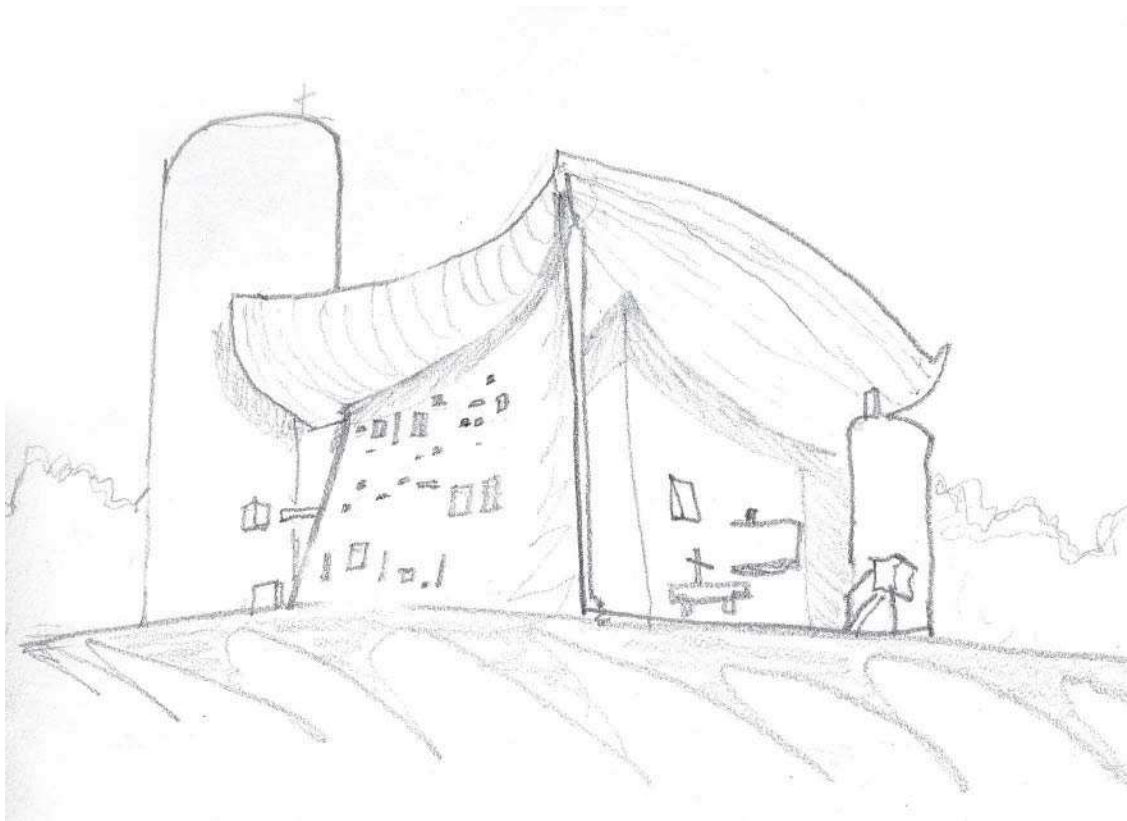A phenomenology of

The Chapel at Ronchamp

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Introduction

Charles-Edouard Jeanneret, known by architects the world over as Le Corbusier is justifiably one of the most influential architects of the 20ᵗʰ century. I think it would be fair to characterize Le Corbusier as a rationalist—one known for his invention of logical systems for architecture, and for his rigorous application of them to his projects. Perhaps it was the deceptive simplicity of these systems that made them so popular with architects the world over. In Corbusier's introduction to *The Modulor*, he quotes Einstein to say it is a tool with the simple aim of "making the bad difficult and the good easy." (5) This seemed to suggest that great architecture could be made as easy as following a cookbook recipe. He espoused a mathematical derivation for the arcane element of the Vitruvian triptych, beauty, which most other modernists seemed eager to ignore in preference of the more readily quantifiable demands of functionality.

The other themes of Corbusier's architectural theory are the same social causes echoed so often in modernism, which might be summarized as: what will be the implication of industrialization in architecture? Namely, how can standardization and economy of scale improve the standard of living for the common man, and how do new materials and methods of construction inform a new language of architectural form appropriate to the modern era? While the modern movement saw the potential to improve living conditions of the urban poor through the benefits of industrial production, people were understandably disturbed (and still are) with the idea of stripping them from the environment they are familiar and comfortable with, even if that environment happens to be an overcrowded and unsanitary slum.   While modernism confronted one set problems they failed to recognize others, or even created new ones.

