

# Design Method and Iconography: *Le Corbusier's Chapel at Ronchamp*

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## ABSTRACT

Iconography in Le Corbusier's architectural works derives both from his deep understanding of Cubist painterly techniques and his use of these techniques to translate architectural memories and events across material, spatial and temporal boundaries into the fabric of his designs. Borrowing the categories of "structure and event" from Koetter and Rowe's argument in "Collage City," we may observe that the Transparency essays, by Rowe and Slutzky, illuminate only half of this pair. While Rowe and Slutzky examine the apparatus of "structure" in painting and in architecture, the complementary phenomenon of representation, or "event," remains to be explored. This is the subject of the essay that follows.

"... the words 'modern architecture' refer to a strategy about building which erupted circa 1922-23, and its characteristic physical gestures are exceptionally easy to summarise. At the level of physique it displayed a visible technophile enthusiasm and a visible descent from the discoveries/inventions of Braque and Picasso."

– Colin Rowe<sup>1</sup>

## INTRODUCTION

Siegfried Giedion was among the first to remark on the debt that modern architectural design owes to the compositional innovations of Cubism. Since the time of his comments, however, a full critical assessment of this exchange is still incomplete. As Cubism refers both to an artistic movement involving many participants and to a style, it is necessary to be precise about which aspects of Cubist painting have influenced which aspects of modern architecture. I will argue that there were specific techniques of representation developed and practiced by Juan Gris which Le Corbusier<sup>2</sup>, who was familiar with Gris' work, understood and translated to architectural design. I will introduce two categories of representation both in painting and in architecture: literal and non-literal, along the lines of Colin Rowe and Robert Slutzky's two categories of transparency: literal and phenomenal.<sup>3</sup> I

will then demonstrate how, in his design for the *Chapel at Ronchamp*,<sup>4</sup> Le Corbusier followed a pattern set by Juan Gris. I will argue that Le Corbusier translated Juan Gris' method of non-literal figuration from painting to architectural design. This technique is central to Le Corbusier's design method and is utilized and developed throughout his architectural career. At Ronchamp, Le Corbusier's use of non-literal figuration is highly developed and is essential for our interpretation of this enigmatic work.

Some background will help to clarify what follows. Cubism refers to the artistic production of a group of painters, sculptors and poets, mostly working in Paris between 1907 and 1925. In 1914, the Great War disrupted artistic activity in Paris, dispersed groups of artists, critics and dealers, and marked a stylistic change in Cubist art. Some developments leading to this stylistic change had already been in progress and are attributable to earlier innovations by individual artists. Most significant among these innovations were the development of collage by Braque and Picasso. Other changes are attributable to the disruptions caused directly by the war; for example: active military service by Braque and Léger and the consequent interruption of their careers, the exile of important dealers such as Kahnweiler, and the temporary departures from Paris of Picasso and Gris, both of whom continued to paint.

Secondary effects of the war had equally profound impact on the direction that Cubist art would follow. During the Cubist years, a battle for national cultural identity was waged between a reactionary establishment and the efforts of the avant-garde, principally the Cubists. Once France was at war, a cadre of right-wing publicists and critics used the state of national emergency to further their reactionary cultural agenda. Under the aegis of President Poincaré's "Union Sacrée,"<sup>5</sup> this group succeeded mostly in controlling the climate in which artists practiced and exhibited. This alliance of conservative political and cultural agendas lasted through the war and into the period of reconstruction.

In his recent account of the Parisian avant-garde during the Cubist years, Kenneth Silver assessed the influence of the Great War and of wartime propaganda on the arts.<sup>6</sup> As Silver

explains, France's cultural elite, braced against the German invasion and the perceived threat of anarchy or revolution at home, admonished artists to subordinate their own individual artistic visions and to develop an iconography appropriate to the vast collective enterprise at hand: the defense of the French nation and race. This newly promulgated cultural agenda called for artists to promote an image of France as the legitimate heir to the western classical tradition. The essentially Latin qualities of clarity and order were upheld as supreme. And though Cubism was born in France, it was portrayed by its enemies as overly cosmopolitan. Specifically, Cubism was attacked by conservatives as an art form that was excessively influenced by German culture.

Reactionary critics advocated a new alignment of social and artistic values. As a consequence, complex and subtle critical distinctions took on the value of absolutes. An almost censorial reaction against expressions of dissent, artistic and otherwise, ensued. During the war and reconstruction, the careers of members of the Parisian avant-garde (artists, critics and dealers alike) depended on their ability to serve, to be seen as serving, or at least not to be seen as subverting France's national cultural agenda. While radical positions had been openly debated before the war, during the war such positions made one vulnerable to accusations of disloyalty.

### CUBISM: ANALYSIS AND SYNTHESIS

Before 1912 Cubism was mostly concerned with the depiction of things seen, albeit things seen differently than one had been accustomed to seeing them before the exhibition of Braque's and Picasso's Cubist experiments. Conservative critics attacked prewar Cubism for being overly intellectual, elite and obscure. The "analytical" nature of early Cubism was identified as its most characteristic defect. The contrast between the analytical and the synthetic<sup>7</sup> qualities of artistic endeavor was a popular theme in contemporary criticism. For the enemies of Cubism, this contrast served to parallel artistic and social values. In an atmosphere of national emergency, oppositions between anti-hierarchy and hierarchy, between deconstruction and construction, between obscurity and clear order, between individual and collective spirit, all had easy resolutions. Reactionary critics succeeded in reducing complex and subtle critical distinctions to a simplified set of political and moral values.

As the term Cubism<sup>8</sup> was first used for the purpose of ridicule, so "analytical" and "synthetic" were terms of comparison initially used by Cubism's detractors; but these terms quickly gained general acceptance by Cubism's supporters. Analytical Cubism is characterized by ahierarchical compositions, fragmented subjects, and a contrast between representational incidents and geometric frameworks. Within the larger context of shallow, layered Cartesian space, episodes of perspective illusion are fragmentary and de-emphasized. If the prewar works of Braque and Picasso were founded on visual incidents, those of Picasso and Gris from 1912 onward were founded on composition and on the reconfiguring of data after Cubist analysis. This latter trend would come to be

known as Synthetic Cubism.

The pictorial characteristics of Synthetic Cubism refer to a process of synthesis, the painterly reconstruction of a subject after its fragmentation or analysis. Synthetic Cubism is characterized by a shift in emphasis away from the dialectic between framework and visual incident. In Synthetic Cubism, it is as if the representational fragments of Analytical Cubism were able to stand on their own, supporting themselves without the braces of an articulated scaffolding. The new compositional dialectic is between two and three-dimensional interpretations of surface, the proliferation of visual rhyming,<sup>9</sup> and the appearance of reciprocal exchange between figure(s) and field(s).

Though the approaches to Cubism of Picasso and Gris were saturated with irony, contradiction, paradox, and subverted easy illusions, both artists succeeded in classicizing their works in a manner that engaged the national debate, on their own terms. One of their methods was to incorporate traditional compositional devices, motifs and quotations from the French classical tradition into the fabric of their Cubism. Picasso and Gris, in particular, succeeded in engaging the patriotic nationalist agenda without repudiating or compromising their earlier Cubist allegiances.

First among the developments in Cubism from 1912-14 was the shift in emphasis away from the depiction of things seen (analysis) and toward a conceptual approach stressing compositional relationships (synthesis). After August of 1914, the Cubists had to address an urgent new set of priorities. On the one hand, they were consistently attacked by the right for their iconoclastic positions; on the other hand, they were urged by their apologists to engage, as progressives, the new cultural agenda.

### OZENFANT, JEANNERET AND L'ESPRIT NOUVEAU

The painter Amédée Ozenfant was among the progressives who worked during the war and the reconstruction to influence the direction of French culture. From 1920 to 1925, Ozenfant and Charles-Edouard Jeanneret / Le Corbusier published *L'Esprit Nouveau*, which included architectural criticism and attempted to influence the progress of reconstruction that had begun during the war. Kenneth Silver reports that "the open-minded progressivism of *L'Esprit Nouveau*, so unusual in the context of postwar Paris, was at the same time limited and shaped by the official cultural regime. Indeed (although the fact is not widely known), according to Ozenfant *L'Esprit Nouveau* enjoyed a subvention from the French government for all of its history; when that support was withdrawn in 1925, the magazine folded."<sup>10</sup>

It is in the reactionary cultural climate of World War I and the following period of reconstruction that we may trace a pattern of overlapping priorities that would shape the artistic practices of both Juan Gris and Jeanneret / Le Corbusier. Ozenfant and Jeanneret published "Après le cubisme" in *L'Esprit Nouveau*, where they tried to identify the excesses of early Cubism and suggest a more appropriate direction for

French art. While Ozenfant and Jeanneret were not alone in attacking Cubism, they were exceptional for attempting to graft on to the trunk of French classicism the artistic innovations of Cubism in a manner that preserved Cubism's essential modernism. Ozenfant and Jeanneret pursued this goal both in their criticism and in their Purist paintings. Their editorial policy served the propaganda apparatus of their official sponsors while promoting their Purist movement as the legitimate heir to Cubism in the anticipated succession of avant-garde movements. The following Purist tract, excerpted from "On the Plastic" (published in *L'Esprit Nouveau* in 1920) illustrates the terms in which the Purists engaged the national debate for France's cultural identity:

"And yet after a century of sensibility, and prior to certain CUBISTS, only INGRES, COROT, SEURAT and the excellent ROUSSEAU also, are taken into account. Why? As we come to know the lives of these artists and as we consider their works, we note the dogged tenaciousness that they have brought to bear to achieve this foundation. Their foundation is identical, as it is identical to that of POUSSIN, of CHARDIN or of RAPHAEL. We are compelled to conclude that all the recent movements based on the glorification of sensibility, on the liberation of the individual and his detachment from contingencies, from the 'tyrannical' conditions of the metier (composition, execution) collapse lamentably one after the other. This is because they had renounced, or been blind to the physics of art. The painters today would appear to seek only to elude the laws of painting, and architects the laws of architecture. Physical and terrestrial man seeks to evade the constant conditions of nature, and that is rather ridiculous.""

