

# ON THE COHERENCE OF EXTREMES: LESSONS FROM PAINTING IN A ROOM BY LE CORBUSIER

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*"The essential is that the principle of opposites rules the work as a whole."*

Piet Mondrian

## THE CONSEQUENCE OF THINGS

The current interest in the tectonic seems to be focused on questions concerning the historical nature and origin of architecture. Rather than search for the point at which something begins its course of existence, one could, instead, look for architecture in the consequences of things, in the spaces we form with bodies and energies, and in the time that takes place in the apparent duration of the events we construct. The thought that space and time are nothing in themselves, nothing outside the situations we create to make them appear, lends particular significance to existing things, those surfaces, solids, volumes and colors, that constitute the art of building. It is the encounter with things, their particular position and potential for change, that make us conscious of space and time. It is an awareness that grounds our being in the world.

## IDENTITY AND CONTRAST

In the late 1920's, in a suburb of Paris, Le Corbusier embedded a small room in the plan and section of the Villa Savoye. It is a lesson in the existence of things and their capacity to reflect the past and foreshadow the future. In one regard this room continues material and philosophical investigations begun at least a century earlier and, in some aspects, it could be considered a precursor to certain developments in contemporary art.

The architecture of this room is an instructive example in identity and contrast and, in particular, how extremes cohere. It is a work that is in opposition to the narrow definition of the tectonic formulated by certain contemporary theorists,<sup>1</sup> but it does deeply consider what it is to unify things, occupy space, and be in time. Because of its close relationship to painting and sculpture it is an architecture that continues to question our assumptions regarding the means essential to the art of building.

This bathroom has two physical approaches, several meters apart. One approach addresses the useful aspect of the room. It is concerned with the physical necessities of habitation and engages all of the senses. The other approach has its own content, is without utilitarian intentions, and is meant mainly for the consideration of the eye. The functional entry allows access to useful space. The other passage, at the open end of the bathroom, has no use, yet it is of the highest purpose: it discloses what pure architecture looks like. It is the force of color, shape



Figure 1: Le Corbusier

and volume, viewed from the open end of the bathroom, and the perceptual implications of that view, that is the subject of this essay.

By arranging the elements of the room in relations of antithetical pairs, Le Corbusier made present a structure of thought. Aspects belonging to the visible appearance of objects, their color, proportion and texture, are presented for comparison in a thing to thing dialogue with us. Hue, volume and surface are distinguished by an inclination toward yellow or blue, by apparent width and narrowness and by luster or lack of gloss. This polar structure gains its vitality from the simultaneous presence of a number of extremes. Areas that are dense or loose,

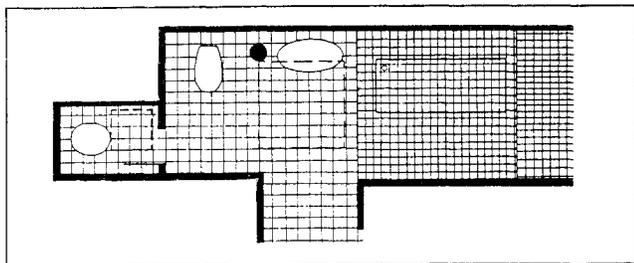


Figure 2: Plan. Second Floor Bathroom. Villa Savoye. Poissy, France. 1929-31

definite or indefinite, soft or hard, and brilliant or dull, are particularized by direct physical contrast.

### AUTONOMY AND INTERDEPENDENCE

Paradoxically, the maximum existence of the pairs, and the undivided total effect of the work, depend upon the autonomy of the elements. A long extruded rectangle, a vertical white cylinder, a large opening and a yellow surface exist as discrete things which are complete in themselves and capable of existing independently. But these things which are clearly identifiable as individual objects also exist in definite relationships, at once perceived as separate and interdependent, completely different, yet inseparable by implication.

This formal disposition suggests a content beyond things in the world and the seeing capacity of the eye. These particular things and their definite relations have a magnitude in proportion with our own being. Antithetical pairs pervade our lives. It is difficult for the western mind to consider change without permanence, to conceive of one and not many, or to think black without evoking its corollary, white. The autonomy and mutual dependence that can be perceived in certain oppositions may even be at the core of human existence. For example, "Death," writes Helmuth Plessner, "gains its ontological weight by its evident involvement with aliveness."<sup>2</sup>

### COLOR AND POLARITY

One aspect of the bathroom in the Villa Savoye, its color, clearly has a background in thought and works that predate Le Corbusier's his contemporaries by at least a century. His construction of pigments, the darkened yellow and diluted blue, suggest an understanding of additive and subtractive color mixture, an idea intuited by the British painter J.M.W. Turner in the 1820's.<sup>3</sup> The structure of the color also reveals knowledge of optical phenomena such as afterimage, as well as light dark contrast, principles drawn from observation and described thoroughly in 1810, by Goethe in his *Theory of Colours*.