The inadequacy of most architectural theory is that it rarely gives much of any consideration to the core concern of architecture, which is how we, as human beings, *experience space*. The same might be said of today's architectural fads, whether digital fabrication, green technology, or the new urbanism which arose from the failed city planning of the last century. These are elements or tools only, as Corbusier's Five Points or Modulor were. Expecting these new tools to result in great architecture while

failing to address the core concern of architecture is no more likely to succeed than doggedly following Corbusier's Five Points might have been. Corbusier's theory aside, he understood that what makes architecture great is how we experience space. In architectural education we rarely address these issues systematically, and are generally satisfied to serendipitously achieve some effect, but great architects do not leave these matters to chance, and great architecture is not built by luck. Where Villa Savoye might be the perfect case study of Corbusier's five points, Ronchamp is the perfect case study for this kind of phenomenological study; at Ronchamp Corbusier achieved his most expressive masterwork.

The "Promenade Architecturale"

"Forms bathed in light. Inside and outside; below and above. Inside: we enter, we walk around, we look at things while walking around and the forms take on meaning, they expand, they combine with one another. Outside: we approach, we see, our interest is aroused, we stop, we appreciate, we turn around, we discover. We receive a series of sensory shocks, one after the other, varying in emotion: the jeu comes into play. We walk, we turn, we never stop moving or turning towards things. Note the tools we use to perceive architecture…the architectural sensation we experience stems from hundreds of different perceptions. It is the 'promenade', the movements we make that act as the motor for architectural events." --LC (qtd. Pauly 29)

Le Corbusier understood that the way we experience space is dictated by our very specific human perspective. In *Toward an Architecture* he states "Man sees architectural things with eyes that are 1 meter 70 from the ground." (*TAA* 214) Historically architects used two dimensional representations to communicate our designs for three dimensional spaces. Today, technology has given us the capability to more easily visualize our ideas in three dimensions, but this has not eliminated faulty thinking by architects. An attractive rendering which neglects the specificity of human perspective is an illusion. We do not perceive space in discrete slices, nor do we hover over our buildings like birds. Yet these are the perspectives from which we so often design our buildings.

The experience of Ronchamp is highly directed, which illustrates Corbusier's understanding of how we perceive space. His first visit to the site must have impressed him with the opportunity it presented to create the kind of architectural procession he so admired in the Acropolis in Athens (fig. 4). In *Toward an Architecture*, he notes "It must not be forgotten that the site of the Acropolis is very uneven, with considerable differences of level that were used to create plinths for the buildings. The slightly canted angles produce rich and subtly effective views; the asymmetrical massing of the buildings creates an intense rhythm. The spectacle is massive, elastic, charged, devastating in its acuity, dominating." *(TAA115)* Likewise, his chapel rises from the crest of the hill; the massive southwest tower, the sweep of the chapel's roof, and the stark white-washed gunnite walls make it clearly visible for miles (fig. 5). The approach to the chapel is by a narrow, steep path; the chapel emerges unexpectedly from the woodline. The massing is asymmetrical; the approach is off axis.

The plan proceeds from the inside out; the exterior is the result of an interior.

The elements of architecture are light and shadow, walls and space.

Ordonnance is the hierarchy of goals, the classification of intentions.

–LC *(TAA 214)*

Upon reaching the chapel, the anchoring mass of the southwest tower and the sweep of the roof lead one's eye to the east (fig. 6), to the lawn east of the chapel and the vista of the valley below (fig. 7). The east lawn is intended to accommodate the thousands of pilgrims who visit the site on holy days. This exterior space is framed to the south by the pilgrim's house, and on the north by a memorial, with the outdoor altar sheltered under the roof within the concave eastern façade (fig. 8). The everyday entrance is around the corner again, on the north side of the chapel (fig 9). Once again upon entering, the visitor is presented with a view of the southern façade, though this time to startlingly different effect, as all appears reversed from the exterior (fig. 10). After this initial impression, the interior volume expands east; the bright vertical gap between the south and east facades and the niche containing the effigy of the Virgin Mary draw the eye towards the altar. Then the side chapels, hidden in the curves of

the façade and lit mysteriously by brise-lumière atop the towers, invite investigation (fig. 13). The procession, around the exterior and through the interior, is a dynamic one that keeps the eye, and the visitor, continually moving. There is a tension between the focal points, but also a clear hierarchy.

"The Regulating Line" *(TAA 132)*

Corbusier is famed for his incredibly rigorous application of logical systems in his work. Ronchamp *appears* to be almost chaotically random—the faces are all curving surfaces in tension that derives from not *quite* joining with one another, seemingly plastic, bending or bulging here or there under the influences of palpable forces. Of the building itself, there is hardly a right angle to be found anywhere. These surfaces are perforated with openings or scattered with objects "strewn like a handful of sand." (qtd. Pauly 74)

Mathematics is the majestic structure conceived by man to grant him comprehension of the universe. It holds both the absolute and the infinite, the understandable and the forever illusive. It has walls before which one may pace up and down without result; sometimes there is a door: one opens it—enters—one is in another realm, the realm of the gods, the room which holds the key to the great systems. These doors are the doors of the miracles. –LC (TM 71)

