

A Journal for Ideas and  
Criticism in Architecture

Le Corbusier 1905–1933  
Editor: Kenneth Frampton

# OPPOSITIONS



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Criticism in Architecture

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**Le Corbusier 1905–1933**  
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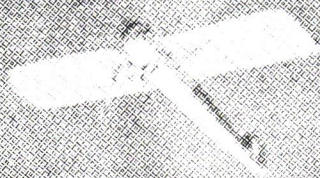
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Le Corbusier 1905-1933



## Editor's Introduction

- 2 For the protagonists of Post-Modernism or for the ever present bureaucrats of our social welfare, Le Corbusier has evolved into the pathologically sinister figure. He is to be seen as the founding father of the white architecture; as the demiurge of the International Style, as the reductive functionalist incarnate; as the creator of a hermetic and cryptically inaccessible architecture, at times Calvinist, at times traumatically Mannerist; the provider of sepulchral disquiet, as opposed to the present historicism which merely plays at the disjunctive. And yet despite the megalomania of his large scale urbanism, Le Corbusier remains the architectural touchstone of our age, the prime mentor of modern method, and for many the only architect of our century to merit recognition as a genius in his own time. Since his death in 1965, his work has either been admired as a triumph or dismissed as a farce. The result has been that our judgment has remained ineffectively suspended between the extremes of eulogy and ridicule, while the broader and deeper significance of his achievement has escaped our attention. Forged as much by his epoch as by the idiosyncrasies of his nature, Le Corbusier occupies a singular and classic place in the on-going evolution of our discipline, a body of work which despite its recession into a lost history will undoubtedly be re-evaluated by each successive generation.

It is our intent with this double issue of *Oppositions* to initiate a re-examination of this figure and to pinpoint certain aspects of his ideological development within the framework of the twentieth century. Le Corbusier, at first heir and then *saltimbanque* to the Enlightenment, strove to synthesize, in what was almost certainly the first and the last global architectural project of our century, not only the future form of the bourgeois city but also the cultural status of the industrial objects it would necessarily contain. The transformation of the early nineteenth century city into the sprawling metropolis of the second half of the century was the rupture in which modernism first saw the light of day. As Anthony Vidler has remarked in *Oppositions* 8, this urban culture was already divided by the time of Baudelaire into a curious dichotomy between *positive* projection on the one hand and *formal* subversion on the other. The culture of the *Grosstadt* was largely the creation of two antagonistic but reciprocally related classes: the technocrats who projected the city as a progressive program of development, welfare, and reform and the intellectuals whose overwrought and alienated sensibility reacted in an ambiguous way to the phenomenon of the industrial metropolis.

The technocratic ideal of the bourgeois city suffered a major setback with the First World War when the relentless expansion and triumph of its form—driven by speculative growth and accelerated locomotion—were

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abruptly and definitively checked by the outbreak of universal hostility: that moment when, to paraphrase Sir Edward Grey, the light was extinguished all over Europe. The fact that Beaux-Arts urban idealism enjoyed a fragmentary period of fulfillment in America between the mid-1890's and the Great Crash of 1929 only serves to underline the economic and cultural lethargy which swept over Europe with the armistice of 1918. For a variety of reasons, in part economic, in part a matter of cultural volition, Europe came to abandon the bourgeois city to its fate. This neglect finds its proof in the fact that while London and Berlin were destructively transformed by bombing, the Paris of 1945 was to all intents and purposes the Paris of the turn of the century.

For the European liberal architectural avant-garde of the twenties and thirties, the Futurist image of a city of towers remained the unattainable goal for a new or renewed bourgeois city. This vision stalked through the early history of the Modern Movement like an unfulfilled Promethean desire, until it was finally realized in a totally corrupt form by the real estate interests of the neo-capitalist state which emerged in full force shortly after the end of the Second World War. Le Corbusier's failure to build his crystalline metropolis is at least partly due to the persistent crisis of capital which lasted in Europe from 1914 to 1945, and we cannot begin to situate his career—or for that matter, to understand the true nature of modernism in architecture without recognizing the way in which his own ideological concerns reflected (but at the same time failed to engage) the rapidly changing interests of capitalism. The contrast here with the career of Mies van der Rohe is as striking as it is paradoxical, for it was Mies—the man who refrained from envisioning a city—who eventually, in the fifties, came to be commissioned by speculative capital to reformulate and realize the Futurist city on a reduced but nonetheless normative and technically rational basis.

The way in which Le Corbusier perceived and yet also misunderstood the true interests of industrial capital in the interwar years (who does not recall his appeal to the captains of industry at the end of *Vers une architecture* or his *Appel aux industriels* of 1925?) is a result of messianic misreading of the trajectory of the Enlightenment. He no doubt believed, like Tony Garnier before him whose *Cité Industrielle* was formulated prior to 1914, that the unprecedented urban instrumentality which had been placed in the hands of Haussmann would somehow be replicated at a totally new scale by the industrial capitalism of the early twentieth century.

Privileged by the radical socialist patronage of Edouard Herriot, who was mayor of Lyons throughout his term as city architect, Garnier seems to

1 (frontispiece) *The opening image for the sequence dealing with the Société des Nations Competition in Le Corbusier's text Une Maison, Un Palais of 1928.*

- 4 have found it equally hard to imagine that the future society, even when of welfare socialist persuasion, would fail to give top priority to extending the scope of public amenities already provided by the nineteenth century regional capital. Garnier, like Le Corbusier after him, envisioned a millennialistic freezing of history, in which an advanced technological civilization—grounded in steel, reinforced concrete, automobiles, ships, aviation, and hydro-electricity—would soon attain some static datum of perfection as the ultimate fulfillment of a rational and socialist destiny; the closing of the circle of history—the return of civilization to its cradle in the Mediterranean.

Although Garnier and the early Le Corbusier both projected utopian socialist cities, the difference in their vision turns on the degree to which they each chose to reflect the split running through the socialist movement, where Garnier emphasized the Fourierist libertarian aspect of socialism—his open-ended city being designed without any repressive institutions whatever—Le Corbusier envisioned the city of Saint Simonian control. In 1922 he projected his *ville contemporaine pour trois millions personnes* as a bounded capital city, removed from the satellite garden cities by which it was necessarily surrounded. Separated from the city of capital by a green belt (in effect a reinterpretation of the seventeenth century *glacis*), these satellite communities were depicted as open-ended gridded structures which, like the Cité Industrielle, would have accommodated workers in reasonably close proximity to the centers of industrial production. Le Corbusier was in fact to achieve such an ideal “workers” community in 1926 when, under the patronage of the industrialist Henri Fruges, he managed to build a garden suburb at Pessac in the neighborhood of Bordeaux. The city of towers, on the other hand, was to remain a mirage.

The desirable form of the modern city was a conceptual dilemma for the left and the right alike, and Bruno Taut’s *Die Stadtkrone* (the city crown) of 1919 did little more than add a touch of mysticism to the general state of uncertainty. Taut unequivocally maintained that a city without a “crown”—that is to say, without the physical manifestation of a spiritual and communal center—was not a city at all. It is evident from both the Cité Industrielle and the Ville Contemporaine that Garnier and Le Corbusier shared this view and the case can be made that the form of the Ville Contemporaine was directly influenced by Taut’s ideal garden city. In any event, Le Corbusier’s crystalline Cartesian skyscrapers served as the secular crowning element, comparable in their situation and in their soaring reticulated elevations to the crown of the medieval cathedral.

In favor of the appearance of the city, but against the constricted urban

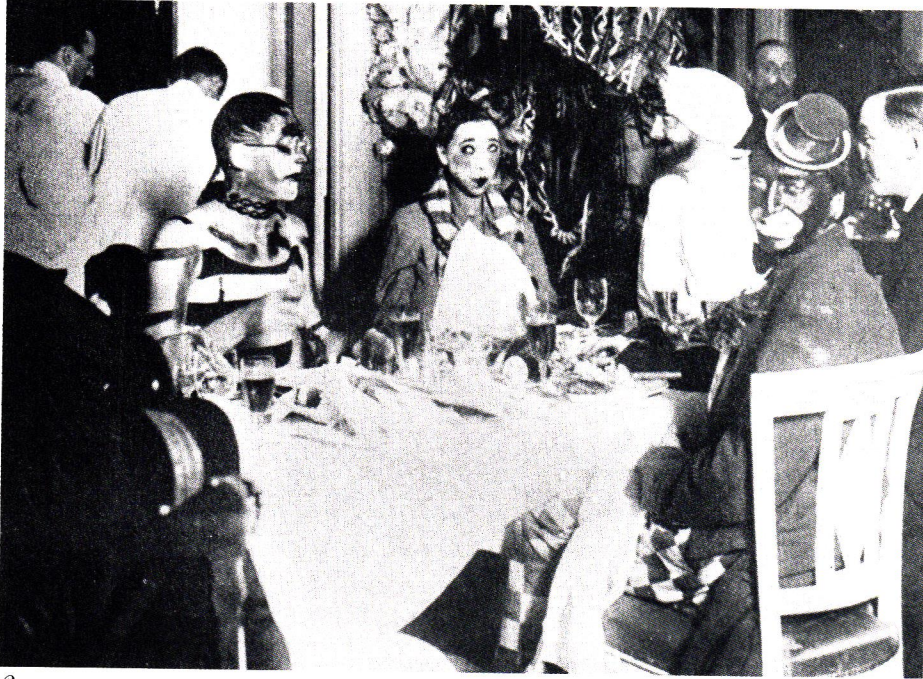
form of the street (the influence of Ebenezer Howard's garden city of 1898 is evident even here), Le Corbusier abandoned his wall-less, but delimited Ville Contemporaine of 1922 for the continuous urbanized region, that is to say, for the banded layout of the Spanish and later Soviet linear city which was already latent as a model in the layered organization of his otherwise anthropomorphically structured and axially aligned Ville Radieuse of 1934. From now on, in all of Le Corbusier's urban projections for specific sites, the metropolis would increasingly dissipate into the open fragmented form of the city-region, initially in his linear plan for Zlin, published in the book *La Ville Radieuse* of 1935, and then more generally during the Second World War with his linear city planning thesis *Sur Les Quatres Routes* of 1941 and his virtual adoption of the Kristaller-Loesch central place location planning theory in his book *Les Trois Etablissements Humains* of 1944. It is as though the technocratic aspect of his persona was constantly attempting to absorb and compensate for the fact that Western instrumentality no longer had any interest in maintaining the dense bourgeois city. Certainly, neo-capitalist development showed no desire to perpetuate such a city; particularly in the form in which it had emerged in and around the city of Paris after the liberal revolution of 1848. After 1945 what capital needed was above all else the expansion of its market area over as much territory as possible, and Le Corbusier attempted to respond with an urban model which would directly reflect the infrastructural consequences of such an expansion. With absolutely sound intuition, he opted for the theoretically limitless canal, rail, road, and air network of his idealistic system, first published as the "four routes" in 1941.

Yet the idea of a planned society, particularly as it had been derived from the triumph of Taylorism in the United States, meant a domain that was much larger than that which was prescribed by urbanism alone.

For Le Corbusier it meant the entire world of objects first brought succinctly into theoretical focus with the text *Le Purisme*, written with Amedée Ozenfant in 1920, but more fully elaborated as a polemic against consumer goods in his book *L'Art Decoratif d'Aujourd'hui* of 1925. An extract from *Le Purisme* establishes in a succinct passage not only the thematic of Purist painting but also the everyday constituent elements of the normative civilization which it supposedly celebrated. Thus in 1920 they wrote: "In all ages and with all people, man has created for his use objects of prime necessity which responded to his imperative needs; these objects were associated with his organism and helped complete it. In all ages, for example, man has created containers: vases, glasses, bottles, plates, which were built to suit the needs of maximum capacity, maximum strength, maximum economy of materials, maximum economy of effort. In all ages,

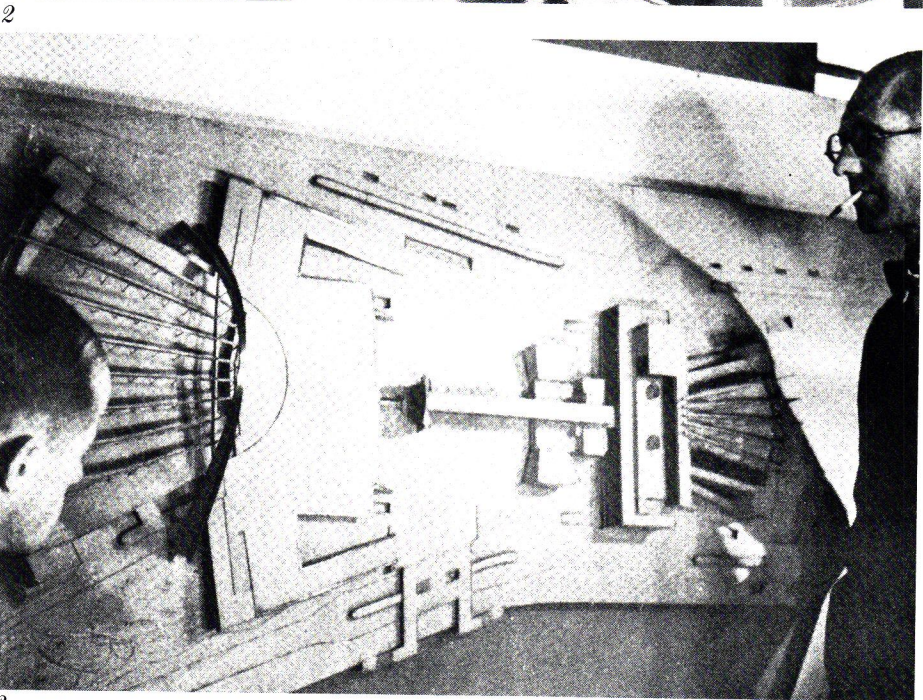


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*2 Le Corbusier and Josephine Baker at a "crossing of the line" celebration while returning on the Lutetia from Latin America in 1937.*

*3 Pierre Jeanneret and Le Corbusier standing before the model of their entry for the Palais des Soviets competition of 1931.*



3

man has created objects of pleasure: musical instruments, etc., all of which have always obeyed the law of selection: economy.”

It was from this standpoint that Le Corbusier went on in 1925 to formulate his typological theory of objects as determined and refined by need—his anti-consumerist notion of the causal chain connecting *besoin types* to *objet types*, a reciprocal linkage by virtue of which (following the optimum satisfaction of the former by the latter) no further invention or production would be necessary or even desirable. This moralistic and millennialistic argument, close to the thesis first advanced by Adolf Loos in his essay “Ornament and Crime” of 1908, could hardly have been further removed from the true interests of capital. It presupposed a totally controlled subsistence economy in which economic surplus would be expended solely upon the transformation of the large scale physical environment.