Le Corbusier and Ozenfant were not alone in attempting to align their priorities with those of France's classical tradition. Juan Gris also spoke of adhering to the "laws of painting and architecture." The following is excerpted from a letter, written by Juan Gris on August 25, 1919, to his principal dealer, Daniel-Henry Kahnweiler:

"There seems to be no reason why one should not pinch Chardin's technique without taking over the appearance of his pictures or his conception of reality. Those who believe in abstract painting are like weavers who think they can produce a material with only one set of threads and forget that there has to be another set to hold these together. Where there is no attempt at plasticity how can you control representational liberties? And where there is no concern for reality how can you limit and unite plastic liberties?"

And in *L'Esprit Nouveau*, Juan Gris spoke of the classical imperative in this way:

"Though in my system I may depart greatly from any form of idealistic or naturalistic art, in practice I do not want to break away from the Louvre. Mine is the

method of all times, the method used by the old masters: there are technical means and they remain constant."<sup>13</sup>

## REPRESENTATION: LITERAL AND NON-LITERAL IN THE WORK OF LEGER & JUAN GRIS

Having established a possible motive for the renewed interest in the old masters, that of proclaiming one's political affiliations within the reactionary cultural climate of the Union Sacrée, we can better appreciate this reapprenticeship on the part of many members of the avant-garde. Soon after France was engulfed by the War, artists including Picasso and Gris, and later Léger, worked with motifs, themes and techniques derived from traditional painting. Picasso and Gris each executed portraits in the style of Ingres, and used other sources for inspiration including Raphael and Cézanne. What separated the use of traditional sources by Picasso and Gris from that of their contemporaries was their ability to transform their subjects rather than simply to cite or borrow them from historical models. Gris, in particular, worked consistently at translating subjects and their settings from conventional perspectival space into contexts which would support Cubist illusion; he attempted to subvert singular interpretations of those models by overlaying other possibilities.

One of the clearest examples is Gris' 1916 *Woman with a Mandolin (after Corot) (figures 1 & 2)*. A comparison of Gris' painting with that of Corot reveals this important aspect of Gris' technique. While both paintings depict a seated woman with a stringed instrument, Gris' conception of space and attitude towards his model is different from Corot's. Corot is straightforward; he depicts a peasant woman in traditional costume, seated within a space that is deep enough for her to catch light that falls short of the wall behind her. At the center of Corot's canvas we find an alliteration of curvilinear forms, where her ample upper arms and breasts are restrained by her garments. Her gaze is detached; she is in a state of reflection.

In contrast, Gris offers us a composition of large geometric color fields which are ambiguously lit and seen from many view points. By employing a type of "color separation," clues to form become strangely disjointed. Contour lines exceed the color fields they bind and volume rendering appears arbitrary and disassociated from underlying forms. The setting has been flattened out, making us less certain as to where its limits can be found. The data from Gris' analysis of Corot have been recomposed on a geometric armature taken from Corot; the crossing diagonals and profile of Corot's *Woman with a Mandolin*. But Corot's *Woman* has been transformed by Gris. While Corot's *Woman* gave off an air of detachment, Gris' *Woman* has been caught in a moment of ecstatic reverie. The central zone of Gris' panel depicts an area where the woman and her instrument merge, their contours spilling into one another, their anatomies mutually interdependent. While Corot's *Woman* is in a state of reflection, Gris' *Woman with a Mandolin* has been caught in the moment when she is tasting the sensual pleasure of the music. The mandolin's seductive power has caused her in



Fig. 1. Camille Corot, *Woman with a Mandolin*, c. 1860.

Gris' painting to abandon her reserve and to "loosen" the ties that once bound both her costume and her composure.

Gris borrows a great deal from Corot in this painting: the subject, geometric scaffolding, and the particular details of a silhouette. But Gris takes compositional liberties. In this acknowledged citation from an identified source, Gris transforms Corot's spatial concept and alters our interpretation of his subject. While the figure and distribution of Corot's composition are surprisingly intact, its essential stability and singularity have been undermined. This transformation, from literal figuration in Corot to non-literal figuration in Gris, is a theme that will be developed below. It is not merely that Gris is one step more removed from his subject than is Corot; rather, Gris has woven Corot's figure into the fabric of Cubist illusion.

In their early Cubist works, Picasso and Braque had analyzed the constituent parts of their subjects. In *Woman with a Mandolin*, Gris appears to have analyzed the visual links between the signs by which we recognize clues to form, and the interpretations of these signs. Gris' tendency was away from literal citation and towards non-literal figuration.<sup>14</sup> This pair of paintings, by Corot and Gris, may serve as a Cubist "Rosetta Stone," identifying a pattern which makes possible other translations of Cubist and Purist technique.

To better understand Gris' movement away from literal figuration, we may compare a later work by Gris with one by Léger, both of which, I believe, were inspired by Ingres. The essential contrast between Gris' and Léger's use of images from French painting does not reside in the respective models that they chose; they frequently used the same painters for

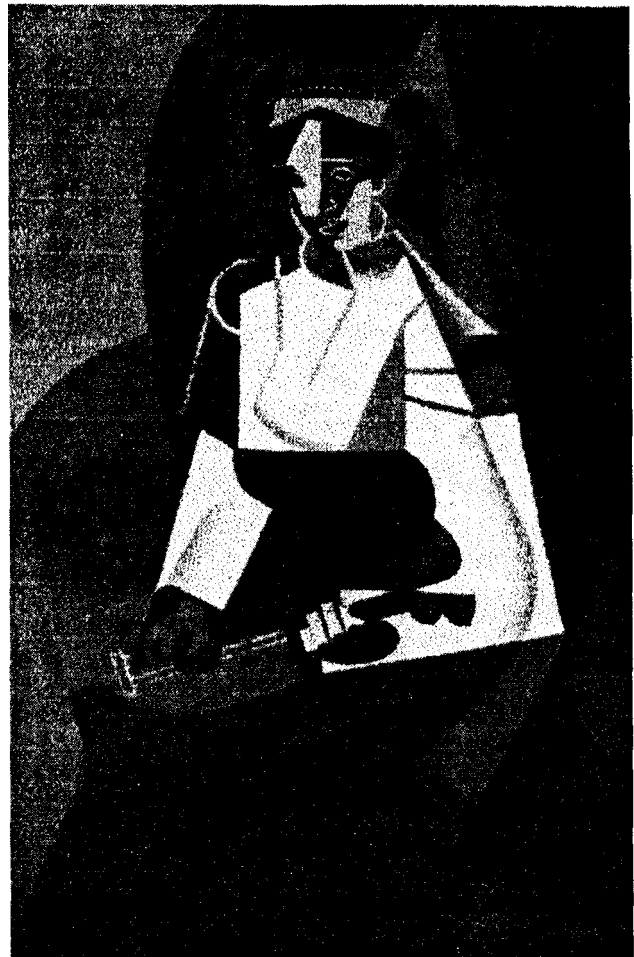


Fig. 2. Juan Gris, *Woman with a Mandolin (after Corot)*, c. 1860.

source material. The contrast lies in their integration of imported material into the fabric of their respective works. In a letter dated 1922 and published in *L'Esprit Nouveau* in 1924, Fernand Léger acknowledged Ingres as a source of form in his work.<sup>15</sup> In *Le grand déjeuner* of 1921 (figure 3), Léger presents us with three monumental figures, one seated and two reclining in an exotic modernist spa. While this composition could have been entirely of Léger's invention, I suspect that he was actually reworking Ingres' *Le bain turc* of 1863 (figure 4). In that painting, Ingres had recreated a harem scene where seated and reclining figures ebb and flow in a sea of erotic luxury. The bather with a mandolin is rendered in flesh tone more vivid than that of her companions. While she seems to belong to this group of odalisques, the others recede from her into a sort of classical frieze, blurring the distinction between where the figures end and the architectural ground begins. Léger's *Le grand déjeuner* also features a bather in flesh tone more vivid than that of her companions. While Léger assembles a framework of geometric elements for his geometric concubines, there is little ambiguity between figures and grounds. Excepting only the areas where the shaded volumes of his three women are adjacent to similarly shaded drapery or cushions, there is no difficulty in separating foreground, middle ground and background from each other,



Fig. 3. Fernand Leger, *Le grand déjeuner*, 1921.



Fig. 4. J.A.D. Ingres, *Le bain turc*, 1863.



Fig. 5. J.A.D. Ingres, *La Grande Odalisque*, 1814.

or figures from their architectural interior. Léger's figures are more discrete and autonomous than those of Ingres, whose figures embrace in an erotic confusion of limbs. In the areas

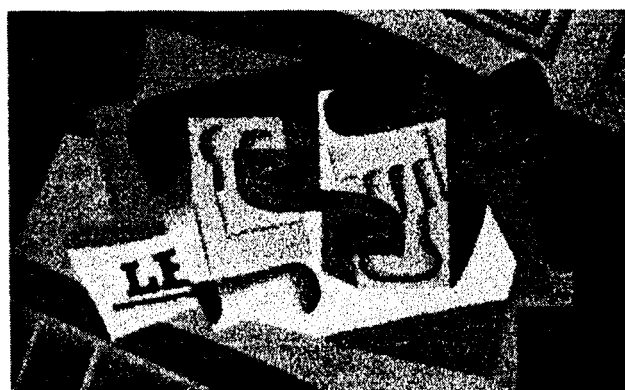


Fig. 6. Juan Gris, *Verre et Journal*, 1917.



Fig. 7. J.A.D. Ingres, *La Baigneuse de Valpinçon*, 1808.

most likely to offer illusion, LCger resolves ambiguity by contrasting curvilinear figures against straightlinear grounds.

Two additional paintings by Gris will further illustrate his use of non-literal figuration. Gris' abstracting of aspects of his subjects and contexts to the point where their identities merge is taken to its extreme in a pair of his paintings executed between 1916 and 1917. As Léger uses *Le bain turc* for inspiration, Gris may have looked to Ingres' *Baigneuse de Valpinçon* (figure 7) and *La Grande Odalisque* (figure 5). If we compare Gris' *Verre et journal* (figure 6) with *La Grande*



Fig. 8. Juan Gris, *Le violon*, 1916.

