Weaving the Monumental Surface
First Christian Church, Columbus, Indiana

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"Weaving was never looked upon as folk art. Along with all the other decorative or applied arts it was seen in direct relationship to architecture. Carpets, hangings, and furnishing materials carried motifs found in floor, ceiling, window, or wall treatments executed in stone, brick, wood, or metal."

Christa Mayer Thurman[1]

"Ornament represents the spirit of man in abstract form. It transposes the rhythmic characteristics of time in to a significative pattern of line, form, and color. It evolves from the simple toward the rich, from directness toward symbol. In this evolution, ornament assimilates new ideas, new thoughts, and new patterns."

Eliel Saarinen[2]

By 1938 Eliel Saarinen, in addition to his role as director and head of the Architecture Department, had completed the first primary works at Cranbrook and was working on an increasing number of independent commissions. At the same time, his wife, Loja was the head of the Cranbrook Weaving Department and the principal textile designer of Studio Loja Saarinen. Under her supervision, the Studio Loja Saarinen had produced textiles and carpeting for many of the early Cranbrook buildings, often in direct collaboration with Eliel, in order to ensure a total architectural environment sympathetic with the arts and crafts ideals of the academy itself. But while the design relationship between weaving and architecture had been explored at Cranbrook as a unidirectional strategy – textiles reflecting the architecture – a reciprocal more symbiotic relationship remained elusive. This paper hypothesizes that it was in the analogous application of the weaving process to architecture that Saarinen discovered the solution.

The First Christian Church, in Columbus, Indiana demonstrates how a new correlation between weaving and architecture was manifested in the surface articulation of architectural form. In the process of this exploration several questions will be asked. What were the antecedents of this articulation strategy in Saarinen's architecture and textile designs? How did the discontinuous weft technique favored by Loja Saarinen provide inspiration for an architectural language of pattern, system, and

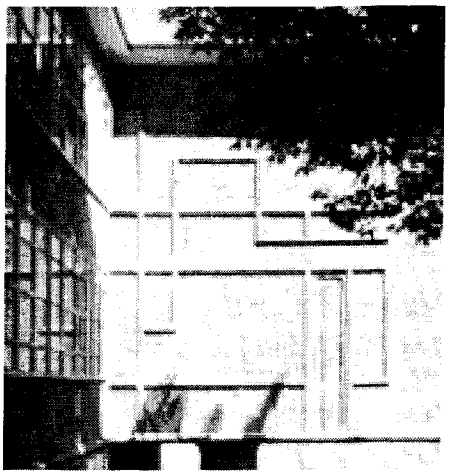

Fig. 1. Brick Pattern, First Christian Church.

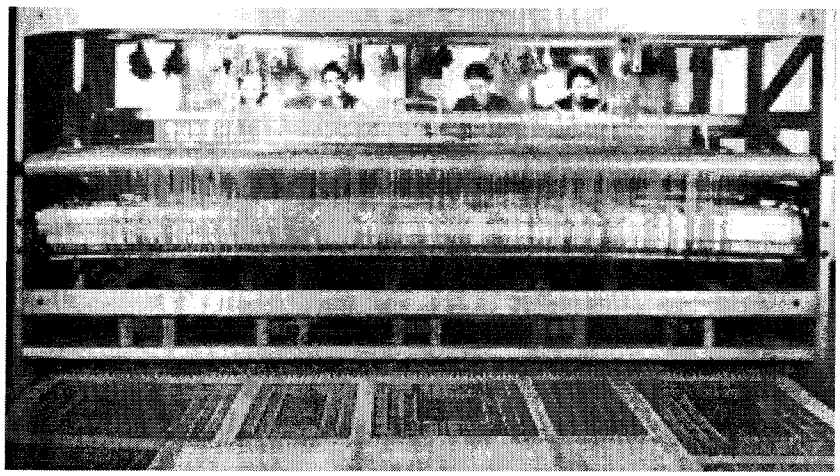

Fig. 2 Studio Loja Saarinen Weavers, "Exhibition Rug" with brick pattern.