Such a planned economy would have required reforms as draconian and rigorous as any of those which had at that date been enacted by the fledgling Bolshevik state, and once again we see how the progressive and positivistic elements of Le Corbusier’s formation led him paradoxically into conflict with the interests of capital. Time and again, he tried to accommodate himself to the realities of the situation, for example, the abandoning of his strict Purist, Loosian principles in 1929 in order to design a suite of furniture in collaboration with Charlotte Perriand.

Perennially expectant, like Charles Fourier, of the eminent arrival of the Enlightened prince, or rather the technocrat tycoon—the support of industrialists such as Citroen and Voisin, whom from time to time he assiduously cultivated—Le Corbusier sought a scope of idealistic patronage which could not possibly exist under late capitalism. Reactionary in one aspect and genuinely progressive in another, avant-gardism bestowed upon his persona the status of the acrobat, a destiny of which he was well aware when he wrote toward the end of his life,

“An acrobat is no puppet.  
He devotes his life to activities  
in which, in perpetual *danger of death*,  
he performs extraordinary movements  
of infinite difficulty, with disciplined  
exactitude and precision . . . free  
to break his neck and his bones and  
be crushed.  
Nobody asked him to do this.  
Nobody owes him any thanks.



4 *Le Corbusier, c. 1947.*

He lives in an extraordinary world, of the acrobat.

Result: most certainly! He does things  
which others cannot.

Result: why does he do them?

others ask. He is showing off;

he's a freak; he scares us; we pity him;

he's a bore."

With these words he dissolves the omnipotence of the master architect, and we find ourselves confronted by a deprecating self-consciousness, whose sense of restriction and limit disarms our critical posture. The apparent megalomania of his early career is strangely tempered by this text and by our realization that in the last analysis the Ville Radieuse was postulated against the concerns of the captains of industry. The Plan Voisin of 1925 was a matter of publicity rather than a global project which was seen as an essential precondition for the successful marketing of automobiles. Thus, with the unique exception of Henri Fruges and the Czech shoe manufacturer Bata, not a single industrialist of note ever commissioned Le Corbusier's services. His clients were restricted either to the aesthetes of the upper bourgeoisie such as De Monzie, or to fashionable speculators such as Wanner—who, with the exception of the Maison Clarté, built in Geneva in 1936, invariably withdrew at the last moment—or finally to the patronage of classic charities such as the Salvation Army. And while the Radiant City was to eventually serve the establishment as a sufficiently persuasive open city model with which to argue for the wholesale demolition of traditional urban fabric and for its reconstruction as a parkscape of slabs and high rise towers inundated by freeways, the sensuous formal poetry of his original vision, the generous space standards and the heroic scale which, in another political context, may have justified such ruthless erasure of the built culture were always to be vitiated. Whether in the cause of social welfare or speculation, the later bureaucratic adaptations of his urban type forms were invariably mediocre, the spatial and structural standards minimum, and the original lyricism totally absent.

Long before the aftermath of the Second World War and the subsequent wholesale misappropriation and reduction of his principles, he seems to have sensed the limits of progress and the necessity of returning to the archaic. Immediately after the debacle over the Société des Nations competition of 1927 (the fundamental crisis of his life, after which he abandoned the naive optimism of his youth), he seems to have begun to question whether the rational promise of the machine would ever be fulfilled and even to have doubts—evident in his partial return to primitive iconography and technique—as to whether such a *fatidique* was ultimately desirable. His

- 10 house for Errazuris of 1931 and his Maison Week-End of 1934 respectively suggest that both primitive shelter and industrial *produktform* might be reciprocally mediated, enriched, and tempered by a brutal confrontation with the earthy realities of preindustrial craftwork. After 1926 a parallel shift can be felt in his painting, with the gradual withdrawal from the geometric rigors of Purism and his introduction thereafter of *objets de la réaction poétique* along with the figuration of the human form.

This brutalism *avant la lettre* returns us to the latent critical dimensions in his earlier work; to the disturbing displacements in scale evident in the small house and garden that he built for his parents at Vevey, Switzerland in 1925 and to the metaphysical element so obviously in evidence in his Beistegui penthouse of 1930, where the lawn to the roof terrace, the false fireplace in the perimeter wall, and the wrought iron park chairs (*objets types*) jointly articulate the surface of a piled carpet apparently transformed into grass (cf. Meret Oppenheim's *Fur Covered Cup, Saucer, and Spoon* of 1936). These elements, together with the illusion of an elevated horizon—the distant silhouette of the Arc de Triomphe hovering above the wall—provoke the sense of an absent presence. Beistegui seems to have been a unique work even for him, one which engendered a peculiar anxiety for the remotely distant or lost instant—for the *visible/invisible* which seems to have been the phenomenological touchstone of his metaphysical sensibility.

The presence of such *absences visibles* are like ghosts in the classical shots of Le Corbusier's villas—a draped coat here, a trilby hat there, or a salmon made manifest as a stilled life on the kitchen table. Like the animated crumpled clothes that sometimes appear in Le Corbusier's sketches, such forms either suggest the presence of bodies who have just fled or the aura of eminences that are about to arrive. A comparable feeling is to be sensed in the Salon d'Automne furniture pieces of 1929 designed with Charlotte Perriand where the material and detailing evoke the latent anthropomorphism of the machine—in the *chaise longue*, for example, where, aside from the machinist references to the bicycle and the air frame, the tapering plan and irregular curve of the seat and the Purist circle of the sub-frame aggregate themselves into an image that suggests the absent female body, which is the only sex ever shown as occupying the piece. Other metaphors abound within this *machine à s'asseoir* of 1929, such as that of the chrome of technique versus the fur of nature; the leather roll of the head versus the pony skin of the body; or finally, when compared to the *grand confort*—that is to the frontal, masculine *fauteuil* as the symbol of patriarchal control—the feminine, sectional *chaise longue*-type as the procreative cradle of nature.

The incantatory aspects of Le Corbusier's *oeuvre*, the constantly reiterated slogans in a fixed typographical form, the continual recourse to Pythagorean mathematics, the emblematic opposition of Apollo and Medusa, the omnipresent shadow of Ubu and the classic and apotropaic myths that permeate his work, above all, the Albigenian obsession with the interaction of contradictory forces—all these compel us to see his work as a vast and magical panorama. The positivism of his early vision is thus subtly infiltrated by a discourse that borders on the alchemic, and it is this more than anything else that establishes a link between the Manichaeism of his world-view and the subversive intentions of Surrealism.

Our decision to dedicate two double issues of *Oppositions* to a study of Le Corbusier will not, we hope, be read as evidence of nostalgia for a lost heroic past, nor have we adopted this apparently partisan stance in the hope of reviving some naturally selected culture in the tradition of the twentieth century. Nor do we wish to assume and continue the polemics of *L'Esprit Nouveau* or to reimpose a linear, progressive view of history free from the necessary and inevitable divagations of reversal, loss, and reparation. Aside from the intrinsic interest of the material, we have focused on this complex and in many ways intractable figure in order to explicitly repudiate the current reactionary impulse to reduce architecture to a commodity. We have in mind, of course, the Post-Modernist fetishization of the historicist image. In this respect, we draw a line against the glib reference and the vulgar fantasy, those manifestations which seem to have found such a sympathetic response of late at the hands of the media and the curatorial elite. Thus we enter the lists with Le Corbusier not to minimize the difficulties of the present with a battery of arguments drawn from a millennialistic era, but rather to re-densify our mutual perception of the problematic of culture and to insist that the universal alienation of our age can no more be assuaged by the stoic cynicism of *Candide* than it can be dispelled through the evocations of Zarathustra. The modernist predicament, if not the modern style, remains as the nemesis of our time—one might say that it is the sign and even the hope of our epoch, in as much as its rule is determined by historical forces that are ultimately immune to the imaginative exertions of any single individual, notwithstanding of the magnitude of his vision or the poetry of his style.

Kenneth Frampton

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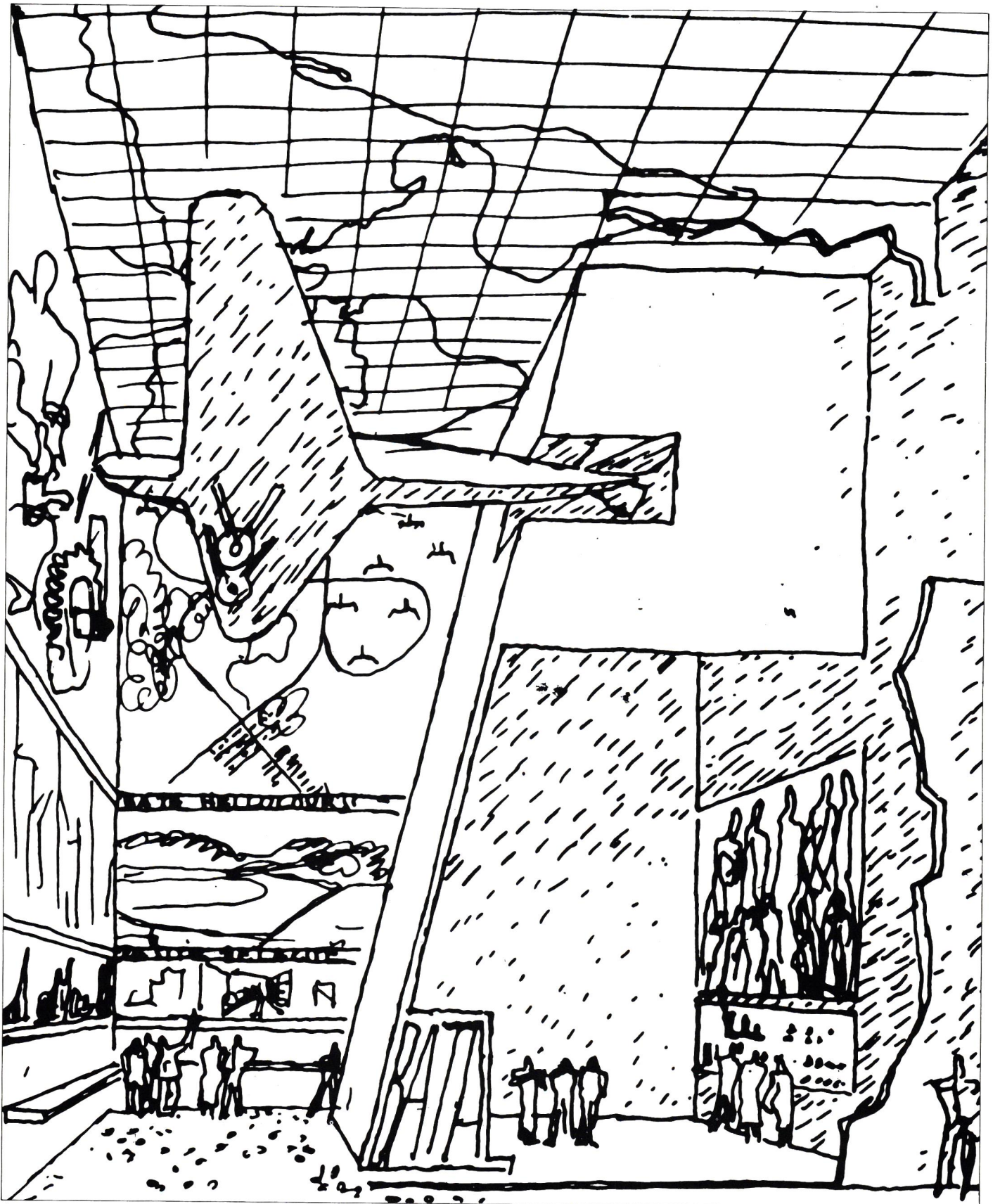
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1 From Le Corbusier, *Une Maison, Un Palais* (Paris: Les Editions G. Crès et Cie., n.d.).

2 From Sophie Daria, *Le Corbusier: sociologue de l'urbanisme* (Paris: Editions Seghers, 1964).

3 From Le Corbusier, *New World of Space* (New York: Reynal and Hitchcock, 1948).

4 From Stamo Papadaki, *Le Corbusier: Architect, Painter, Writer* (New York: Macmillan, 1948).



Kenneth Frampton

*"You employ stone, wood and concrete, and with these materials you build houses and palaces; that is construction. Ingenuity is at work.*

*"But suddenly you touch my heart, you do me good, I am happy and I say: 'This is beautiful'. That is Architecture. Art enters in.*

*"My house is practical. I thank you, as I might thank railway engineers or the telephone service. You have not touched my heart.*

*"But suppose that walls rise toward heaven in such a way that I am moved. I perceive your intentions. Your mood has been gentle, brutal, charming, or noble. The stones you have erected tell me so. You fix me to the place and my eyes regard it. They behold something which expresses a thought. A thought which reveals itself without word or sound, but solely by means of shapes which stand in a certain relationship to one another. These shapes are such that they are clearly revealed in light. The relationships between them have not necessarily any reference to what is practical or descriptive. They are a mathematical creation of your mind. They are the language of Architecture. By the use of inert materials and starting from conditions more or less utilitarian, you have established certain relationships which have aroused my emotions. This is Architecture."*

*Le Corbusier, Vers Une Architecture, 1923.*

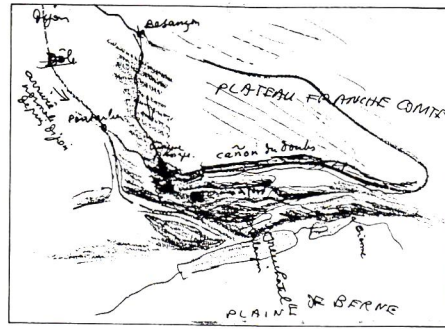
The absolutely central and seminal role played by Le Corbusier in the development of twentieth century architecture is sufficient cause for us to examine his early development in detail; for the fundamental significance of his achievement only becomes apparent when it is seen against the extremely varied and intense influences to which he was subject between his first house built in La Chaux-de-Fonds in 1905, when he was eighteen, and his last works realized there in 1916, one year before he moved definitively to Paris. Above all it seems necessary to remark on the Albigenian heritage of his otherwise Calvinist family: on that unconsciously assimilated Manichean view of the world which may have been the origin of his dialectical habit of mind, the ever present play with opposites which permeates his entire work—that opposition between light and dark, between Apollo and Medusa

which was manifest in all of his thought.