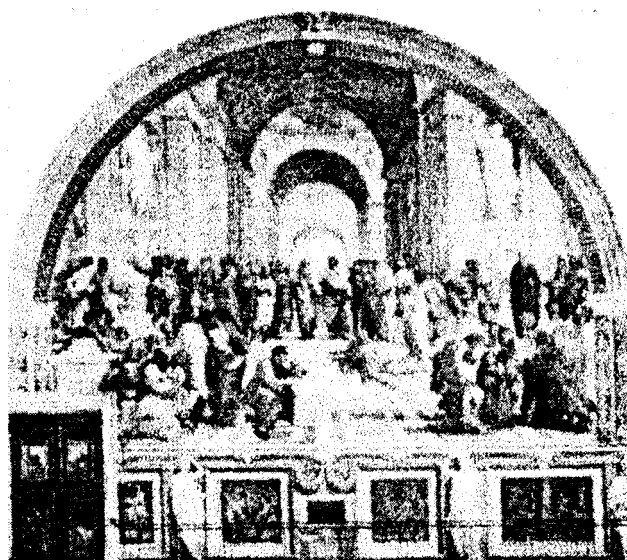


Fig. 9. Raphael, *School of Athens*, 1509.

*Odalisque*, we are struck by contrasts and similarities in the two works. In his *Verre et journal*, Gris seems to have borrowed from Ingres both a geometric substructure and a palette of marine-blues and ocher-browns. Further comparison of both paintings reveals a similar piling up of elements towards the center, which seems to fold inward, as the knees of Ingres' *Odalisque* appear to dig into the cushions of her divan. A leap of faith may still be required to accept that the remnants of an analyzed still life point to *La Grande Odalisque* in any direct way. But the particulars of Gris' still life may now appear less arbitrary and may seem to loosen from the rigid diagonal symmetry of the panel. Two rendered balls seem to evoke either puffs of smoke or genitalia. If we look at Ingres' *Grande Odalisque*, we may surmise that these forms are breasts. The suggestive concave and convex shapes in *Verre et journal* mirror the right foot and buttocks of the *Odalisque*. The newspaper fragments echo the jeweled belt beneath the reclining figure, following the curtain where it folds into the background.

If Gris borrowed liberally from Corot, he "stole" from Ingres. In a series of paintings executed after 1914, Gris appears to have used the *Grande Odalisque* format as a scaffold for his still-life subjects. In several of these paintings, a reclining guitar, more clearly anthropomorphic than any of the elements in *Verre et journal*, acts as a reclining figure in a composition of rhyming elements and synthetic Cubist illusion.<sup>16</sup> Unlike Léger's citations from Ingres, Gris' use of Ingres' figures is not literal. Gris' transformations of Ingres' models are thoroughly integrated into their new compositions. In the first phase of his process (seen in his *Woman with a Mandolin after Corot*), Gris fragmented his subject, simplified and flattened its volume, and developed patterns of repeating and rhyming elements. In the next phase of this process, Gris would further generalize his subject(s) by amplifying visual rhymes, thereby translating remaining anthropomorphic traces into his still-life "dialect." In certain instances, Gris' non-literal figuration may be as obscure as the analytical works of Braque and Picasso. But if we can trace Gris' *Verre et journal* to Ingres' *La Grande Odalisque*, we may witness an act of inverse transubstantiation, where Gris transforms "flesh and blood" to "bread and wine."

In another series, Gris uses of a vertical format, turning the reclining guitar / *Odalisque* into a seated violin / bather. *Le violon* of 1916 (figure 8) has almost no modeling. The picture is organized about an orthogonal gridding that is further animated by a pair of off-center diagonals. As in *Verre et journal*, we find a tension between classical foreground / middle ground / background disposition, surface geometry and coloration. There is also a slippage between figural objects (violin, bow, sheet music) and figural pigment (the brown-orange band that cuts through each spatial layer). When Gris' *Le violon* is compared with the Louvre's *Baigneuse de Valpinçon*, also by Ingres, Gris' composition may be interpreted as a tit for tat parody of the classic figure.

If we accept that the similarities between Ingres' and Gris'

works are not accidental, we can appreciate Gris' ability to engage the rhetoric of the patriotic nationalists and to parody their views while expanding and enriching the modernist repertory. One essential characteristic of Gris' modernism is his consistent undermining of simple interpretations of space and form. Perhaps the Cubists were attracted to Ingres for his own use of these techniques; for example: the spatial ambiguity and fluid anatomy in his *Le bain turc*. Gris parallels Ingres performance in his translation from Corot. With Corot, Gris succeeds in achieving a similar sense of spatial ambiguity and fluid anatomy that we found among Ingres' figures. It is Gris' manipulation of non-literal figuration that allows him to engage French classicism and the agenda of the Union Sacrée without abandoning his essential modernism; and it is this technique of incorporating historical precedents within a modern aesthetic that serves as a paradigm for Le Corbusier's Purist aesthetic and his architectural development.

### THE ARCHITECTURAL LESSON OF CUBISM: JEANNERET / LE CORBUSIER

Before arriving in Paris, and before his association with Ozenfant and *L'Esprit Nouveau*, Charles-Edouard Jeanneret had completed a handful of buildings in his home town, La Chaux-de-Fonds. These building projects, in a progressive vernacular style, were omitted from his *Oeuvre complete*. Between 1910 and 1920, Jeanneret designed a series of residential projects that, without his later work, might have escaped our notice. Between 1920 and 1925, Jeanneret / Le Corbusier developed an approach to architectural design that continued to be fruitful throughout his long career. Key aspects of his artistic and architectural growth can be traced to his experiences with *L'Esprit Nouveau* and to his deep understanding of Juan Gris' Synthetic Cubism.

Jeanneret and Ozenfant assembled a collection of their own Purist paintings, along with several Cubist works, for the Swiss Collector Raul La Roche. La Roche would soon commission Jeanneret / Le Corbusier to design for him a house containing a gallery for his collection. *Woman with a Mandolin (after Corot)*, *Verre et journal* and *Le violon* were among twelve pieces by Gris in this collection. These works represented a new paradigm in painting. The classical nude figure, centerpiece of the Renaissance tradition, was reinterpreted in a modernist idiom. Just as Raphael, in his *School of Athens* (figure 9) had dressed his contemporaries as Greek philosophers, Juan Gris appears to have dressed his subjects as guitars and violins. This technique became a model for translating the classical canon into the modern; for Le Corbusier, Gris' technique would become a model for translating the essence of classical architecture without the orders. At some level, Jeanneret understood what Gris had achieved, as is evidenced by his own use of non-literal figuration and its subsequent impact on his architecture.

### SYNTHESIS: THE CHAPEL AT RONCHAMP

In many of his projects before World War II and in most of his

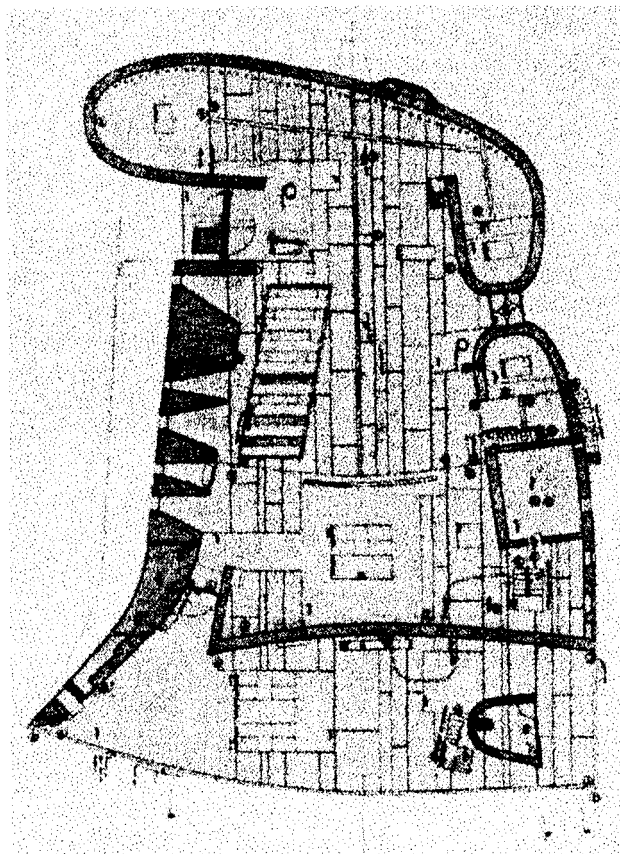


Fig. 10. Le Corbusier, *Chapel at Ronchamp*, plan.

subsequent projects, Le Corbusier expresses a dialectic between rational structure and lyrical figuration. In his chapels at Ronchamp and Firminy Vert, however, Le Corbusier finally breaks with this model of Analytical Cubism by departing from his use of the "grid" as a foil for figurative events. At Ronchamp, there are few regular elements to serve as a foil for figurative events (figure 10). Remnants of an underlying structural grid are completely concealed in the fabric of the built work. While the cross inscribed in the pavement would appear to be a likely candidate for a geometric armature, its transverse does not square the main axis. The raised dais, however, follows the outline of Le Corbusier's diagram signifying both the day / night cycle, and the collaborative activity of the architect / poet and the engineer (figure 11). Le Corbusier, attaching particular significance to this diagram, used it as a cover illustration for a number of publications immediately preceding his work on Ronchamp.

Though this may strain credibility, Le Corbusier appears to have used this diagram as Juan Gris had used the silhouettes of the Ingres' bather and odalisque. This diagram serves as a loose scaffolding upon which Le Corbusier assembles key figurative elements in his design for Ronchamp. This system of geometric scaffold and figurative event" is a transformation of the former figure / structure dialectic into one involving spatial and temporal zones. For Le Corbusier, this



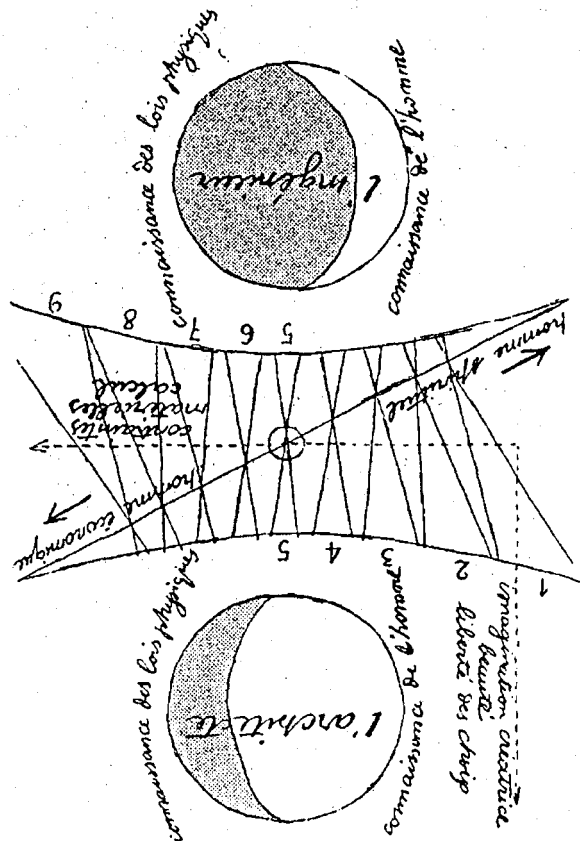


Fig. 11. Le Corbusier, diagram.

