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STRUCTURE AND PLAY IN LE CORBUSIER'S ART WORKS

Jaime Coll



There lies the game of architecture: in combinations. The musical symphony: diversity, nuance, silence, softness or clamour and strength. Plan and section!

The skilful, correct and magnificent play of forms in light. Such are the means.¹

The work of art is a game in which the artist has created the rules . . . the rules must be evident to those who want to play. It is made of signs which are intelligible enough . . . capable of being grasped by means of a simple diagram.²

Drawing, that is a game as well. It's said that the secret of wisdom is to know how to make use of leisure. All right. I am in a permanent state of leisure. To play all day at cards, rugby, cowboys and indians, soldiers . . . kids and men, that's where they are really in earnest. Me too: I draw – I always have. Landscape, architecture, bar glasses and bottles, lamp reservoirs, seashells, stones, bones from the butcher, pebbles, little women, bestiary, such are the steps, the clues.³

Between 1927 and 1953 Le Corbusier's output as an artist was vast and varied. Every day from 8 a.m. to 1.00 p.m. he maintained an 'uninterrupted routine of disinterested work in the plastic arts'.⁴ The intensification of his painting activities in the 'atelier des recherches patientes' – as Le Corbusier called his studio in rue Nungesser-et-Coli – coincided with the end of what is referred to as his purist period.⁵ It also coincided with the first appearance in his work of the female figure and of the 'objets à réaction poétiques'. After 1935 he began to work in other media – murals, tapestries, lithographs, engravings, enamels and collages.

Le Corbusier claimed that 'the basis of his intellectual investigations and production, the source of his spiritual freedom, the possibility of his development'⁶ lay in these episodes of pure creation, and he continually insisted on the importance of his work as an artist as a means of understanding his architecture. 'The key to my artistic production', he wrote in 1953, 'is really my pictorial work, begun in 1918 and pursued regularly each day.' Despite this, the work remains largely unknown and its relation to the architecture and urban projects has not been adequately explored. The limited circulation of the books, journals and catalogues in which Le Corbusier wrote about his paintings may partly account for this. Moreover, painting was for him a 'disinterested mental gymnastic' which he kept virtually secret until 1953, when he believed he had achieved a synthesis between painting, sculpture and architecture, and exhibited them together as one.

There are very few critical studies of Le Corbusier's work as an artist. Twentieth-century historians such as Giedion, Summerson, Banham, Rowe and Slutzky, von Moos, J. Petit, and Tafuri and Dal Co make occasional references to the paintings, but while acknowledging the importance of this work they found it difficult to determine the nature of the relation between the paintings and the architecture. Too many problems are raised by the traditional approach of establishing origins, influences, evolution, unity and coherence.

With the exception of the sketchbooks the best available reference for Le Corbusier's work as an artist is *Le Poème de l'Angle Droit*, a portfolio of 155 lithographs made between 1947 and 1953, published in 1955, and republished as a book in 1989.⁷ These lithographs reveal the clues, establishing a link between the art works and the architecture, and they represent a synthesis of Le Corbusier's ideas and his work.

The *Iconostase* which appears at the end of *Le Poème* presents a graphic summary of its contents, in the form of a table of nineteen sketches, each one corresponding to the large colour plate at the end of each chapter (Fig. 2). The term iconostasis usually refers to the screen in Orthodox Churches on which icons are mounted. It also serves as a barrier between the nave and the sanctuary, to which only the initiated have access. The correlation here is obvious, yet it suggests that we should consider the *Iconostase* as a system of signs, or rather of icons, to which we would then have to assign a transcendental meaning. However, by attaching to the *Iconostase* a literal meaning (elemental to the icon) it is rendered banal and we become unnecessarily immersed in hermeneutics. Both are contrary to our intention here.

Le Corbusier explained the genesis of the *Poème* thus: 'assembling everything within a banal coherence and presenting all the facts to be taken into account. So there are many things at the bottom of this poem. Then he detached himself, then rose above it all; he burned his bridges. From then on, it is up to the reader to read the poem.'⁸ If this material was collected under a 'banal coherence', why not look at the *Iconostase* as a table rather than a story (Le Corbusier himself labelled it as 'table'), and analyse its logic rather than attempt to establish a narrative? If we do so, the work of Le Corbusier appears less like a developing organism and more like a structure, a network or matrix, which was extended by systematic combinations. The resulting work was in turn broken, detached and recombined. And so the meanings assigned to the work can neither be fixed nor graded but are dependent on the constant fluctuation of signs within the work as a

1 (PREVIOUS PAGE). *Le Corbusier in his studio, painting Taureau IV (Androuet), 1953. Photograph published in Le Corbusier, by Jean Petit, 1970. See 'Dossier Tate' (Fig. 3), point 17.*

2 (LEFT TO RIGHT). *Cover and first lithograph of Le Poème de l'Angle Droit, 1955; Belzébuth, metamorphosis of a pebble and a root into a bull and a dog; and Iconostase, the final lithograph.*



whole. Rather than studying Le Corbusier's work as a series of autonomous objects, why not consider it as a field of interactions where he himself introduces the idea of 'play'? Within this field the *Iconostase* could be compared to a game of hopscotch in which readers can choose randomly from the different squares and develop their own interpretations ('from then on, it is up to the reader to read the poem').

Is it not precisely this notion of play, reiterated in Le Corbusier's definition of architecture and art, which allows us to understand the title on the front cover of *Le Poème* as an inversion of the *Iconostase*, or the play on negative/positive on the following opening, where permutation of the letter 'L' results in the opposition angle-l/angle? Might this not be a dialectical play on the word 'angel', the sensuality of his wife, Yvonne, which is present in all his work, and 'angle', representing rationality – the same play that occurs between the words *Icône* and Yvonne, in which the letters 'c' and 'v' are interchangeable? ('*Icône*' is an image of Le Corbusier's wife which appears in a series of works that he made between 1939 and 1957.) Does the *Iconostase* refer to a religious tablet or to a female figure, or Yvonne? She is the 'right angel' of the poem, its main character: 'guardian angel of my home for thirty-six years. . . . In my "Poem to the right angle" she occupies a central place: characters E3.' Finally, the columnar arrangement of the table also allows a vertical reading, contrasting with the horizontal reading implied by the narrative of the pages of the *Poème*, and implying that the relation between the figures of the *Iconostase* is not internal and closed, but spatial. And if, instead of approaching the version of the *Poème* which was reprinted as a book in 1989, we were to conceive of it in its original form, as a folder containing the lithographs as loose plates, might it not be possible to combine the plates in a Duchampian manner, as a game of cards, to obtain multiple readings based on the combinatory possibilities of the 155 lithographs? This may explain why not all the pages are numbered. Moreover, it should again be recalled that the *Poème*, as Le Corbusier described it, was made 'by gathering everything under a banal coherence'.

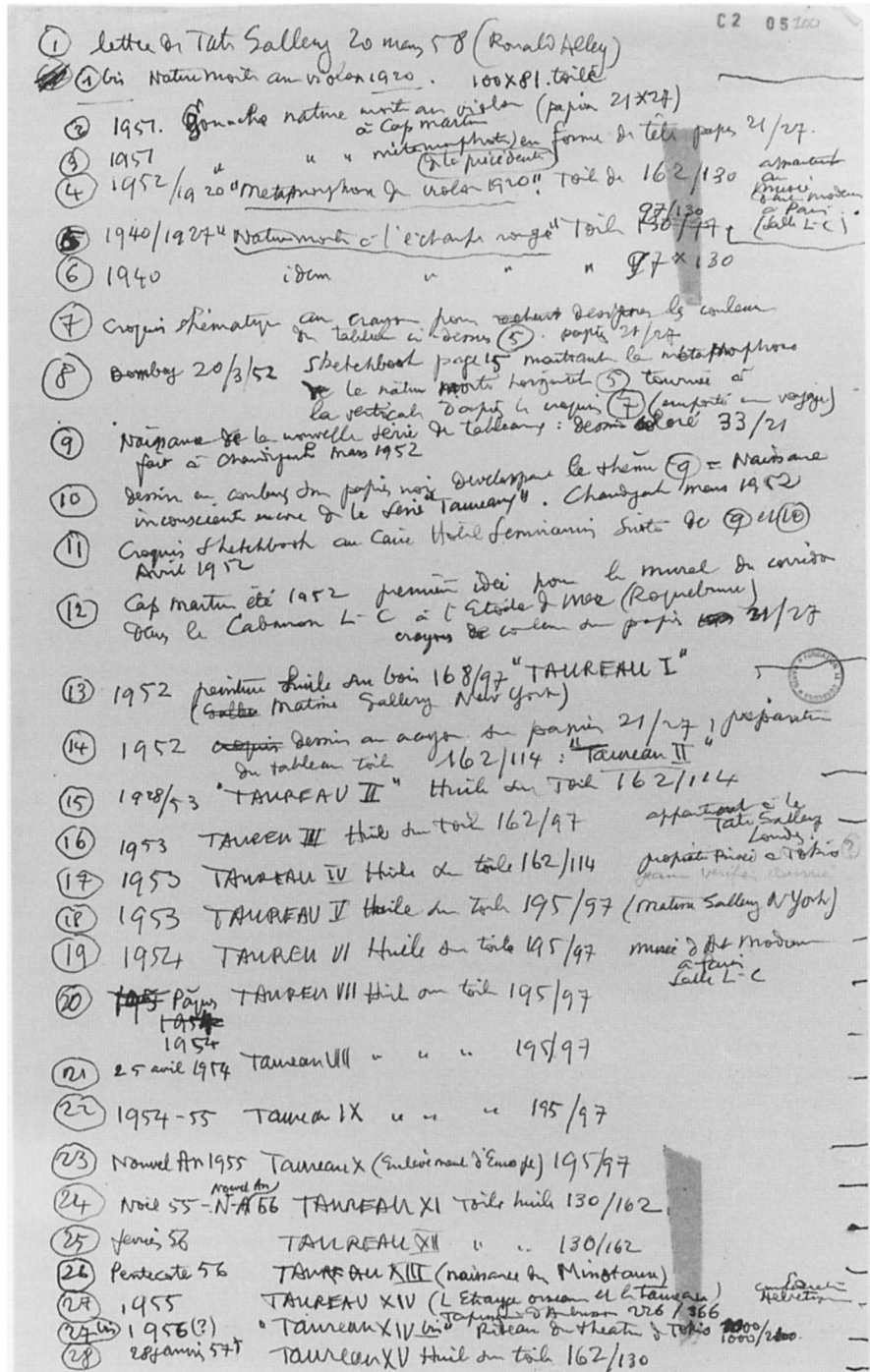
Le Corbusier defined the field of interactions in 1958, in a description of his working methods:

The work of art is the result of relationships. Choice resides in the terms of the equation. Choice is not imposed, it is spontaneous. Relationships are made up of two or more terms that function as material containers: each contains an assemblage of things that have been: invention, capacity, talent, discovery, creation, digestion.

There comes a minute, a second, even a fraction of a second, in which series of groups spontaneously appear, ready to be seized and thrown into the equation that will be the fundamental detector of emotion. Everything else is just making.

But the act of making is almost everything for the artist, who is preoccupied exclusively with the way in which he is about to make his work (because this above-mentioned magic second is central to creation, for better or for worse!).

A team gets busy with a problem, to solve it, to establish



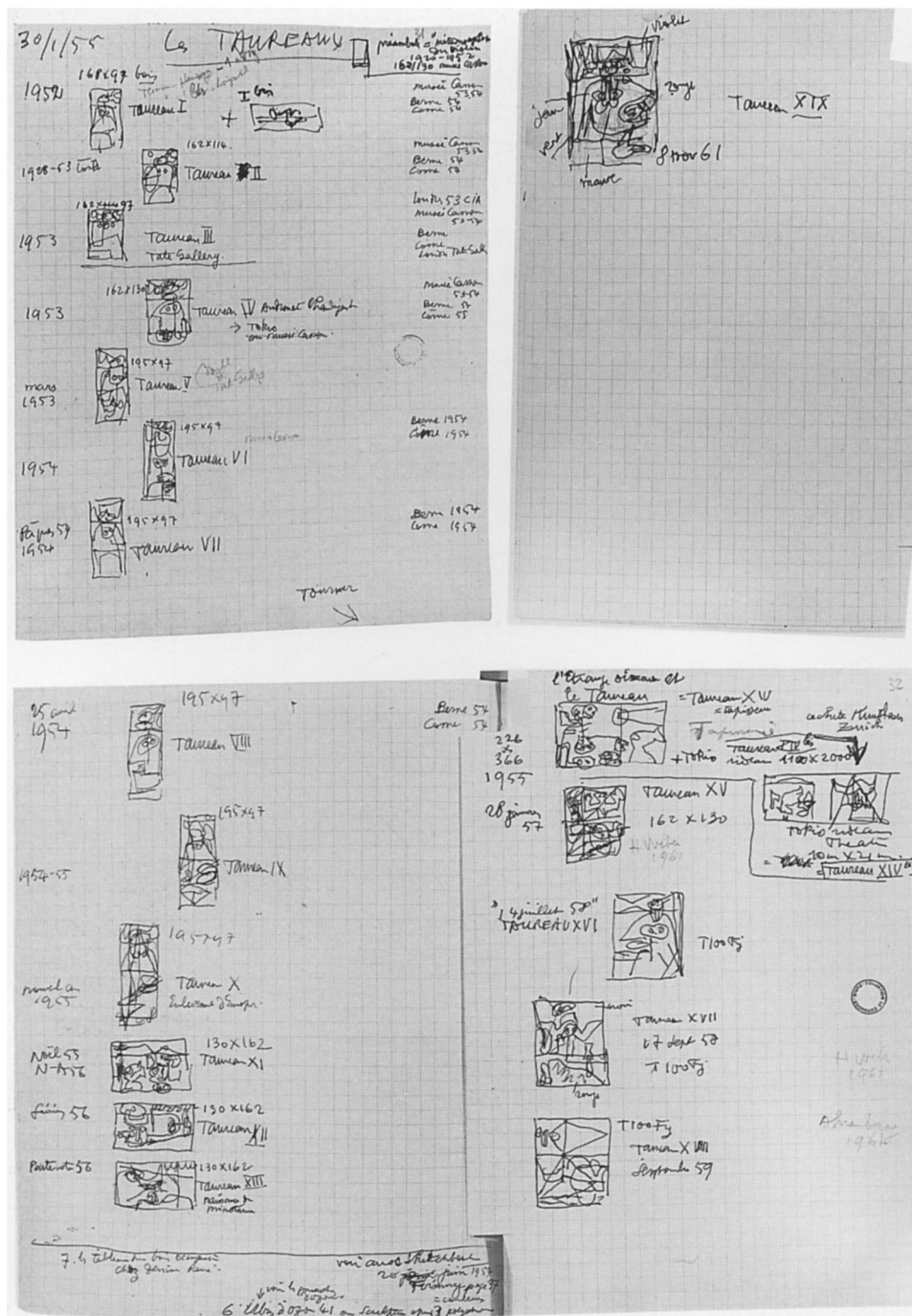
the elements of the problem, to rearrange them, to set out the problem = ideas as much as methods of doing things. Methods of doing things as much as ideas. It is synthetic as much as it is symphonic.¹⁰

The conclusion to this text is particularly interesting in relation to the present discussion:

At this moment the child is made, he is born. The decision is irrevocable. Its appearance? Its beauty? Everything depends on the choice that was made, which resides in its constituents and in the variations arising from their combination. Consequently the resulting form: its character is but one among a thousand other possibilities. Before us every possibility is waiting.

Connection, equation, spontaneity, assemblage, making, team, variations, combinations: the use of such terms supports our hypothesis that Le Corbusier conceived of his work as more like a structure than an organism.

3. 'Dossier Tate',
Le Corbusier, May 1958.
(FLC C2(05)IX, 100)



4. Le Corbusier's personal agendas, pp. 31–3. Inventory of the Taureaux series. (FLC F3(9), XI–576, 578, 577)

In 1958, at the request of Ronald Alley, a curator at the Tate Gallery in London, Le Corbusier wrote what is now referred to as the 'Dossier Tate' (Fig. 3, previous page). Possibly the only document of its kind, this dossier includes photographs of drawings, paintings and documents related to the Taureaux series – the most complex and enigmatic of his pictorial series of the 1950s, and the one on which he worked the longest. After Le Corbusier's death this dossier and other collections containing works in different media were divided up and archived separately. I set out to reconstruct the contents of the original dossier at the Fondation Le Corbusier. Eventually I found a manuscript – an index – in which Le Corbusier enumerated a number of subjects related to the Taureaux series. This unique document comprising twenty-eight items is clearly essential to an understanding of the series.

The index is presented in a surprisingly linear fashion, as an apparently chronological list of documents and works. It is possible here to discern the successive stages that were typical of Le Corbusier's working method: the origin of the subject in drawings and the photographs of paintings that Le Corbusier took with him on trips, an 'unconscious' period, and a 'conscious' one.

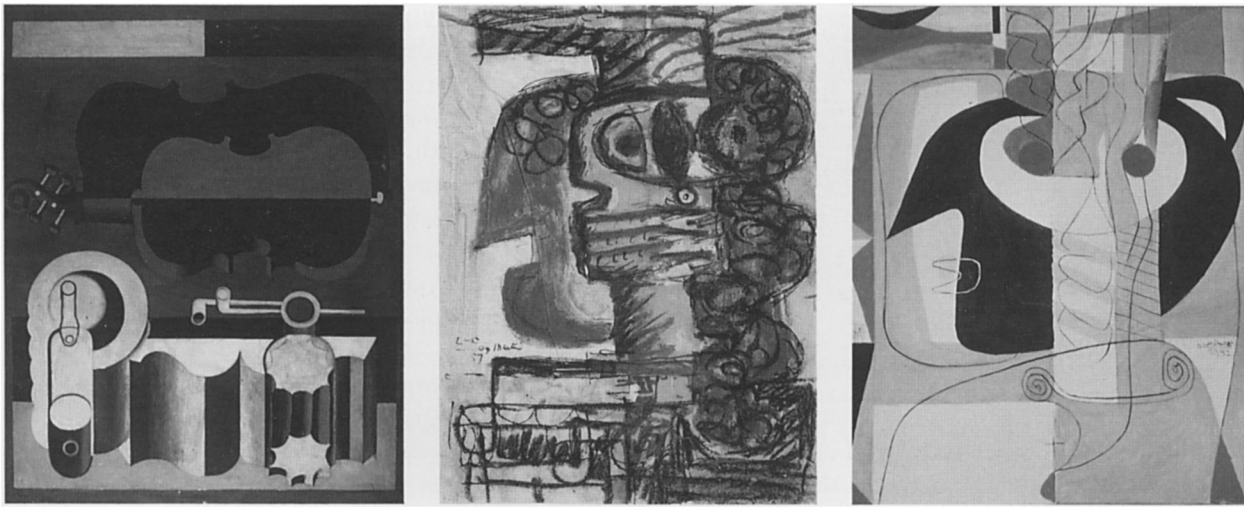
The works listed in the index can be divided into two distinct periods: a first stage, lasting from 1920 to 25 April 1952, of works on paper, which Le Corbusier called 'unconscious' – metamorphoses of earlier subjects that cannot be described as having their own independent theme; and, beginning on 26 April 1952 a second stage, the 'conscious' birth of the new pictorial subject, which coincided with his fine-tuning of the plan of Chandigarh. During this latter period he 'consciously' executed the twenty-one paintings of the Taureaux series, including the four paintings mentioned in his journal (Fig. 4).