Le Corbusier was born to the family Jeanneret in 1887, in the watchmaking town of La Chaux-de-Fonds, Switzerland, which is situated in the Jura region, close to the French frontier (fig. 4). One of the most influential images of his adolescence must have been this gridded industrial town that had been methodically rebuilt after its destruction by fire some twenty years before his birth. In his late teens while he was being trained as a designer-engraver at the local school of arts and crafts, Charles-Edouard Jeanneret became involved in the penultimate phase of the Arts and Crafts movement. The Jugendstil manner of his first house, the Villa Fallet of 1905 (fig. 3a), was a crystallization of all that he had been taught by his master, Charles L'Eplattenier, who became director of the school of applied art in La Chaux-de-Fonds in 1903. L'Eplattenier's own point of departure had been Owen Jones, whose book *The Grammar of Ornament*, of 1856, was a definitive compendium of decorative art. L'Eplattenier aimed to create a native school of applied art and building for the Jura region and, after Jones, he taught his students to derive all ornament from their immediate environment. The type-form and decor of the Villa Fallet were exemplary in this respect, its overall form being essentially a variation on the wood and stone farmhouses of the Jura (fig. 2), while its decorative elements were derived from the flora and fauna of the Jura region. Despite his admiration for Owen Jones, L'Eplattenier (who had been educated in Budapest) believed that Vienna remained the cultural center of Europe, and his one ambition was that his prize pupil should be apprenticed there to Josef Hoffmann. Accordingly, in the autumn of 1907, Le Corbusier traveled to Vienna in the company of the sculptor Léon Perrin, where despite a cordial reception, he seems to have rejected Hoffmann's offer of work and with it, by implication, the late elegance of the classicized Jugendstil. Certainly the designs that he made in Vienna for further houses, to be completed in La Chaux-de-Fonds in 1909, show little trace of Hoffmann's influence. This apparent disaffection with the Jugendstil in its decline was encouraged by his going to Paris in February 1908, where he eventually gained employment



- 1 (frontispiece) *Pavilion Bata*, 1937.  
 2 Typical residential building of the  
 Jura Highlands, c. 1500.  
 3 Le Corbusier's buildings in La  
 Chaux-de-Fonds: a) *Villa Fallett*,  
 1905; b) *Villa Stotzer*, 1908; c) *Villa*  
*Jaquemet*, 1908; d) *Villa Jeanneret*,  
 1912; e) *Cinéma La Scala*, 1916.



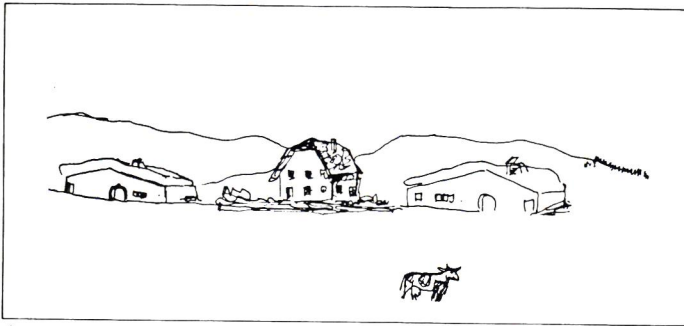
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in the atelier of Auguste Perret (fig. 5) whose reputation had been made by the apartment block that the Perret firm had built in the Rue Franklin, Paris, in 1904. The fourteen months that Le Corbusier spent in Paris working for Perret gave him a totally new outlook on both work and life. Much to the disapproval of his master L'Eplattenier, he began to follow Perret's commitment to the use of *béton armé*. Aside from its virtues as the most rational technique of the epoch, with its evident durability and its unprecedented capacity for the enclosure and manipulation of space, Perret also saw the concrete frame as the sole agent which was capable of resolving that one hundred and fifty year old conflict between the structural authenticity of the Gothic and the immutable values of classical form. Perret was also responsible for introducing Le Corbusier to Tony Garnier and at the time when the two first met in Lyons in 1908, Garnier was in the process of amplifying his 1904 project for the Cité Industrielle. Le Corbusier's Utopian Socialist sympathies and his susceptibility to a typological not to say classical approach to design seem to have been reinforced by this meeting, about which he wrote: "This man knew that the imminent birth of a new architecture depended on social phenomena. His plans displayed a great facility. They were the consequence of one hundred years of architectural evolution in France."

While working for Perret, Jeanneret spent much of his spare time in the libraries of the city, and his reading during this period seems to have included Viollet-le-Duc's *Dictionnaire raisonné de l'architecture française* and Edouard Corroyer's *L'architecture romane* of 1888. At the same time he became familiar with the writings of Rousseau, Baudelaire, Flaubert, Claudel, Laforgue, Huysmans, and Nietzsche. Nietzsche's *Thus Spake Zarathustra* would surely have confirmed his own Manichean view of the world—the opposition of Apollo and Dionysius. His own prophetic writing style is similar to Nietzsche's *Zarathustra*.

1908 may also be regarded as a turning point of his life, for apart from the contact with Garnier and Perret, he visited in the same year the Charterhouse of Ema, in

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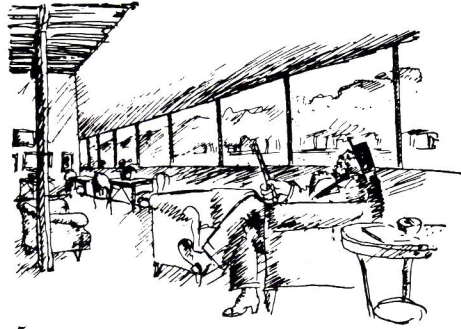
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4 *Plan of La Chaux-de-Fonds. La Chaux-de-Fonds means literally the last meadow on the frontier slope of the Jura facing the West.*

5 *Auguste Perret in the Palais du Bois, Paris. Caricature by Le Corbusier, 1924.*



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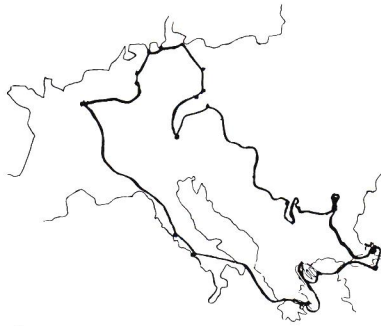
Tuscany (fig. 11). At Ema he first experienced the monastic model of a community which was to serve as a direct vehicle for his Utopian Socialist aspirations—a vision of an ideal society—which he inherited from both L'Eplattenier and Garnier. He was later to describe this Carthusian monastery as an institution in which “an authentic human aspiration was fulfilled: silence, solitude, but also daily contact with men.”

The impact of these experiences may be gauged from the project that he made for the *école supérieure* in La Chaux-de-Fonds on his return there in 1909 (fig. 10). This collective atelier comprised three stepped tiers of artist's studios, each with its own enclosed garden, arranged around a communal space, covered by a pyramidal glass roof. This free adaptation of the Carthusian monastic type was the first occasion on which Le Corbusier was to reinterpret a received type for the express purpose of accommodating an entirely different program. Such typological transformations with their ideological overtones were to become an intrinsic part of his working method, and since this procedure was synthetic by definition, it was inevitable that his works became charged with references to a variety of different cultural antecedents. Thus Le Corbusier's art school project of 1910 was as much indebted to Godin's Familistère of 1856 as it was to the inspiration of Ema. Nonetheless, Ema remained embedded in Le Corbusier's imagination as the ultimate image of harmony in his life-long effort to evolve residential forms appropriate to an industrial age. It was first reformulated by him on a large scale in his Immeubles Villas project of 1922.

Le Corbusier went to Germany in April 1910 not only to further his knowledge of reinforced concrete technique but also to study German developments in decorative art. This undertaking (which eventually terminated in a book) brought him into contact with the major figures of the Deutsche Werkbund, above all with Peter Behrens and Heinrich Tessenow, two artists who were to exercise a strong influence on his later works in La Chaux-de-Fonds, particularly on the Villa Jeanneret Père of 1912 (fig. 3d) and the Cinéma La Scala of 1916 (fig. 3e). Aside from this,

the Werkbund made him aware of the achievements of modern production engineering; that is to say, of the ships (fig. 12), automobiles, and aircraft that were to form the substance of his polemical essay “Eyes which do not see.” In May 1911 after at least six months in the office of Behrens, where he must have met Mies van der Rohe, he left Germany in the company of the antiquarian Auguste Klipstein for a seven month study tour through Bohemia, Serbia, Rumania, Bulgaria, Constantinople, Mount Athos, Athens, and then back via Italy and Switzerland (figs. 6, 8, 9). From this time on, references to Ottoman architecture began to appear in his work. One of the most striking things about Le Corbusier's account of this journey (written as the *Voyage d'Orient* in 1913, but not published until 1962) is its reverent attitude to vernacular culture (fig. 7). As Paul Turner has written of this journal, “With the exception of the Parthenon and the mosques in Constantinople, everything he admires is anonymous folk-art or ‘architecture without architects’. . . . A large part of his account is devoted to descriptions of peasant villages (both in Eastern Europe and Turkey), their houses, their artifacts (pottery, silver-work, costumes, etc.), their rituals and celebrations, and their life in general. In many passages, Jeanneret expresses the feeling that this peasant-culture is somehow superior to ‘civilized’ culture, because it is universal and fundamental. . . .”<sup>1</sup>

It is clear from this text and from *Vers une architecture* that Le Corbusier was equally overwhelmed at this time by the purity of the Parthenon, which he first saw under the influence of Ernst Renan's text *Prière sur l'Acropole*. All these influences were to find expression in the crypto-classical houses that Jeanneret built in La Chaux-de-Fonds after his return from the Orient, above all the Villa Favre-Jacot, realized in Le Locle in 1912. This definitive shift toward the Mediterranean and classical culture, irrespective of the precise references involved, was decidedly reinforced by his reading of the classical ideology advanced in Alexandre Cingria-Vaneyre's book *Entretiens de la Villa Rouet*. In this text the Swiss-Romand critic Cingria-Vaneyre attacked Germanic culture for its degenerate romanticism and for its tendency toward Americanization. He no doubt had in mind not only the



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16 **The Years 1911–1915**

*The Journey to the Orient made with Auguste Klipstein in 1911 was key to the formation of Le Corbusier's artistic personality. On numerous occasions throughout his life he was to testify to being overwhelmed by his experience of the Athenian Acropolis. Prior to this he had exploited the monastic model of the Charterhouse of Ema as a vehicle for the creation of new institutions.*

6 *The itinerary of the Voyage d'Orient.*

7 *Turkish wooden house on the Bosphorus.*

8 *Project for Klipstein villa in La Chaux-de-Fonds.*

9 *Caricature of Le Corbusier on the Acropolis by Auguste Klipstein.*

10 *Project for the School of Applied Art, La Chaux-de-Fonds, 1910 (cf. fig. 11).*

11 *Charterhouse of Ema, Florence. 14th century.*

12 *Aircraft carrier from Aircraft. Caption reads "and Neptune rises from the sea, covered with strange garlands, the weapons of Mars."*

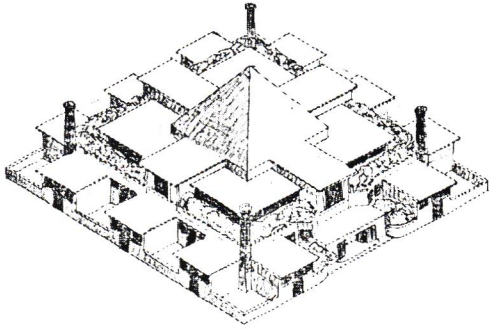
13 *Villes Pilotis, 1915.*



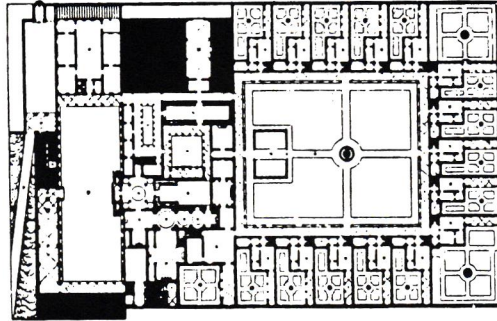
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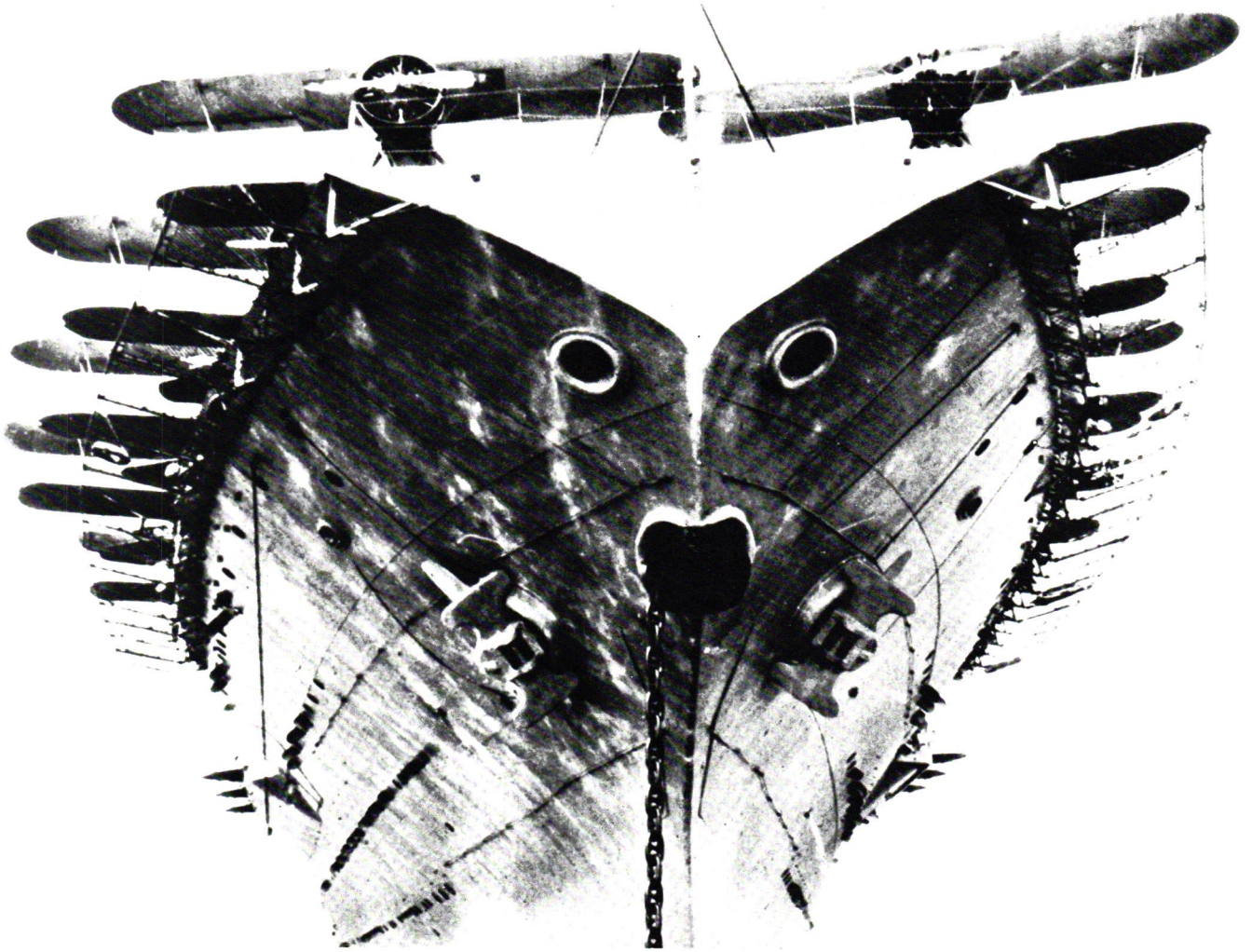
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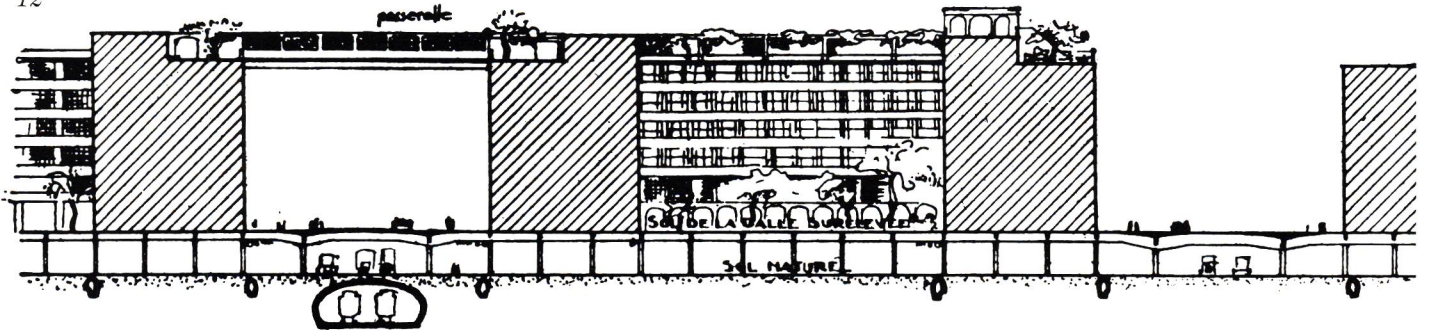