A generation before the German architect Gottfried Semper established mass and lightness, the wall and the roof, as the primordial elements of the domestic house,<sup>4</sup> Turner had divided color into two similarly opposed extremes: "the pure combinations of the Aerial colours," and "dense material" color.<sup>5</sup> These polarities, which exhibit themselves in natural phenomena, were distinguished by the color and warmth of light and the colorlessness and coolness of shade.

By the 1840's, the time of Semper's theoretical writings, Turner had already abandoned the weight of the earth. He emphasized, instead, the aerial aspect of the visible world and its affinity to light with the tonal extremes yellow and blue, hues

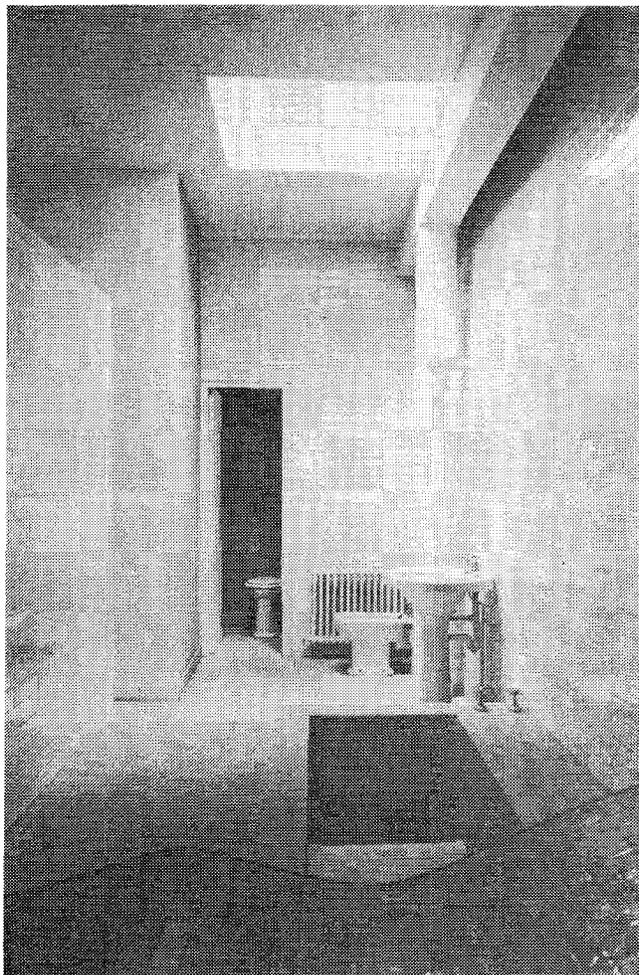


Figure 3: Villa Savoye. View from the open end of the bathroom

which Goethe described as the basis of primitive contrast and "the most fundamental and simple colors."<sup>6</sup> With these opposed extremes Turner painted the translucent color of a world that perpetually retains the vividness of light being.

Like Goethe, Wassily Kandinsky found the opposition of yellow and blue and its complex relationship with intensity of illumination to be profoundly significant. In his paintings and writings he establishes these colors as a force with spatial, temporal and emotional consequences. Yellow and blue, he observed, were inclined toward warmth and coldness, and moved in a horizontal direction, toward and away from the onlooker. On a plane the dynamic force of these colors would optically mix becoming green which, he believed, would be perceived as balance and repose. In his book, *On the Spiritual in Art*, he wrote, "Blue...affects yellow like a brake." "Upon further addition of blue," he continues, "both direction and opposed motions cancel each other out, resulting in motionlessness and tranquility."<sup>7</sup> On the spatial aspect of color his Bauhaus colleague, Johannes Itten concurred, remarking, "Colors have a dimensionality and direction of their own..."<sup>8</sup>

"Colour itself, always affects me strongly. A yellow alone, just a blue, opens up a whole world of beauty for me,"<sup>9</sup> wrote Piet Mondrian in 1920. The singular force of these primal colors, their extreme difference and capacity to form a unity, can be seen in a number of his paintings from the mid 1920's to the

In this way, for every color there are four main sounds [*vier Hauptklänge*]: (I) warm, and either (1) light, or (2) dark, or (III) cold, and either (1) light, or (2) dark.

TABLE I.

	first pair of opposites: I and II	(of an inner character, as emotional effect)
I	Warm Yellow	Cold = I contrast Blue
	2 movements:	
	1. horizontal	
	toward spec- tator (physical)	away from spec- tator (spiritual)
	Yellow	Blue
	2. eccentric	and concentric
II	Light White	Dark = II contrast Black
	2 movements:	
	1. The movement of resistance	
	Eternal resistance and yet possibili- ty (birth)	complete lack of resistance and no possibility (death)
	White	Black
	2. Eccentric and concentric, as in the case of yellow and blue, but in petrified form.	