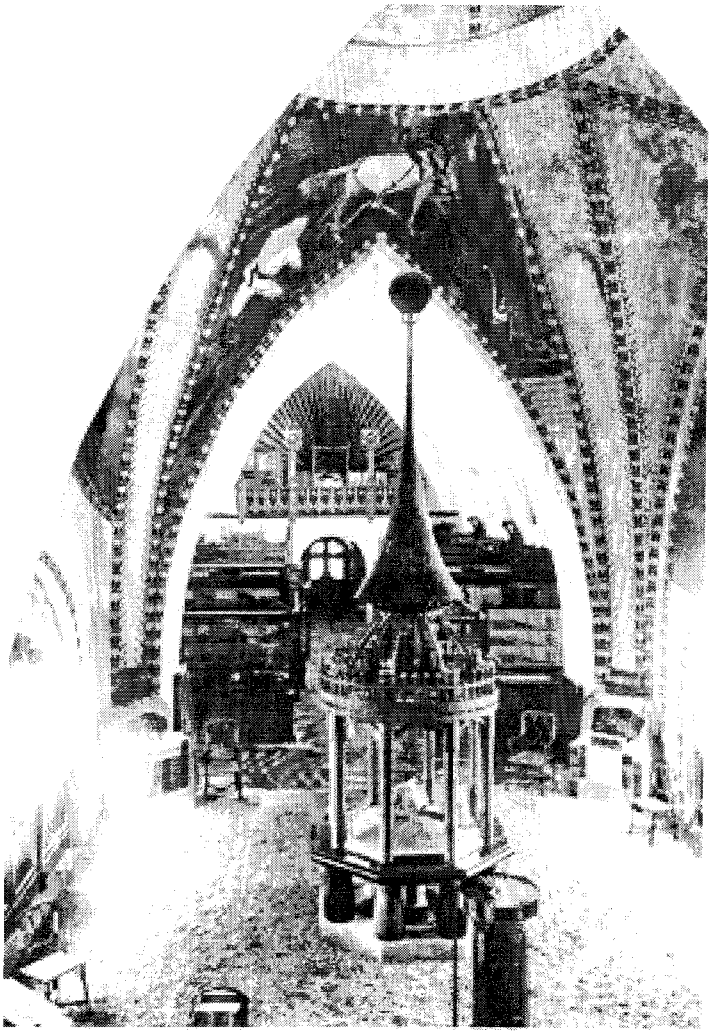

Fig. 3. Canvas Painted Interior of Finnish Pavilion.

flexibility inherent in weaving process? How did this application of analogous thinking enable Saarinen to obtain a sense of lightness and depth in the architectural surfaces? And finally, how was this articulation theme advanced and evolved in Saarinen's later works, eventually leading to the dissolution of the monumental surface?

SURFACE IN SAARINEN'S FINNISH PROJECTS

Beginning in 1899, Eliel Saarinen, in partnership with Armas Lindgren and Herman Gesellius, figured prominently in the development of the National Romantic Style in Finland. Each partner brought particular talents to the work; however, Saarinen was regarded as the driving force behind the refinement of the architectural surfaces. The Finnish Pavilion for the Paris World Fair in 1900 was Saarinen's first investigation into the nature of surface. The pavilion was a reinterpretation of a Finnish folk church and consisted of a single "nave" with an implied crossing beneath a tower; however as a temporary structure the outward appearances were deceptive and contradictory. The only durable materials of the project were the two stone portals that marked the main entrances. In these, Saarinen adopted a surface texture of dressed stone, with ornamentation concentrated around the openings. The flat surface rendered a sense of tautness to the exterior which expressed the expansiveness of the contained volume. The tactility of the material facades were contradicted by the plasterboard and stretched canvas on wooden frames used for the remainder of the structure. While these materials were functionally dictated by the temporary nature of the pavilion, the reality of the interior surfaces echoed the implied tautness of the exterior stone and Saarinen took full advantage of the tension created between them. The vaulted space beneath the tower was painted with frescoes by Alexi Gallen-Kallela, thus rendering the primary space of the pavilion as an enveloping colorful woven enclosure whose spatial expansion was only tenuously arrested by the outer masonry wall (Fig.3). It is natural to speculate that in his first major work, completed when he was only twenty-seven, Saarinen was affected by this opposition between materiality and surface articulation, and that the experience of the canvas and stone pavilion reverberated through the rest of his career.

By 1904 the debate between the advocates of National Romanticism and supporters of a more functionalist expression reached a climax. Centered on Saarinen's winning proposal for the new Helsinki Railway Station[3], the debate came at a pivotal moment in Saarinen's formative period. In the short time since 1900 the partnership had created progressively more complex projects; however, the rusticated materials and picturesque surface ornamentation that were hallmarks of the Romantic Style led them further from the studied refinement of the Paris Pavilion. The effect of the criticism leveled against the Helsinki station resulted in an almost complete purging of historical and iconographic references from the initial design; broad planar surfaces were dissolved into the repetitive vertical piers that generated the overall texture of the finished project. The criticism of advocates for a more modern simplicity in Finnish architecture had literally changed the course of Saarinen's surface development.

The Pohjoismaiden Osakepankki Bank was developing concurrently with the Helsinki station, and almost immediately underwent a similar revision[4]. Saarinen's initial design of the elevation included crenellations and other surface treatments comparable to the original railway station proposal. Sometime in 1904 the elevation was altered. The façade was almost entirely stripped of ornament and the remaining articulation was abstracted and concentrated around the central projecting window. The tautness of the stone plane was reinforced by the precise incision of the openings which brought the design closer to the expressive quality of surface evident in the 1900 Pavilion than any of the intervening National Romantic projects. For the remainder of his time in Finland, Saarinen worked with the surface articulation strategies generated by both the broad plane of the Osakepankki Bank façade and the

vertical piers of the Helsinki Railway Station and eventually continued that exploration in America. Following his acclaimed second place entry in the Chicago Tribune Competition, and faced with few prospects in the depressed post-war Finnish economy[5], Eliel emigrated with his wife Loja, and their children, Pipsan and Eero, and eventually settled in Michigan. There he met George Booth, the founder and patron of what was to become the Cranbrook Academy.