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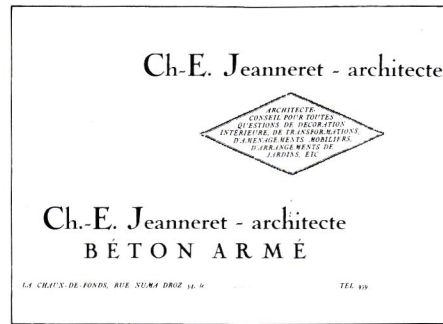


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14 *Le Corbusier's visiting card proclaiming his ability to practice as both an "interior designer" and as an architect specializing in reinforced concrete.*

15 *Cover of Vers une architecture, 1923.*

16 *Cover of L'Esprit Nouveau, no. 1.*



18 late Jugendstil but also the incipient "industrial" culture of the Deutsche Werkbund.

The three years that followed Le Corbusier's return to La Chaux-de-Fonds shaped the orientation of his future career in Paris. His final break with L'Eplattenier and his simultaneous rejection of Wright (whose work he would have known through the Wasmuth volumes of 1911) enabled him to remain open to the full possibilities of reinforced concrete as a rational means of production, and in 1913 he established his own office in La Chaux-de-Fonds, ostensibly specializing in *béton armé* (fig. 14). Over the next two years he began, with the aid of the engineer Max Du Bois, to synthesize two ideas which were to inform the development of his work throughout the 1920's: these were his reworking, with Du Bois, of the Henné-bique frame as the patent 'Maison Dom-ino' which was to be the structural basis of most of his houses up to 1935, and the Ville Pilotis (fig. 13), or city on piles, derived from Eugène Hénard's Rue Future of 1910.

In 1916, he culminated his career in La Chaux-de-Fonds with the building of the Villa Schwob, which was an extraordinary synthesis of all that he had experienced so far. It was above all else a stylistic assimilation of the spatial potential of the concrete frame, its author expressing its form in terms of elements drawn from Hoffmann, Perret, and Tessenow. It was also the first occasion on which Le Corbusier was to conceive of a house in honorific terms, that is to say, as a classical villa. The alternately wide and narrow bay system and the symmetrical organization of the plan bestowed upon the house a structure that was undeniably Palladian. These connotations were emphasized in the text that accompanied its publication in *L'Esprit Nouveau* in 1921. On that occasion Julien Caron wrote: "Le Corbusier had to resolve a delicate problem which was contingent upon making a pure work of architecture, as postulated by a design in which the masses were of a primary geometry, the square and the circle. Such speculation in building a house has rarely been attempted except during the Renaissance."

It also needs to be noted that this was the first occasion

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on which Le Corbusier employed "regulating lines," that traditional device used to maintain proportional control over a facade.

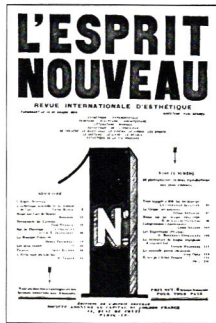
From this time on the "house-palace" theme came to be developed in Le Corbusier's work at two different scales, each with related but separate socio-cultural connotations. The first was the free-standing, individual bourgeois villa of Palladian precedent, as exemplified in Le Corbusier's masterly houses of the late 1920's; the second was the collective dwelling, conceived as a baroque palace that was capable of evoking, through the set-back formation of its plan, the ideological connotations of the Utopian Socialist palace or phalanstery (fig. 19).

Soon after he moved to Paris in 1917, Le Corbusier had the fortune to meet (again through Perret) the painter Amédée Ozenfant (fig. 17) and the two men began to collaborate immediately, elaborating the machine aesthetic of Purism in less than a year (fig. 18). Neo-Platonic in its philosophic stamp, Purism extended its discourse to cover all forms of plastic expression from salon painting to product design and architecture. In advocating the methodical refinement of "spontaneous" type-forms, it laid claim to being a comprehensive theory of civilization. It was as much against what Le Corbusier and Ozenfant regarded as the unwarranted distortions of Cubism in painting (see their first polemic entitled *Après le Cubisme* of 1918) as it was in favor of acknowledging the received perfection of the bentwood chair or standard cafe tableware. Their first complete formulation of this aesthetic came with the essay "Le Purisme," which appeared in 1920 in the fourth number of the magazine *L'Esprit Nouveau*, a literary and artistic journal which they had started with the poet Paul Dermée in that year. Without doubt the most influential product of their collaboration as polemicists came with *Vers une architecture* (fig. 15) which, prior to its publication in book form in 1923, was serialized in *L'Esprit Nouveau* (fig. 16) under the double authorship of Le Corbusier-Saunier, these being the respective pseudonyms of Jeanneret and Ozenfant.

This text (which Le Corbusier appropriated for himself



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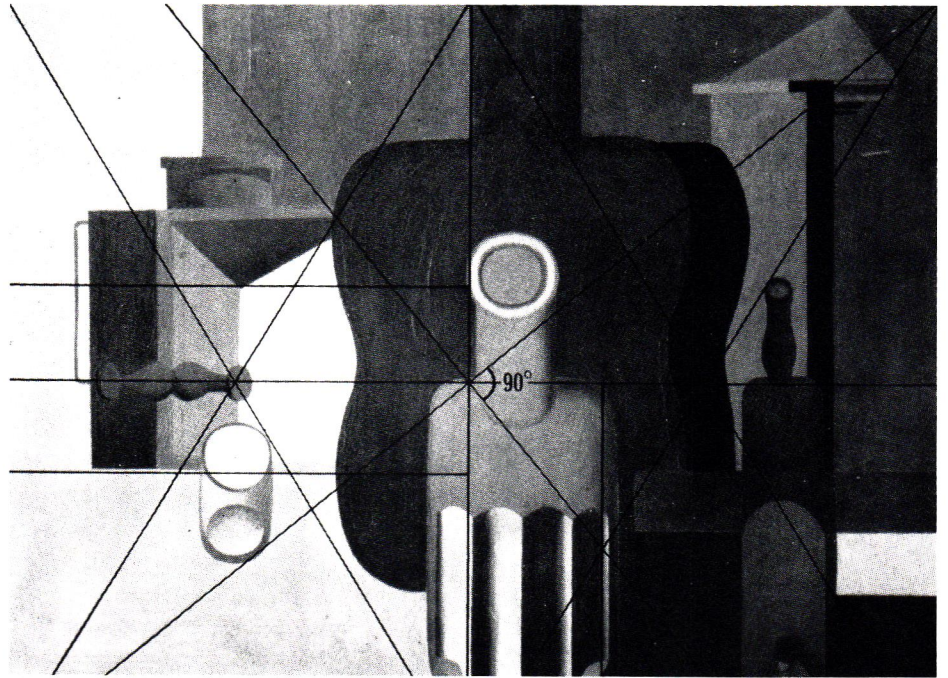
17 Ozenfant and Le Corbusier at the Eiffel Tower, 26 June 1923.

18 Le Corbusier, Composition à la guitare et à la lanterne, 1920. Note the regulating lines.

19 Mass produced houses using the Dom-ino system. Note the Baroque palace plan form.

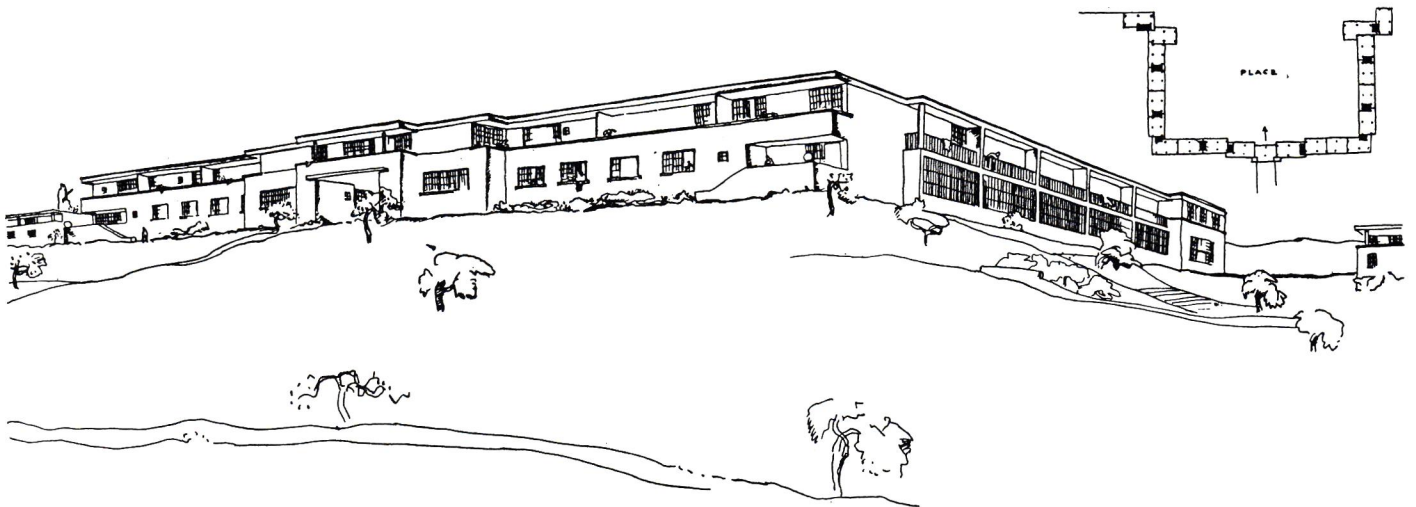


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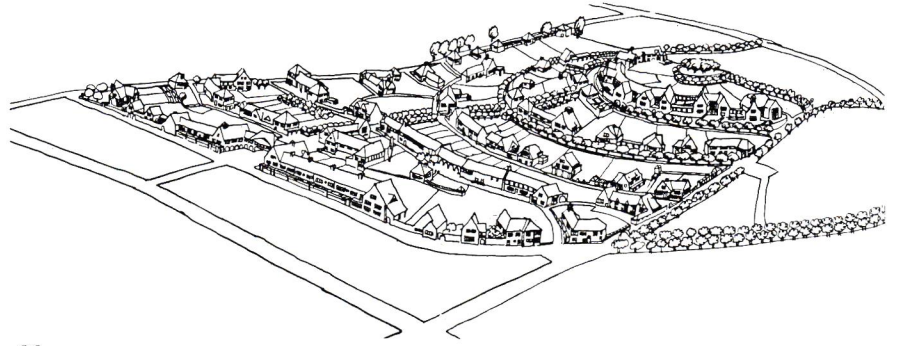
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20 Garden City Project, La Chaux-de-Fonds, 1914. This layout is obviously influenced by Raymond Unwin's garden city concepts.

21 Les Rues à Redents, 1920. This is Corbusier's first "anti-street" proposition.



20

when it was published as a book) articulated the conceptual duality around which the rest of his work was to revolve: on the one hand the imperative of satisfying functional requirements through empirical form; on the other a Neoplatonic impulse toward abstract elements whose purpose was to arouse the senses and nourish the intellect. The empirical aspect of this thesis, introduced under the heading "The Engineer's Aesthetic and Architecture," was illustrated with the most advanced engineering structures of the epoch, that is to say, by Eiffel's Pont Garabit and Matté Trucco's Fiat works and by the ships, automobiles, and aircraft which were featured in the second section entitled "Eyes Which Do Not See." The third section returned the reader to the anti-thesis; that is, to classical architecture, to the lucid poetry of the Athenian Acropolis, which was appraised in the penultimate chapter under the title "Architecture, Pure Creation of the Mind." Such was Le Corbusier's admiration of engineering exactitude that the profiles of the Parthenon were seen as being analogous to machine tool production. He wrote: "All this plastic machinery is realized in marble with the rigor that we have learnt to apply in the machine. The impression is of naked polished steel."

Over the first five years of his intense activity in Paris, during which he painted and wrote in his spare time, Le Corbusier earned his living as the manager of a brickwork and building materials plant at Alfortville (fig. 22). In 1922, he relinquished this position to enter into practice with his cousin Pierre Jeanneret, the partnership lasting until the outbreak of the Second World War. One of the earliest undertakings of this office was to develop further the generic ideas of the prewar period, namely the Maison Dom-ino and the Villes Pilotis.