Figure 4: Wassily Kandinsky. Table. Warm-cold, light-dark oppositions. "On the Spiritual in Art," 1910

early 1930's. Mondrian understood the autonomy of yellow. At the same time he grasped the nature of simultaneous contrast, understanding that the eye spontaneously produces an internal compliment to an external sensation of color<sup>10</sup> "Light and dark may be satisfactory for drawing," he wrote, "but color demands much more. The blue calls for another color to oppose it."<sup>11</sup>

#### THE QUESTION OF COLOR AND ARCHITECTURE

In a letter to Viktor Nekrasov in 1932, Le Corbusier attempted to clarify the role of the fine arts in architecture. He believed that sculpture and painting were artistic activities in and of themselves. He refused, however, to admit that color was not part of architecture. Color, he believed, was indispensable to human nature. Because color had physical and emotional consequences, it could exist in architecture as something other than decoration, as something integral to the whole and formed with precision. "An architect," he concluded, "may therefore work with color as confidently as he works with proportion..."<sup>12</sup>

Le Corbusier's construction of color alters our spatial perception of the narrow actuality of the bathroom of the Villa Savoye. The vertical blue space at one end of the room is paired, at the other end, with a corresponding horizontal space with a similar color and value. Between the two blues, a plane of yellow pigment and a considerable volume of light form an interaction of their own. The shadowy blues at both ends lengthen the horizontal extent of the room. At once, the space is broadened by the luminosity of the roof light and spread in the short

dimension by the indefinite surface of the tile wall. To understand the simultaneous force of color and volume and what Le Corbusier meant by "intense mathematical loci,"<sup>13</sup> one only needs to close the door that terminates the long dimension of the room.

In terms of the effect of color on volume, Le Corbusier seems to have been more concerned with setting questions correctly, than in providing answers prematurely. How, he asks us, does color affect the way in which a space is defined, clarified and concluded? How does available light alter the color equilibrium in a room and subsequently modify our perception of length and depth? How does the surface pressure of local color and its position in a volume affect the totality of the space? And, significantly, what are the temporal implications of these space-altering gestures?

#### TEXTURE AND SURFACE

Le Corbusier formulates these questions in terms of what he called "compensation," which he defined as the movement of contrary parts,<sup>14</sup> constructing a room that is hard-edged, mathematically precise and physically solid and, at the same time, soft, ambiguous and vulnerable to light. At once a room that contrasts pure structural relationships with our experience of things in the world.

Like Turner's "aerial" paintings, Le Corbusier makes visible the fragile existence of matter in light. On the textured surface of the tile wall, light and time become a single living being. Objects in the room, a colored plane, a column, or a water basin exist in their own right, as discrete, rigid bodies, positioned precisely in space. Coincidentally they appear as energies, flickering in the soft, shallow space of the tile surface.

The appearance of this opposition suggests a hierarchy of existence. The identity of active planes and solid masses is maintained by a refusal to articulate points of contact. The column and beam, for instance, are not tied together. A knotted joint would only deny their autonomy and diminish the visible force of the opposition.<sup>15</sup> Instead they appear as a demonstration of particular qualities: round and rectilinear, acute and blunt, resting and rising, vertical and horizontal.

Color, too, is isolated. White grounds, gray contours and black lines keep each of the pigments distinct. They wait to be mixed by the eyes of an onlooker. Despite the raw adjacencies and definite singularity of these elements, they are nevertheless dispersed by light, scattered in the air, and actualized as tremulous color on the wall. Their existence as objects almost appears as pretext for the astonishing vitality disclosed by their reflection.

#### BUILDING TIME

A machine may be understood as a constructed thing that is either material or immaterial. The dual presence of objects and energy, static things and the potential for movement, indicates Le Corbusier's concern with something beyond the formal arrangement of objects in a volume. This small room is essentially a spatial invention with temporal consequences, a kind of existential clock that measures the breadth and depth of human being.

With light, objects and human perception, Le Corbusier builds time. Not mechanical time, the tick of the clock, but the time of our consciousness, a time aroused by the distance between the rhythmical qualities of constructed things and the

natural tempo of living beings. Inside this metaphysical instrument these two times resonate. Severe mathematics and precisely positioned objects form a motionless ground against which the capriciousness of the clouds and the recurring succession of the sun can be measured. As long as the sun casts light in the room, the counterpoint between these intelligible abstractions and sensible changing things continues.

### THE PERCEPTION OF THINGS

Light shines on things, but the perception of this phenomena belongs to more than immediate physical experience. The consciousness of luminosity is certainly a matter of bodily awareness, but it also involves intellectual apprehension and states of feeling. Le Corbusier never ceased to remind us that the physicality of existing things can stir the imagination. In his small book on Ronchamp he wrote:

*"Light is the key, and light illuminates shapes, and shapes have an emotional power."*<sup>16</sup>

Sensuality, in this view, was integral to the art of building. Not as a separate physical element, but as a vital compliment to intellectual precision. In his work the body is not excluded from concerns of the mind rather, the two, considered together, form an authentic approach to human wholeness.