Though it might seem at first glance that the composition of Ronchamp is quite arbitrary, in fact, Corbusier employed one of the systems here for which he was famous, the Modulor. Corbusier was disturbed by the fact that the meter was derived from a scientific benchmark—one forty millionth part of the meridian of the earth—that was so far removed from relation to the human figure. *(TM 20)* He felt this was responsible for what he called a "dislocation" of modern architecture, whose object is to contain men. *(TM 20)* He sought a means to reconnect the physical measure of architecture to the human figure (fig 12).   Corbusier was deeply influenced by Classical concepts of proportion, and he took Da Vinci's Vitruvian Man as a basis for devising a system of proportions, which would be related both to an idealized human figure and in part to

the whole. His hope was that the Modulor would provide a measure for architecture that would be "flexible, adaptable, allowing for a wealth of nuances and yet simple, manageable, and easy to understand" much as meter and scale measure music, and that such a system would actually provide fresh creative impulse in architecture. *(TM 15)* Corbusier was also very taken with mathematics as the underlying structure to the universe, and sought to use it to bring harmony to architecture in much the same way as Albert Einstein sought to use it to bring harmony to physics.

Modulor everywhere. I defy a visitor to give, offhand, the dimensions of the different parts of the building. –LC (TCR 118)

In Ronchamp, the Modulor is the regulating system that controls the dimensions and composition of everything in the building, and the beauty of its application is its subtlety. The casual visitor may sense the relationship of parts to the whole, but the pervasiveness of the system is a bit arcane. The initiated who actively seeks it out finds it everywhere (fig. 11). One possible explanation for the subtlety of the regulating system, submerged in the organic forms, is that it is analogous to the irrationality of religious faith itself, and the search for meaning that is its driving impulse (Pauly 127).

"A Matter of Relationships" *(TAA 97)*

By the play of proportions by the

play of relationships unexpected,

amazing. --LC, (TCR 26)

There is a more overt set of relationships at work at Ronchamp; a juxtaposition of contrasting elements or effects.   This dialectic creates a sense of tension; an architectural drama.

Inside, alone with yourself.

Outside, 10,000 pilgrims in front of the altar. –LC, (TCR 103)

The curved surfaces of the chapel demonstrate what Corbusier meant when he stated in *Toward an Architecture*, "considering the impact of a work of architecture on its site, I will show here again that the *outside* is always an *inside*." (*TAA* 216) Corbusier often uses acoustic vocabulary in describing the concave south and east exteriors as "receivers" of pilgrims or "transmitters" of form to the landscape. (qtd Pauly 110) This contrasts with the convex north and west, which enclose the introspective, meditative interior. This contrast between the character of the interior and exterior is Corbusier's way of dealing with a programmatic difficulty of the chapel, what he called "a question of taps," that is, a chapel that could accommodate two hundred worshippers, but twice a year, on days of pilgrimage, transform to accommodate several thousand. (qtd Pauly 60)

Curved volumes governed by rectilinear generators. --LC (*TCR 119*)

While many of Corbusier's critics were eager to view Ronchamp as a radical shift in his discourse (Pauly 126), In *Toward an Architecture*, Corbusier had stated, "A volume is enveloped by a surface, a surface that is divided according to the generators and the directing vectors of the volume, accentuating the individuality of this volume." (*TAA* 108) At Ronchamp, the curved surfaces are Corbusier's "response to the horizons" (qtd Pauly 63), while those surfaces appropriated for "utilitarian" (*TAA* 109) purposes, the doors and windows piercing the walls, the liturgical elements of the altars, the paving pattern of the floor, are simple orthogonal elements generated from Modulor proportions (fig 15). They introduce a sense of human scale and are a stabilizing geometric counterpoint to the sense of tension generated by the curved surfaces (Pauly 36). Thus the rectilinear generators accentuate the individuality of the curved volumes.

The key is light

and light illuminates shapes

and shapes have emotional power. –LC (*TCR 26*)

Corbusier uses light to create dialectic relationships. On the exterior, the walls are bright whitewash, while the roof is dark *béton brut*. The deep cavities of the window openings communicate the great thickness of the south wall, which seems

appropriate to bear the weight of the roof; the walls slumps and the roof sags as if in response to this mass. However, in the interior, an amazing reversal takes place. The south wall is now in shadow, the vitrages (which are clear, or in some cases, painted, and not stained, glass) admitting brilliant points of light (fig 10). The roof actually rests on columns hidden within the wall, and a 10 cm wide gap between the top of the wall and the ceiling washes its surface in light and makes it seem as though it is floating, weightless. Within the interior, another dialectic relationship is established between east and west (fig 16). (Pauly 46) On the east, the ceiling is at its highest, floating above the wall. Light pours in the brise-lumière above the east door, set in the gap between the east and south facades. On the west, the only blind façade, the roof sags to its lowest, actually resting atop the wall, making the weight of the roof almost oppressive.