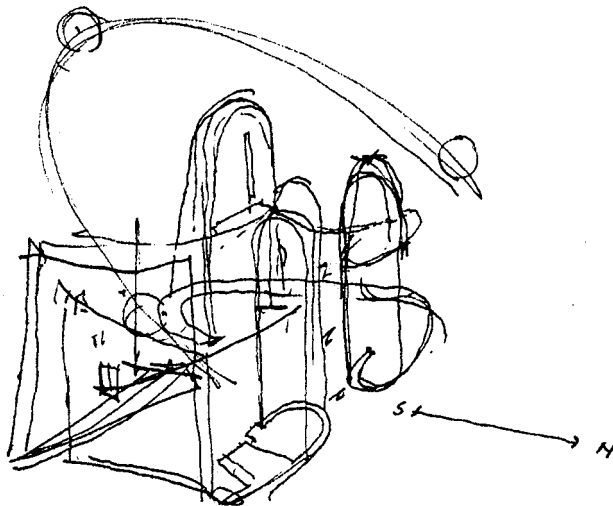
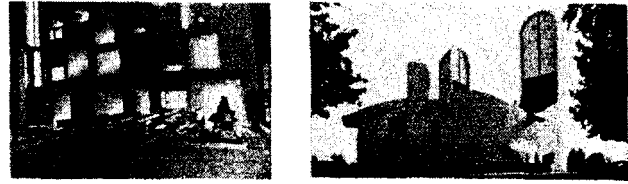


Fig. 12. Sun path diagram, (by author).

diagram signifies the synthesis of dialectical pairs. Many of these pairs are invoked in Ronchamp and others of Le Corbusier's projects, precipitating a dense layering of meanings. Le Corbusier's use of this and other symbols offer clues to levels of interpretation that are nested within one another. Multiple and ambiguous interpretations alternately contra-



Figs. 13-14. Le Corbusier, *Chapel at Ronchamp*, 1955.

dict and reinforce one another, subverting easy conclusions in the manner of Gris' manipulation of Corot's *Woman with Mandolin*.

At Ronchamp, these interpretations include the fundamental oppositions of male and female, and a series that relates to the day / night cycle. Additional interpretations, central to Catholic liturgy, include fall and redemption, birth and rebirth, crucifixion and resurrection. By invoking the symbol which represents the synthesis of dialectical pairs and the day / night cycle, Le Corbusier attempts to link terrestrial (local) and cosmic (distant) events, thereby anchoring a particular locus (his site and chapel) within the cosmology of absolute concepts (the four cardinal directions, the horizon, and the path of the sun).

At Ronchamp, site of current Christian worship and ancient pagan ritual, Le Corbusier assembled various elements within the church which mark the sun's path, almost in the manner of a solar clock. The north facing chapel is illuminated throughout the day by constant and even light, reflected against the northern sky (figure 12). Marking thresholds of day and night, the east and west facing chapels are illuminated briefly during the rising and setting of the sun. The south wall, thick, battered, and pierced with pyramidal openings, both shields the interior from raking midday light and marks the daylight hours with constantly changing patterns of light on the chapel's interior (figure 13). The sinuous curve of the roof line, seen from the northwest, seems to trace the sine curve of the sun's path mapped against the horizon (figure 14). This form resembles a diagram which is one in a series that Le Corbusier published as the signs which symbolize the basis of his philosophy. These diagrams were drawn for the great esplanade in Chandigarh (figure 15).<sup>18</sup> They prominently feature four versions of the sun's path. Diagram "A" is of the sine-curve symbolizing the sun's path mapped across the horizon. It appears in many projects, both as an element in ornamental doors and tapestries, and as a building section at the *Heidi Weber Pavilion* (figure 16) and elsewhere. Diagram "B" maps the arcs of summer and winter sun paths, as seen from a fixed point on earth. This diagram is used as the section for Le Corbusier's church at Firminy (figure 17). Diagram "C" symbolizes day and night, and the interwoven hands of architect and engineer. This diagram is reflected in the structure of the *Philips Pavilion* (figure 18) at the 1957-58 Brussels World Exposition, and is inscribed in the plan of Ronchamp's indoor altar platform. Diagram "D" is a variation of Diagram "C." In this version, the ends of the day / night cycle are joined, as if to form a perpetually revolving





Fig. 15. Le Corbusier, *Heidi Weber Pavillion*, Zurich, 1967, model.

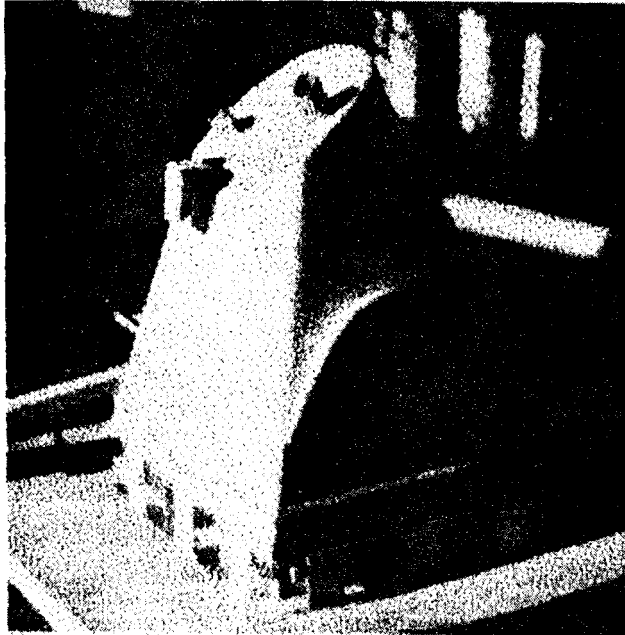


Fig. 16. Le Corbusier, *Chapel at Firminy*, 1962, model.

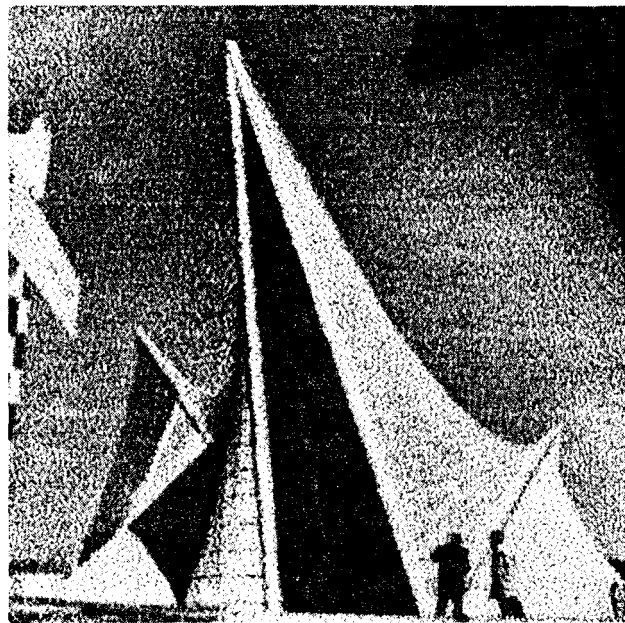


Fig. 17. Le Corbusier, *Philips Pavillion*, 1958

hyperbolic paraboloid. Diagram "D" was incorporated as the shell of the Assembly Chamber at the *Palace of the Assembly at Chandigarh* (figure 19), and resembles the roof line (between the large chapel tower and the "cornice" that projects across the east facing outdoor altar) at Ronchamp. At Zurich, Firminy, Brussels, Chandigarh and Ronchamp, Le Corbusier's sun diagrams act as compositional scaffolds for architectural figures and events. At Ronchamp, Le Corbusier used the sun diagram as an armature for figurative events exactly as Juan Gris had used the odalisque as an armature for still-life subjects.

As Stuart Cohen, Steven Hurtt,<sup>19</sup> Danièle Pauly<sup>20</sup> and others have noted, the *Chapel at Ronchamp* also embodies one of Le Corbusier's most constant obsessions, that of the Parthenon and its precinct, the Athenian Acropolis (figures 20 & 21). For Le Corbusier, the *Chapel at Ronchamp* evokes both temple and temple precinct archetypes. Here, Le Corbusier has assembled elements of his personal cosmology, using them as signs that are rich with meaning and association, and as an itinerary of place memories that embodies sublime plastic sensation and universal architectural truths.

To explore the Acropolis metaphor, we may try to see Ronchamp's various architectural figures as being separate, as events encountered along the indoor / outdoor pilgrimage route. The whole of the chapel appears to be broken into parts, joined and separated by its envelope, in a manner similar to that at the *Pavillon de L'Esprit Nouveau*. Side altars, confessionals, pews, lectern, altar, and the south wall may all be seen as nearly autonomous events sited against the uneven terrain of the hilltop sanctuary. The Chapel's floor slopes sharply towards the altar, calling our attention to its unevenness. The vertical elements, as if they were architectural fragments transported from elsewhere, are provisionally joined by pivot doors, allowing visitors to this site to "wander among the ruins." Indeed, most visitors who make this architectural pilgrimage encounter Ronchamp as Le Corbusier encountered the Acropolis. Though both sites were designed for sacred worship, they are ultimately examined and understood as universal, cultural icons.

