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WEAVING AND ARCHITECTURAL STRUCTURE

By

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APPROVALS

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All craft is an issue of fabrication and construction, i.e., of architecture. The shapes and forms of craft are essentially architectural in that they are conceived as construction, articulation and relativity of function or symbolic use. The resulting forms not only have to be understood in terms of how they participate with an environment but just how they are brought into being and how specific methods of construction contribute or influence their formation.

Gottfried Semper (1803-1879), the German architect and theoretician of style and craft, in his 1851 essay, The Four Elements of Architecture, synthesized human craft activity into four distinct modes yielding four discrete types of built form. The hearth, the communal center for the beginning of socialization, is the central element around which the other three are grouped to provide the traditional concept of shelter from nature or the external physical world. Ceramics and metallurgy are related to the hearth because of their requirement of heat. The second element, the substructure, platform or foundation, is used to raise the hearth off the damp ground. Stereotomy or the industrial art of stonemasonry is linked to this element. The third element is the roof which shields the fire from the rain. Woodworking and carpentry combine to make
the roof and its support. The fourth element, the enclosure or wall serves to keep out wind or extremes of temperature. Semper described these walls as non load-bearing and, in the primitive form which becomes the archetype for later times, constructed of textiles, hides or wattle placed between the wall supports.

Semper had seen a Caribbean cottage in the Great Exhibition of London (1851) which confirmed his conclusions. The building had an elevated hearth resting on a platform, poles supporting a roof and woven mats suspended between the poles for walls. Semper acknowledged that the four elements described primitive building and that in more evolved architecture, the four elements had become integrated so that they were almost inseparable. Thus, primitive structure became archetypal concepts subject to transformation, separately or together, through the architect's poetic vision.

It was with Semper's concept of craft and construction that this thesis was begun. It has as its core the examination of loom controlled woven structures and their appearance in an environment. When Semper said, in 1852, that "...solid walls are only an inner invisible scaffolding, hidden behind the true
representative of the wall: the colored woven carpet," he indicated that the woven plane was a scaffolding of shape and a construction of architectural forces.

These four planes of colored weaving attempt to interpret Semper's quadratic division of craft functions. (Fig.1) The designs and visual structures are analogous to the elemental tectonics of the different crafts. The materials used (wool, linen and wood) are the same for all; the differences lie in the disposition of symmetry, proportionality and unity of movement which, according to Semper, were the three qualities of form through which unity and beauty are perceived. An intuitive geometry based on a schematic working diagram rather than strict adherence to a "blueprint" was the method used in the development of each piece. (Fig.2) Although there was a conscious division of each planar area, there was also an ad hoc approach to execution which allowed for the exploitation of changing relationships of scale, color and proportion as each work progressed. The working diagram changed along with the work, and became, finally, a record of development from idea to object. Initial limitations of a three-block threading for the woven structure and a maximum of six colors for each piece allowed for variations in the
combining of givens which is reminiscent of the development of an architectural structure or a musical composition. Some forms changed from simple to complex; others were stated and repeated in different areas of the woven planes as patterns. Each woven field became an interplay of the plastic elements of line, form and color, which, in turn, became a dimensional structure.

In keeping with Semper's interpretation of his categories, the four pieces were simply titled with the name of the structure to which each refers; i.e., Foundation, Hearth, Wall, Roof. These titles are not in any way meant to be pictorial explanations, but carry a referential meaning concerning function of materials and concept of each structure. Color, perhaps the most subjective aspect of the works, gives sense to structure -- the foundation of earth or igneous rock, the hearth of fire and carbon, the organically plated (and plaited) wall, and the drawn uprights and seeming aerial boundary of the roof.

The alcove-like grouping of the four pieces which hang freely in the exhibition, further enhances their architectural references. (Fig. 3) They seem to form an environment, not simply of implied architecture but of a grouping of the primal origins
of surroundings structured through craft. The attempt of this thesis work has been to use Semper's typologies to convey the intent of his categorizations, to synthesize craft with art.

Semper regarded craft as an activity where function is posited as a constant element, affected by certain influences, material and techniques, local and ethnological influences such as religion, politics, climate or a specific site and the personal influences of the artist or his patron. He referred to textiles as "Urkunst", a basic art form which seems to have provided typological models. Joseph Rykwert, in *Adam's House in Paradise*, has suggested that, for Semper, the origin of the first house, a tent, coincides with weaving.