TRANSITIONAL WORK IN AMERICA

Booth's patronage was manifested in the design and development of the buildings for the Cranbrook campus. The School for Boys (1927), Saarinen House (1930), and Kingswood School for Girls (1931) continued to carry the articulation strategies that Saarinen had initiated in Finland. These projects employed broad surfaces in conjunction with repetitive piers lending strict definition to the volumetric masses. The School for Boys suffers from Booth's stipulation that the complex incorporate existing farm buildings into the architectural scheme[6]; however, around the exterior Saarinen assembled individual openings into larger figures and concentrated articulation around them allowing the continuity of the brick texture around the corners to reinforce the monumentality of the masses.

The Kingswood School for Girls is a transitional project that more clearly established the evolutionary direction of Saarinen's work. The external volumes exhibit Saarinen's preference for broad masonry surfaces contrasted against highly articulate fenestration and balanced with rhythmic groupings of piers and openings. Saarinen's attitude of articulation at Kingswood is far removed from his representational playfulness of National Romanticism and consisted primarily of abstracted geometric patterns in stone and manipulations of the brick coursing that create subtle pattern changes in the vertical and horizontal surfaces.

It is also at Kingswood that Saarinen fully embraced the opportunity of gesamtkuntswerk – a German term meaning the design control of the complete environment[7]. During his career in Finland, Eliel had often produced designs for furniture, textiles, and other household items in the natural development of architectural schemes, including the villa Suur-Merijoki, the Osakapankki Bank, and the Saarinen's own house, Hvittrask. His philosophy complimented Booth's Arts and Crafts intentions for the Cranbrook campus and they concluded that the new buildings would visibly demonstrate the gesamtkunstwerk concept[8]. At Kingswood contributions were made by his son, Eero, who designed furniture; his daughter, Pipsan, for the interior design; and his wife Loja, who participated in the design and weaving of the carpet and textiles.

STUDIO LOJA SAARINEN, WEAVERS

Loja Saarinen had studied sculpture and was always an active participant in the life of Eliel's studio, often building models for his architectural projects[9]. She was knowledgeable about weaving and kept a loom at Hvittrask where she wove many small textiles for use in the home[10]. During the early discussions about Cranbrook, it was through her suggestion to George Booth that it was decided to have all textiles for the new buildings designed and woven at Cranbrook in the spirit of gesamtkunstwerk. To that end, Studio Loja Saarinen was established in 1928,[11] and the first products from Loja's studio were for the Saarinen's new home on the Cranbrook campus and the Kingswood School for Girls.

The carpets designed by Loja exhibit a direct correlation to the architectural environments for which they were intended. In the Saarinen House, the orthogonal geometric themes employed in the carpets are clear abstractions of brick masonry and immediately recall similar surface articulations that were being explored by Eliel at Cranbrook. The living room rug, the studio alcove rug, and the "Exhibition Rug" in the main studio each adopt variations on a similar theme, using different sized fields of repetitive units offset by bands of contrasting color rendered in the same dimensional unit. In the living room rug, the stepped repeated pattern reflects a similar motif found in the brick chimneys at Kingswood and reinforces the linear axis of the space. The studio alcove rug is an asymmetric distribution of fields of varying dimension that occupy the entire surface. Finally, the "Exhibition Rug" in the main studio employs similar fields as a border; however, the contrasting bands that separate the fields extend to the center of the surface and connect to create a network of irregular geometric figures (Fig. 2). Although the Saarinen House carpets are solely attributed to Loja, the clear but abstracted architectonic references reappear in the carpet designs for Kingswood where Eliel and Loja worked in collaboration; thus clouding the issue of attribution and raising the possibility that Eliel was experimenting with new patterns in the textiles in advance of future architectural applications.

In addition to the carpets, Studio Loja Saarinen produced curtains, tapestries, and other delicate textiles in conjunction with the Cranbrook projects. For these ornamental pieces, Loja employed a weaving technique known as the Handarbetets Vänner technique[12]. The H.V. technique used a plain weave with discontinuous wefts that allowed for each color field to be woven separately and returned around inner warp threads without extending to the selvedge at each edge of the piece. In the H.V. variation, the textile is enhanced through the inlay of additional threads into the primary weave. The ability to alter the textile through a non-invasive technique provided maximum design flexibility to the weaver, allowing changes to the piece even after the primary patterns had been woven.