If we must imagine Ronchamp and its setting as a temple precinct, the various "temples" and "treasuries" of which its fabric is composed must be examined as well. The easiest of the figures to recognize are the three side chapels with their hooded light canons. Each resembles both a briar pipe<sup>21</sup> (one of Le Corbusier's favorite "object types") (figure 22), and forms derived from the Nymphaeum or Sarapeum at Hadrian's Villa, as others have noted, and as Le Corbusier himself admitted. Le Corbusier sketched these structures during his Italian journey in 1911 and published the sketches together with designs for a chapel at Sainte Baume (figure 23). A second figurative element is the south wall of the chapel. The wall's sharp turn and rise toward its eastern promontory create an illusion of deep perspective, evoking another of Le Corbusier's sketches from *Hadrian's Villa*, that of the re-

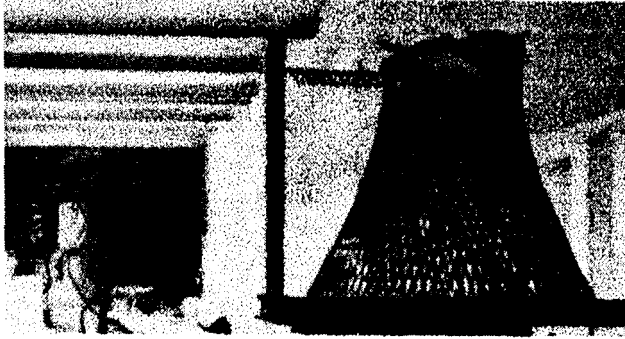


Fig. 18. Le Corbusier, *Palace of the Assembly*, Chandigarh, model.

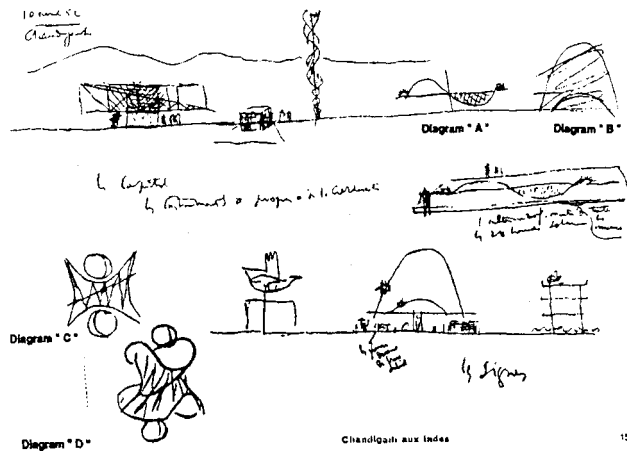


Fig. 19. Le Corbusier, *The signs*, drawings for his designs at Chandigarh.

maining wall of the Pœcile, or Greek portico (figures 24 & 25). It should be noted that Hadrian designed and built a country estate at Tivoli composed of reconstructed fragments of places and structures that he had visited during his travels and military campaigns. The Serapeum was designed to imitate the sanctuary of Serapis that stood outside of Alexandria. The Pœcile was Hadrian's reconstruction of the Stoa Poikile in Athens, famous in Hadrian's time for its association with the Stoic philosophers. Le Corbusier's use of these elements from Hadrian's Villa is identical to Hadrian's use of them (figures 26 & 27). In each instance, place memories and significant architectural fragments are reconstructed in new settings, serving new purposes. In each instance, the elements have a double identity — as function type and reference type. This overlay of meanings is similar to the marriage of contours that Le Corbusier and Gris employed in their paintings, and is an example of Cubist collage strategy in architectural design.<sup>22</sup>

Facing the south wall and main entry to the chapel is a second entrance, which opens at the joining of the east and west facing side-chapels. When seen together, the side-chapels resemble an open book, one of Le Corbusier's most frequently used object types (figures 28 & 29). In the place where a block of text would appear, a portal supports the pulpit, from which the words of the apostles are read. The

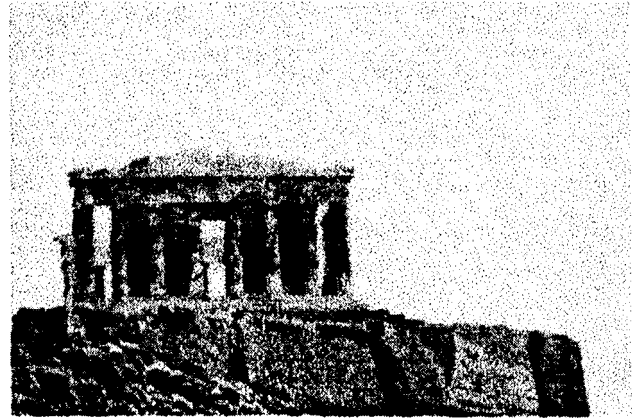


Fig. 20. *The Parthenon*.

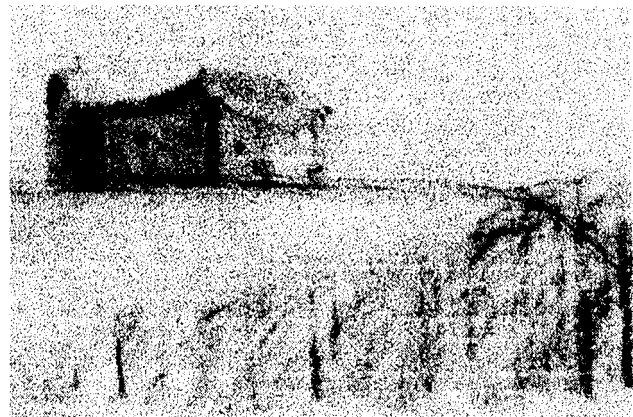


Fig. 21. Le Corbusier, *Chapel at Ronchamp*, sketch.

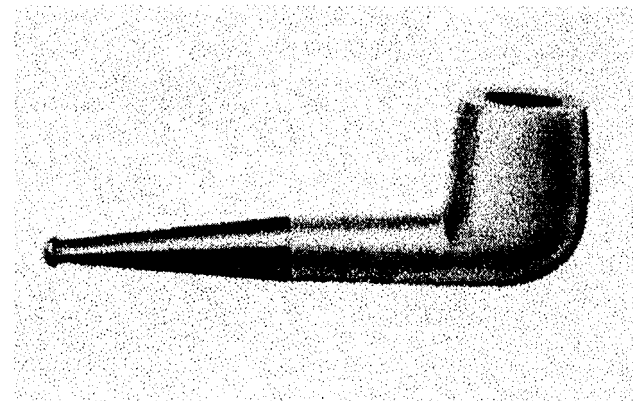


Fig. 13. A BRIAR PIPE.

nave, a sacred ground for prayer and reflection, is framed by the open book and the facing south wall (figure 30). This space establishes a "narrative" within the chapel and symbolizes one of the great dramas of the Catholic faith: the conflict between faith and reason. The actors in this conflict are Le Corbusier's symbols of the open book and the philosopher's wall. They represent the battle between the "word of God" and the words of the philosophers, and the perseverance of Christian faith in the material world.

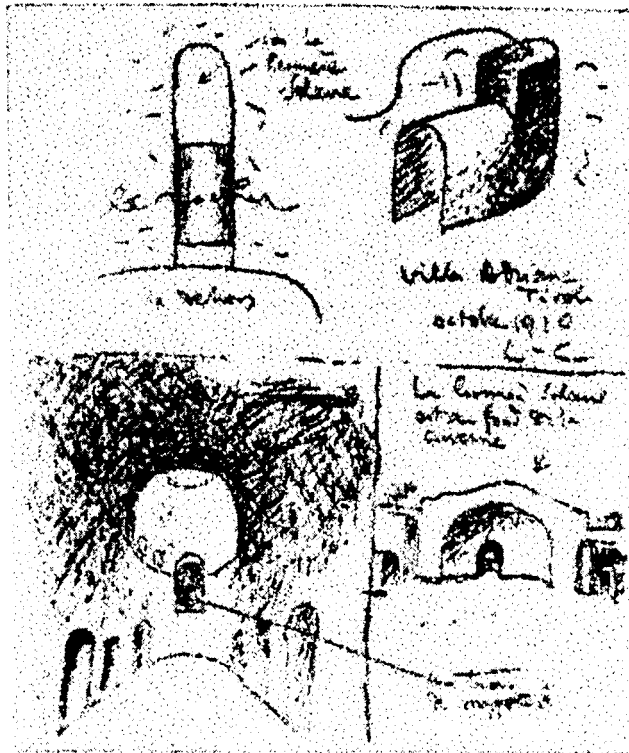


Fig. 23. Le Corbusier, sketches from 1911 of Serapeum, Hadrian's Villa.

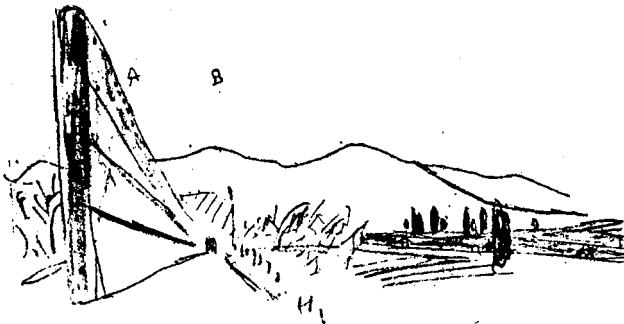


Fig. 24. Le Corbusier, "Philosopher's Wall", at Hadrian's Villa, sketch.

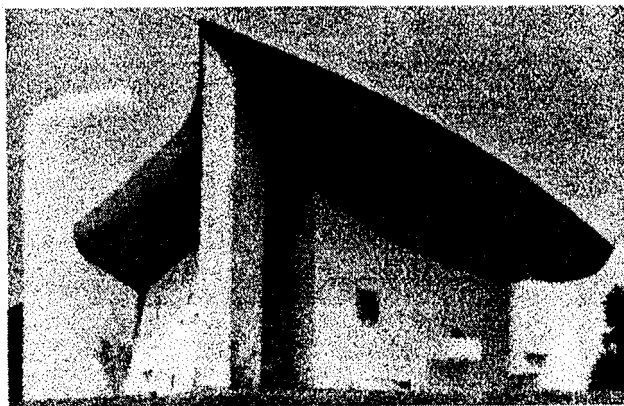


Fig. 25. Le Corbusier, Chapel at Ronchamp, 1955.