In *Der Stil* (1863), Semper investigated the origins and historical significance of the woven form, and, most significantly for this thesis, explored the relevance of textile art to architecture. The problem was initially stated in an early paper on color in classical architecture. Semper considered the development of ornament as proceeding from the first decorated surface, the human skin. From this, he posited an analogy between covering the body with a cloth and the covering of a building with ornament derived from woven forms.
Textiles also functioned in a most practical manner as architectural structure. For Semper, the basic notion of a wind break or fence woven of reeds was the first type of textile. When these planes were joined, the result was a consciously realized architectural structure.

Further, Semper saw the knot (Naht), the seam or joining, as the essential work of art. It is the beginning of fabrication, and illustrates a proverb generally attributed to St. Jerome but which Semper proposed as the first of two rules of art in its simplest form: to make a virtue of necessity. The second rule is that fabrication is conditioned by the material as well as the process. For Semper, these rules could be extrapolated to the arts in general, not only those which were tectonic or useful. He made no distinction between the laws which govern the work of art (Kunst) and those which are the product of a craft (Kunstgewerbe).

* * * * *

Within the spirit of Semper's attitude toward the relation of art and craft, and with his postulations concerning the importance of textiles in the development of architectural
types in mind, I elaborated on the concept of the "woven wall" in order to gain access to architectural scale. It was not enough to mount a woven plane on an already existing wall and call that a reference to architectural scale. Just as the Bauhaus weavers, in particular Anni Albers, had to expand the context of their weaving by changing from a traditional approach of creating woven pictures as works of art to an approach which stressed the real and the abstract, this thesis work had to function in or as a new context that went beyond a nominal sense of the "woven wall."

When Albers confronted much the same problem, her solution was to create abstract woven works which she, incidentally, called "pictorial" weavings. (Fig. 4) Perhaps her reason for doing so was didactic, but it could also be inferred that she, as well as the De Stijl painters and the Russian Constructivists, had come to believe that abstraction was a form of reality. (Fig. 5)

Theo van Doesburg, a co-founder of the De Stijl group and a primary theoretician of the Neo-Plastic movement explained this notion of a "real-abstract" in 1926.

...As used in connection with visual methods of expression, the term 'abstract' is extremely relative. "To abstract" something implies one of those mental activities (in contrast to emotional spontaneity)

Fig. 4
through which certain (aesthetic) values are isolated from the world of reality. However, when such values were realized visually and applied as purely constructive means, they became real. Thus, the abstract was transformed into the real, thereby illustrating the relativity of the former term.

Hence, the term "abstract-real" (Mondrian) was a fortunate invention, although in reference to a new orientation, the term real is sufficient.

The method of abstraction is at an end.'

Is not an elementary painting, which is to say a certain composition of plane-linear colours, organic in itself, more concrete than a similar composition which is nonetheless veiled by the illusion of natural-organic form? Indeed, this instantaneously static, rigid composition, which is isolated within the four boundaries of the plane, is more abstract than the organic form which is composed of realistic colours in a so-called abstract painting. In fact, abstraction is precisely that which takes place within the boundaries of individual thought.4 (Fig. 6)

Albers corroborated van Doesburg's thoughts when she wrote in 1939, "The reality of art is concluded in itself. It sets up its own laws as completion of vision. Art is constant and it is complete."5

By using the same procedure as van Doesburg and Albers; i.e., contradiction of an idea and re-statement in new terms, I was able to change the context of my thesis through two seeming self-cancelling steps. First, the woven planes had to be separated from a functional context. I removed obvious references to function by eliminating any finishing techniques
Composition VIII. The Cow. 1917
oil on canvas. 37.5 x 63.5 cm. (15 x 25 in.)

Composition VI. 1918
oil on canvas. 56.5 x 101.5 cm. (22 x 40 in.)
(fringe or braid) which might signal carpet, and mounted each piece in a wooden framing device which hid the warp ends and made it possible to hang the pieces from the ceiling and to view both sides. Second, these hanging works, by their juxtaposition to each other, their scale, and their placement in the gallery space, came to infer yet another architectural space which was abstract-real but implied function previously denied.

This dichotomy is reminiscent of Frank Lloyd Wright's use of the textured concrete block in several California houses built during the 1920s. (Fig. 7) Wright, himself, made reference to "woven walls" in An Autobiography: "...Concrete is a plastic material - susceptible to the impress of imagination. I saw a kind of weaving coming out of it. Why not weave a kind of building?...I had used the block in some such textured way in the Midway Gardens upper walls. If I could eliminate the mortar joint I could make the whole fabric mechanical..."