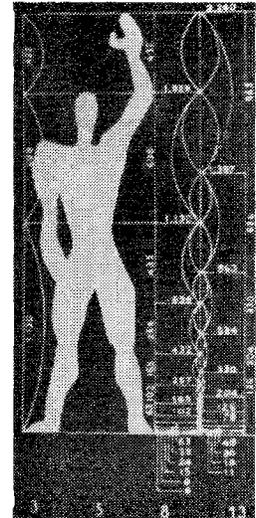
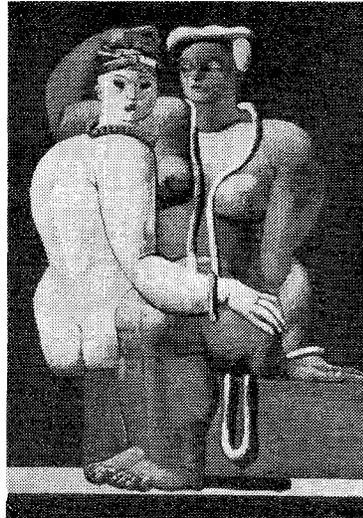
The thought of a being emotionally aroused by things that exist, simultaneously as physical presence and abstract idea, permeates his writings and constitutes a visible structure in his work. In *Towards a New Architecture*, he describes regulating lines achieving a, "tangible form of mathematics."<sup>17</sup> Again, in the same book, he refers to architecture evoking, "the physiology of sensation," and, "the joy of the mind."<sup>18</sup>

Compared to certain intellectual approaches openly apprehensive of physicality in art,<sup>19</sup> Le Corbusier appears to be almost shameless in his desire to make the intimacy of a sensual dimension inseparable from the work of art. "If art elevates itself above the sciences," Le Corbusier stated in his travel journal as a young man, "it is precisely because, in opposition to them, it stimulates sensuality and awakens profound echoes in the physical being."<sup>20</sup> "The emotions that architecture arouses," he remarked, a decade later, "spring from physical conditions which are inevitable, irrefutable and to-day forgotten."<sup>21</sup>

But we remain wary of perception. "There is still a strong mistrust in intellectual circles about things which speak to the mind via the body,"<sup>22</sup> writes the contemporary video artist Bill Viola. The fact that perception teaches us to attend to phenomena with the body does not imply a loss of reason. Nor does mental reflection necessarily lead to a loss of sensuousness. Rather, for Le Corbusier, the simultaneous presence of these fundamental polarities provides an existential understanding of our place in time, a coherent approach to what it means to be alive and at home in the world. Listening to the body should not be a cause of anxiety, even for the intellectual. On the contrary, in Merleau-Ponty's view, "perception is not a question of reducing human knowledge to sensation, but of assisting at the birth of this knowledge."<sup>23</sup>

### ALLEVIATING THE WEIGHT OF EXISTENCE

Le Corbusier considered the fight against the force of gravity in the Gothic Cathedral a theatrical performance of a



Figures 5: Le Corbusier. "Deux Femmes Assises Avec Collier," 1929.  
Figure 6: Le Corbusier. *Modulor*

"sentimental nature."<sup>24</sup> Gravity has not been forgotten in the bathroom of the Villa Savoye, it has been purposely left out. With its opposite, lightness and air, Le Corbusier measures the mass of the earth. Visual impressions of weight and density are removed from the architecture with the facility of a surgeon.

The column and beam, for example, reveal virtually no evidence of the transfer of forces from the horizontal to the vertical dimension. The column, itself, is brought out in the open and into the air. It is not aligned with the regular spacing of the perimeter columns of the Villa. Instead, the structural configuration allows the column to be positioned freely along the beam where its load bearing function becomes subordinate to its role in shaping the soft field of space at the end of the room. The apparent absence of compression is amplified by the relaxed surface of the column, which further relieves the room of its material density. By reflecting light and exerting a gentle outward pressure, the column's outward surface enhances the overall perception of lightness.

"There is an imponderable vastness to weight," writes the artist Richard Serra. He speaks of the experience of "enormous obdurate weight."<sup>25</sup> With his works he particularizes the qualities of things affected by gravity, making the placement, propping, disorientation and disequilibrium of weight present in the world. It is not merely physical heaviness he is concerned with, but existential gravity; the burden of our human situation. It is a weight "we are all restrained and condemned by,"<sup>26</sup> he writes.

Le Corbusier, however, has something to say about light. Not only the light that touches the retina, but the consciousness of lightness that belongs to human nature. With the sun he releases the poetic fullness of the word in the world and establishes the difference between direct physical contrast and extreme polarities of form. He considers the transience of light, the luster of light, the reflection of light, and the diffusion of light. With the elements of architecture and the color facility of a painter, he discloses the ethereality of light. Like Turner before him and Mark Rothko at mid-century, Le Corbusier understands that light is not merely the sensation of brightness, a force that illuminates things, but a form with a clear and soft quality, something that can alleviate the weight of existence.