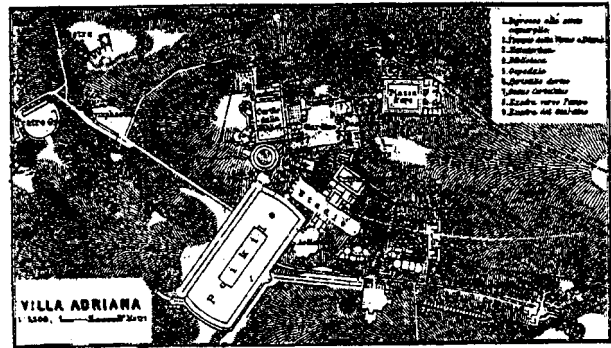


Fig. 26. Hadrian's Villa, plan.

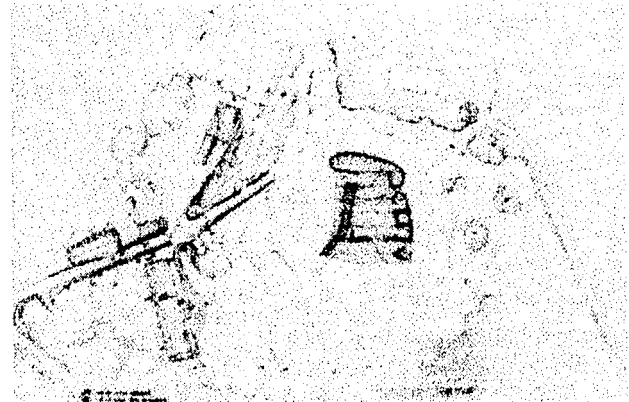


Fig. 27. Le Corbusier, Chapel at Ronchamp, site plan.

Having examined Ronchamp as temple precinct, we must now address those characteristics of Ronchamp that are temple-like. While many have written about Ronchamp as one of Le Corbusier's many interpretations of the Parthenon, it is useful to trace the contours of this metaphor very closely from the forms of the church. Like the Parthenon, the Chapel at Ronchamp is designed for outdoor ritual. The chapel's exterior is both a protective shelter for indoor worship and a backdrop for outdoor worship. Curiously, Ronchamp is a "free plan" building whose only column is on the exterior (Figure 31). It frames the outdoor altar's northern edge and is among a series of elements that screen the Chapel's eastern flank. This outdoor altar sits on a concrete pedestal, like the peripteral aisles that frame the Parthenon's *cella* (figures 32 & 33). In another reference to the Parthenon, the walls enclosing the Chapel's southeast corner rise and almost meet beneath the projecting roof gable. This gable approximates the silhouette of a pediment which shelters the outdoor altar below (Figure 34). If the southeast corner of the chapel can be interpreted as a pediment, then, by analogy, the outdoor altar would occupy the tympanum, and its furniture, as elements in a classical frieze, could be seen as describing the setting for a sculptural scene of battle and triumph, in particular, the triumph of faith (Figure 35). In "Après le Purisme," Robert Slutzky speculated about the meaning of Cubist still-life objects, as he compared them with traditional subjects:

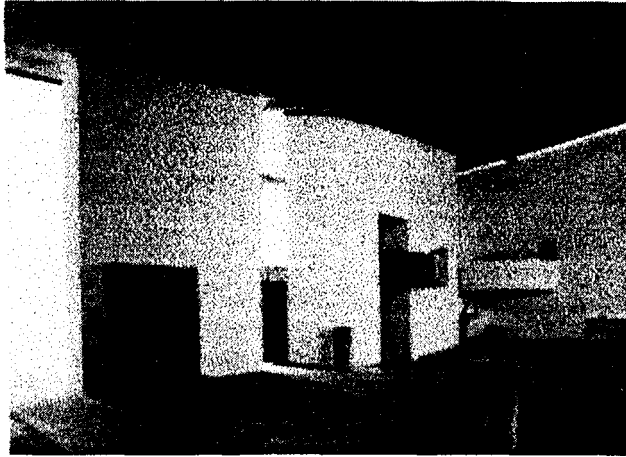


Fig. 28. Le Corbusier, *Chapel at Ronchamp*, interior.

Thus pitchers, glasses, bottles, carafes, siphons, pots, dishes, dice, boxes, lanterns, architectural moldings, books, violins, and guitars become actors on the stage of a still-life theater [...] Reclining guitars become surrogate odalisques; bottles and jugs double as orators and statesmen.<sup>23</sup>

If we compare one of Le Corbusier's photographs of the tympanum of the Parthenon with an edgewise view of Ronchamp's outdoor altar, once again there is an uncanny coincidence of contour (*figures 36 & 37*). This visual pun, though subtle and perhaps subliminal, is the same sort of game that Juan Gris engaged in when he transformed the works of Corot and Ingres.

## CONCLUSION

The tympanum figure may be subtle and somewhat obscure. While I can not prove that this or other figurative elements at Ronchamp were premeditated, their legibility and thematic consistency within this project and throughout Le Corbusier's work suggest that they are not accidental. The initial lines of Le Corbusier's early designs for Ronchamp were plastic and intuitive responses to the physical and historic characteristics of a site, and to the functional requirements of the congregation. Though the general siting and outlines for the design of the chapel at Ronchamp were determined early on, the figurative elements described above emerge only after an ongoing process of refining the design. This process of refinement marks a conscious effort on the part of Le Corbusier to translate architectural memories and events across material, spatial and temporal boundaries, into the fabric of his design. Le Corbusier impregnated the fabric of his works with architectural figures. This was intended by Le Corbusier as an analogue to the harmonious orchestration of space that he found in nature. As he explained in his essay "Ineffable Space":

The flower, the plant, the tree [and] the mountain stand forth, existing in a setting. If they one day command attention because of their satisfying and independent

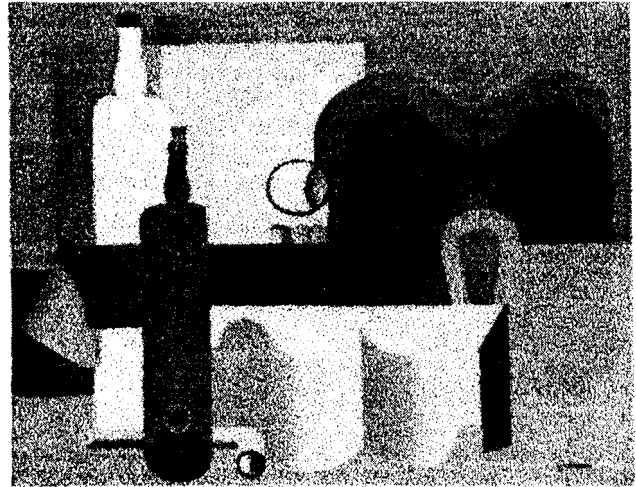


Fig. 29. Charles -Edouard Jeanneret, *Nature morte a la cruche blanche sur fond bleu*, 1920.

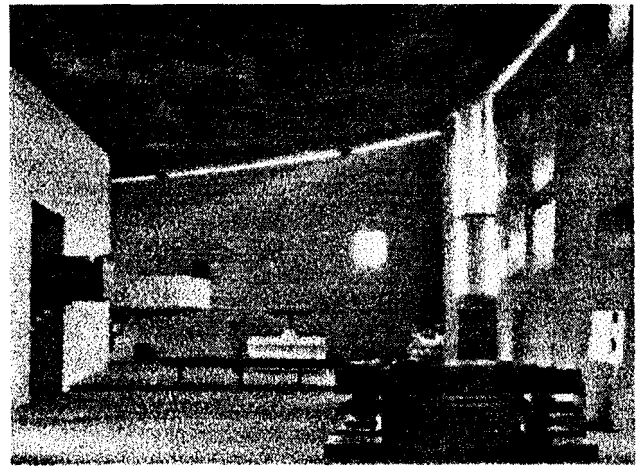


Fig. 30. Le Corbusier, *Chapel at Ronchamp*, 1955.

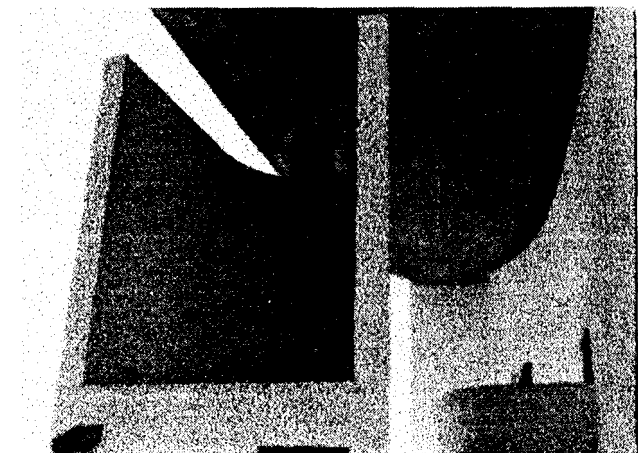
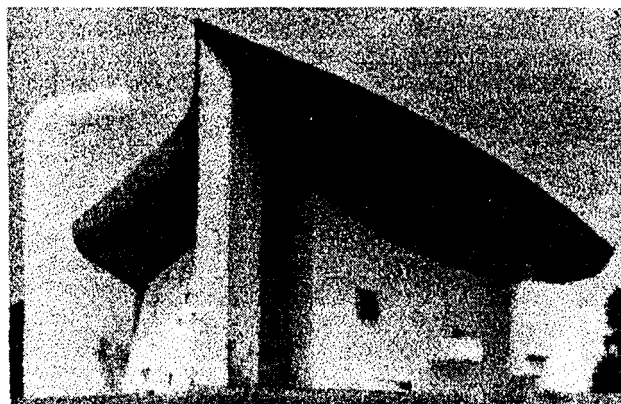


Fig. 31. Le Corbusier, *Chapel at Ronchamp*, detail.

forms, it is because they are seen to be isolated from their context and extending influences all around them.<sup>24</sup>

Fig. 32. *The Parthenon.*Fig. 33. Le Corbusier, *Chapel at Ronchamp*, outdoor altar.

My goal has been to illustrate the characteristics of non-literal representation in painting and in architecture. I have suggested that Le Corbusier's architectural development was influenced by his familiarity with the paintings of Juan Gris and by his own experiences as a Purist painter. Specifically,

Fig. 34. Le Corbusier, *Chapel at Ronchamp*.