"A Machine for Stirring Emotion" (TAA 241)

Ronchamp is clear expression of its author's intent.   In his own words, "When pondering and working out a project…always a long process, I bring into focus, I realize, I come to the point. I have made an immense effort…" (TCR 6) Ronchamp succeeds because it eschews what Corbusier called "the illusion of plan," that is, intentions that do not belong to the language of architecture. (TAA 216) Instead, it is the product of careful consideration of how we experience space: of human perspective, how our movement is "the motor for architectural events," (qtd. Pauly 29) and of human scale, through the use of the modulor. It speaks to us in the language of architecture: volume, form and light. It is "a matter of relationships," (TAA 97) in this case: relation to the site, the exterior to the interior, the part to the whole, and the compositional dialectic: between curved and straight, light and dark, weightlessness and gravity, with the intention of *moving* us. While other modernists chose to deny architecture as an art (Hannes Meyer, "Architecture as 'an emotional act of the artist' has no justification"(qtd. Conrads 119)), Corbusier understood that "ARCHITECTURE is an artistic fact, an emotional phenomenon that is outside questions of construction, beyond them," (TAA 97) and "goes beyond" the requirements of the "utilitarian program." (TAA 215) Corbusier may have placed too much faith in connection between mathematics and emotion; not

everyone is as moved by numbers as he was. But his idea that architecture becomes "a machine for stirring emotion," (*TAA* 241) by engaging our faculties "of memory, of examination, of reasoning, of creation" (*TAA* 96) is extremely compelling, because it touches on what really makes us human, not just our physiology or social habits, but the human spirit. "Art is this pure creation of the mind that shows us, at certain heights, the height of *creation* to which man can attain. And man experiences great happiness *on feeling himself create*." (*TAA* 249)

"The work is finished. Come what come may." --LC (*TCR* 129)
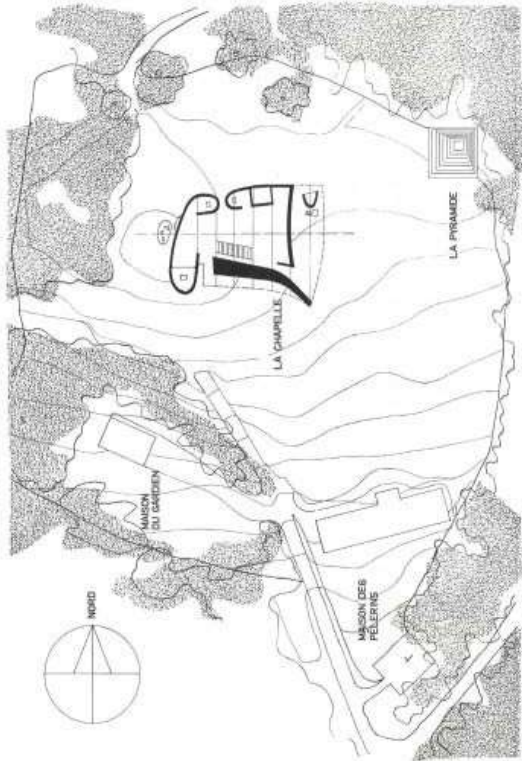
figure 1: The site plan.
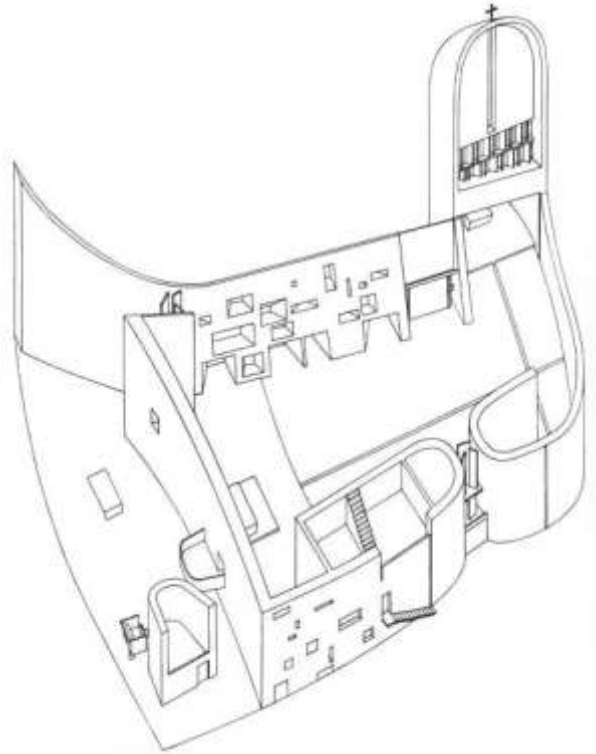
figure 2: An axonometric projection of the chapel.