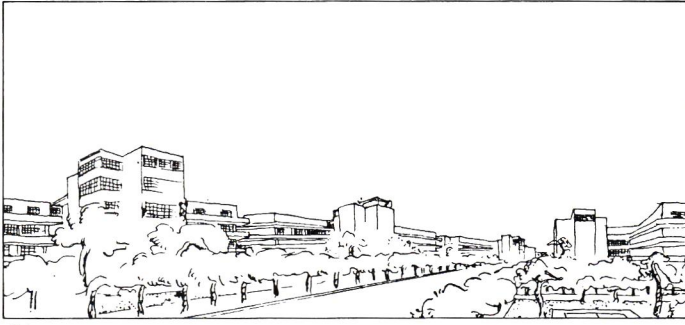
The Dom-ino prototype was evidently open to different levels of interpretation. On the one hand, it was simply a device for rational production and a patent industrial name; that is to say, a house as standardized as a domino! This word play acquired the status of an unconscious pun where the free-standing columns in a series of Dom-ino houses would resemble the pattern assumed by domino dots during the course of play. On the other hand, a

symmetrical arrangement of the very same units would produce a baroque plan, thereby evoking a whole set of associations ranging from Fourier's *phalanstère* to Eugène Hénard's *boulevard à redans* of 1903.

In his own *Rue à Redents* of 1920 (fig. 21), Le Corbusier managed to combine the image of the phalanx with an 'anti-corridor street' polemic. At the same time he saw the Dom-ino as a piece of equipment, analogous in its form and assembly to a typical piece of product design. Such prototypes were regarded by Le Corbusier as *objets-types*, whose forms had already emerged in the society in response to typical needs. In *Vers une architecture* he wrote: "If we eliminate from our hearts and minds all dead concepts in regard to houses and look at the question from a critical and objective point of view, we shall arrive at the 'house machine', the mass production house, healthy (and morally so too) and beautiful in the same way that the working tools and instruments which accompany our existence are beautiful" (fig. 26).

The postwar attempt by the Voisin airplane company to break into the French housing market with an assembly line production of timber houses was enthusiastically acclaimed by Le Corbusier in *L'Esprit Nouveau* No. 2 (fig. 24). At the same time, he realized that such production could only be obtained through the exercise of high-grade skills under factory conditions, a combination of circumstances which was rarely present in the building industry. Le Corbusier acknowledged these limitations in his Maison Dom-ino proposal; which was designed to be built by semi-skilled labor. As early as 1919 he had already adopted a similar 'collagist' approach to construction when he proposed to use corrugated asbestos sheets as permanent shuttering for the concrete vaulted roof of his Maisons Monol (fig. 25).

The year 1922 saw further developments to both the Maison Dom-ino and the Villes Pilotis; the former was translated into the Maison Citrohan and the latter emerged as the Ville Contemporaine, both projects being exhibited in the Salon d'Automne of that year. Yet where the latter stemmed directly from the section of Hénard's Rue Fu-



21

ture, the former used the concrete frame solely to reinforce a long rectilinear volume which, open at one end, amounted to a traditional megaron. Within this basic Mediterranean type Le Corbusier first projected his characteristic double height living space, complete with a sleeping mezzanine and children's bedrooms on the roof. Aside from its roots in the Greek vernacular, this type seems to have derived in detail from a workers' cafe in Paris, located in the Rue Babylone where he lunched each day with Pierre Jeanneret.

From this small restaurant they took the section and the basic arrangement of the Citrohan house. They wrote, "Simplification of the light source; one single bay at each end; two lateral bearing walls; a flat roof over; a veritable box which could be used as a house."

While the 1922 version of this house elevated on *pilotis* came close to anticipating the "Five Principles of a New Architecture" (which Le Corbusier was to formulate in 1926), the Citrohan House was primarily suited to suburban development and Le Corbusier employed variations on this type in the garden city estates he built at Lège and Pessac in 1926 (figs. 23, 27–33, 35–41). Among the one hundred and thirty reinforced concrete frame houses at Pessac for the industrialist Henri Frugès (fig. 34) was a prominent type known as the 'skyscraper' unit which effectively combined the Citrohan House with the back-to-back units that he had designed for Audincourt in the same year. However, a full version of the Citrohan House was not realized until his contribution to the Stuttgart Weissenhofsiedlung in 1927. All the same, Pessac, as its mixture of types would suggest, was the first realization of his efforts to develop standardized house forms for the purposes of "rationalized" if not industrial production. The name Citrohan was itself a play on that of the Citroen automobile; that is to say, a house as standardized as a car. And yet the doctrine of production notwithstanding, Pessac also represented the first use of Purist color in architecture. As the architect observed at the time: "The site at Pessac is very dry. The gray concrete houses produce an insupportable compressed mass, lacking in air. Color is able to bring us space. . . . Here's how we have

established certain invariable points. Some facades are painted in burnt sienna. We have made the lines of other houses recede, through clear ultramarine blue. Again we have confused certain sections with the foliage of gardens and trees, through pale green facades."

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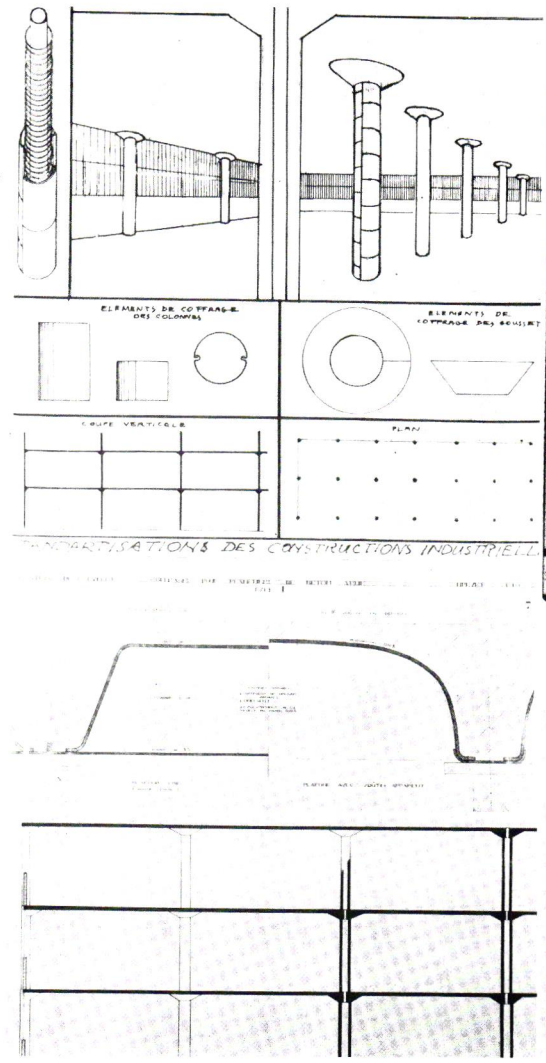
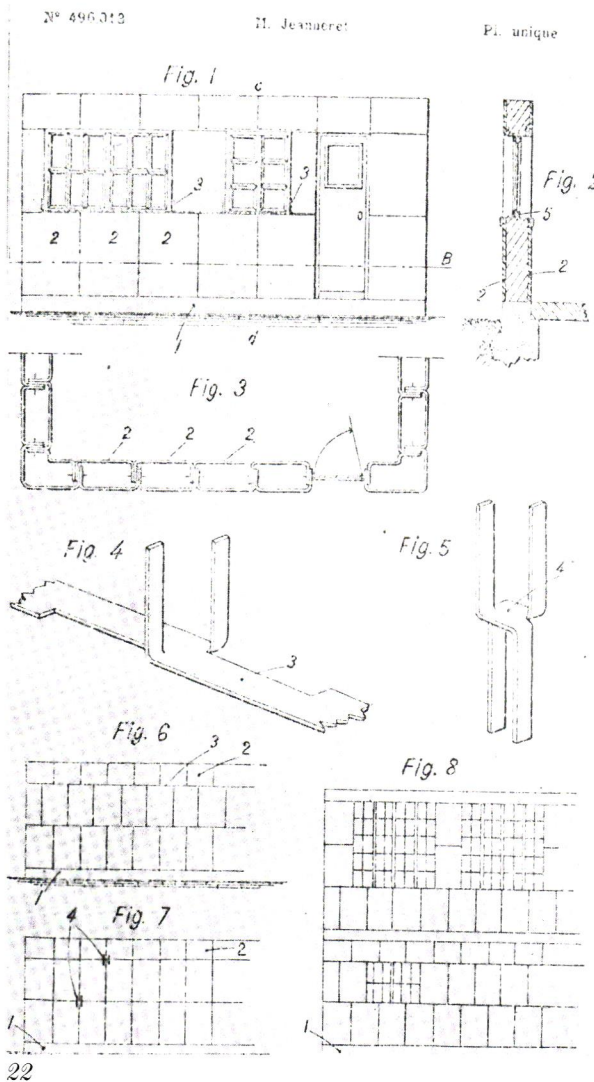
Unlike his German contemporaries—Walter Gropius and Mies van der Rohe—Le Corbusier was always anxious to demonstrate the urban implications of his architecture. Thus other than the demonstration achieved at Pessac, the Ville Contemporaine was to remain his most comprehensive urban statement throughout the first half of the twenties (figs. 42, 43). Influenced by the skyscraper cities of the United States and by the image of the 'city-crown' as put forward in Bruno Taut's *Die Stadtkrone* of 1919 (fig. 45), Le Corbusier projected the Ville Contemporaine as a wall-less but limited capitalist city of three million people. Here the workers' garden cities—planned after the model of Pessac—were banished to the suburbs along with the industry they served, isolated from the elitist center of administration and control.

The center of the Ville Contemporaine, textured like an Oriental carpet and some four times the surface area of Manhattan, consisted of residential blocks, some ten to twelve stories in height, plus twenty-four sixty-story office towers in the center. These cruciform towers—the so-called Cartesian skyscrapers—were reminiscent in their serrated plan profiles of stepped *khmer* or Indian temple forms, and as such they were evidently intended to be the secular surrogate of the traditional religious structure (cf. *Die Stadtkrone*). That such an authority was attributed to them is confirmed by their proportional relation to the format of the city—their occupying a golden section within the double square of the whole.

None of this was lost on the Communist newspaper *L'Humanité* which regarded the entire project as reactionary. In the Ville Contemporaine, the Left could already sense Le Corbusier's commitment to Saint Simonian methods of management and control and they had no reason to doubt his commitment to the reason of the establishment when he closed his book *Urbanisme* of 1925 with



22 Patents apparently applied for by Le Corbusier during his early years in Paris (around 1919). Note the mushroom column flat slab construction and asbestos cement panel houses.



1919. C.E. JEANNERET  
BREVETS. PATENTS.

**BRIQUETERIE D'ALFORTVILLE**  
BUREAU DE VENTE  
PARIS  
23 BIS RUE D'ASTORO-  
ELYSEE 44-27

**PLOT 40x40**  
**PLOT 50x50**  
etc.

COMPARER sur ces Échantillons les Avantages du Plot sur le Brique

**PLOT BRIQUE** — COUVERTEZ 5 fois plus vite les VOTURES et BÂTIMENTS

**PLOT BRIQUE** — COUVERTEZ 5 fois plus vite les TOITS et FERRÉS

**PLOT BRIQUE** — COUVERTEZ 5 fois moins de MOINS de MOINS

**PLOT BRIQUE** — COUVERTEZ 5 fois plus vite les TOITS et FERRÉS

**LE PLOT C'EST LE MATERIAU DE L'AVENIR**

**B&A**

**STE D'ENTREPRISES INDUSTRIELLES ET D'ETUDES S.E.I.E**  
PARIS 23 BIS RUE D'ASTORO

**MAISONS OUVRIERES**  
**SERIE III**  
**TYPES A et B**

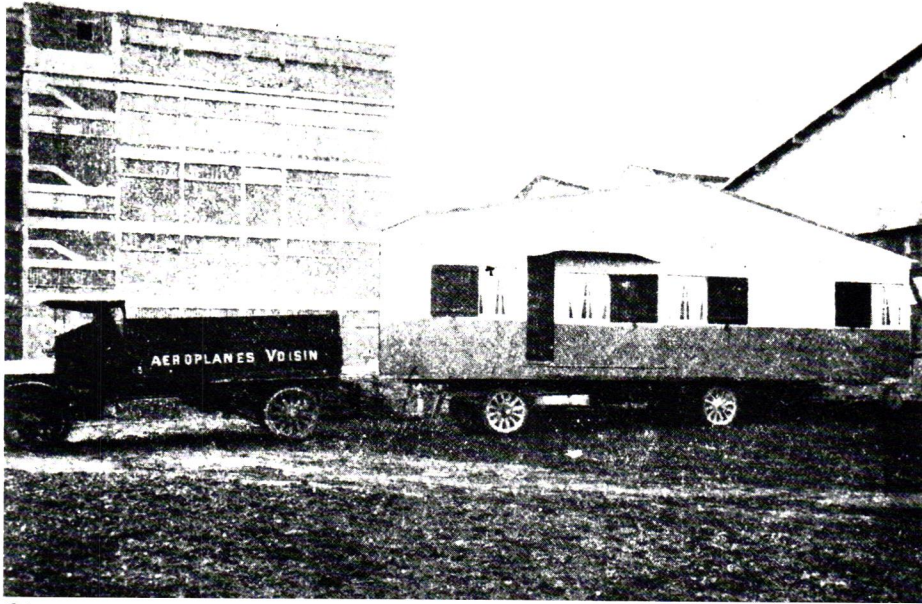
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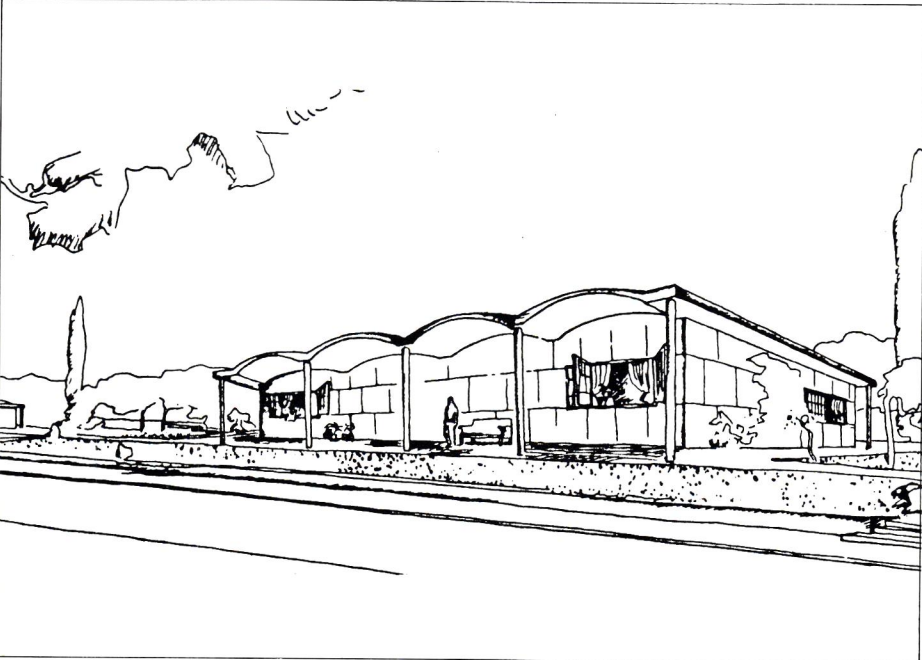
23 Ecouen housing, 1920 (cf. fig. 2).  
24 Prefabricated housing by the Voisin Aircraft company, 1920.  
25 Maisons "Mónol," 1919. Reinforced concrete shell construction plus concrete block infill.  
26 Mass produced houses. Title page in Vers une architecture.  
27 St. Gobain housing, 1920. Type B.