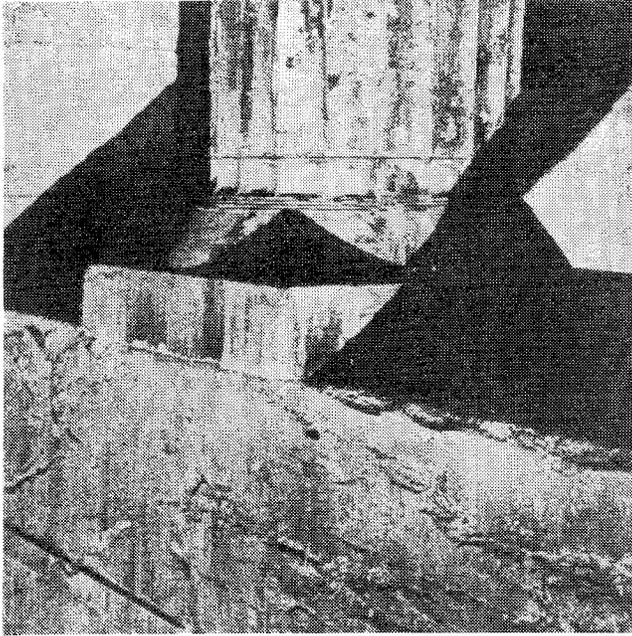


Figure 7: Propylea. Photograph by Le Corbusier, from "Towards a New Architecture," 1923

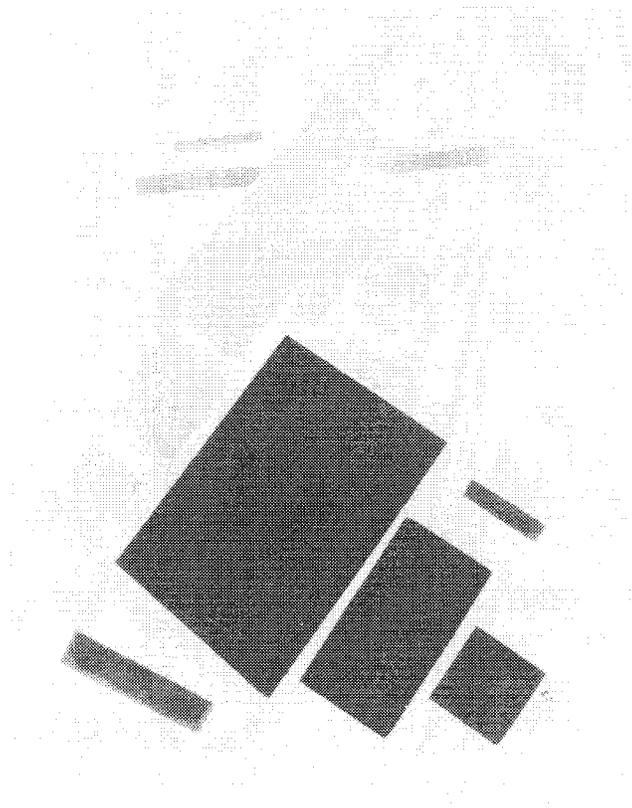


Figure 8: Kasimir Malevich. "Airplane Flying" (Suprematist Composition) 1915

#### THE LESSON OF MALEVICH

As in Malevich's Suprematist paintings in the years around 1915, Le Corbusier creates his space by building groups of independent elements<sup>27</sup> with their own internal contrast, equivalent force and spatial cohesion. In these works the autonomy of the individual things and their interactions in op-

posed pairs seems elementary.

For example, In Malevich's painting, "Suprematist Composition: Airplane Flying," two groups of polarities and two main groups of shapes are evident. From the lower left corner to the upper right corner, the painting is divided into two areas, each with a dual oppositions, cold and dark, below the divide, a light and warm, above. Beginning at the center of the painting with a trapezoid that could be perceived as a right angled shape diminishing in space, there is a set of nine large, medium and small rectangles, all black and yellow. A second set is formed by two longer cobalt blue rectangles and two, even longer, vermilion rectangles that almost become lines.

What initially appears simple and clear, becomes complex and ambiguous. The contrast of light quality between the bright yellow and dark black shapes is, at the same time, an opposition of color qualities. The yellow rectangles in the first group, while having a definite size, shape and value relationship with the black elements in the same group, also have a color relationship with the colored elements in the second group. Like those colored shapes, the yellow rectangles float in space above the white ground. The black rectangles, however, appear static, as holes in the surface, situated somewhere in a void below the yellow rectangles and beyond the white ground. The interaction of color and shape across the surface, and the overlap, tilt and recession of shapes into and above the surface; this simultaneity of surface tension and spatial depth, gives Malevich's painted space its temporal vitality.

In the bathroom of the Villa Savoye, as in certain Suprematist paintings, it is the elemental simplicity of the parts and the definite lucidity of the composition that leads, in the end, to a complex spatial result. Again, like Malevich, Le Corbusier develops groups of things comprised of opposed pairs and independent parts. With these aspects he creates a room with temporal and spatial cues that we do not expect from architecture. Color and volume, for example, are bound to the same underlying mathematics that permeates the proportions of the interior space. Despite this coincidence, the colored areas are autonomous. They do not adhere to the walls, but are suspended in a space of their own.

