel box.¹⁰ In a dazzling evocation of the dome of heaven, the crossing is adorned with a gold cross and encircling stars set within a deep blue field.¹¹ The representation of heaven is held aloft by arches resting on corner columns. This creates the sense of a baldacchino, which defines the central volume.

Like the interior of the Mausoleum of Galla Placidia, Kahn's auditorium of the First Unitarian Church is enriched by a cross and a baldacchino. Yet while the cross of the mausoleum is a radiant image in its dome of heaven, the version belonging to the modern interior is a structural form. This luminous shell roof has a cross-shape and is supported by tie-beams and columns. He thereby designed a baldacchino that plays a part in the articulation and illumination of the overall space.

Conclusion

The interiors of historical buildings have contributed to an inquiry into the auditorium, specifically two ways of conceiving the relationship between light and built forms. In the first of these, Kahn suggested that Gothic architecture conforms to a principle concerning light and an interior's interconnected forms. Albi cathedral was considered, because he could study its nave, where light from high windows falls onto the buttresses and the lofty vaults. This was vital to his 1960 design for the auditorium, whose salient elements are the clerestories and canopy, as well as two kinds of walls and the horizontal form between them. He commented on the composition in 1961, when noting that an imagined quality of light within an interior determines the arrangement of its openings and built forms. The second association of light and an interior involves the sacred form of a cross, particularly as discerned within Early Christian buildings and Kahn's auditorium. The interior of the Mausoleum of Galla Placidia was discussed in terms of its mosaic ornament, including a radiant gold cross set within a dome of heaven. This is germane to an understanding of the auditorium's folded-shell roof, which has the shape of a cross and seems to contain light. Gothic and Early Christian buildings informed an interpretation of Kahn's auditorium, whose attributes include columns supporting the luminous cross-shaped canopy. This rigorously framed space, which is a modern baldacchino, belongs within the overall room articulated by clerestories and walls.

Renowned buildings, including the Gothic cathedral at Albi, assumed a role in establishing the monumentality of the auditorium. Kahn was especially concerned with the folded-shell roof: it is solid and a burden to be carried; yet also ethereal and wondrous. A worshipper's response to the interior involves empathy with the baldacchino, in which the columns and tie-beam support the heavy canopy. At the same time, however, he or she values this canopy because seemingly translucent and suspended within the auditorium. With the sombre and dull concrete of the canopy absorbing light, its grey is transformed into silver. Kahn's argument from 1944, where monumentality in architecture is associated with gold, remained relevant to this work. However, the elevated status of the auditorium is attained through a compositional strategy, in which light from the clerestories in the towers assumes a silver hue within the canopy.

Endnotes

- 1 Louis Kahn, "Monumentality", ed. Paul Zucker, *New Architecture and City Planning* (New York: Hubner, 1944).
- 2 For a discussion of Kahn's drawings of Albi cathedral, see Eugene J. Johnson and Michael J. Lewis, *Drawn from the Source. The travel sketches of Louis I. Kahn* (Cambridge and London: MIT Press, 1996), 102-107. The drawings are also published in Jan Hochstim, *The Paintings and Sketches of Louis Kahn* (New York: Rizzoli, 1991), 324-330, 467-478.
- 3 See Louis Kahn, *Writings, Lectures, Interviews* (New York: Rizzoli, 1991), 140. (Originally published as "Louis I. Kahn", *Perspecta 7: The Yale Architectural Journal*, 1961: 9-18. The statement is discussed in Kenneth Frampton, *Studies in Tectonic Culture. The poetics of construction in nineteenth and twentieth century architecture* (Cambridge and London: MIT Press, 1995), 235.
- 4 See Heinz Ronner and Sharad Jhaveri, *Louis I. Kahn: complete work, 1935-1974*, 2nd ed., (Basel and Boston: Birkhäuser, 1987).
- 5 This topic of empathy in Kahn's work can also be appreciated by comparing *The Room* with Frank Furness's choir-like reading room in the University of Pennsylvania Library. On the didactic drawing by Kahn, see Peter Kohane, "Louis Kahn and the Art of Drawing a Room", ed. Noriko Tsukui, *The Houses of Louis Kahn; Architecture + Urbanism*, 461, Feb. 2009: 171-174.
- 6 Matthew 16: 24.
- 7 Matthew 27: 32; Mark 15: 21; and Luke, 28: 26.
- 8 Kahn, *Writings, Lectures, Interviews*, 131.
- 9 In his Gold Medal Acceptance Speech of 1971, Kahn noted that "[i]f this room were the Baptistery of Florence, [an] image would have inspired thoughts in the same way as person to person....So sensitive is a room." For the speech, see Louis Kahn, "The Room, The Street, and Human Agreement", *AIA Journal*, vol. 56, no. 3, September 1971. Kahn could appreciate the mosaic decoration of other historical interiors in similar terms, such as the basilica of St Mark's in Venice. He sketched the exterior of the building in the winter of 1950-51.
- 10 For the mausoleum, see Ernst Kitzinger, *Byzantine Art in the Making* (London: Faber and Faber, 1977), 53ff; and fig. 98.
- 11 Karl Lehmann, "The Dome of Heaven," *Art Bulletin* 27 (March 1945): 1-27.