I have shown that Juan Gris, beginning in 1916, developed a means of incorporating classical references seamlessly within the fabric of his synthetic Cubist paintings. Le Corbusier, after 1923, used similar techniques to incorporate archetypal forms, seamlessly, within the fabric of his architectural projects. At the very least, Juan Gris and Le Corbusier share remarkably similar attitudes to their classical heritage. Both of them responded similarly to the demands made upon visual artists in France from 1914 through the period of reconstruction after World War I. Non-literal figuration is as central to Le Corbusier's method of architectural design as it was for Juan Gris in painting. It appears that Le Corbusier's use of non-literal figuration was based on his translation of painterly techniques into the practice of architecture.

In the words of Richard Ingersoll in his *Marriage of Contours*, "...critics and architects generally treat [Le Corbusier's artistic production] as an amusing digression. Ironically, it is quite possible to appreciate the art works independently of Le Corbusier's architecture, but what is not possible is to understand his architecture separately from his art."<sup>25</sup>

The following passage from Le Corbusier's "Ineffable Space," with which I will conclude my study, can be thought of as having been written specifically about his *Chapel at Ronchamp*:

Without making undue claims, I may say something about the 'magnification' of space that some of the artists of my generation attempted around 1910, during the wonderfully creative flights of cubism. They spoke of the fourth dimension with intuition and clairvoyance. A life devoted to art, and especially to a search after harmony, has enabled me, in my turn, to observe the same phenomenon through the practice of three arts: architecture, sculpture and painting.

The fourth dimension is the moment of limitless escape evoked by an exceptionally just consonance of the plastic means employed.

It is not the effect of the subject chosen; it is a victory



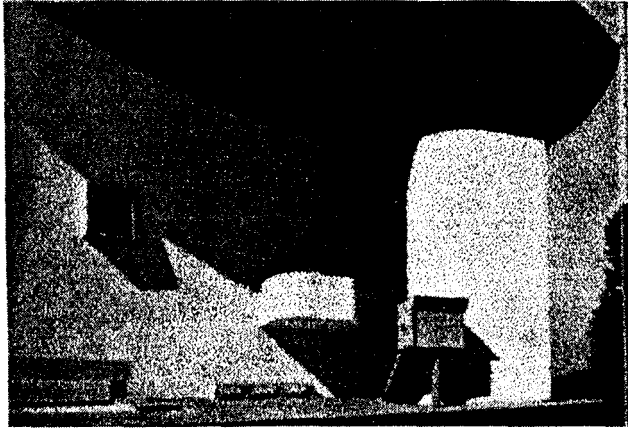


Fig. 35. Le Corbusier, *Chapel at Ronchamp*, outdoor altar.

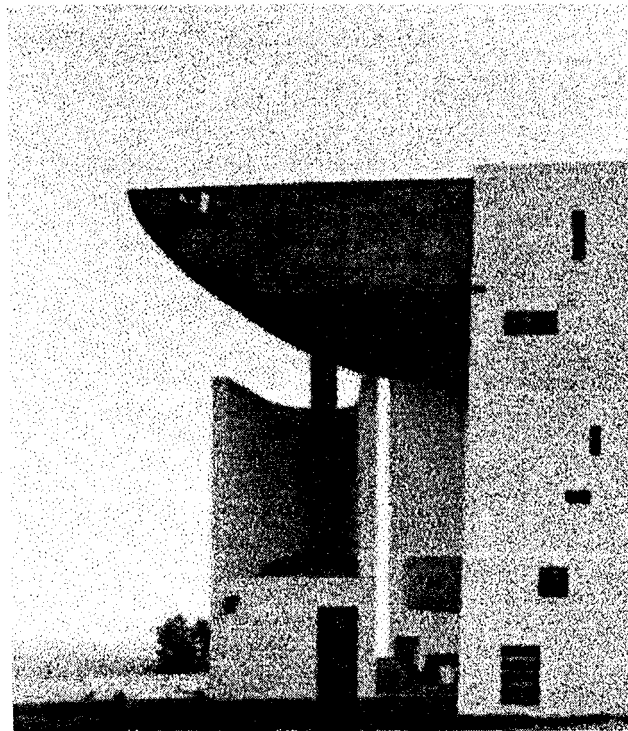


Fig. 36. Le Corbusier, *Chapel at Ronchamp*, 1955.

of proportion in everything - the anatomy of the work as well as the carrying out of the artist's intentions whether consciously controlled or not. Achieved or unachieved, these intentions are always existent and are rooted in intuition, that miraculous catalyst of acquired, assimilated, even forgotten wisdom. In a complete and successful work there are hidden masses of implications, a veritable world which reveals itself to those whom it may concern, which means: to those who deserve it.

Then a boundless depth opens up, effaces the walls, drives away contingent presences, accomplishes the miracle of ineffable space.<sup>26</sup>

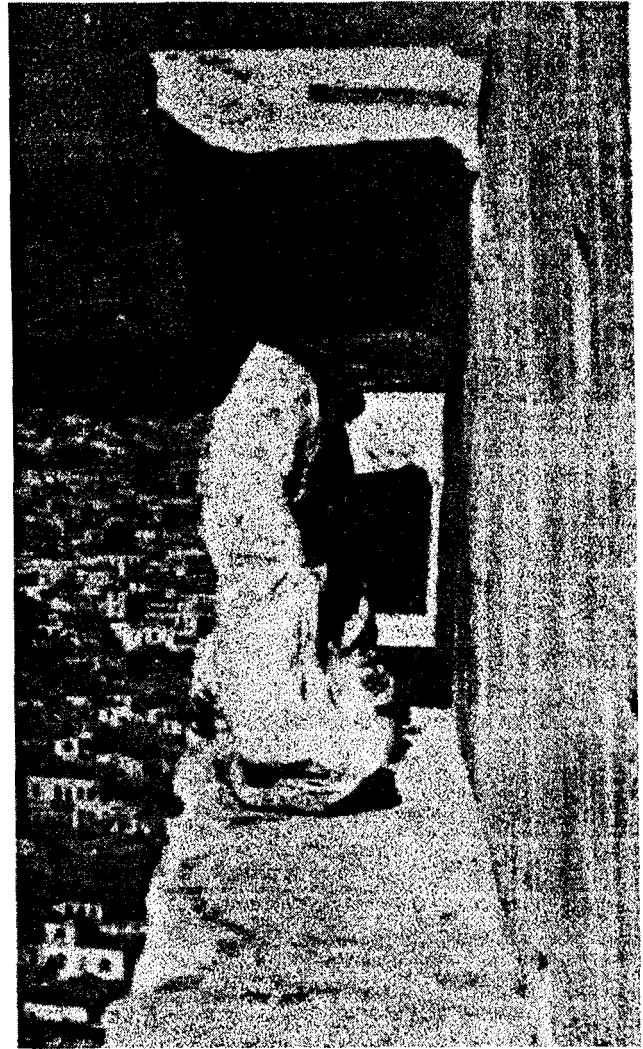


Fig. 37. *The Parthenon*, detail.

## ILLUSTRATIONS

- Fig. 1. Camille Corot, *Woman with a Mandolin*, c. 1860, St. Louis Museum of Art, St. Louis, Mo., (p. 159. in Kenneth E. Silver, *Esprit De Corps: The Art of the Parisian Avant-Garde and the First World War, 1914 - 1925*, Princeton, New Jersey, 1989)
- Fig. 2. Juan Gris, *Woman with a Mandolin (after Corot)*, 1916, Kunstmuseum in Basel, formerly in the collection of Raoul La Roche, (p. 158 in Silver)
- Fig. 3. Fernand Léger, *Le grand déjeuner*, 1921, Museum of Modern Art, New York.
- Fig. 4. J.A.D. Ingres, *Le bain turc*, 1863, The Louvre, Paris.
- Fig. 5. J.A.D. Ingres, *La Grand Odalisque*, 1814, The Louvre, Paris, (p. 126. in Debra Edelstein, ed., *In Pursuit of Perfection: J.-A.-D. Ingres* (Bloomington, Indiana, 1983).
- Fig. 6. Juan Gris, *Verre et journal*, 1917, Kunstmuseum, Basel, Switzerland, formerly in the collection of Raoul La Roche, (p. 65. in Strathaus).
- Fig. 7. J.A.D. Ingres, *La Baigneuse de Valpinçon*, 1808, The Louvre, Paris, (p. 120. in Edelstein).
- Fig. 8. Juan Gris, *Le violon*, 1916, Kunstmuseum, Basel, Switzerland, formerly in the collection of Raoul La Roche, (p. 64. in Strathaus).
- Fig. 9. Raphael *School of Athens*, 1509, The Vatican Museum,

- Rome, (p. 70. in Jean Leymarie, ed., *Who Was Raphael?* (Geneva, Switzerland, 1967).
- Fig. 10. Le Corbusier, *Chapel at Ronchamp*, plan, (p. 102. in Le Corbusier, *Ronchamp: Oeuvre de Notre-Dame du Haut* (Germany, 1975).
- Fig. 11. Le Corbusier's diagram symbolizing the sun's path and the collaborative activities of the architect and engineer, (p. 189. in Carlo Palazzolo and Riccardo Vio, *In the Footsteps of Le Corbusier* (New York, 1991).
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- Fig. 15. Le Corbusier, *Heidi Weber Pavilion*, Zurich, 1967, model, (p. 145. in Le Corbusier, *Le Corbusier: Volume 8 des oeuvres complètes* (Zurich Switzerland, 1973).
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- Fig. 20. *The Parthenon* (p. 185. in Le Corbusier, *Towards a New Architecture* (New York, 1984).
- Fig. 21. Le Corbusier, *Chapel at Ronchamp*, sketch, (p. 174. in Danible Pauly, *ronchamp: lecture d'une architecture* (Paris, 1980).
- Fig. 22. *A BRIAR PIPE*, (p. 269. Le Corbusier, *Towards a New Architecture* (New York, 1984).
- Fig. 23. Le Corbusier, sketches from 1911 of *the Serapeum, Hadrian's Villa*, (p. 70. in Le Corbusier, *le passe' a re'action poe'tique* (Paris, 1987).
- Fig. 24. Le Corbusier, sketch of the "Philosopher's Wall" at *Hadrian's Villa*, (p. 180. in Le Corbusier, *Towards a New Architecture* (New York, 1984).
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- Fig. 26. *Hadrian's Villa*, plan, (p. 139 in Le Corbusier, *Towards a New Architecture* (New York, 1984).
- Fig. 27. Le Corbusier, *Chapel at Ronchamp*, site plan (p. 103. in Le Corbusier, *Ronchamp: Oeuvre de Notre-Dame du Haut* (Germany, 1975).
- Fig. 28. Le Corbusier, *Chapel at Ronchamp*, interior (photograph by author).
- Fig. 29. Charles-Edouard Jeanneret, *Nature morte a la cruche blanche sur fond bleu*, 1920, Musée National d'Art Modem, Paris, formerly in the collection of Raoul La Roche.
- Fig. 30. Le Corbusier, *Chapel at Ronchamp*, (p. 33. in Le Corbusier, *Le Corbusier Oeuvre Complète 1952 - 1957* (Zurich Switzerland, 1964).
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- Fig. 32. *The Parthenon*, (p. 194. in Le Corbusier, *Towards a New Architecture* (New York, 1984).
- Fig. 33. Le Corbusier, *Chapel at Ronchamp*, outdoor altar, (p. 30. in Le Corbusier, *Le Corbusier Oeuvre Complète 1952 - 1957* (Zurich Switzerland, 1964).
- Fig. 34. Le Corbusier, *Chapel at Ronchamp* (photograph by

author).