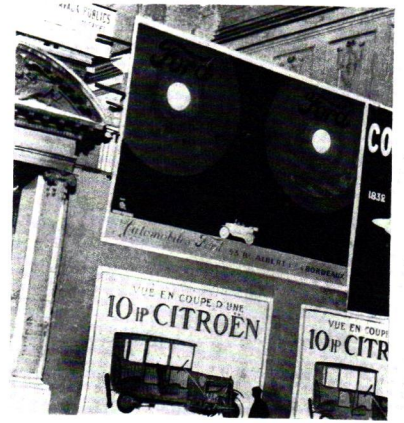
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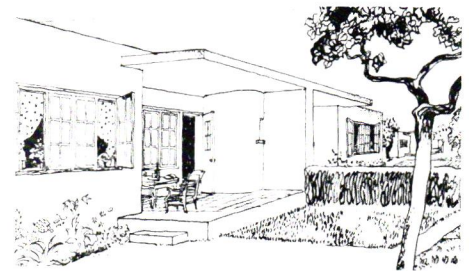
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Cliché: Huetzsch.

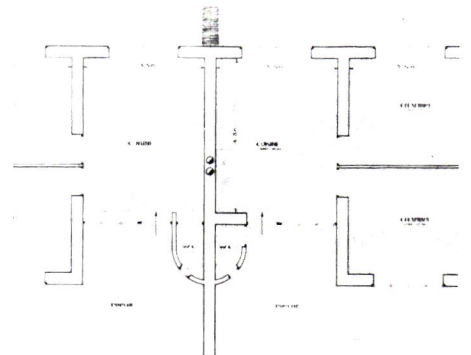
### MAISONS EN SÉRIE

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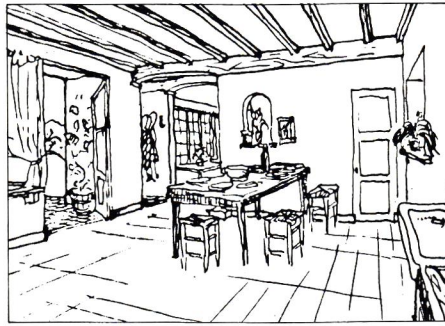
ST-GOBAIN, PLAN MASSE. — SITE PLAN.

TYPE B.

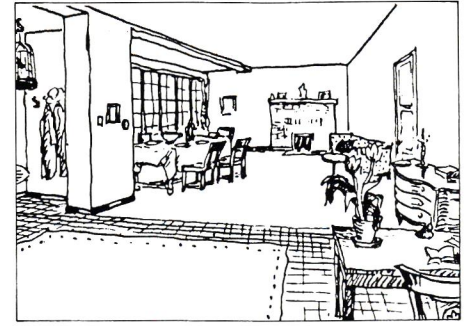


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## 24 Housing Schemes: Lège and Pessac

*These housing schemes were both carried out for Henri Frugès who was a sugar refiner from Bordeaux. Commissioned by Frugès at the end of 1923, Le Corbusier and Pierre Jeanneret persuaded their client to invest in a canon à ciment. Frugès created a department of works within his own organization for the purposes of constructing these settlements. The so-called Maison du Tonkin of 1924 (the name taken from the colony from which the sugar came) and the seven houses built near a sawmill at Lège were prototypes for the construction of a much larger scheme at Pessac which eventually comprised some 130 houses.*

*28, 29 Saintes housing, 1917. Note the class differentiation between the “rustic” worker’s interior on the left and the more urban “Viennese” foreman’s environment on the right.*

*30 Housing Pessac-Bordeaux.*

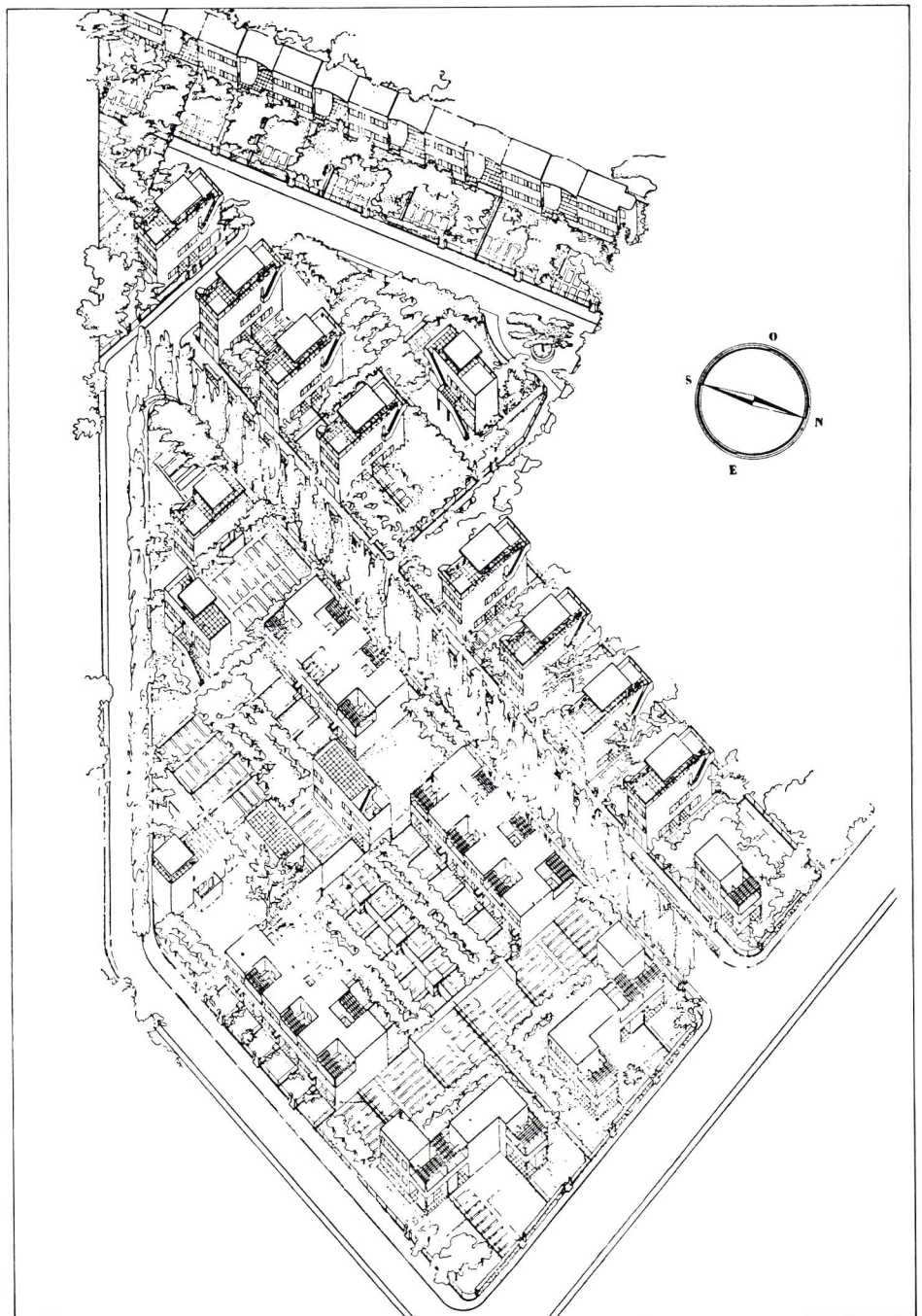
*Axonomic, 1925.*

*31, 32 Lège housing. Elevations of prototypes, 1924.*

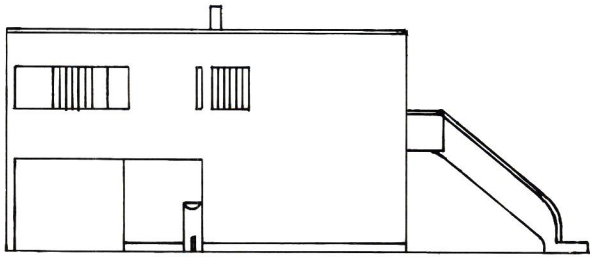
*33 Pessac-Bordeaux housing, 1925. Street view at the time of its opening.*

*34 Le Corbusier and his client Henri Frugès, Pessac-Bordeaux, 1924.*

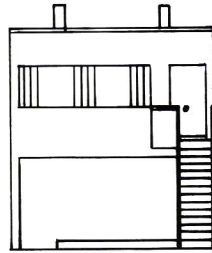
*35 Lège housing, 1924. Prefabricated concrete floor elements and frame.*



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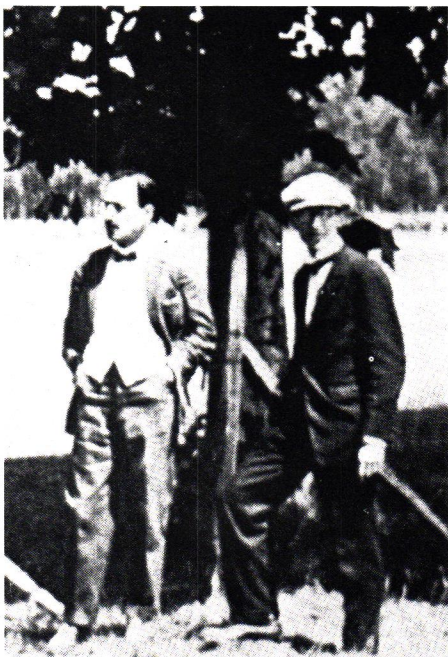
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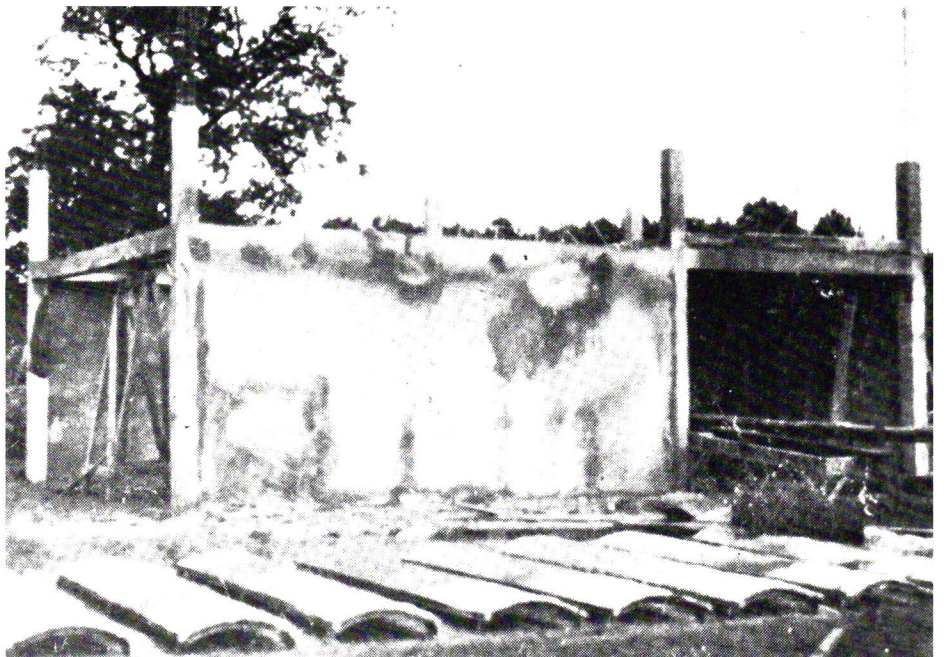
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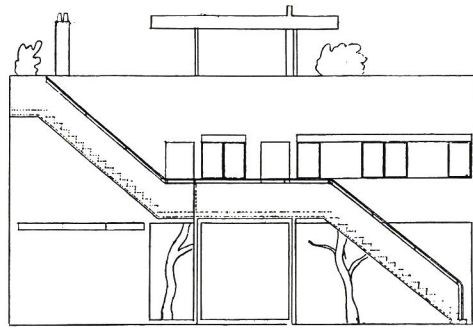


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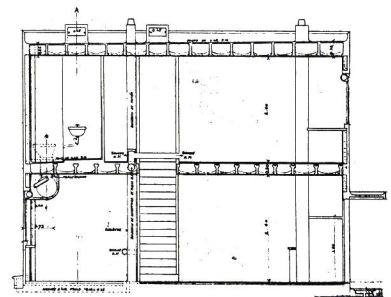