The first item in the dossier index is the first of a series of letters to Ronald Alley. Before purchasing Taureau III in 1954 Alley had requested information about the painting, its interpretation, and the main ideas behind the series. In his reply Le Corbusier described the genesis of his work:

You will see how things come about: from a vertical painting of 1920, the photograph of which has been looked at horizontally. One thing leads to another, and thirty years later, the mind busy with other things and particularly with the potential of human figures in the arrangement of a 'bestiary', a series of deformations ensued. And one fine day the discovery of a bull on my canvases came to light, quite out of my control. Then, development of the theme itself, its flowering (Taureaux VIII to XIII or thereabouts), and finally a change of sensibility with respect to the theme and a new arrangement of the elements of the painting.¹¹

As far as we know, this letter constitutes the only written explanation by Le Corbusier of the origin of the series. In it he describes how he transformed a vertical painting of 1920 into *Métamorphose du Violon* of 1952 (Fig. 5) by rotating a black and white photograph of it horizontally. However, in his book *Creation is a Patient Search* (1960) he identifies the origin of the series as a painting of 1940, *Le Grand Verre à Côtes et l'Écharpe Rouge* (Fig. 6) – here a horizontal painting was rotated vertically. This claim contradicts the origin implied in the letter to Alley, and the apparent linearity of the dossier. Item 8 of the list is the sketch Le Corbusier designates as the 'unconscious' birth of the new series; it also appears at the bottom of page 232 of *Creation*. This sketch is particularly important because two of the images it contains represent the two different sources of the series. But it also includes elements from animal forms which occur in the *Bouvier*, *Belzébuth* (Fig. 2) and *Pyrénéenne* series, begun in 1940 in Ozon (where he lived during the war). We can therefore deduce a third source, even if it was not cited by Le Corbusier.

The ambiguous and slippery origins of the series illustrates the inadequacy of relying on traditional



5 (LEFT TO RIGHT). *Nature Morte au Violon Rouge*, 1920. *Painting*, 81×100 cm. (FLC 137) See 'Dossier Tate' (Fig. 3), point 1 bis. *Nature Morte au Violon*, Cap-Martin, 1951. *Drawing* 6369. See 'Dossier Tate', point 2. *Métamorphose du Violon*, 1952. *Painting*, 160×130 cm. (FLC 130) See 'Dossier Tate', point 4.

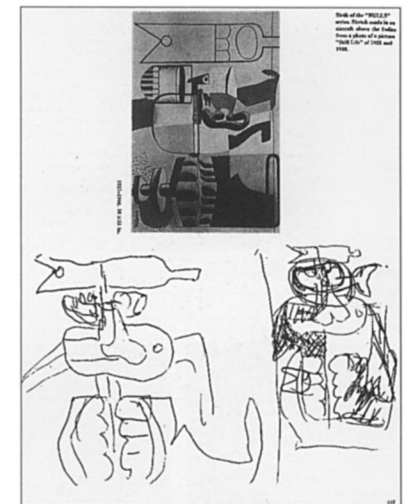
categories in a study of Le Corbusier's art works. The Tate dossier is structured as an open, labyrinthine system, and it therefore prompts us to consider the work as a network of reciprocal and interchangeable relationships, where the substituted elements can be 'loaded' with any symbolic content. The figures become signs which are repeated, transformed, permuted and substituted: 'intuitively over the past twenty years my figures have evolved in the direction of animal forms, vehicles of character, by means of the sign, the algebraic means to enter into a relationship between themselves and thereby produce a single poetic phenomenon', wrote Le Corbusier in March 1952¹² (Fig. 7). The origins of the works in the *Taureaux* series may be found in these transformations, which encompass the whole range of techniques employed by him: rotations of the drawings and of photographs of the paintings; transpositions and consecutive deformations, dislocations, and reconstructions; his 'marriage of lines' method; and his use of the unconscious, the irrational, chance, automatism and eroticism. Here it is difficult to avoid the reference to surrealism, both in the use of such strategies and in the mythical content of Le Corbusier's work – figures such as the Minotaur in the paintings, and the labyrinthine spaces in the architecture.¹³ Nevertheless, his claims that the image of the bull emerged from a formal process governed by chance, caprice and humour make evident his intention to conceal the bull's mythological symbolism. For this reason I will focus on the transformational strategies, rather than attempting an iconographic analysis.

One variant of the bull resulted from the rotation of a black and white photograph of a vertical purist painting of the 1920s (Fig. 5). This process is perhaps analogous with the technique of 'bassesse' developed by George Bataille during the late 1920s, in which the 'formless' is 'discovered' through an axial rotation of the characteristically upright stance of the human being into the horizontal position of animals. In the case of Le Corbusier the rotation could be seen as symbolizing the dialectic between culture (*objets-types*) and nature (the bull) –

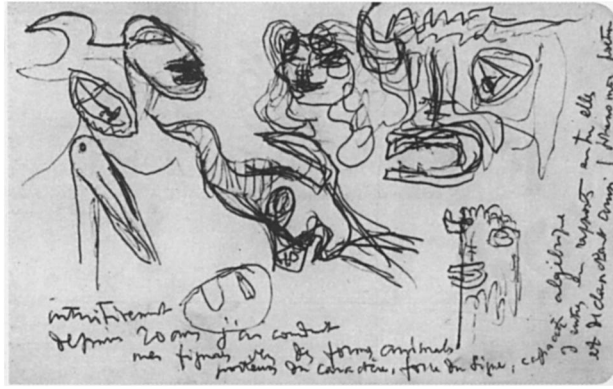
between purism and surrealism. It is no coincidence that also in 1952 Le Corbusier developed the design of Ronchamp, where the 'irruption of the uncontrollable surreal into the universe of certainties' brings about, as Tafuri wrote, a 'difficult encounter between Purism and Surrealism. . . what results is a dialectical labyrinth'.¹⁴ In 1957, in a book about Ronchamp, photographs of the building were accompanied by the following text: 'Try looking at the images upside-down, or rotate them a quarter of a turn. You will get to understand the game.'¹⁵

The principal generators of the formless are ambiguity and ambivalence, understood by Rosalind Krauss 'not as the opposite of form but as the possibility to work at the heart of form, to erode it from within'.¹⁶ 'The surrealist photographers', she writes, 'were masters of the formless [*informe*], which could be produced, as Man Ray had seen, simply by the rotation and consequent disorientation of the body.'¹⁷ The photographs used by Le Corbusier were much reduced black and white versions of colour originals which could easily be viewed upside-down or sideways.¹⁸ This use of photographs to play with rotation and chance allowed him to discover things in his work which he might not have noticed otherwise.

Another strategy employed by Le Corbusier to generate the 'formless' was the 'marriage of lines'. In its simplest instance, two figures are defined by a common profile, making the distinction between positive and negative space ambiguous. If two profiles are superimposed, a third figure is generated which shares profiles with the initial two. Le Corbusier drew figures on transparent paper, and proceeded to slide, superimpose, repeat, rotate and reverse them until the common elements coincided and he had obtained the desired 'marriage' of contours. A continuous undulating line created an arabesque which permitted the reading of multiple figures. In the *Taureaux* series a female face is superimposed on the head of a bull, her breasts are simultaneously the animal's snout and a bird's eyes: the face of the bird is also the body of the bull. The animal parts become signs 'isolated from their context'.¹⁹ They can be divided, rearranged and combined at will.



6. Page 232 of Le Corbusier's *Creation is a Patient Search* (1960), showing the birth of the *Taureaux* series.



Adopting yet another strategy, Le Corbusier decomposed, deformed, and subsequently permuted his figures and objects. In such permutations, chance is used to eliminate causality and inspiration from the work. Chance also plays a part in the origin of the theme. The works Le Corbusier made during the period he referred to as ‘unconscious’ – that is, when he was searching for a new subject – were derived from careful observation of natural elements, animals and women; or from the study of his own drawings or of photographs of paintings, some of them dating back to the 1920s, that he took with him on trips.²⁰ Such elements were then transformed into signs, devoid of content, which were subjected to variations as they were incorporated into new paintings. Even though the possible substitutions are infinite, this game of chance, like any other game, is based on a finite set of elements, and is played according to particular rules and strategies.