Sometimes the colored elements combine with black and white. Above and below, from the open end of the bathroom, a contrasting pair of elements, the trapezoidal white plane at the ceiling and the rectangular blue plane of the bathtub wall, appear as if they are situated on the same spatial plane in the foreground, even though they are actually separated in the horizontal dimension. This ineffable duration, caused by the dual presence of actual and perceived depth, underscores the significance of the realm that exists between the static nature of the walls and our dynamic grasp of the world. "In memorable experiences of architecture, space, matter and time fuse into one single dimension, into the basic substance of being, that penetrates consciousness," writes the Finnish architect Juhani Pallasmaa. "We identify ourselves with this space, this place, this moment," he continues, "and these dimensions become ingredients of our very existence."<sup>28</sup>

#### LE CORBUSIER AND JUDD

From the beginning of his mature works in the 1960's to the end of his life in the early 1990's, Donald Judd's three dimensional objects were characterized by arrangements in which the main things were "alone," and "more intense, clear

and powerful,"<sup>28</sup> than the painting and sculpture they were distancing themselves from. Typically, the few "parts" that make up a work maintain their discrete identity, yet form a single, indivisible presence unified by color, shape and surface.

In the mid 1980's, Judd wrote, "The greater the polarity of the elements in a work, the greater the work's comprehension of space, time and existence."<sup>29</sup> Judd's own art work, like Le Corbusier's, is a hybrid of painting, sculpture and architecture. With opposed extremes he, like Le Corbusier, creates a profound unity that, nevertheless, maintains the existence of specific things.

Already, in the bathroom of the Villa Savoye, Le Corbusier anticipates Judd's involvement with the spatial and temporal complexity disclosed by a limited number of formal elements. Things in the room are isolated and independent. They remain clearly identifiable, polarized and restricted by their particular nature. Like Judd's three dimensional objects, Le Corbusier's elements are not "diluted by an inherited format, variations of form, mild contrasts and connecting parts and areas."<sup>30</sup> Nothing is done to temper the severe intensity of each distinctive thing and the extreme opposition it forms.

Two oppositions, in particular, are rudimentary in the bathroom of the Villa Savoye, continued in Judd's art and remain unfinished for future generations. First, color is conspicuously sensual, an end in itself and simultaneous with the volume. Second, the particular things that comprise the totality of the bathroom have a marked dissimilarity to the sensation of the whole. For example, the feeling of lightness that Le Corbusier creates and Judd also aspires to is not an aggregate of parts, but a separate existence that is finally distinct from the definite qualities of the independent elements.<sup>31</sup>

Compared to the tight physical arrangement of Judd's art work, Le Corbusier's composition of polarity is loose, in the sense that the contrasting pairs are widely separated and the space between them is not always something in itself, but merely a ground that holds things apart. By linking elements across the extent of the interior volume Le Corbusier creates an overall effect that is clear, direct, balanced and comprehensible, yet lacking the profound immediacy of Judd's work. In his three-dimensional object "Untitled 1990," an element clearly partitions the work, but the direct contact between distinct entities binds as it cuts, so that a sense of singleness and non division predominates. Adjacency and concurrent presence, which contributes to the "here" and "now" quality of this work by Judd, has little effect on the temporal density of Le Corbusier's interior volume, even though the implications of joining elements with a common contour was already underway in Le Corbusier's and Ozenfant's Purist paintings.

Despite these fundamental differences, the effort to build the existence of independent things, and bind these separate identities to a single temporal entity, is common to the work of Le Corbusier and Judd, as is the clarity of the elements, their precise placement, evident volume and distinct proportion. What is of particular significance to Le Corbusier's architecture and Judd's objects are the three dimensional implications of painting, especially the space and duration that is created by extremes of sensation.

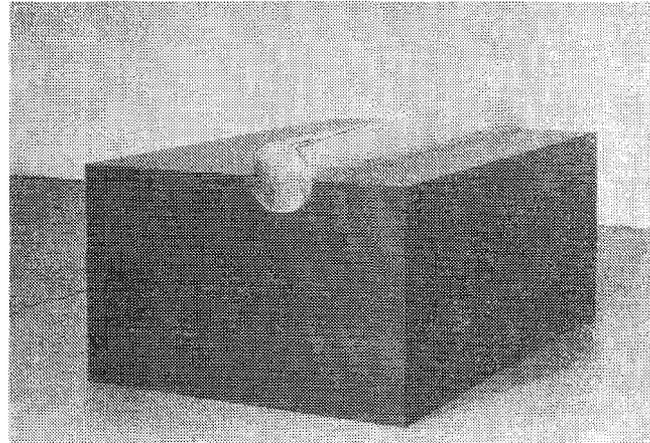


Figure 9: Donald Judd. "Untitled 1990"