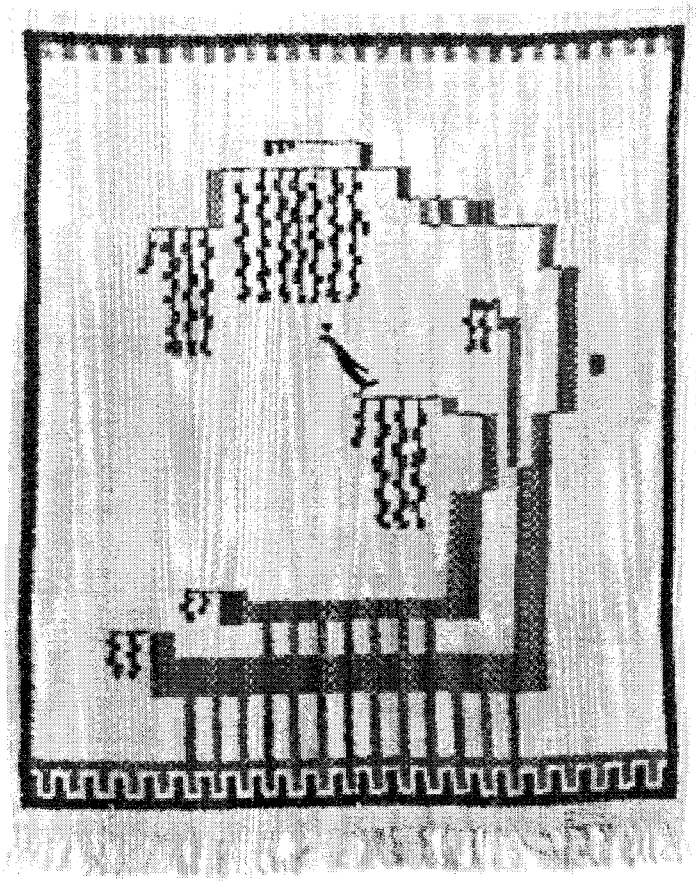

Fig. 4. "Peacock Hanging" Loja Saarinen 1932.

As Loja's experience with the H.V. technique increased, design strategies that were inherently expressive of the Cartesian structure of the fabric began to reveal themselves. Some early examples of this technique include curtains for the Saarinen House and the large "Festival of the May Queen" tapestry for Kingswood. In these pieces Loja relied on the simultaneous use of overlap and a superimposed grid to place figural elements within the implied spatial depth of the weave. Curvilinear forms were eschewed in favor of an abstracted orthogonal matrix that often included asymmetric lines of pattern reminiscent of the central composition of the "Exhibition Rug." This compositional strategy is best represented in the "Peacock Hanging" of 1932 (Fig. 4). Although not in the discontinuous weft technique, the stylized orthogonal representation of the natural elements in the piece is significant in that, rather than serving as backdrop texture, as in the "May Queen," the geometric abstractions are the primary compositional device.

The 1935 weaving that depicts the Cranbrook campus, designed jointly by Eliel and Loja, extends the range of depth possible in the grid of the weave. In this piece, again using the H.V. technique, the designers explored superimpositions of abstract rectilinear figures representing buildings and paving on the Cranbrook campus. Surrounding the central figure of the Academy of Art, a sense of compositional transparency is achieved through broken alignments that suggest an implied grid across the piece. The abstract nature of the perimeter elements and variations in width, color, and adjacency combine to create a complexity of depth and spatial interpretation that carries the tapestry beyond the initial representational intent of the subject.

The increasing complexity of the new ornamental pattern in the Saarinen textiles was developing against the backdrop of an evolving asceticism in the architectural projects coming from Saarinen's office. In his first American works, Saarinen relied on motifs and design strategies he had initiated during his early career in Finland. This style was distinguished by clearly defined but informal massing, an insistence on exploring monumental form, and the articulation of that form through complex ornamental patterns. In the Cranbrook Institute of Science (1933-37) ornamental articulation is almost completely absent, and the building is reduced to a collection of volumes delineated by broad expanses of brick masonry. The stark simplicity of the work of the late 1930's has been attributed to the influence of Eliel's son, Eero, who, after attending Yale University and working briefly in Finland, returned to Cranbrook in 1936 and joined his father in practice[13]. Eero brought to the office a perspective that was influenced by Finnish Functionalism and concurrent developments in post-depression industrial design. As a result, the subsequent collaborative projects attempt to reconcile the Eero's sense of functional clarity with the elder Saarinen's affinity for material and monumental form. Thus the austerity of the Institute of Science marked the end of Eliel's transitional period in America. Having purged architectural surfaces of articulation while simultaneously exploring pattern structure in textiles, the stage was set for Eliel Saarinen to investigate the intersection between weaving and architecture in subsequent projects

WEAVING THE MONUMENTAL SURFACE

The First Christian Church in Columbus, Indiana is composed of diagrammatically separate rectangular masses arrayed around a sunken terrace and reflecting pool. Owing to the collaborative effort between Eliel and Eero at the time, particular distinctions of attribution are difficult to conclude. It is certain that Eero's tangible contributions to the project include the design of light fixtures and other fittings, and it is probable that the clear prismatic quality of the massing was derived in part through Eero's influence. But what is more certain is that the details of surface articulation fell squarely within the elder Saarinen's controlling hand, and throughout, the freshness of that articulation reflects his emerging sensibility about the nature of surface.

Central to this argument is the "Sermon on the Mount" tapestry designed jointly by Eliel and Loja specifically for installation in the Sanctuary (Fig.5). Woven in the H.V. technique, the

composition and technical sophistication of the piece illustrates the advanced facility that Loja achieved in the ten years since her studio was established. In the large surface of the cloth, the early compositional themes of the implied grid, geometric abstraction, and spatial transparency are combined to create a sense of unity and depth unmatched in her previous work. As this weaving was produced simultaneously with the design for the church, it is conceivable that the geometric armature of the cloth and resulting figural elements must have resonated with the architect, and possibly revealed to him how those strategies could be extended into the architectural surface.