For Le Corbusier a painting represented the ‘conscious’ birth of a theme, not elaborated by chance, as was the origin of the theme, but controlled. In *Modulor 2* he wrote that ‘the reward of the artist who has gone through a long period of preparation is that he does not have to grope on the canvas: he expresses ideas formerly acquired; he executes.’²¹ The ‘conscious’ series was developed over a period of eleven years, from 1952 to 1963, encompassing nineteen numbered bulls, which appear in twenty-one paintings and two tapestries (Figs. 1, 9, 17).²² In both the paintings and the tapestries variations are generated by the repetition, permutation, transformation or substitution of the elements that compose and define the series. A photograph of Le Corbusier’s studio which shows *Taureau IX* juxtaposed with *Taureau X* (Fig. 9) – used by him as an illustration in *Creation is a Patient Search* – demonstrates the essential, purposeful commonalities between the two works. This insistence by Le Corbusier on the perpetual repetition of the same subject suggests that his works are to be seen as series, not as evolution – as variations on an idea rather than as successive developments of it. He wrote in a letter of 1955 to his collaborator Albert Savina, ‘To pursue an attainable perfection. I believe we must neither be frightened by nor tire of taking up the

same themes (since 1922, I have doubled, tripled, etc., . . . my Unité d’Habitation and my paintings; there are already ten of my “Taureaux” and I have just begun six new ones).’²³

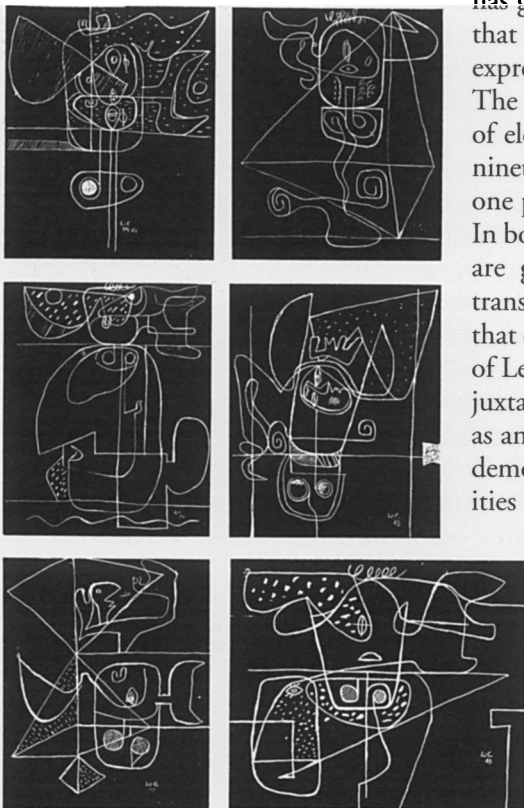
Obsessed with establishing a continuity and coherence in his *œuvre*, in 1955 he began with a renewed intensity to rework the *Taureaux* series, making an inventory of the works and repeating, recomposing, and redrawing the paintings from memory, and architectural projects from their photographs. Having synthesized the essential elements of the series, he repeated the theme in a variety of media – sculpture, lithography, engraving, collage – in particular after 1963, when he abandoned painting. Five gouaches on celluloid from the Ahrenberg Collection, executed in 1963, use line drawings to take up again Le Corbusier’s eleven-year investigation of the bull as a subject (Fig. 8).

Elements of paintings from different series were also combined, and even in different media, such as painting or sculpture and architecture. Perhaps the clearest example can be found in *Îcône 2* and *Taureau XIII* (Fig. 9). Executed four months after *Îcône 2* and a few months before Yvonne’s death, *Taureau XIII*, or *Naissance du Minotaure*, represents a merging of the *Îcône* and *Taureaux* series. Paradoxically, it would be difficult to isolate figures in the composition and analyse them as distinct elements; the painting is a unified whole in which all the figures share contours and forms (for example, Yvonne’s breasts are also the bull’s horns). *Taureau XIII* and *Îcône 2* belong simultaneously to both series and therefore their meanings are permuted.

Paintings, sculptures and buildings were generated by the same strategies, and the affinities were hinted at by Le Corbusier himself in the juxtaposition or superimposition of these different arts in his publications (Fig. 10, 11). These images can be analysed on two levels: one of these is morphological or representational (what it means), the other structural or performative (how it is made).

Le Corbusier’s works are full of formal analogies, metaphoric references and iconography generated by the permutation of objects and figures. Certain figures used in the paintings were transposed to the architecture. The plan of Ronchamp (1954) was derived from a pastel of 1946 in the *Ubu* series (Fig. 12) and, as will be described in the discussion which follows, the Philips Pavilion (1958) was derived from the *Îcône* series (Fig. 13). Other buildings by Le Corbusier contain ‘found objects’, as in the chimneys on the roof of the Marseilles Unité; or the Chandigarh Parliament, where the court is a transposition of the forms of the air-cooling towers Le Corbusier had seen in nearby Ahmedabad; or at Ronchamp, where a crab shell is transformed into the roof. In certain instances the disposition of such elements could be described as scenographic, eliminating perspective and creating an illusory space. In the Unité, for example, a virtual horizon-line formed by the top edge of the balcony wall on the roof, positioned at eye level, collapses the

8. Taureaux, 1963. Gouaches on celluloid. (Ahrenberg Collection, Vevey)



space, dissolves perspective and transforms the architectural elements into objects occurring among parallel planes at different depths.

The 'sign of the bull' appears in all the work of this period – in the paintings and the sculptures as well as in the architecture: 'under the sign of the *Bull*. Suddenly it comes to me. I began the "Taureaux" at Chandigarh. . . . India has lived under the sign of the Bull.'²⁴ During the period when he arrived at the new pictorial theme of the bull Le Corbusier was refining his ideas for the Open Hand and for the Governor's Palace. His 'unconscious' development of the *Taureaux* series from August 1951 to April 1952 took place at the same time that he was developing the Capitol at Chandigarh. The bull shape occurs in architectural elements such as the *barsati*, or roofed terraces, of the Governor's Palace, and in all his V-shaped roofs. The final page of the *Entre-Deux* lithographs of 1957 (Fig. 14) is one of very few instances in which Le Corbusier explicitly links specific elements in his art works to his architectural designs. We must also remember the importance of rainwater in the design of Chandigarh: the roofs act as big umbrellas, and the sheets of water – which generate reflections at different levels, particularly in the Governor's Palace – tie together the Capitol buildings. Two sculptures that use the theme of water (fabricated by his collaborator Savina) have titles which are significant in this connection: *Eau, Ciel, et Terre* of 1954, and *La Mer* of 1963.

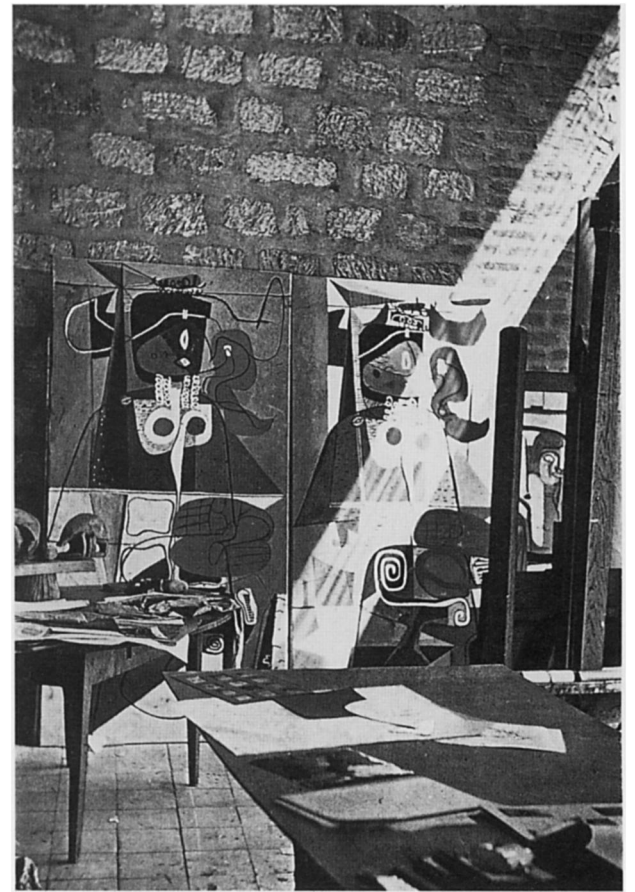
Formal relationships exist also at a structural level. If we abandon the idea that the work of Le Corbusier is like an organism which is shaped and governed by origins, inspiration, influences, unity, coherence, limits, and so on, certain problems presented by more traditional approaches disappear. If instead we view the work as a network, a field of continuous interactions between its components, the idea of play emerges. Thus the work may be described as the accumulation of variations arising from permutation, substitution, repetition, and transformation; moreover, it is within these processes that its significance may be found.

Roland Barthes identified the openness to change and interchange within the 'Text', as he called it. Writing is seen as reconfigurative rather than definitive, and it allows active participation on the part of the reader. Regulated by a metonymic logic, it is an activity of associations, contiguities and carry-overs in which the work is irreducibly plural, 'a passage, an overcrossing; thus it answers not to an interpretation, even a liberal one, but to an explosion, a dissemination'.²⁵ In the case of Le Corbusier his projects may be better described as montages rather than compositions. Their significance lies in the spatial relationships between the parts and the position of the whole, determined by the larger 'map' that Le Corbusier established for his work as an artist. What is more, his ability to derive a work from fragments of previous projects, as Colin Rowe has observed,²⁶ was not exclusive to the paintings. La Tourette, for example, is

a hybrid of two compositional systems: Dom-Ino in the cells, and Citrohan in the church. Using the Modulor as a guiding tool, Le Corbusier tried to map his work so that each fragment – be it part of a painting, a tapestry or a building – shares a logic that transcends the boundaries of the individual disciplines.