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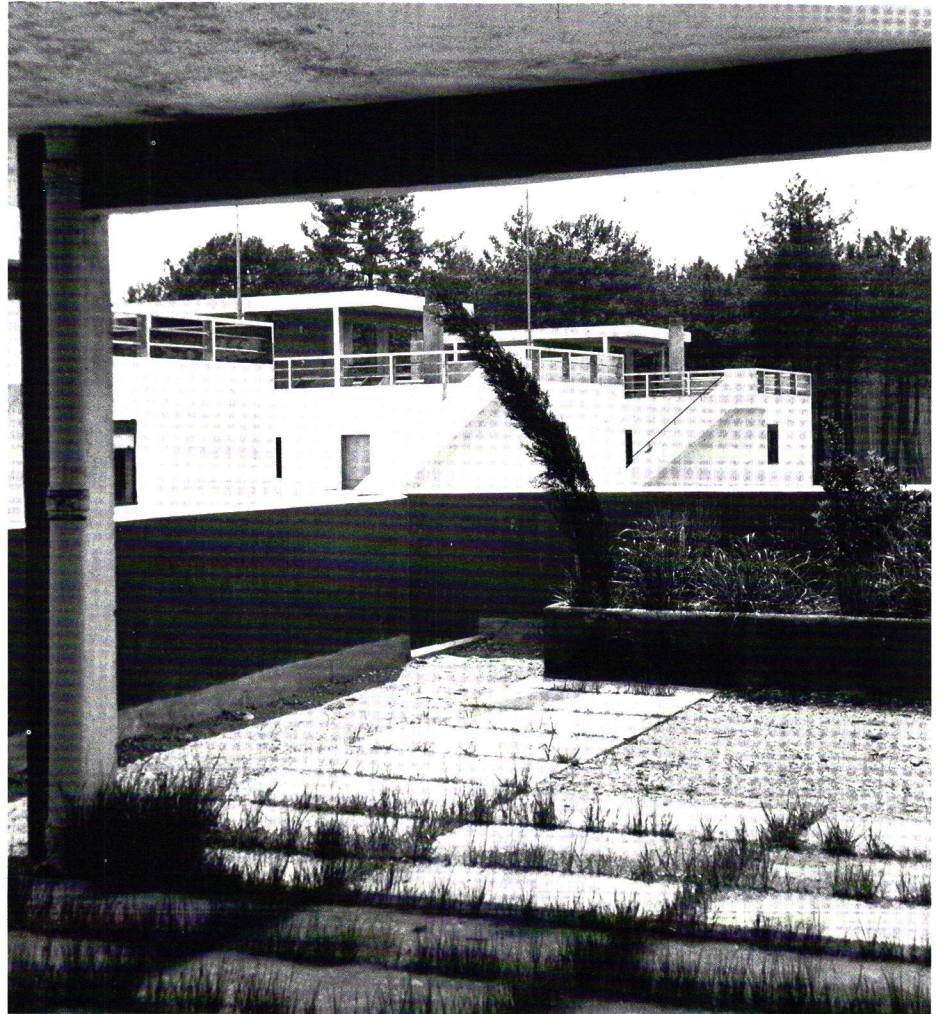
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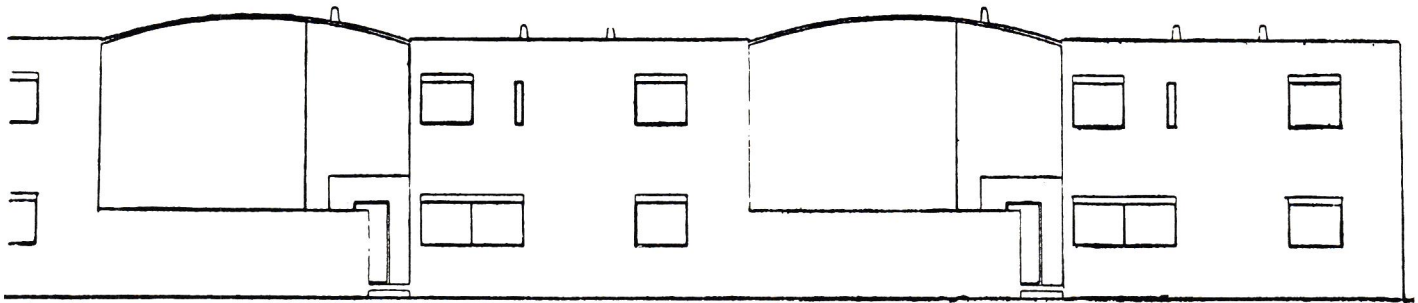
39

36 Pessac housing, 1925. Elevation of so-called "skyscraper" type.

37 Pessac housing, 1925. Typical section.

38 Pessac housing (type A), 1925. Typical section.

39 Pessac housing, 1925. View of "skyscraper" types from roof garden.



40

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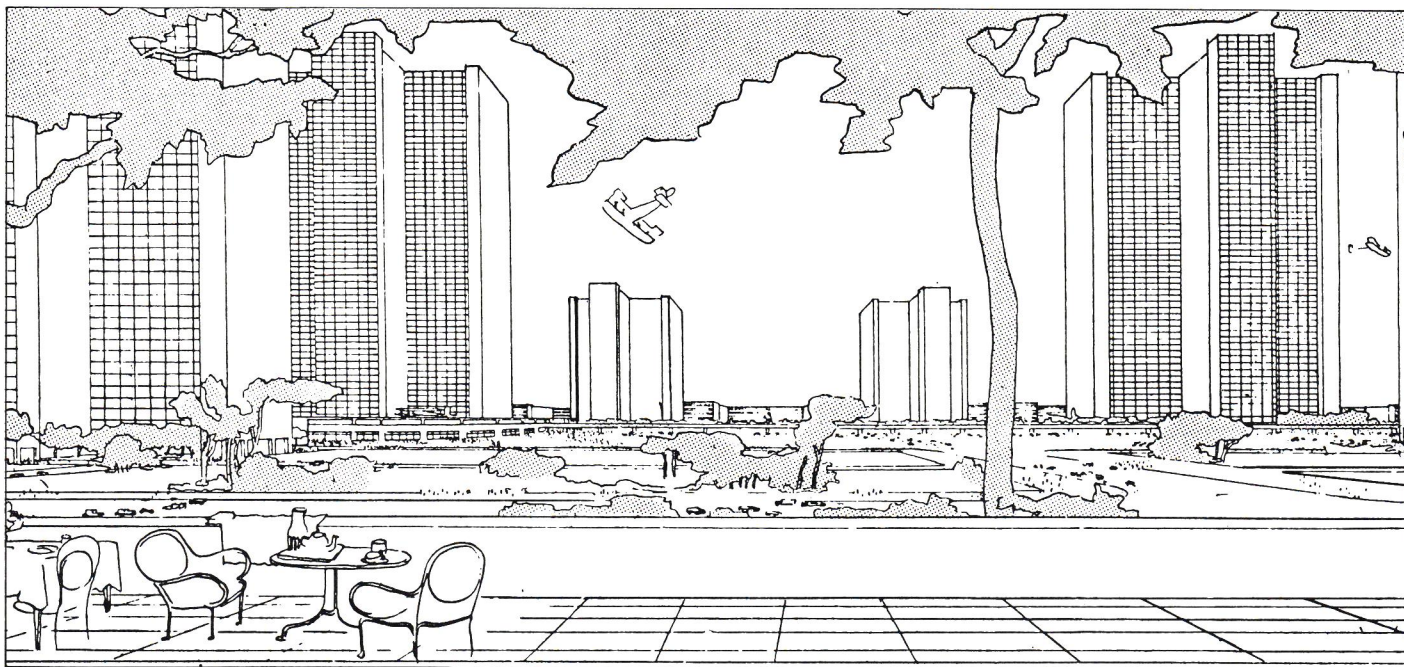
41  
40 Pessac terrace housing with  
canopies. Elevation.  
41 Pessac housing, 1925. General  
view.

42, 43 La Ville Contemporaine.  
Perspective of towers plus general  
plan, 1922.

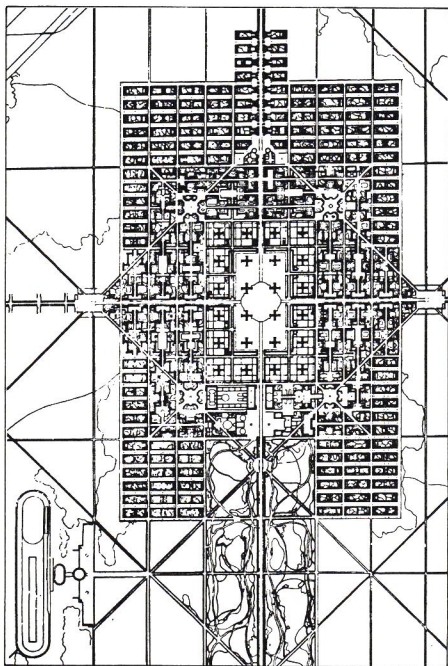
44 Perimeter blocks of dwellings on  
the "cellular" principle.

45 Stadtkrone project, sketch by  
Bruno Taut. It is clear that Taut's  
concept of the "city crown"  
influenced the form of the Ville  
Contemporaine.

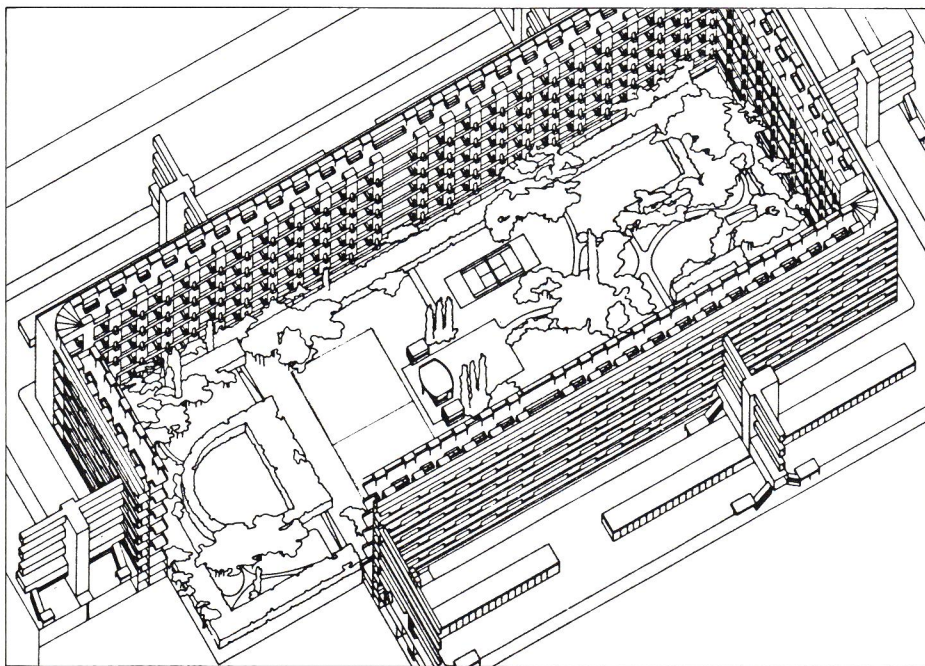
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45

an image of Louis XIV supervising the erection of the Invalides. Even Le Corbusier was sufficiently troubled by this as to place under the image a sub-caption advising that it should not be understood as support for the Fascist organization *Action Française*.

The Ville Contemporaine was no less ideological in the detailed organization of its residential districts, which were made up of two different prototypes: the perimeter block and the set-back or *redents* formation, each postulating a different conception of the city. The former was still committed to the idea of the walled city made up of streets, while the latter presupposed the wall-less “radiant city,” the prototypical open city elevated on piles within a continuous park. The implicit anti-street polemic of this vision was finally made explicit in an essay on the street that Le Corbusier wrote for the syndicalist newspaper *L’Intransigeant* in 1929, but by then he had long since eliminated the perimeter block from his repertoire.

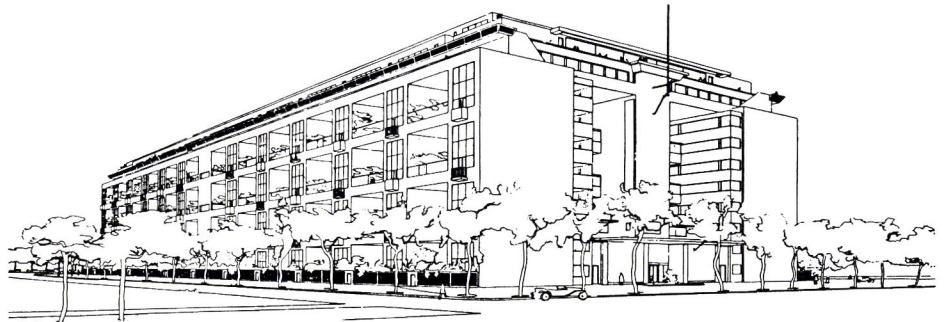
Aside from providing the essential joys of sunlight and green, the open city was supposed to facilitate locomotion, to accord with Le Corbusier’s entrepreneurial aphorism that “A city made for speed is a city made for success.” This was part of the rhetoric that accompanied his 1925 Plan Voisin proposal for Paris (see fig. 24); the fact that the automobile had effectively destroyed the great city could now, paradoxically, be exploited as an instrument for its salvation. Notwithstanding the financial support that Le Corbusier had received from the aircraft manufacturer Voisin, there is little reason to doubt that such industrialists were sufficiently aware of the economic and political impossibilities of building twenty-four sixty-story cruciform towers adjacent to the Île de la Cité.

The most enduring contribution of the Ville Contemporaine was the Immeubles Villas block (figs. 46–48), incorporating a version of the Citrohan house as a general type for high density, high-rise living. The stacking of these two-story units for twelve floors into the air involved the elevation of garden terraces, one for each duplex, a provision which even today seems to be an impossibly utopian standard to achieve in high-rise *family* living. In the so-

called ‘cellular’ residential perimeter block of the Ville Contemporaine (fig. 44), these terraced duplexes opened at ground level onto a bounded rectangular green space, equipped with recreational facilities for communal use. The marginal provision of additional communal space within the block and around the periphery of this area and the intended provision of hotel service throughout gave this project a peculiarly hybrid character—sociologically suspended between the bourgeois apartment block and the socialist collective dwelling (cf. Ginzburg’s *Dom-Kommuna*). The Immeuble Villa living unit was finally worked out in detail and realized as a prototype in the form of the Pavillon de l’Esprit Nouveau built for the Exposition des Arts Décoratifs held in Paris in 1925 (figs. 49, 51–53). Unfortunately, subsequent attempts to market this unit, both as an urban maisonette in the city and as a suburban villa in the suburbs, met with little success. Nonetheless, it was a condensation of the Purist sensibility, designed for mass production and urban agglomeration. Not only was it furnished with the canonical *objets-types*—with English club armchairs, Thonet bentwood furniture, and standard Parisian cast-iron park seats—but its walls and floors were enriched with objects of Purist origin, with the *objets tableaux* of Léger and Le Corbusier and with Oriental rugs and South American pottery (fig. 50). This finely balanced assembly of folk, craft, and machine-made objects, influenced directly by the interiors of Adolf Loos, was exhibited here under the patronage of Minister de Monzie as a polemical gesture against the theme of the whole exhibition.