The masses of the First Christian Church are clad in buff-colored brick and Indiana limestone. Given the architect's emphasis on massing in the early Cranbrook projects, the choice of brick should be considered from the standpoint of texture[14]. In the absence of ornament, the rough but repetitive texture of the brickwork was essential in softening the monumental volumes of Kingswood and the Institute of Science. But beyond mere texture, it is not difficult to interpret the running bond coursing of brick as an abstraction of plain weave, with the vertical joints representing the warp and the horizontal face of the brick representing the colored weft. Therefore, as a surface system, the unit-based network of the material provided a conceptual framework that could easily accommodate articulation through the analogous application of the H.V. inlay technique.

At First Christian Church the matrix of the running bond masonry is locally modified into projecting lines of vertical and horizontal coursing. The linear details continue lines of architectural elements, and extend the visual field of those elements into the neutral backdrop of the broad masonry surface creating a clear sense of compositional depth and spatial transparency (Fig.1). These geometric delineations recall the central field of the "Exhibition Rug" for the Saarinen house and similar motifs in Loja's textile design. Beyond formal similarities, an even broader analogy can be drawn between the idiosyncratic masonry patterns and the inlay process of the H.V. weaving technique. The geometric patterns at First Christian Church are never an invasive interruption to the pervading texture of the surface, but carefully worked into the local matrix. Just as inlay provided flexibility to the textile designer to accent the finished weaving Eliel often took the opportunity during construction to accent the surfaces by giving specific instructions for laying particular bricks[15].

Beyond the compositional depth implied in the surface patterns, Saarinen also explored the depth of the masonry veneer through perforation. Recessed service windows around the perimeter are concealed behind brick grilles that continue the tautness of the masonry membrane, uninterrupted, across the deep openings. In the tower, repeating patterns of brick-work tracery are introduced to admit light and allow the carillon to be heard. Although functional in nature, the open brickwork of the tower imparts a tapestry-like sense of lightness to the

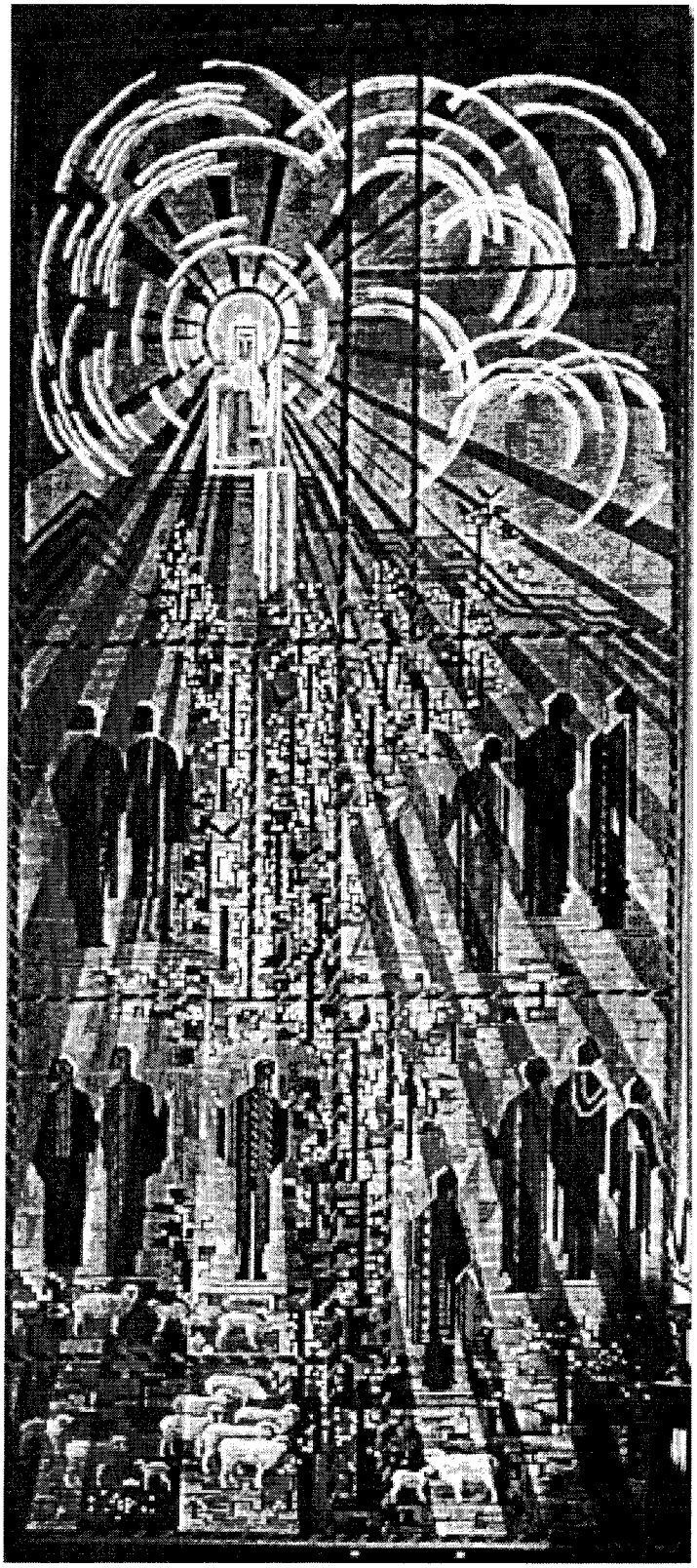

Fig. 5. "Sermon on the Mount" 1942, Loja Saarinen.

surface, contrasting the monumental severity of the tower mass, and revealing the thinness of the material (Fig.8). The perforated masonry screen would become a repeating ornamental theme for the rest of Eliel's career. In the Christ Church Lutheran (1948) and an unrealized church in Cincinnati (1949), blank interior surfaces are offset with large areas of masonry contributing a lightness and depth to the otherwise planar elements.