From this literal application of the concept of the "woven wall", it is possible to project the development of another kind of 'real' architectural space and re-define
151 (opposite). Mrs. George Madison Millard La Miniatura House, Pasadena, California. 1923. 152 (above, left). Block, Mrs. George Madison Millard La Miniatura House. Concrete, 15 1/4" x 7 1/2" x 8" (40.6 cm x 18.8 cm x 20 cm). (Lent by Randell C. Makinson, Pasadena, California) 153 (below). Charles Ennis House, Los Angeles, California. 1924. 154 (above, right). Interior, Charles Ennis House.
this as a concept of "woven space."

This concept has as its core an acceptance of an unbounded composition, an explosion of forms which goes beyond the edges of the woven plane into a three dimensional space of architectural scale. I first explored this concept in 1981, in a series of rolled newspaper and colored paper constructions. (Fig. 8) Although there was a definite structural reference to weaving in these works, the asymmetrical dispersement of horizontals and verticals, and the random incidence of color which proposed a situational massing of color forms, produced a different balancing of relationships that implied extensions beyond any pre-determined edges.

Van Doesburg described this phenomenon in his writings concerning "elementary (anti-static) counter-composition."

This type adds a new, oblique dimension to orthogonal, eccentric composition. Thus it eliminates the tension of the horizontal and the vertical in a realistic manner. It introduces oblique and discordant planes which are opposed to gravitation and architectural-static structure.

In counter-composition the equilibrium within the place of the canvas plays a less important role. Each plane is related to eccentric space and the construction must be regarded as a phenomenon of tension rather than a phenomenon of planar relationships.

This produces a larger variety of new possibilities for plastic expression. Apart from orthogonal and oblique constructions and their combination, simultaneous constructions can be produced as well. Color is introduced as an independent energy.
In another series of paper and acetate constructions based on a modular picture plane, I tried to expand and enlarge the use of color as form and introduced the additional element of transparency. (Fig. 9) The layering of acetate to produce color forms seemed to increase the extension or projection of color beyond its assigned place in the composition. This color form or massing was also responsive to light which modulated and transformed it. The spatial location of the viewer took on a new importance as a factor of compositional change.

At the end of 1981, I attempted to develop the notion of conscious manipulation of the viewer's position in relation to composition. This work took the form of drawings and maquettes for a series of extended warp structures which would span the entire height, length or width of a room in configurations involving two or more warps. Asymmetrically positioned woven planes of varying sizes were the determining factors controlling the viewer's ability to move in or around the pieces. (Fig. 10)

It was soon apparent that the entire concept was suggestive of a barrier or wall but the materials used, cotton
warp and cellophane tubes for weft, did not convey the idea strongly enough because of their own fragility. By changing the media to wool and linen, I was able to present a stronger image both physically and visually. The woven structures became definite colored planes whose surface texture echoed the anonymity of a segment of any architectural structure yet directly signified "woven wall."

By combining conclusions reached in all these series, and following the implications of Semper's notion of "woven wall", the realization of "woven space" can begin. The architect, Daniel Libeskind, writing about his own drawings and architectural drawing in general, has described a state of space perception which, I feel, relates directly to the development of woven spatial structures by providing a system of organic notation. (Fig. 11)

There is a historical tradition in architecture, whereby drawings (as well as other forms of communication) signify more than can be embodied in stabilized frameworks of objectifiable data. If we can go beyond the material carrier (sign) into the internal reality of a drawing, the reduction of representation to a formal system - seeming at first void and useless - begins to appear as an extension of reality which is quite natural. The system ceases to be perceived as a prop whose coherence is supported by empty symbols, and reveals a structure whose manifestation is only mediated by symbolism.

An architectural drawing is as much a prospective unfolding of future possibilities as it is a recovery of
a particular history to whose intention it testifies and whose limits it always challenges. In any case a drawing is more than the shadow of an object, more than a pile of lines, more than a resignation to the inertia of convention.

The act of creation in the order of procedures of imagination, here as elsewhere, coincides with creation in the objective realm. Drawing is not mere invention; its efficacy is not drawn from its own unlimited resources of liberty. It is a state of experience in which the "other" is revealed through mechanisms which provoke and support objective accomplishments as well as supporting the one who draws upon them. Being neither pure registration nor pure creation, these drawings come to resemble an explication or a reading of a pre-given text - a text both generous and inexhaustible.8

The drawings which follow are my notations toward that structuring of "woven space." (Fig. 12) I am proposing a structure which is simultaneously reminiscent of woven structure yet not dependent on it, a structure of architectural scale which signifies but does not mimic architectural construction, a structure which absorbs color yet is visibly changed and challenged by its re-appearance, a structure which can exist in a defined space yet re-defines that space.
NOTES


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