The metamorphosis of the 'objets à réaction poétique' resulted at the end of the 1930s in a new form which Le Corbusier called 'acoustique'. During the war this development progressed with a greater intensity. In 1943 he named one of the new forms 'Ubu', recalling the grotesque figure created by Alfred Jarry in his play *Ubu Roi* of 1896 (Figs. 10, 11). In 1946 Le Corbusier began to develop these 'acoustic' sculptural forms in collaboration with Savina: 'little by little the sculptural research in wood, whether polychromed or not, begins to take shape, void of pretensions, but revealing a certain plasticity inclined more particularly towards architecture – a kind of sculpture with an "acoustic character", which is to say, broadcasting afar its formal impact and, in return, yielding to the pressure of the surrounding spaces.'²⁷ The sculptures were made in such a way that they could be disassembled into their component parts and scattered throughout a building. In 1946, in his article 'Ineffable Space', Le Corbusier spoke of 'plastic acoustic, visual acoustic and landscape acoustic', terms which also referred to certain architectural forms utilized after 1930, and which facilitated a dialogue between the work and its environment or the spectator.²⁸ These forms had been developed in 1930, in the first plan for the city of Algiers, called 'Projet A', or 'Plan Obus'. Here the forms and their surroundings, the topography and the landscape, are truly shaped by one another: 'The strong horizontal echoes the surface of the sea; the curves of the buildings are like conch shells.' It is no coincidence that Tafuri detected in this project a desire 'to shatter all disciplinary barriers: the figurative world of [the] painting directly invades the structuring of the urban machine, which is, nevertheless, represented as a single architectonic object . . . a structural organization that assimilates both the perfection of the machine and the unexpected, chance, mutability.'²⁹ In front of the Plan Obus display in the 1953 Paris Exposition, Le Corbusier placed the sculpture referred to as 'Number 4', the second of his acoustic sculptures in the *Ubu* series (Fig. 11). Might this not be another example of a game, another pun on the words 'Obus' and 'Ubus'?

Le Corbusier explored these forms in paintings and



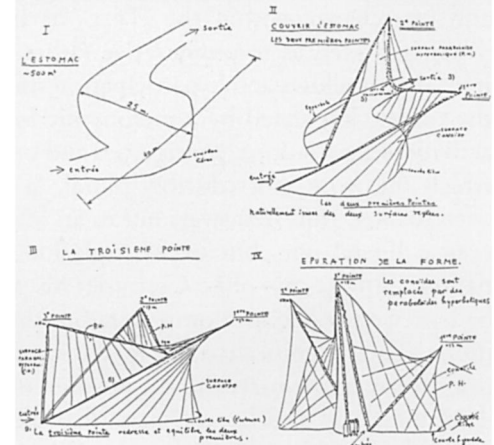
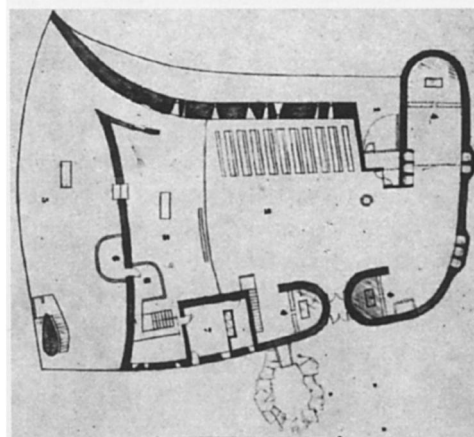
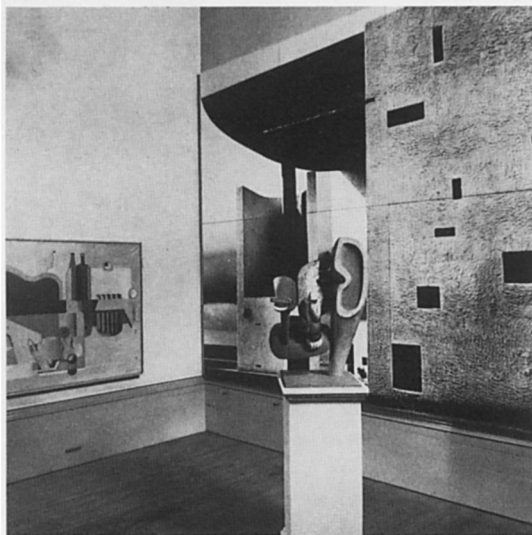
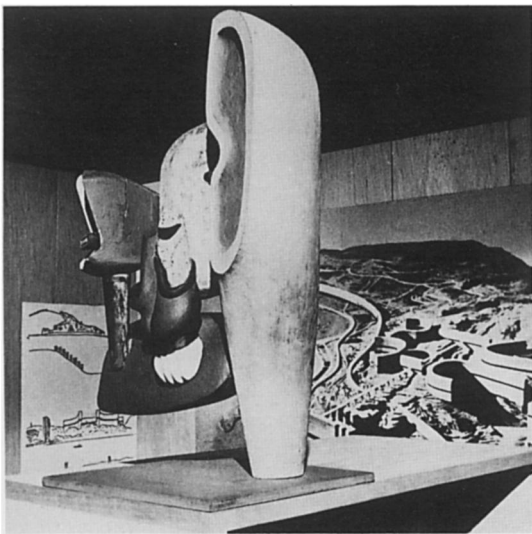
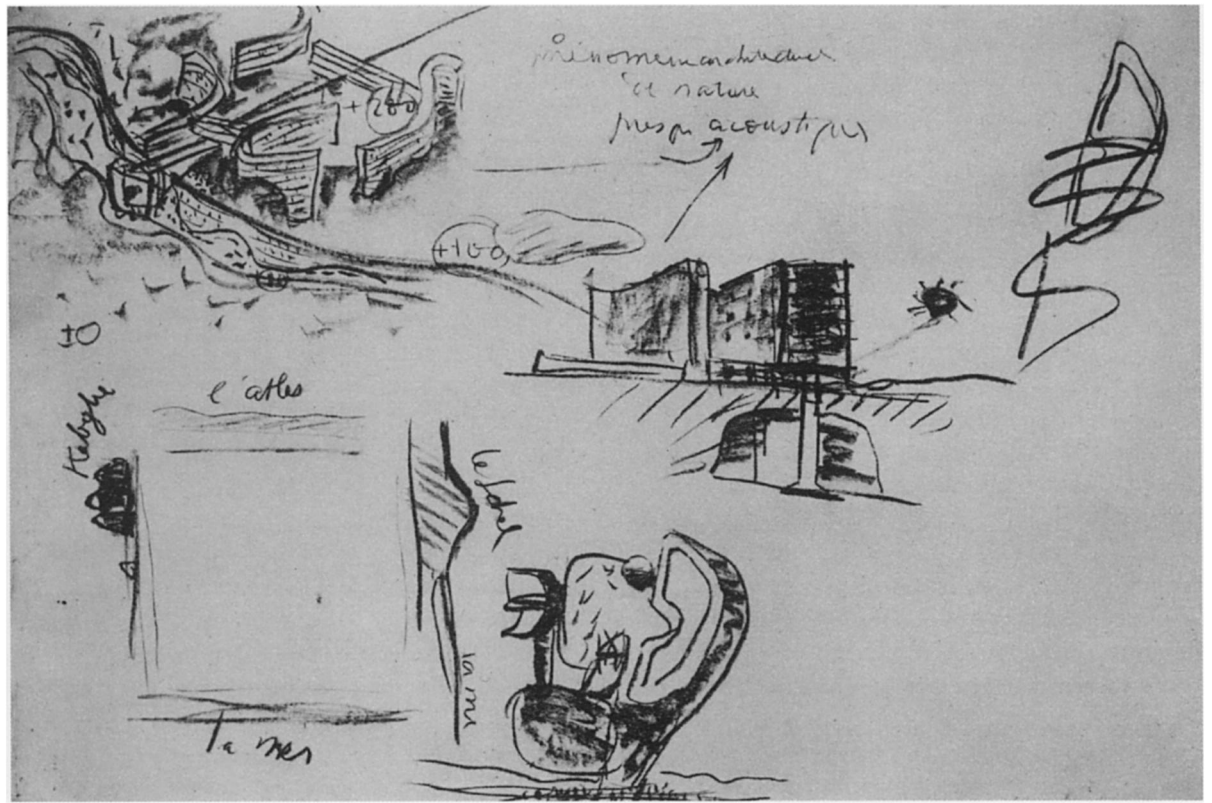
9 (TOP TO BOTTOM). View of Le Corbusier's studio showing Taureau IX and Taureau X, published in *Creation is a Patient Search*. Taureau XIII (Naissance du Minotaure), May 1956. Painting, 130×162 cm. (FLC 167) See 'Dossier Tate', point 26. Icône 2, January 1956. Painting, 130×162 cm. (FLC 231).

10 (RIGHT). *Phénomène architectural de nature presque acoustique*, drawing for a conference in Vienna in 1948 on the synthesis of the major arts, published in *Le Corbusier* (Milan, 1952).