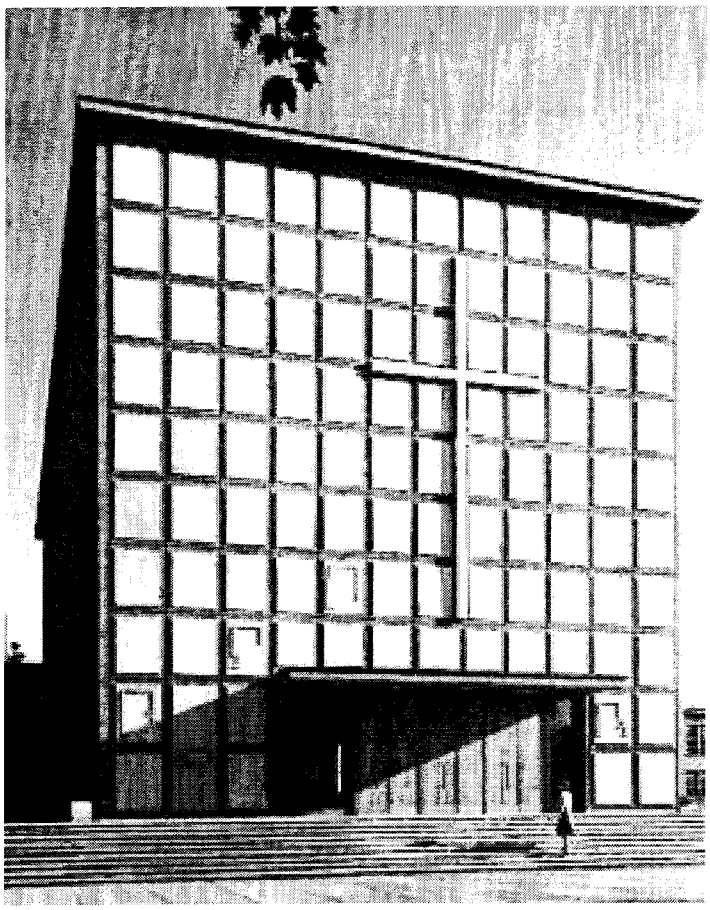

Fig. 6. Primary Façade. First Christian Church.

As a counterpoint to the woven texture of the brick surfaces, Saarinen employed large scale grids as an alternative framework for introducing variation. The most striking example is in the regular field of raised limestone panels on the primary façade of the sanctuary volume. (Fig.6) A large stone cross is inserted into the grid, and abstract lines carved in relief on four of the panels progressively lead the eye to the base of the cross. While the purpose of these cryptic figures is uncertain, the imagery is clearly drawn from the structure of Loja's "Peacock Hanging" from 1935, and similar forms that are repeated in the "Sermon on the Mount" tapestry. This strategy is continued in the paving surfaces where grids provide the organizing armature against which localized deviations are revealed. In some areas, the patterns respond to particular functional conditions such as entrances and benches, but elsewhere the patterns simply disrupt the continuity of the grid. Whether or not this derives from the grids of the early textile designs is difficult to conclude, but there are analogous pattern effects within the central figure of the "Sermon on the Mount" providing the possibility of a more direct reference.

Inside, the theme of gesamtkunstwerk achieves its fullest realization in the main sanctuary space, and the "Sermon on the Mount" tapestry serves as the primary point of reference for understanding the overall program of articulation. Broad monumental surfaces define the space, and hidden sources of light expand the interior beyond the visual field. Although the sanctuary is a strict rectangular volume, the introduction of sound-absorbing fields into the plane of the walls and ceiling is handled in a subtle geometric manner that erodes the clarity of the spatial edge. The figure of the contrasting material folds and wraps over the interior volume; giving the illusion of stretched fabric and lending spatial depth to the otherwise planar surfaces (Fig.7). Whether or not Saarinen was recalling the enveloping fabric volume of the Paris Pavilion is impossible to determine, but the reference is evocative.

The vertical windows of the western wall dissolve the surface into a rhythmic series of piers. In this surface, an ambiguous figure/ground relationship is established between the interior and exterior. Since the windows project slightly from the exterior wall, they are rendered as tapestry-like figural appliqués against the backdrop of the monumental brick surface (Fig.8); however inside the windows reveal themselves as taut translucent membranes stretched between the primary figures of the piers. The depth of the window openings on the interior establishes a clear spatial counterpoint with the figure of the tapestry hanging at the far end of the wall. Where outside the windows have a figural quality, on the interior they are the backdrop against the figure of the tapestry, thus reversing the exterior interpretation. The design of the windows themselves, which at first glance seem capricious, also suggest a close structural analogy to the woven tapestry: the random horizontals are interrupted by the continuous vertical mullions in a clear allusion to the discontinuous weft structure of the adjacent tapestry. It is important to note that the original design of the windows echoed the repeating pattern of the brick tracery in the tower, effecting a more direct relationship between the two; therefore, the eventual window design and its correlation to the fabric structure, is perhaps indicative of Saarinen's evolving discovery of the weaving theme during the design and construction process.