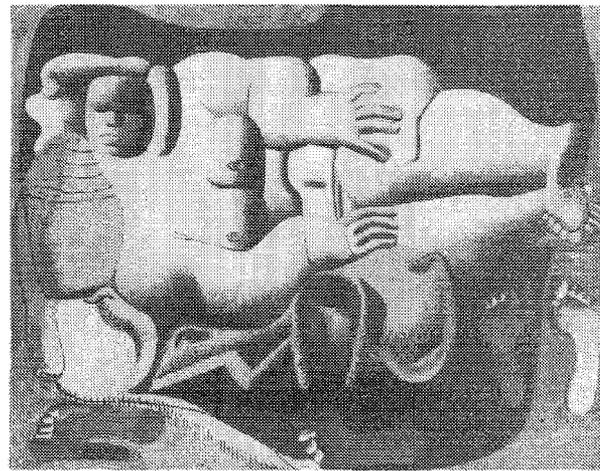


Figure 10: Le Corbusier. "Femme Couchée," 1929-1947

#### THE CULTIVATION OF MATTER

The overemphasis on the formal analysis of the art of building at the expense of political, economic, practical, religious and social concerns has been correctly criticized over the past generation. Yet without existing things there is no architecture to speak of. Perhaps then, it is also the way we look at, or fail to look at things and their perceptual implications, that is a problem.

Almost two centuries ago Goethe wrote, "The hardest thing to see is what is in front of your eyes."<sup>32</sup> At the end of the twentieth century have our intellectual constructions about material things lessened this difficulty? Has the sheer mass of theory actually helped us to better grasp what lies clearly before us? Or has the rapid production of intellectual constructs based upon disembodied concepts actually distracted us from the consequence of things and increased our existential distance from the world? Was Goethe wrong, or was he already on the right track, when he wrote: "One does not search behind phenomena: they themselves are the lesson."<sup>33</sup>

The clearing Le Corbusier constructs for things is a profound reminder that there is a vast difference between the velocity of linguistic spectacle and the slowness of material investigation. The simple, yet profound questions brought to the surface by this small room in the Villa Savoye suggests that

despite the proliferation of theory, the cultivation of matter has a time of its own.