11. ABOVE: View of exhibition at the *Musée National d'Art Moderne, Paris, 1953*, showing Sculpture no. 4 juxtaposed with the *Obus plan*.
BELOW: View of the retrospective exhibition *Capitales* at the *Kunsthhaus, Zurich, 1957*, showing Sculpture no. 4, *Ozon opus I (Ubu)*, juxtaposed with *Ronchamp*. Both photographs published in *Creation is a Patient Search*.

12. ABOVE: *Acoustic Forms, New York, 1946*. Pastel drawing published in *Le Corbusier: A Marriage of Contours*, by *Richard Ingersoll, 1990*.
BELOW: *Plan of Ronchamp, 1950-4*.

13. ABOVE: *Icône, New York, 1946*. Painting. BELOW: *Sketches for the Philips Pavilion published in Le Poème Électronique, 1958*.



sculptures for more than a decade before undertaking a more 'conscious' and elaborate development in Ronchamp (Figs. 11, 12). Out of the 'acoustic' works he created a spatial experience, one which is difficult to describe: it is 'ineffable space'.

The project which perhaps best represents the use of such forms during the 1950s is the Philips Pavilion for the Brussels International Exhibition of 1958 (Fig. 13). An analysis of the *Icone* series of portraits of Yvonne that Le Corbusier executed from 1946 on reveals a strong morphological, structural and iconographic relation to the pavilion. What first catches our attention in these paintings is a group of breasts and shoulders that have a 'tent' structure composed of three masts, which are reminiscent of the 'prow' of Ronchamp and of the pavilion. These sharp, stylized points contrast with the hands and arms, which resemble 'bags' or stomachs, rounded forms. The first serve as a 'mould' for the second, which read as negative space. This 'stomach' can also be found in Le Corbusier's sketch explaining the design origins of the pavilion: 'the stomach . . . to cover the stomach'. In the paintings, plan and elevation are contained in a single plane. In the pavilion plan and elevation, 'stomach' and 'tent', are opposed. These are defined by hyperbolic parabolas, in which a straight guiding-line (elevation) coexists with curved generating-lines (plan). However, in the paintings the same line is simultaneously guiding-line and generating-line, with the diverse elements defined in one stroke, playing with the negative space created by the breasts to generate the arm. The arm and hands would not exist, nor would they make sense, without the positive form of the breasts. Similarly, the plan makes no sense without the elevation. It has no existence as an autonomous entity, for it results from the intersection of the paraboloids with the ground level. The plan can adopt multiple forms, which are determined by those of the paraboloids. It is the paraboloid that gives shape to the building. The breasts-arm-hands fusion within a single stroke is represented in the pavilion by a structural system composed of eight self-supporting paraboloids – warped and structurally continuous surfaces – which eliminate the need for masts. If we trace the inflections of these – the points of union between the surfaces – we find that the profile of the pavilion, plan and elevation can be generated in one stroke. Instead, a single line travels through space, generating an arabesque, a three-dimensional 'mariage' of lines.

In Ronchamp this spatial arabesque results in a rupture between interior and exterior; in Chandigarh it creates a type of space in which the walls – like the lines that define the forms in the paintings – are uninterrupted. The lines are folded, forming a continuous undulation, a labyrinthine system that generates a solid, compact body, of which the mass of the interior space is as important as the volume defined by its exterior. Here light, interacting with space, is not at all inert; it is treated as a living element: 'Light itself is form.'³⁰

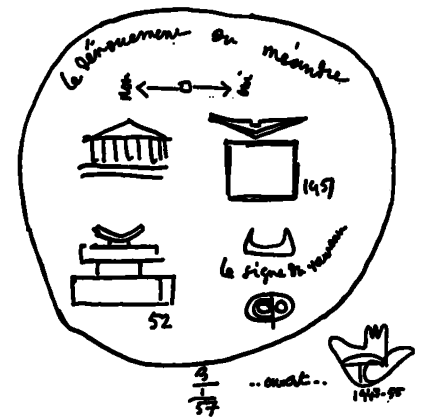
The motif of the maze can be found in several of

Le Corbusier's late works, including the Olivetti Electronic Calculation Centre at Rho-Milan (1963), the Strasburg Congress Palace (1964), the National Museum of Western Art in Tokyo (1959), Venice Hospital (1966), and the Church of Saint-Pierre at Firminy-Vert (1960). In these designs a current is established on the ground floor which guides people to the upper level, where the architectural forms are more rational and the spaces are penetrated by light.³¹ This also occurs in the Palace of Assembly at Chandigarh where, in order to reach the High Court, visitors, members, and journalists follow different labyrinthine routes, all of which converge on the dramatic entry to the court.

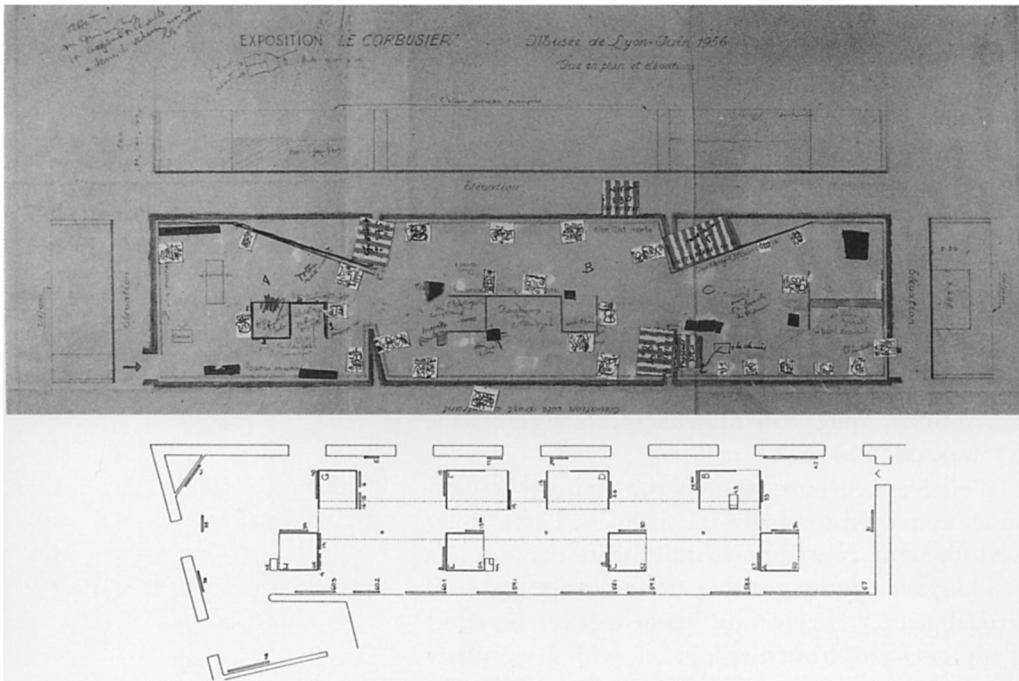
We have seen how rotation is a strategy Le Corbusier employed to obtain the formless. Colin Rowe used the term 'contrapposto' to explain 'the idea of a building as an entity gyrating around horizontal (and vertical) axes'.³² He gives this name to a certain effect of supremacy of frontal vision, but with a secondary category of movements of rotation and of revolution. In *Vers une Architecture* Le Corbusier wrote of Hadrian's Villa that 'the floor is really a horizontal wall'. With reference to this, Rowe writes: 'if walls become floors, then sections become plans; and, as the building becomes a die to be thrown on the table, then all the rest results. We throw around the die: and, as façade becomes side elevation, as Dom-Ino becomes Citrohan, a continuous twisting of meaning and presentation is obliged to occur.'³³

This three-dimensional matrix of relationships between the different media is most evident in the exhibitions organized by Le Corbusier, beginning in 1948, in which he displayed his architecture, paintings, and sculptures together for the first time. At the Musée National d'Art Moderne in Paris in 1953, the selection and placement of the exhibits was designed to reveal new relationships between the works (Fig. 15). Enlarged photographs of buildings were installed on the interior surfaces of large plywood cubes, and paintings were hung on the exterior; both were placed near the edge of the cube, paralleling the tight relationship of the paintings and photographs to their frames. Sculpture, the medium used by Le Corbusier to establish a dialogue between painting and architecture, was installed just outside the cubes, on the boundary between interior and exterior. This system of display corresponded to an underlying order of multiple and labyrinthine paths which permitted visitors to establish their own network of connections between the diverse works in the exhibition.