The rhythm established along the western wall culminates in the space of the chancel. The rear wall is flanked by the large tapestry and the canted wood organ screen. Here again the correlation between the elements continues and the weave of the fabric is reinterpreted in the verticals and horizontals of the organ screen. Within the matrix of the wood screen can be found the implied grid, geometric field, and localized variations that are echoed in the opposing fabric surface, and the dominant continuity of the vertical elements recalls the

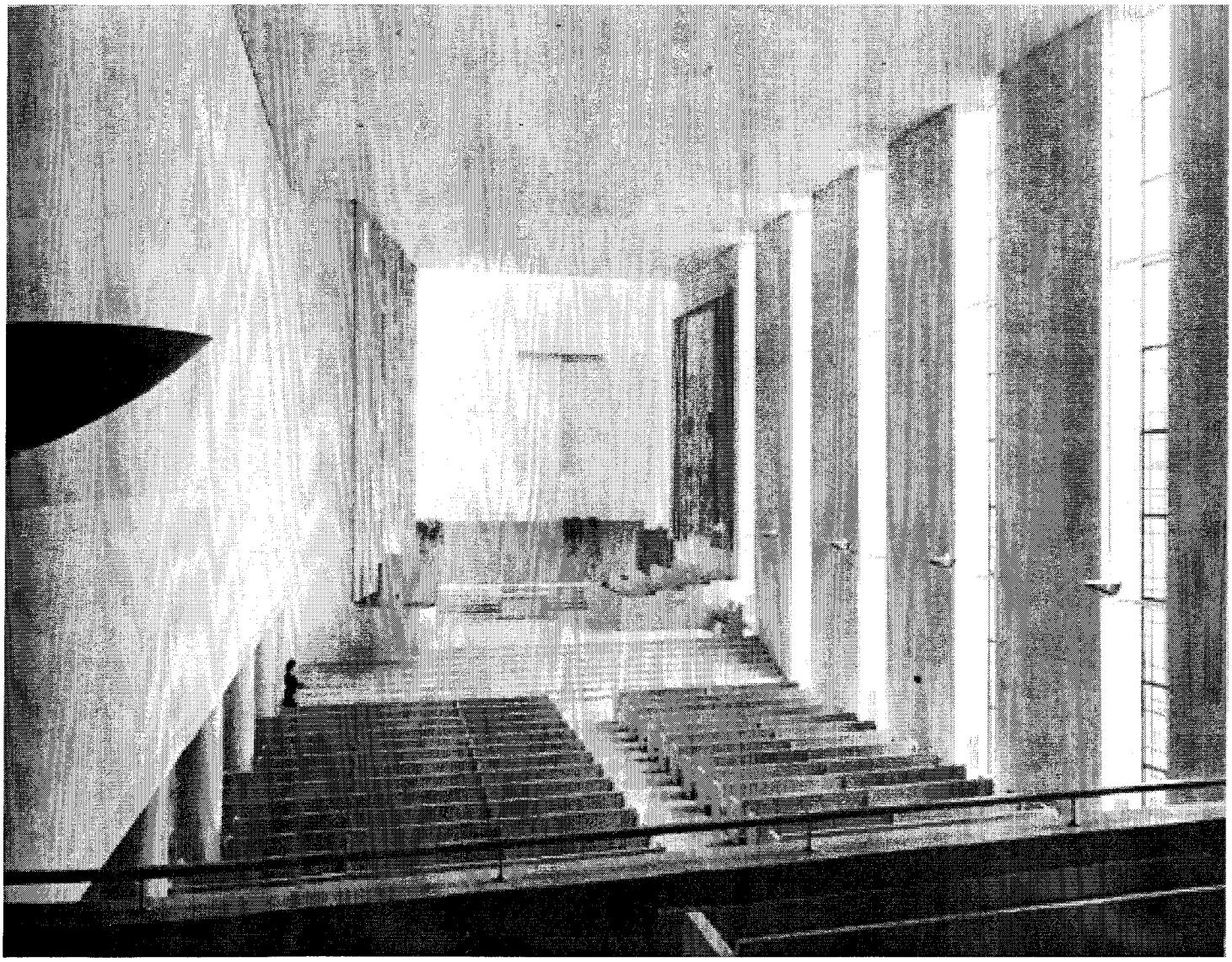

Fig. 7. Interior of Main Sanctuary, First Christian Church.

analogous structure of the west-facing windows. The culmination of this space is the unarticulated brick wall that serves as the backdrop for the cross. Painted white and naturally lit from above and the side, the texture is muted and the entire brick surface dissolves into an ephemeral plane of light within which the cross is suspended.