Fig. 35. Le Corbusier, *Chapel at Ronchamp*, outdoor altar, (p. 60. in Le Corbusier, *Ronchamp: Oeuvre de Notre-Dame du Haut* (Germany, 1975).

Fig. 36. Le Corbusier, *Chapel at Ronchamp*, (photograph by author).

Fig. 37. *The Parthenon*, detail, (p. 207. in Le Corbusier, *Towards a New Architecture* (New York, 1984).

## NOTES

- <sup>1</sup> Colin Rowe, *The Architecture of Good Intentions* (London, 1994), p. 16.
- <sup>2</sup> In 1918, Charles-Edouard Jeanneret adopted the name Le Corbusier. He used Le Corbusier for all his subsequent architectural projects. In the context of this essay, I will use the name Jeanneret when referring to his work as a Purist painter and to his collaboration with Amédée Ozenfant on the journal *L'Esprit Nouveau*, and Le Corbusier when referring to his architectural projects.
- <sup>3</sup> Rowe and Slutzky define literal transparency as a material quality of surfaces pervious to light and view. Phenomenal transparency describes the simultaneous perception of different spatial entities laying claim to the same territory. Phenomenal transparency is characterized by a dense layering of orthogonal spatial zones. See Colin Rowe and Robert Slutzky's, "Transparency: Literal and Phenomenal," *Perspecta & The Yale Architectural Journal* (1963).
- <sup>4</sup> The titles of architectural projects and of paintings and works of sculpture will be found in italics throughout this study; the titles of essays will be found in quotation marks. Journal and book titles will be *underlined*.
- <sup>5</sup> "On 4 August, in a speech to the National Assembly, President Poincaré coined a term which was to be used over and over again during the course of the war: *union sacrée*." [...] Commenting upon the president's use of the term, one writer explained that it meant, in plain language, that the myriad individual identities that had for so long fought for supremacy – "Socialists, radicals, progressivists, conservatives, republicans, monarchists, Freemasons, clericalists, blockists, nationalists" – must cease and desist." Kenneth E. Silver, *Esprit de Corps* (Princeton, New Jersey, 1989), p. 25. Poincaré expressed the magnitude of the sacred union in this way: "France represents today, once again, before the universe, liberty, justice and reason... She will be defended by all her sons, whose sacred union in the presence of the enemy nothing will break." Raymond Poincaré, 4 August 1914, in his message to Parliament. In Robert Tombs, *France 1814 - 1914* (New York, 1996), p. 480.
- <sup>6</sup> Kenneth E. Silver, *Esprit de Corps* (Princeton, New Jersey, 1989).
- <sup>7</sup> Silver traces the use of the analytic/synthetic dichotomy, in both artistic and social / political terms. Kenneth E. Silver, *Esprit de Corps* (Princeton, New Jersey, 1989), pp. 345-50.
- <sup>8</sup> The reactionary critic Louis Vauxcelles "referred to the paintings which Braque exhibited at the Salon des Indépendants [of 1909] as 'bizarreries cubiques,' from which the style derived its name." In John Golding, *Cubism: A History and an Analysis 1907 - 1914* (New York, 1959), pp. 20-21.
- <sup>9</sup> In a passage identifying key elements of Gris' Synthetic Cubism, Christopher Green compared structural and formal qualities in Gris' work: "[...] the configurations he manipulated became even more semantically elastic as signs, something already to be seen in the structural and formal similarities between two pictures [...] with very different subjects [...] Not merely different still-life objects but even buildings and figures have become virtually interchangeable. It was this increasing semantic elasticity more than the primacy of the geometric armature that was the key to the continuing processes of distillation in Gris' work; and



- the most obvious product of that elasticity [was] the visual rhyme." Christopher Green, *Cubism and its Enemies, Modern Movements and Reaction in French Art, 1916 - 1928* (New Haven, Connecticut, 1987), p. 31
- <sup>10</sup> Kenneth E. Silver, *Esprit de Corps* (Princeton, New Jersey, 1989), p. 374.
- <sup>11</sup> Amédée Ozenfant and Charles-Edouard Jeanneret, "On The Plastic," *L'Esprit Nouveau* (No. 1). For Anthony Eardly's English translation of the essay, see Jonathan Block Friedman, *Creation in Space* (Dubuque, Iowa, 1989), pp. 30-32.
- <sup>12</sup> Daniel-Henry Kahnweiler, *Juan Gris: His Life and Work* (New York, 1968), p. 213 (note 135).
- <sup>13</sup> Daniel-Henry Kahnweiler, *Juan Gris: His Life and Work* (New York, 1968), p. 193.
- <sup>14</sup> Non-literal figuration is a concept used by Robert Slutzky in the context of describing representational incidents in Cubist painting and their implications for Le Corbusier's painting and architecture. Alexander Caragone relates the following remarks from a 1987 conversation between Slutzky and David Thurman: "In a conversation with David Thurman a few years ago, Slutzky, speaking of a third 'lost' 'Transparency' article, still unfinished, suggests that 'what we were leading to ... has to do with some of the poetic implications of Le Corbusier's ... painterly vision [and] feeling ... anthropomorphizing architecture in a certain not very obvious or literal way. [Taking] a non-literal, phenomenal kind of allusion to figuration as opposed to representation in architecture' ..." Caragone himself notes: "With respect to the origins and linkage between cubism and modern architecture, a timely illumination of the as yet obscured metaphorical and anthropomorphic aspects of analytical cubism in general and Le Corbusier's painting and architecture in particular, [offer] a challenge to the carefully constructed abstract modernist rhetoric of Barr, Kahnweiler, Appollinaire, Hitchcock, et al." Alexander Caragone, *The Texas Rangers: notes from an architectural underground*. (Cambridge, Massachusetts, 1995), pp. 326 -27.
- <sup>15</sup> John Golding, Christopher Green, et al., *Léger and Purist Paris* (London, 1970), p. 85.
- <sup>16</sup> In my opinion, Juan Gris invites his audience to recognize deliberate anthropomorphic references to Ingres' works in certain of his synthetic still lifes (a recognition which may be heightened when the musical instruments in Gris' pictures are seen horizontally): *Guitar, Glasses and Bottle*, 1914, papier collé, National Gallery of Ireland, Dublin; *The Violin*, 1916, Kunstmuseum, Basel, Switzerland (my figure 7); *The Violin*, 1916, private collection; *Verre et journal*, 1917, Kunstmuseum, Basel, Switzerland (my figure 6); *The Book of Music*, 1922, Museo Nacional Reina, Sofia, Spain (p. 246 in Christopher Green, *Juan Gris* (New Haven Connecticut, 1992); *The View across the Bay*, 1921 Musée National d'Art Moderne, Centre Georges Pompidou, Paris (p. 248 in Green).
- <sup>17</sup> Structure and event are terms that derive from Claude Levi-Strauss' *The Savage Mind*, and were used by Colin Rowe and Fred Koetter in their *Collage City*, (Cambridge, Massachusetts, 1978).
- <sup>18</sup> Le Corbusier writes: "One evening, on the lawn outside the Rest-House of Chandigarh, where Jane Drew, Pierre Jeanneret, Maxwell Fry and Le Corbusier have their base, Jane Drew said: Le Corbusier, you should set up in the heart of the Capitol the signs which symbolise the basis of your philosophy and by which you arrived at your understanding of the art of city design. These signs should be known - they are the key to the creation of Chandigarh." Le Corbusier, *Le Corbusier: Oeuvre complète 1946 - 1952* (Zurich, Switzerland, 1953), p. 153.
- <sup>19</sup> Stuart Cohen and Steven Hurr, "The Pilgrimage Chapel at Ronchamp: Its Architectonic Structure and Typological Antecedents," *Oppositions* 19/20 (Winter /Spring 1980), pp. 142-157.
- <sup>20</sup> Danièle Pauly, "The Chapel of Ronchamp as an Example of Le Corbusier's Creative Process," in H. Allen Brooks, ed., *Le Corbusier* (Princeton, New Jersey, 1987), pp. 127-140.
- <sup>21</sup> Jonathan Block Friedman, in a recent conversation with me, remarked on the similarity between Le Corbusier's sketches of the Serapeum of Hadrian's Villa and the form of a briar pipe.
- <sup>22</sup> For a detailed discussion of collage strategies in architectural design and urban design see Colin Rowe and Fred Koetter, *Collage City* (Cambridge, Massachusetts, 1978).
- <sup>23</sup> Robert Slutzky, "Après le Purisme," *Assemblage 4* (October 1987), p. 96.
- <sup>24</sup> Le Corbusier, "Ineffable Space," in his *New World Of Space* (New York, 1948).
- <sup>25</sup> Richard Ingersoll, *A Marriage of Contours* (New York, 1990), p. 1.
- <sup>26</sup> Le Corbusier, "Ineffable Space," in his *New World Of Space* (New York, 1948).