#### NOTES

1. Frampton, Kenneth, "Rappel A L'ordre, the Case for the Tectonic," (1990) in Kate Nesbitt, Editor, *Theorizing a New Agenda for Architecture* (New York: Princeton Architectural Press, 1996), 519-520.  
"While it is disconcerting to have to recognize that there may well be a fundamental break between the figurative origins of abstract art and the constructional basis of tectonic form, it is, at the same time, liberating to the extent that it affords a point from which to challenge spatial invention as an end in itself."  
"However, building remains essentially tectonic rather than scenographic in character and it may be argued that it is an act of construction first, rather than a discourse predicated on the surface, volume and plan, to cite the 'Three Reminders to Architects,' of Le Corbusier."  
Gottfried Semper, whose theoretical work is used to support some of Frampton's theory of the tectonic seems to contradict the two assumptions given above. In his introduction to the *Theory of Formal Beauty*, Semper understands tectonics' aim to be the creation of space by means of "motionless and heavy masses," yet when he writes, "the sphere of tectonics is the world of phenomena; what it creates exists in space and manifests itself through shape and color," he seems to imply that attributes of painting are also essential to architecture. More explicitly he states, "tectonics, by penetrating into the very essence of the other two fine arts, has every right to attract both arts into its own sphere even when they are completely independent."  
The temporal consequences of our impressions of things and the simultaneous independence and indivisibility of architecture and fine art was already a concern for Semper in the mid-nineteenth century and remains open for consideration in our own time. As Semper himself wrote: "It will be the future's difficult task to redefine points of contact that the dogma's of one sided theory have separated."
2. Plessner, Helmuth, "On the Relation of Time to Death," in Joseph Campbell, ed. *Man and Time*. (New York: Pantheon, 1957), 26
3. Gowing, Lawrence, *Turner Imagination and Reality*, (New York: The Museum of Modern Art, 1966), 23.  
"The distinction between mixtures of pigments and the constitution of light was well known but the directness of Turner's antithesis between two types of mixture was original. The principle of additive and subtractive colour mixtures remained unknown until Helmholtz."
4. Semper, Gottfried, "The Basic Elements of Architecture" in Wolfgang Herrmann, *Gottfried Semper, In Search of Architecture*, (Cambridge, Massachusetts: M.I.T. Press, 1984), 201
5. Gowing, Lawrence, *Turner Imagination and Reality*, 23
6. Goethe, *Theory of Colours*, (Cambridge, Massachusetts: MIT Press, 1994), 316  
"Next to the light, a colour appears which we call yellow; another appears next to the darkness, which we name blue." lvi.
7. Kandinsky, Wassily, *Kandinsky, Complete Writings on Art*, (New York, Da Capo Press, Inc., 1994), 179-183
8. Itten, Johannes, *The Art of Color*. (New York: Van Nostrand Reinhold: 1973), 20
9. Mondrian, Piet, "Natural Reality and Abstract Reality," in *The New Art—The New Life, The Collected Writings of Piet Mondrian*, (New York: Da Capo Press, 1993), 85
10. Goethe, *Theory of Colors*, 25, 319  
"Every decided color does a certain violence to the eye, and forces the organ to opposition."(55)  
"The eye relieves itself by producing the opposite of a single colour forced upon it."(812)  
Johannes Itten also defines simultaneous contrast in his *Art of Color*, 87: "Simultaneous contrast results from the fact that for any given color the eye simultaneously requires the complimentary color, and generates it spontaneously if it is not already present."
11. Mondrian, Piet, "Natural Reality and Abstract Reality," *The New Art—The New Life*, 100
12. Le Corbusier, quoted in Frederick Starr, "Le Corbusier and the U.S.S.R.: New Documentation," *Oppositions* 23. (Cambridge: MIT Press 1981), 132-133
13. Le Corbusier, quoted in Frederick Starr, "Le Corbusier and the U.S.S.R.: New Documentation," 133
14. Le Corbusier, *Towards a New Architecture*, (New York: Holt, Rinehart and Winston, 1960), 48
15. In the article cited above, Frampton suggests that Semper, influenced by anthropological and linguistic insights, found the binding aspect of the art of building, the knot or the joint, to be the "ultimate constituent of the art of building."(526)  
Charles Locke Eastlake, in his commentary to Goethe's *Theory of Colours*, suggests that contrast is to the eye, what metaphor is to the mind. The significance of this proposition is that the eye apprehends primarily through difference and the mind through resemblance. The thought that our visual impression of the external world is conveyed by opposite rather than analogous qualities has significant implications for Semper's theory. First, by emphasizing the expansive scale of the eye in our apprehension of the world, Goethe implicitly calls into question the practice of searching for the origin of things in the etymology of words. Second, by establishing contrast as a primordial principle, Goethe's theory places emphasis not on how things are bound, but how identity and difference is maintained. In this regard, Le Corbusier's beginning with the coherence of extremes may have a great deal of relevance for the future of architecture.
16. Le Corbusier, *Ronchamp*, 27
17. Le Corbusier, *Towards a New Architecture*, 22
18. Le Corbusier, *Towards a New Architecture*, 204, 205
19. Kuspit, Donald, "The End of Creative Imagination: Duchamp, Matisse and Psychological Originality," *New Art Examiner*, May 1993, 15-19. In this essay Kuspit suggests the contemporary reduction of art to social symptom has its roots in what he calls "the pseudo-creativity" of Duchamp's readymade:  
"His (Duchamp's) anxiety about 'sensual appeal'...led him to repudiate physical painting as 'merely' a 'visual product.'"  
"Such depreciation suggests disgust with the bodily and the instinctive. This disgust cleared the way for Duchamp's advocacy of painting with a 'philosophical outlook,' that is, painting whose physicality had less significance than the 'ideas' it 'recreated,' or rather whose physicality was significant only in terms of those ideas."
20. Le Corbusier, *Journey to The East*, Ivan Zaknic, Editor, (Cambridge, Massachusetts: M.I.T. Press, 1989), 15
21. Le Corbusier, *Towards a New Architecture*, 28
22. Viola, Bill, *Unseen Images*, (Düsseldorf: Verlag R. Meyer, 1992), 101. Viola is also clearly aware of the negative consequences of such an approach. In the same text he writes:  
"The pitfalls of mere feel good sensuality and sentimentality are clear enough."
23. Merleau-Ponty, Maurice, "The Primacy of Perception and Its Philosophical Consequences," in *Readings in Existential Philosophy*, (Englewood Cliffs, New Jersey: Prentice Hall, 1967), 41
24. Le Corbusier, *Towards A New Architecture*, 32
25. Serra, Richard, "Weight" (1986) in *Richard Serra, Writings Interviews*, (Chicago: The University of Chicago Press, 1994) 184
26. Serra, Richard, *Richard Serra, Writings Interviews*, 184
27. Judd, Donald, "Malevich: Independent Form, Color, Surface" (1974) in *Donald Judd Complete Writings 1959-75* (New York: New York University Press 1975), 211-215
28. Pallasmaa, Juhani, *The Eyes Of The Skin: Architecture and the Senses*, (London: Academy Editions, 1996), 50
29. Judd, "Specific Objects" (1965) in *Donald Judd, Complete Writings 1959-1975*, 187
30. Judd, "Specific Objects" 187  
In the mid 1970's Judd invented a category of art works called "specific objects." What these diverse things had in common was a movement away from the qualities associated with traditional painting and sculpture. Many of the works involved the use of new materials or materials that were not formerly associated with art. These materials were used directly, and often aggressively. Because they were made to exist in actual space they resembled sculpture, but the predominance of color situated these three dimensional

works closer to painting.

It should be noted that the absence of “connecting parts and areas” is in clear opposition to the much of contemporary thinking regarding the tectonic.

31. Judd, Donald, *Josef Albers*, (Köln: Distel-Verlag, 1991), 21  
“There is a certain very nice quality in some art and literature that is calm and friendly, even light, and absolutely realistic about the nature of humanity and life. It’s not cold at all or very somber and certainly not nostalgic; it’s very much about being alive. In literature this can be seen in Turgenev, Tolstoy and Chekhov and in most of the Russians...In art, some ancient Greek sculpture is like this, like the light itself which moves across the surface...”
32. Goethe, Johann Wolfgang von, quoted in Paul Rand, *A Designer’s Art*, (New Haven, Connecticut: Yale University Press, 1985), viii.