CONCLUSION

In his book "The City," Saarinen wrote, "Whatever form man brings forth through his endeavor and work, if honest, must be true expressions of his life, emotions, thoughts, and aspirations."[16] In this way, through the inspiration of weaving to derive new thoughts and new patterns, Eliel Saarinen arrived at an abstract strategy of form that was an honest expression of his architectural aspirations. Beyond personal expression, however, he also recognized the necessity for expressive form to "be imagined in connection with its reason for being, with its means of expression, and with contiguous forms."[17] In the First Christian Church, the contiguous form existed in the guise of the "Sermon on the Mount" tapestry, and although his subsequent work continued to refine the new design vocabulary, the later projects never matched the fresh expressiveness and correlative clarity between architecture and weaving in the absence of such a direct reference. Nevertheless, Saarinen adopted a more proactive attitude toward the monumental surface, with a material depth and plasticity that would not have been possible without the explorations at First Christian Church.

REFERENCES

[1] Christa C. Mayer Thurman, "Textiles"

[2] Eliel Saarinen, *The Search for Form: A Fundamental Approach to Art* (Reinhold, New York, 1948)

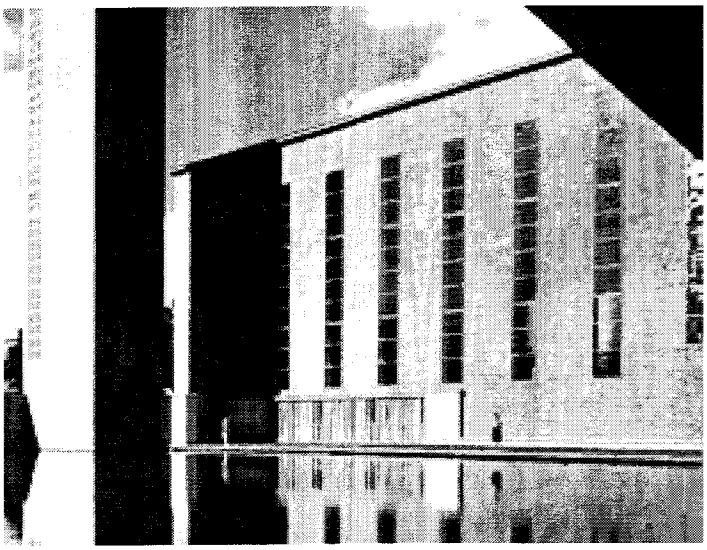

Fig. 8. Exterior of Sanctuary, First Christian Church.

[3] Nils Eriic Wickberg, *Finnish Architecture* (Otava Publishing Company, Helsinki) On Page 85 Wickberg cites the protest by Sigurd Frosterus and Gustav Strengell: "In Finland, we no longer earn our living by hunting and fishing; floral ornamentation and bears-let alone other animals-are hardly representative of an age of steam and electricity."

[4] Marika Hausen, ibid, p.152

[5] Albert Christ-Janer, *Eliel Saarinen: Finnish-American Architect and Educator*, (University of Chicago Press, Chicago, 1948)

[6] Albert Christ-Janer, ibid, p.72

[7] Marika Hausen, ibid, p.41

[8] Christa C. Mayer Thurman, ibid, p. 175

[9] Robert Judson Clark, "Cranbrook and the Search for Twentieth-Century Form,"

[10] Christa C. Mayer Thurman, ibid, p. 176

[11] Christa C. Mayer Thurman, ibid, p.175

[12] Christa C. Mayer Thurman, ibid, p.177 The H.V. technique was developed at the Friends of Handicraft Association, a Swedish school still operating today. Information about the specifics of the H.V. Technique was difficult to find, however several weavers indicated that it sounded similar to the better known Moorman Technique developed by Theo Moorman and described in her book *Weaving as an Art Form.*

[13] David G. De Long, "Eliel Saarinen and the Cranbrook Tradition in Architecture and Urban Design," *Design in America: The Cranbrook Vision* (Harry N. Abrams, Inc., New York, 1983) p.65

[14] Albert Christ-Janer, ibid, p.78 Eliel Saarinen's appreciation for the textural effect of brick is revealed in his quotation: "The careless bricklayer is a menace to good texture. The brick must not be laid too mechanically nor too recklessly."

[15] Conversation with Dan Hoffman, 1997.

[16] Eliel Saarinen, *The City: Its Growth, Its Decay, Its Future*, (Reinhold, New York, 1943) p. 11

[17] Eliel Saarinen, The Search for Form, ibid, p.136

IMAGES

Fig. 1. Brick articulation at First Christian Church. Photo by author.

Fig. 2. Studio Loja Saarinen Weavers. Cranbrook Academy of Art/Museum, from *Design in America: The Cranbrook Vision* (Hary N. Abrams, Inc., New York, 1983)

Fig. 3. Finnish Pavilion, Paris Worlds Fair, Eliel Saarinen, 1900. From *Eliel Saarinen: Projects 1896-1923* (Gingko Press, Hamburg, 1990)

Fig. 4. "Peacock Hanging" Loja Saarinen, 1932. from

Fig. 5. "Sermon on the Mount" Loja Saarinen, 1942. From Cranbrook Archives

Fig. 6. Main Façade, First Christian Church, Eliel Saarinen, 1942. Hedrich-Blessing from church archives.

Fig. 7. Sanctuary, First Christian Church, Eliel Saarinen, 1942. Finnish Architecture Museum, from *Design in America: The Cranbrook Vision* (Hary N. Abrams, Inc., New York, 1983)

Fig. 8. Exterior of Sanctuary, First Christian Church, Eliel Saarinen, 1942. Hedrich-Blessing from church archives.