figure 3: The definitive plan of the chapel.
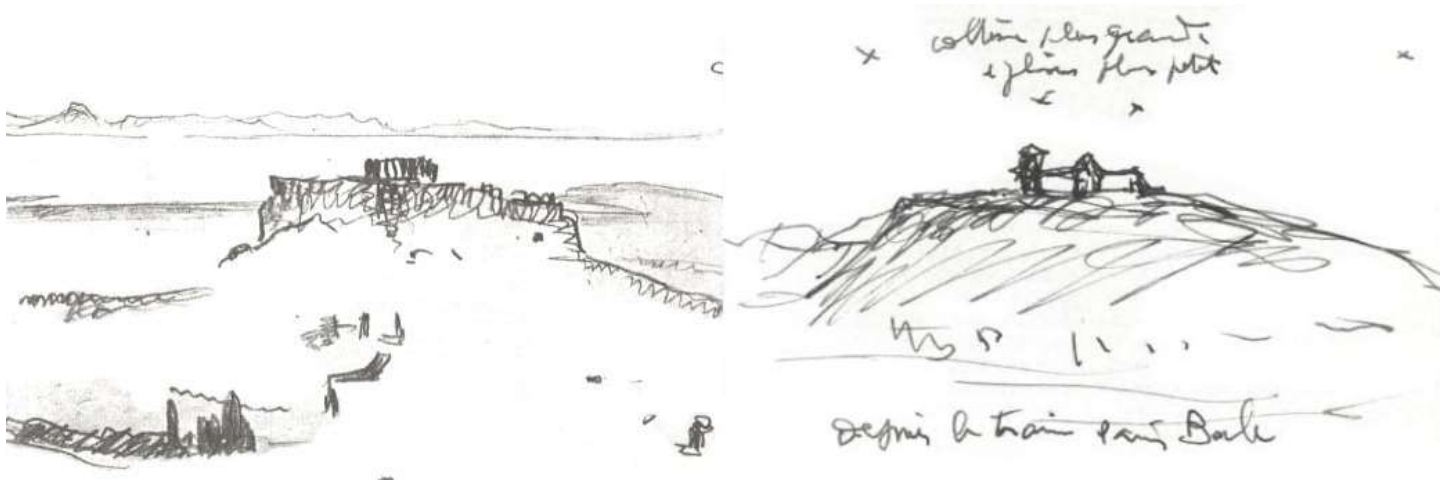
figure 4: Sketches by Corbusier: on the left, the Parthenon, on the right, Ronchamp.

figure 5: The chapel on the hill of Bourlemont.
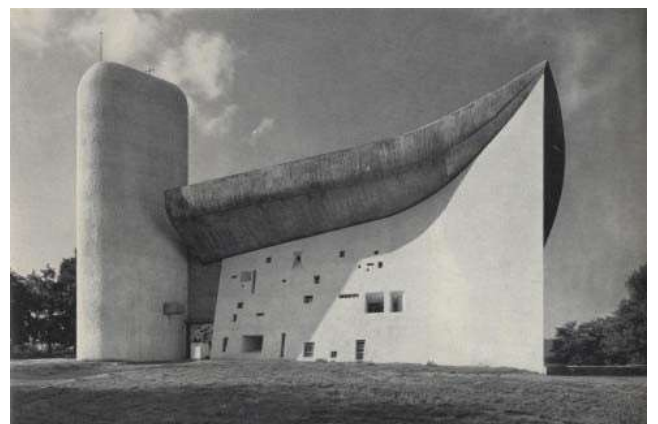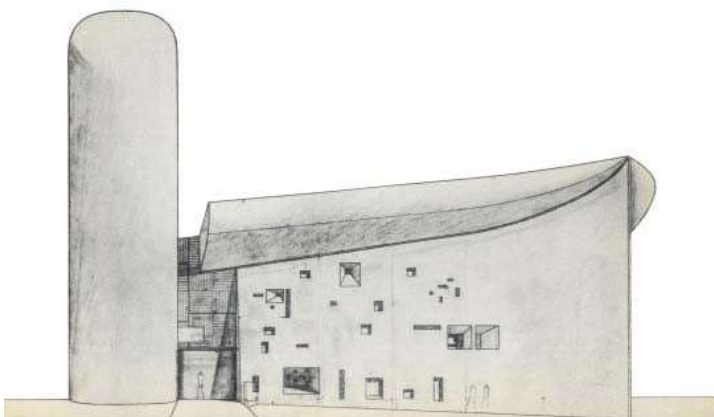
figure 6: The south facade.