Could we not compare these plans of the Paris exhibition to the *Iconostase* and therefore think of the spectators as the game-pieces? The exhibitions are conceived as game boards. In both the model of the exhibition in Paris of 1953 and the plan of an exhibition that took place in Lyons in 1956, the paintings, redrawn at a smaller scale on small cardboard pieces, are pasted over their positions on the plan (Fig. 15). In



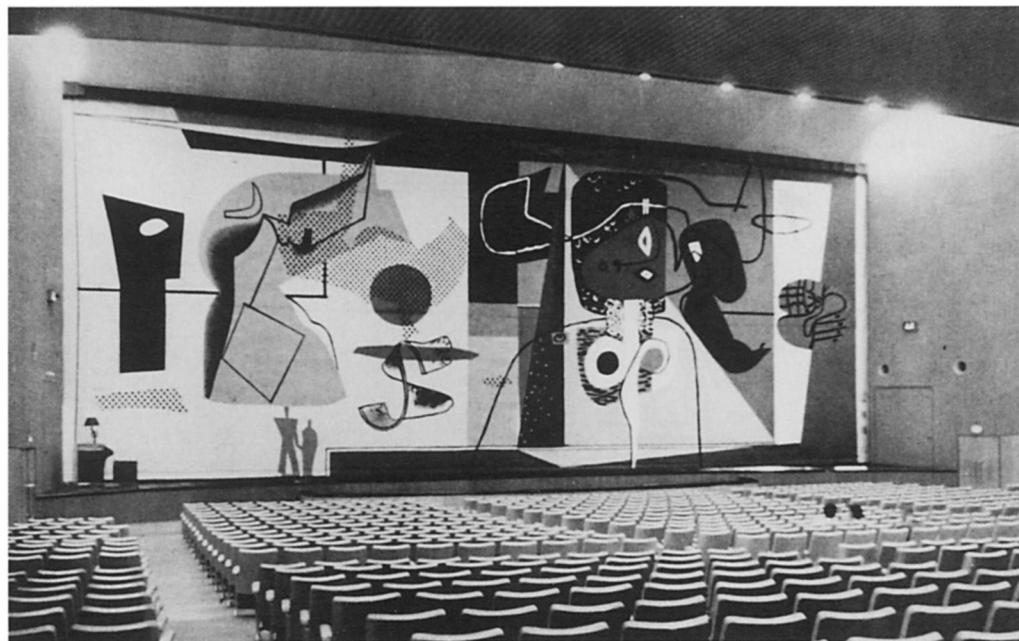
14. Final page of the *Entre-Deux* lithographs, Le Corbusier, 1957–68.



15. Plans of the exhibitions of Le Corbusier's work in Paris, 1953, and Lyons, 1956. (Collage, FLC C2-08-34)



16. View of exhibition by Le Corbusier at the Carpenter Center for the Visual Arts, Harvard University, 1964, published in *Œuvre Complète*, vol. VII.



17. View of curtain for the Bonka Kaikan Theatre in Tokyo, or Taureau XIV bis, 1956, published in *Creation is a Patient Search. Tapestry, 9.8x23.8 metres.*

both, the spectator's role corresponds to two meanings of the word 'play': as spectator-participant he plays the game (the same one that Le Corbusier plays in devising one of the moves he offers us), and as spectator-musician, since by visiting the work he is involved in its performance and, on completing it, has become co-author.

Eventually Le Corbusier's paintings, the only exhibited objects that were actually executed by him, also gave way to the possibilities offered by mechanical reproduction. In 1962 in Barcelona he chose to exhibit photographic reproductions of the paintings rather than the originals. This material was also used in the inaugural exhibition at the Carpenter Center for the Visual Arts, Harvard University (Fig. 16), and at the Musée des Beaux-Arts in La Chaux-de-Fonds, both in 1964, where he exhibited black-and-white photographic enlargements of drawings from his sketchbooks and fragments of paintings, creating a labyrinthine space with no fixed or human scale, with the spectator playing the part of Alice in Wonderland. Such abrupt changes in scale and multiple interchanges became increasingly common in Le Corbusier's work, with the elements of both his art works (Fig. 17) and his architecture (Chandigarh) becoming much larger. 'His late architecture', Tafuri writes, 'is a gigantomachia: fragments of certitude heroically battle figures born out of the "listening" to "unutterable" languages.'³⁴

In his last exhibitions Le Corbusier used only photographic reproductions of his projects and paintings. Little by little, he also abandoned painting in favour of media that allowed multiple reproduction (lithographs, engravings, and tapestries). Sometimes he contributed only the drawings and left the actual manufacture of the objects to a collaborator. This is not surprising in an artist-architect, someone who is accustomed to working within a team. In architectural work, concepts such as structure, replication (of the drawings), repetition and notation (the architecture is presented in plans) are a part of the discipline. Problems of originality and attribution (in the sense of 'uniqueness'), authorship (the design of a building entails a dialogue between client and architect) or narrative (the architect has a structural grasp of what he draws, and the gesture is more an act of inscription than of expression) are not an issue.³⁵

I first developed this study in my Ph.D. dissertation on Le Corbusier's painting after 1940, 'Le Corbusier: The Acoustic Form', completed in 1994 at the Barcelona School of Architecture. I have also published an analysis of the *Taureaux* series, 'Le Corbusier's *Taureaux*: An Analysis of the Thinking Process in the Last Series of Le Corbusier's Plastic Work', in *Art History*, vol. 18, no. 4.

1. 'Là est le jeu architectural: les combinaisons. La symphonie musicale: la diversité, la nuance, le silence, la douceur ou la clameur et la force. *Plan et coupe! le jeu savant, correct et magnifiquement des formes sous la lumière.* Tels sont les moyens.' 'Les Tendances de l'Architecture Rationaliste en Rapport avec la Peinture et la sculpture' (Conference in the 'Reunión Volta' in Rome, October 1936), *L'Architecture Vivante*, VII. Also in *Le Corbusier-Savina: Sculptures* (Paris, 1984), pp. 12–21. My translation.
2. 'L'œuvre d'art est un jeu dont l'auteur a créé la règle. . . la règle doit pouvoir apparaître à ceux qui cherchent à jouer. Elle est faite de signes d'une intelligence suffisante. . . susceptibles d'être reconnus à un simple schéma.' Le Corbusier, 'Peinture', in *Le Corbusier: Œuvre Plastique* (Paris, 1938). Also in Jean Petit, *Le Corbusier: Suite de Dessins* (Geneva, 1968), p. 18. My translation.
3. 'Le dessin, c'est aussi un jeu. On me dit que le secret de la sagesse est de savoir prendre des loisirs. D'accord. Je suis en état de loisir permanent. Jouer toute la journée, aux cartes, au rugby, aux Indiens, au soldat . . . Les gosses et les hommes y mettent la totalité de leur sérieux. Moi aussi: je dessine depuis toujours. Paysages, architectures, verres et bouteilles de bistrot, vessies pour lanternes, coquillages, pierres, os de boucherie, galets, petites femmes, bestiaire, telles sont les étapes, les clefs.' Le Corbusier, 'Dessiner', 1965, in: Jean Petit, *ibid.*, p. 12. My translation.
4. 'Tapisseries Muralnomad', in *Le Corbusier: Œuvre Tissée* (Paris, 1987).
5. Although the purist paintings constitute only about fifteen per cent of a total of four hundred paintings, they have received most of the attention.
6. 'Tapisseries Muralnomad', *Le Corbusier*, op. cit.
7. *New World of Space* (Boston, Mass., 1948) and *Creation is a Patient Search* (1960) are other useful sources.
8. 'en rassemblant toutes choses dans une cohérence banale et l'énoncé de tous les faits à prendre en considération. Il y a donc beaucoup de choses au fond de ce poème. Puis il a pris de la distance, puis de la hauteur; il a coupé les ponts. Désormais c'est au lecteur de lire le poème.' Le Corbusier, *Œuvre Complète*, vol. V (Zurich, 1953), p. 241. My translation.
9. Le Corbusier in 1957, quoted by Petit, *Le Corbusier*, op. cit., p. 120.
10. 'L'œuvre d'art naît d'un rapport. Le choix est dans les termes de l'équation. Le choix n'est pas imposé, il est spontané. Le rapport est fait de deux ou plusieurs termes qui eux sont des contenants matériels: ils contiennent chacun un assemblage de choses qui ont été: invention, capacité, talent, découverte, création, digestion.
 'Arrive une minute, une seconde, un fragment de seconde même, où séries de groupes apparaissent spontanément à portée d'être saisis et fourrés en compagnie dans l'équation qui sera le détecteur fondamental de l'émotion. Tout le reste n'est que fabrication.
 'Mais fabrication est à peu près tout pour l'artiste qui ne s'occupe que de la manière dont il va faire son œuvre (car cette seconde magique signalée plus haut est le fait propre de l'artiste, il n'y peut rien serait-ce bien ou mal!)
 'Une équipe s'agite autour d'un problème pour le résoudre, pour établir les données du problème, les coordonner, pour poser le problème = idées autant que moyens d'exécution. Moyens d'exécution autant qu'idées. C'est synthétique autant que symphonique. . . .
 'A ce moment l'enfant est fait, il est né. La décision est sans appel. Son aspect? sa beauté? tout dépend du choix qui fut fait, lequel est enfin dans ses données et les variations de ses combinaisons. Par conséquent, la forme résultante: son caractère est un caractère parmi mille autres possibles. Tout est dis-

ponible devant nous.'

Le Corbusier, 'Lecture' (Paris, 1958), in Petit, *Le Corbusier*, op. cit., pp. 171–2. My translation.