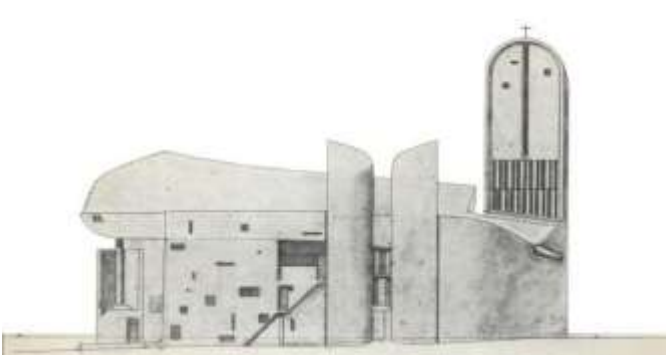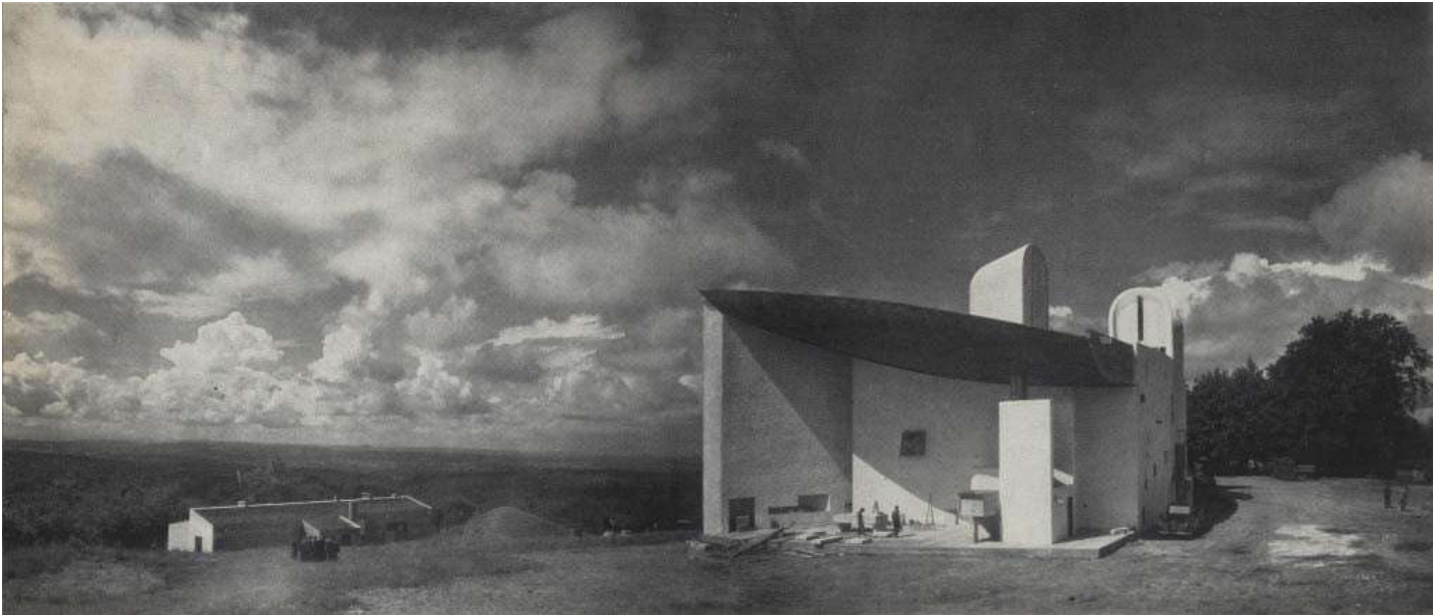figure 7: The view east from the chapel.
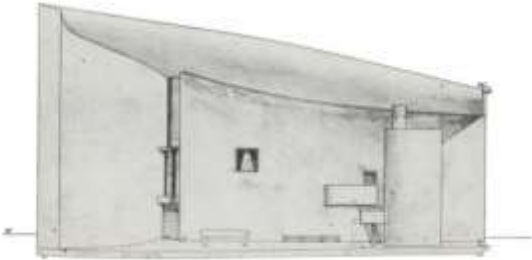
figure 8: The east facade.

figure 9: The north facade.

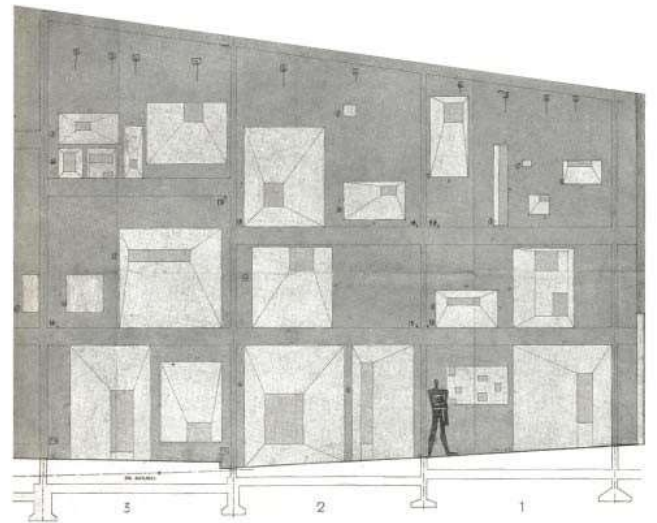figure 10: The "play" of natural light on the south interior elevation.

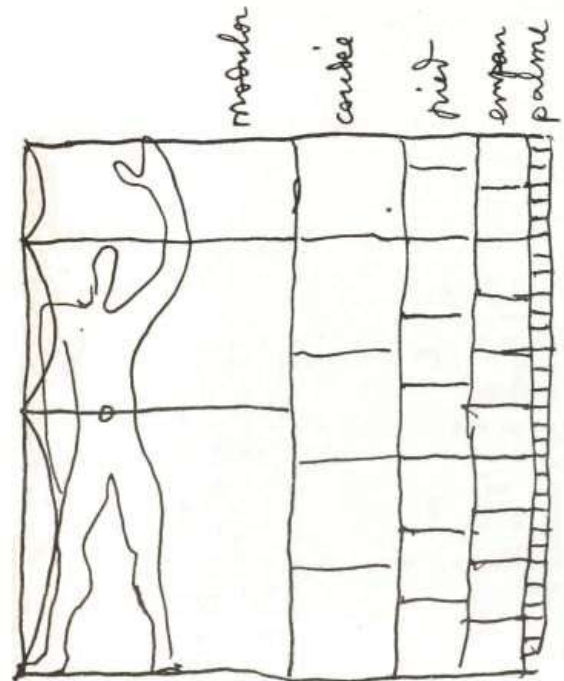figure 11: An elevation of the south facade revealing the governing modulor dimensions.
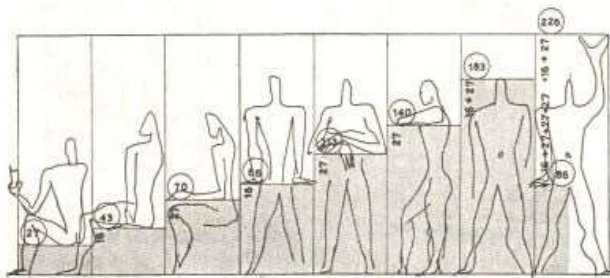

figure 12: Illustration demonstrating how the Modulor relates to the human figure.

figure 13: The south west side chapel, and a view of the tower calotte.
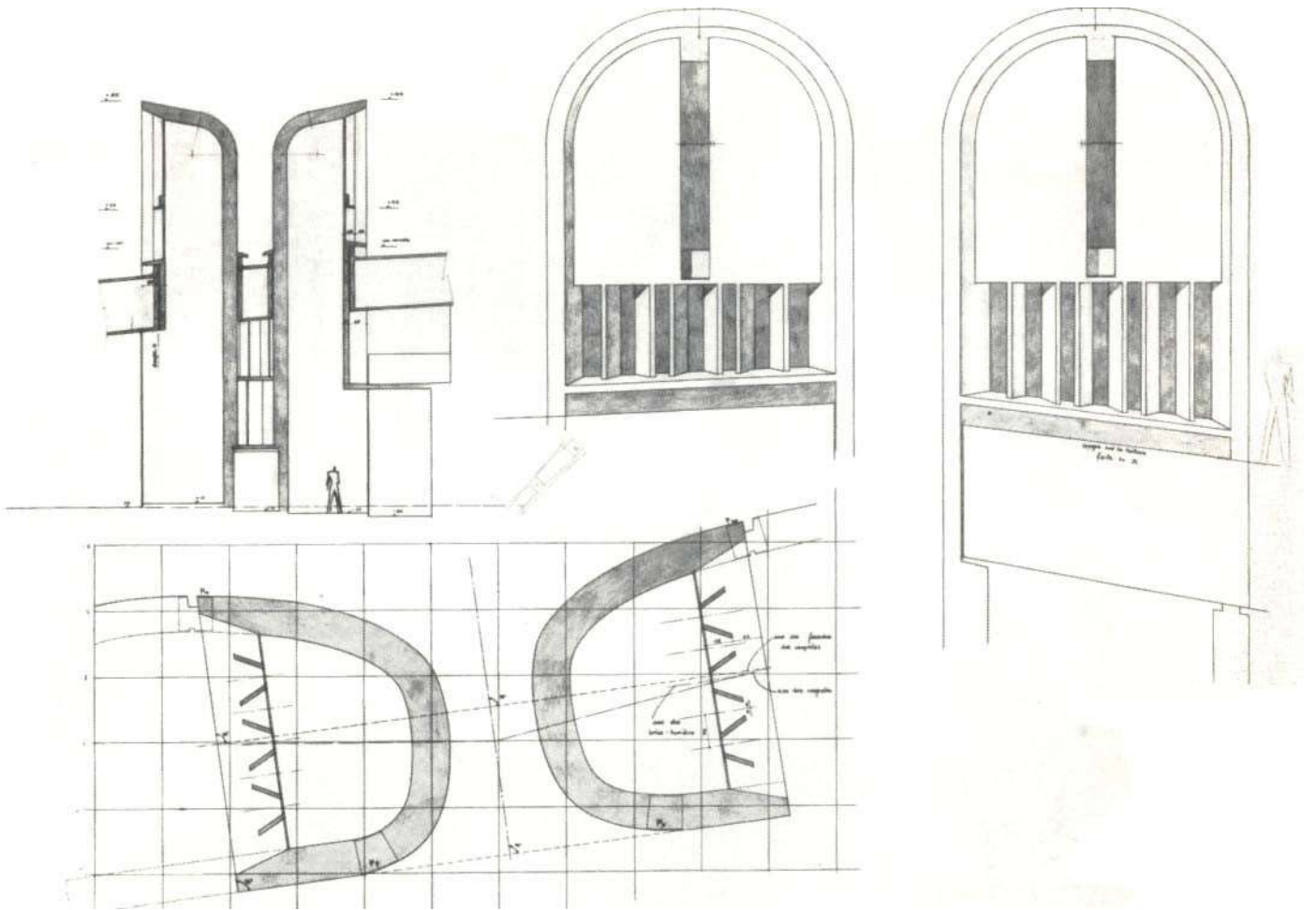