11. 'Vous verrez comment les choses sont nées: d'un tableau de 1920 vertical et dont la photographie a été regardée horizontalement. Et de fil en aiguille, trente années après, l'esprit occupé à toute autre chose et très particulièrement par une utilité en matière de figures humaines de disposer d'un "bestiaire", sont nées des déformations successives. Et un beau jour la découverte d'un taureau sur mes toiles apparût tout à fait hors de mon contrôle. Ensuite développement du thème sur lui-même, sa floraison (les Taureaux VIII à XIII environ), et enfin un changement de sensibilité par rapport au thème et une disposition nouvelle des éléments du tableau.' Letter from Le Corbusier to Ronald Alley, 25 June 1958, FLC C2 11(21). Also in FLC G1 14(75). My translation.
12. 'intuitivement depuis 20 ans j'ai conduit mes figures vers des formes animales porteuses de caractère, force du signe, capacité algébrique d'entrer en rapport entre elles et déclanchant ainsi 1 phénomène poétique'. *Le Corbusier: Sketchbooks*, II, 700. My translation.
13. The surrealist magazine *Minotaure*, for which Le Corbusier wrote the article 'Louis Soutter: L'Inconnu de la Soixantaine' (*Minotaure*, IX (1936), pp. 62–5), contains the most obvious reference. In *Minotaure*, VII (1935), Man Ray published a photograph of a woman's torso positioned and lit so as to resemble a bull's head: her breasts can be read as the eyes of the bull, her stomach as the snout, and her arms as the horns. This and other images published in surrealist journals could have influenced Le Corbusier's work, from the portraits of women that he began in 1936, in which the torso can be read as a face, to his *Modulor* of 1945, in which the chest and stomach form a bull's head. By 1952, when Le Corbusier began to focus on the bull as a subject, many contemporary artists had already adopted it. Picasso's work as well as the writings on taumachy by Michel Leiris and Georges Bataille must have been familiar to him. In 1952 Picasso visited Le Corbusier in Marseilles at the Unité d'Habitation and ate lunch with him at Cap-Martin. In November 1953 Le Corbusier read Bataille's book *La Part Maudite*, which the author had inscribed and given to him. He extracted various ideas from it for *Le Poème de l'Angle Droit* (published in the following year). Nevertheless, Le Corbusier assigned a different meaning to the figure of the bull. For Picasso, Leiris, and Bataille, the bull is triumphant, a symbol of power and virility. In Picasso's representations the horse or the woman are portrayed as the loser in the struggle with the bull or the Minotaure.
14. Manfredo Tafuri and Francesco Dal Co, *Modern Architecture* (New York, 1986), vol. 2, p. 319.
15. 'Essayer de regarder les images à l'envers, ou tournez-les d'1/4. Vous découvrirez le jeu.' *The Chapel at Ronchamp* (New York, 1957), p. 47. My translation. In: Le Corbusier, *Les Carnets de la Recherche Patiente*, II (Stuttgart, 1957).
16. Rosalind Krauss, *The Optical Unconscious* (Cambridge, Mass., 1993), p. 167.
17. Rosalind Krauss, 'Corpus delicti', in *L'Amour Fou: Photography and Surrealism* (New York, 1985), p. 60.
18. This idea is developed by Daniel Naegele in 'Photographic Illusionism and the "New World of Space"', in the exhibition catalogue *Le Corbusier, Painter and Architect* (Copenhagen, 1995). I am thankful to him for his insistence on this point.
19. *Le Corbusier: Sketchbooks*, II, 702.
20. From the Dossier Tate, we know that Le Corbusier grouped nine series of 'unconscious' drawings in the *Taureaux* series which he recognized as belonging to the series only after they were completed. All nine were done before the first painting. In *L'Œuvre Complète* he writes, 'Le Corbusier porte en lui et avec lui des idées de nature plastique qui remontent à dix,

- quinze, vingt années, ou davantage: ce sont des croquis, des esquisses qui remplissent des tiroirs chez lui et dont il emporte certains en voyage, de telle sorte que le contact est instantanément repris d'une étape nouvelle avec une étape antérieure, et que, sans aucune difficulté, la continuité s'opère à travers les avatars de l'existence. L'acte de peindre n'est plus alors qu'un incident passager bref. Peindre est une chose facile; ce qui est difficile, c'est de savoir que peindre! ('Le Corbusier himself carries, and carries within himself, ideas of a plastic nature that go back ten, fifteen, twenty years or more: these are drawings, sketches that fill his drawers at home, some of which he takes on his travels, so that contact is instantaneously re-established from a new stage to an earlier stage, and continuity can be maintained without any difficulty, among the vicissitudes of life. The act of painting is thus no more than a brief passing incident. To paint is easy; what is difficult is to know what to paint!') Le Corbusier, 'Plastique et Poétique', *Œuvre Complète*, vol. V (Zurich, 1953), p. 225. My translation.
21. Le Corbusier, *Modulor I and II*, translated by P. de Francia and A. Bostock (Cambridge, Mass., 1980), pp. 279–80.
 22. The Taureaux are numbered from I to XIX (with XV to XIX appearing, not in the dossier, but in the inventory list from Le Corbusier's agenda). He titled four of the works *Taureau I*, although only one of them is included in the Tate dossier. He titled the two tapestries *Taureau XIV* and *Taureau XIV bis*. While we might have expected *Taureau XIV* to be a painting, the Tate Dossier indicates that it is the tapestry *L'Étrange Oiseau et le Taureau*; the curtain of the Tokyo theatre is *Taureau XIV bis* (Fig. 20).
 23. 'Poursuivre une perfection accessible. Je crois qu'on ne doit ni s'effrayer ni se lasser de recommencer les mêmes thèmes (mes unités d'habitation depuis 1922 et mes tableaux, je double, triple, etc. – mes "Taureaux" sont dix déjà et je viens d'en préparer six nouveaux.' Letter from Le Corbusier to Savina, 24 August 1955. My translation.
 24. 'sous le signe du *Taureau*. J'y pense tout à coup. J'ai commencé les Taureaux à Chandigarh . . . L'Inde a vécu sous le signe du Taureau'. Dated 30 November 30 1955, in *Le Corbusier: Sketchbooks*, III, 391. My translation.
 25. Roland Barthes, 'From Work to Text', in *Image, Music, Text* (New York, 1977).
 26. Colin Rowe, 'The Provocative Façade', in *Le Corbusier: Architect of the Century* (London, 1987), pp. 24–8.
 27. 'petit à petit des recherches sculpturales sur bois, polychromé ou non, se précisent, dont la prétention est nulle, sinon que de manifester une certaine plasticité dirigée plus particulièrement vers l'architecture – une espèce de sculpture "de nature acoustique", c'est-à-dire projetant au loin l'effet de ses formes, et par retour, recevant la pression des espaces environnants'. *Œuvre Complète*, vol. V, p. 240. My translation.
 28. Le Corbusier defined 'acoustic' plastic work in an article of 1946, 'Ineffable Space': 'Architecture, sculpture, and painting are specifically dependent on space, bound to the necessity of controlling space, each by its own appropriate means. The essential thing that will be said here is that the release of aesthetic emotion is a special function of space.
'ACTION OF THE WORK (architecture, statue or picture) on its surroundings: vibrations, cries or shouts (such as originate from the Parthenon on the Acropolis in Athens), arrows darting away like rays, as if springing from an explosion; the near or distant site is shaken by them, touched, wounded, dominated or caressed. REACTION OF THE SETTING: the walls of the room, its dimensions, the public square with the various weights of its façades, the expanses of the slopes of the landscape, even to the bare horizons of the plain or the sharp outlines of the mountains – the whole environment brings its weight to bear on the place where there is a work of art, the sign of man's will, and imposes on its softnesses. A phenomenon of concordance takes place, as exact mathematics, a true manifestation of plastic acoustics; thus one may speak of one of the most subtle of all orders of phenomena, sound, as a conveyor of joy (music) or of oppression (racket).'
Le Corbusier, *New World of Space* (Boston, Mass., 1948), pp. 7–8.
 29. Manfredo Tafuri, 'Machine et Mémoire: The City in the Work of Le Corbusier', in *Le Corbusier*, edited by H. Allen Brooks (Princeton, New Jersey, 1987), p. 212.
 30. Henri Focillon, *The Life of Forms in Art* (New York, 1989), p. 75. Le Corbusier read this book in 1953 (*La Vie des Formes* (Paris, 1947)). The chapter 'Les Formes dans l'espace' reads: 'the light . . . capable of entering into and assisting cycle of metamorphoses. Light not only illuminates the internal mass, but collaborates with the architecture to give it its needed form.'
 31. See Robert Slutzky, 'Aqueous Humor', *Oppositions*, XIX–XX (1980), pp. 29–51.
 32. Colin Rowe, 'The Provocative Façade', *Le Corbusier*, op. cit.
 33. *Ibid.*
 34. Tafuri, 'Machine et Mémoire', *Le Corbusier*, op. cit., note 29.
 35. It is no coincidence that this condition of openness, ambivalence, ambiguity, fragmentation, and labyrinthine organization – identified by Barthes in his reconceptualization of the work as text – incorporates elements which appear to have been extracted from the architecture. In the same way that one visits a building by Le Corbusier, 'the reader of the Text may be compared to someone who is at loose ends; this passably empty subject strolls on the side of a valley . . . ; what he perceives is multiple, irreducible, coming from a disconnected, heterogeneous variety of substances and perspectives: light, colours, vegetation, heat, air. All these incidents are half-identifiable: they come from codes which are known, but their combination is unique, founding the stroll in a difference repeatable only as difference. So the Text: woven entirely with citations, references, echoes, cultural languages, antecedent or contemporary, which cut across it through and through, in a vast stereophony. The intertextual in which every text is held, it itself being the text-between of another text, is not to be confused with some origin of the text: try to find the "sources," the "influences" of a work, is to fall in with the myth of filiation; the citations which go to make up a text are anonymous, untraceable, and yet already read: they are quotations without inverted commas.' Roland Barthes, 'From Work to Text', *Image, Music, Text* (New York, 1977).