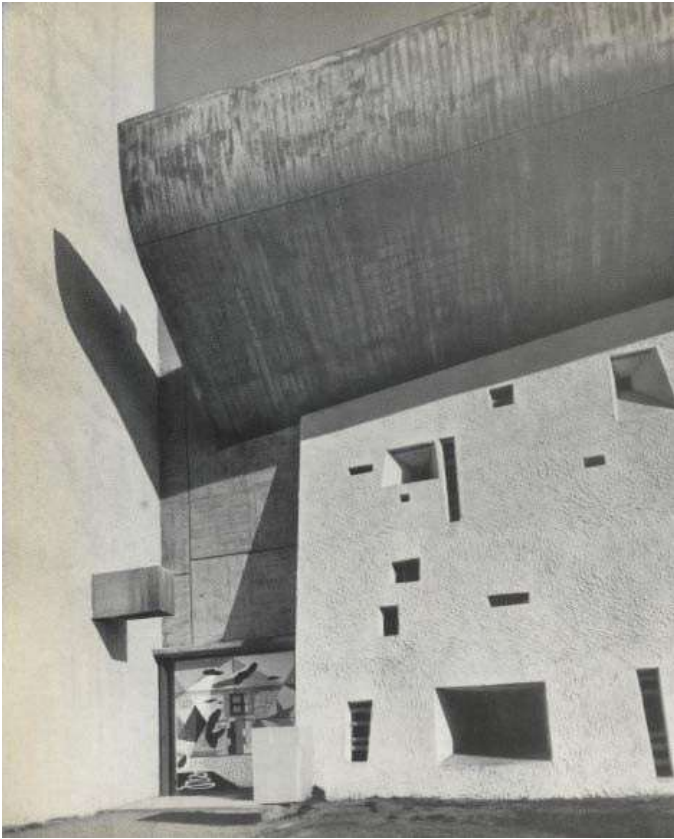figure 14: Plan, section, and elevation of the north side chapels and towers.

figure 15: "Rectilinear Generators" create a transitional space at the main south entrance. Also, the modulor dictates the proportions of the liturgical fixtures in the outdoor chapel. Note the paving pattern.
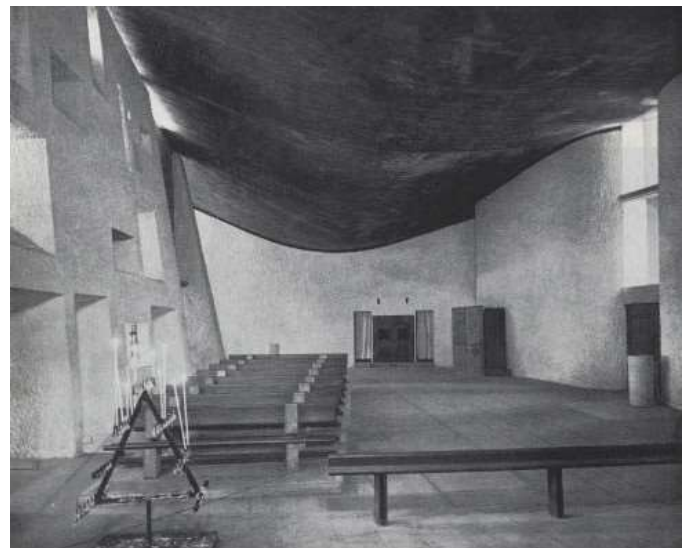

figure 16: The east and west interior elevations. Note the pews do not obstruct the axis.

Works Cited

Conrads, Ulrich, Ed. *Programs and Manifestoes on 20th-century Architecture*.
        Cambridge, Mass.: The MIT Press, 1999. Print.

Le Corbusier. *The Chapel at Ronchamp*. New York: Frederick A. Praeger, 1957. Print. (*TCR*)

Le Corbusier. *The Modulor*. Boston: Birkhäuser, 2000. Print. (*TM*)

Le Corbusier. *Toward an Architecture*. Los Angeles: The Getty Research Institute, 2007.
        Print. (*TAA*)

Pauly, Danièle. *Le Corbusier: The Chapel at Ronchamp*. Boston: Birkhäuser, 1997. Print.

Images Only

W. Boesiger. *Le Corbusier et son Atelier rue de Sèvres 35: Œuvre complète 1952-1957*.
        New York: Wittenborn and Company, 1957. Print.

W. Boesiger and H. Girsberger. Le Corbusier 1910-65. Zürich: Verlag für Architektur
        (Artemis), 1967. Print.