In 1925 Le Corbusier returned to the theme of the bourgeois villa (fig. 62), first in his *Maison Cook* (fig. 54), completed in the following year as a demonstration of the “Five Points of a New Architecture” which was published at the same time (fig. 55), and then in the *Villa Meyer* (figs. 60, 61), which as a project was to anticipate the *Villas Garches* (figs. 63–79, 83–85) and *Savoye* built outside Paris in 1927 and 1930. All of these houses depended equally for their expression on the syntax of the ‘five points’, comprising: 1) the *pilotis* elevating the mass off the ground; 2) the free plan, achieved through the separation of the load-bearing columns from the walls subdi-





46

30 **Immeubles Villas and the Pavillon de l'Esprit Nouveau, 1922–1925**

*The Pavillon was in effect a full size mock-up of an Immeuble Villa—that is to say, a typical unit from a perimeter block organized according to the “cellular” principle.*

46 *Immeubles Villas, 1922.*

*Perspective.*

47 *Immeubles Villas. Initial plan of ground floor and basement.*

48 *Immeubles Villas, 1922. Initial plan of living units; main and mezzanine levels.*

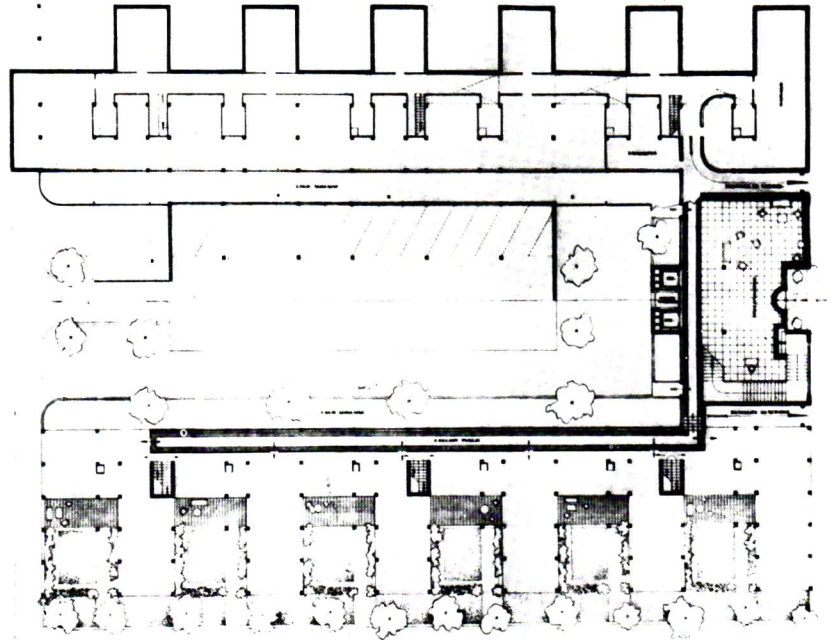
49 *Pavillon de l'Esprit Nouveau, 1925. The Immeuble Villa adapted as a unit for suburban development.*

50 *The Purist interior: Thonet chair, Léger, etc.*

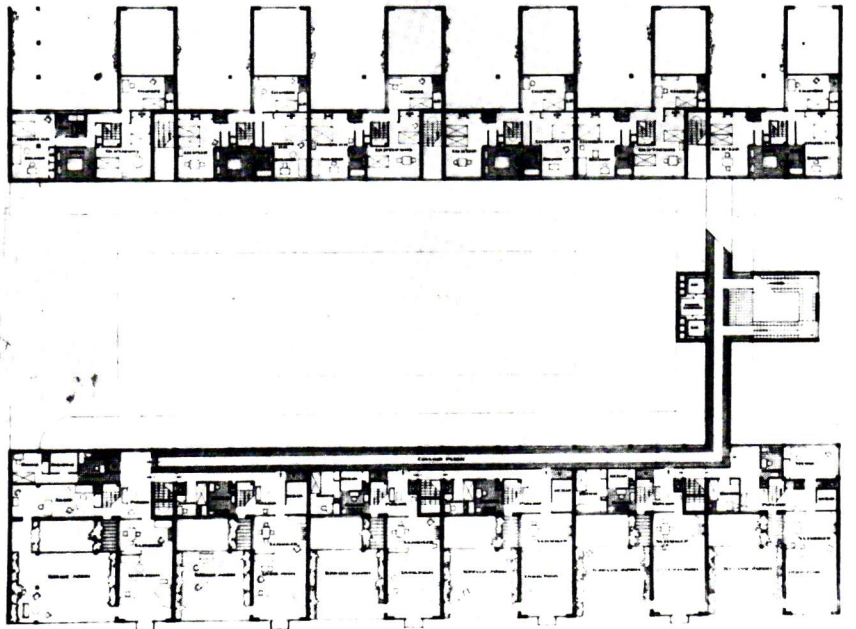
51 *Re-construction of the Pavillon in Bologna, 1979. José Auberie, architect.*

52 *Pavillon, interior stairway.*

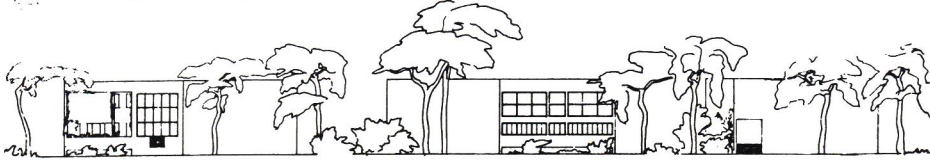
53 *Sketch of an Immeuble Villa furnished in the Viennese manner.*



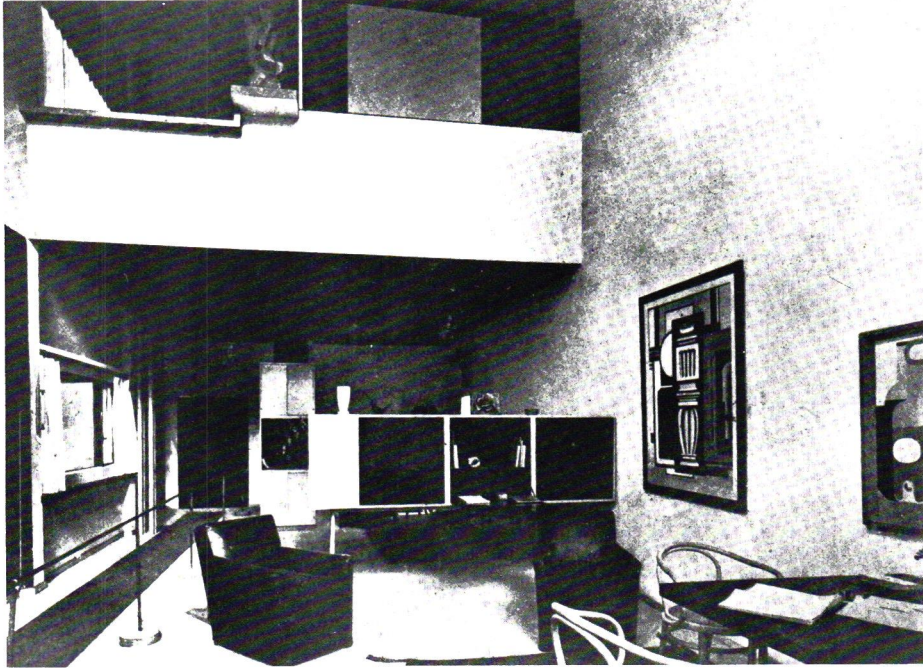
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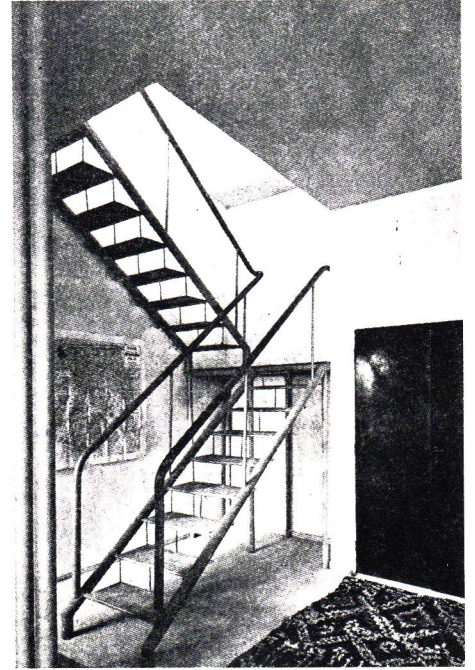
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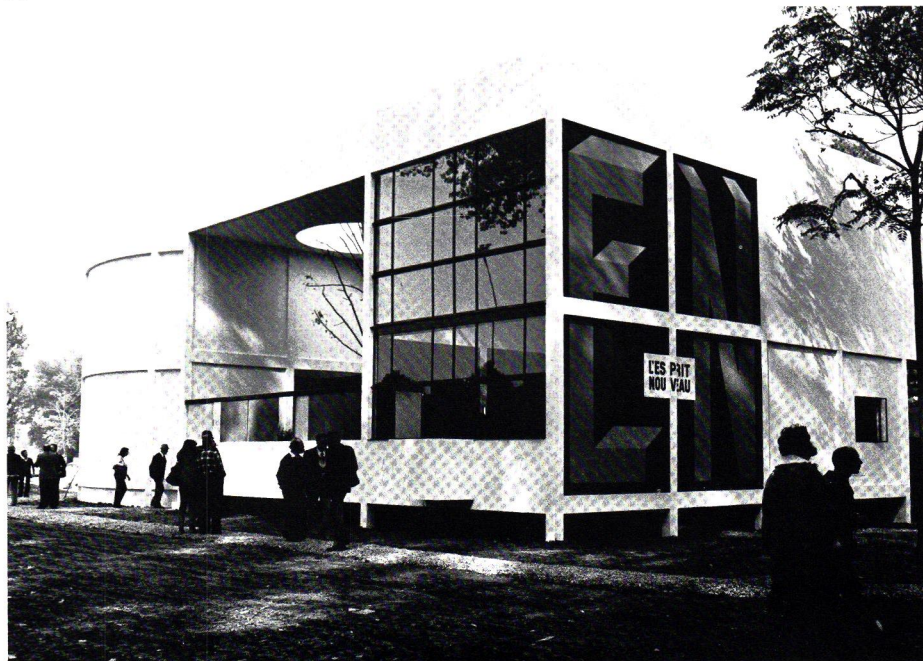


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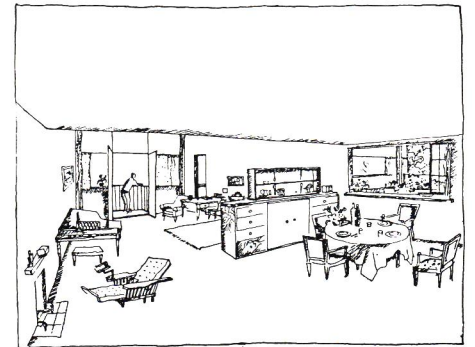


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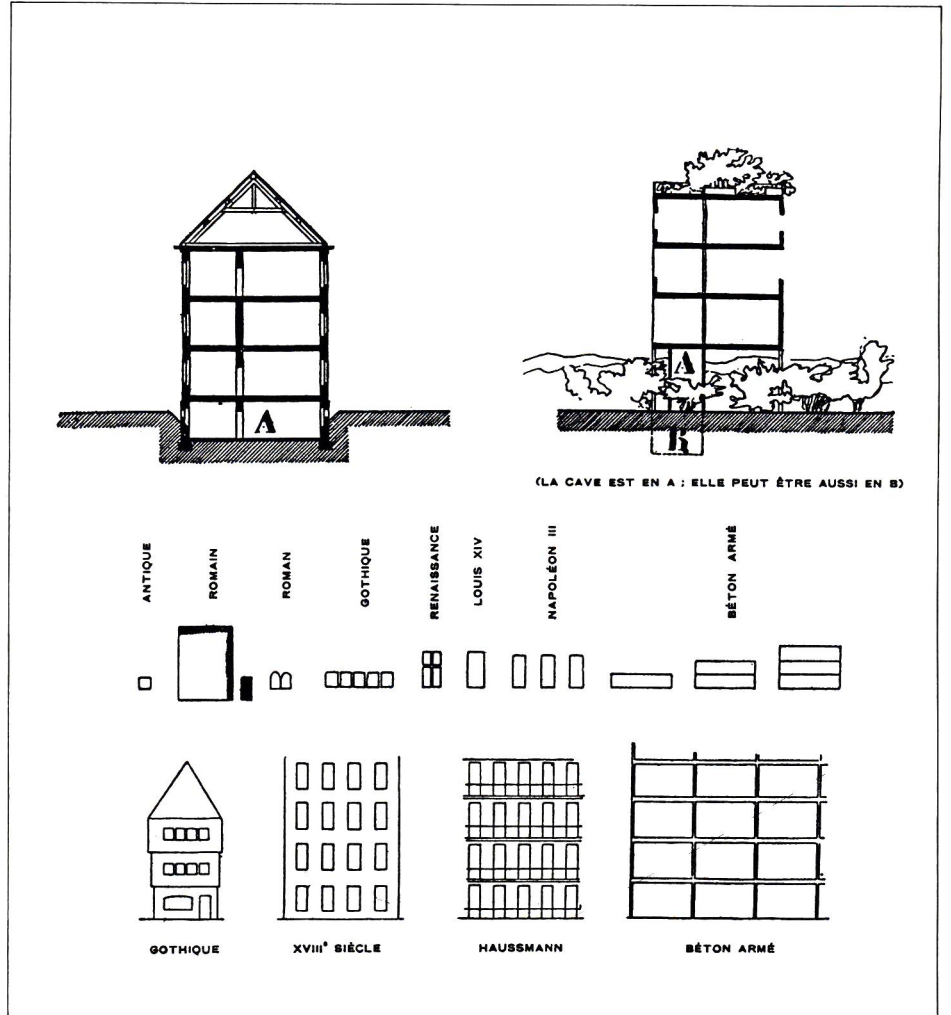
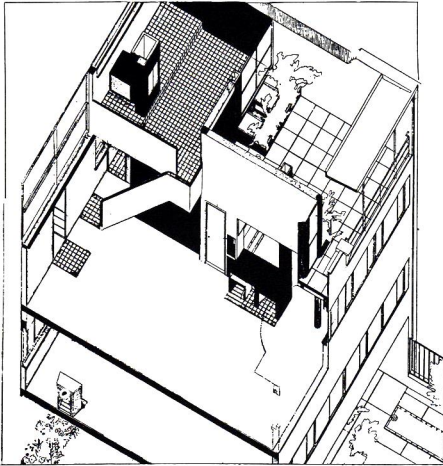
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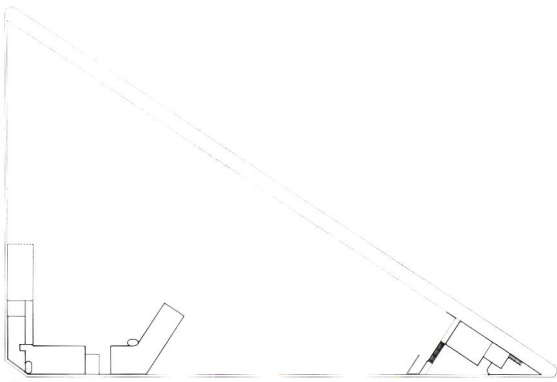


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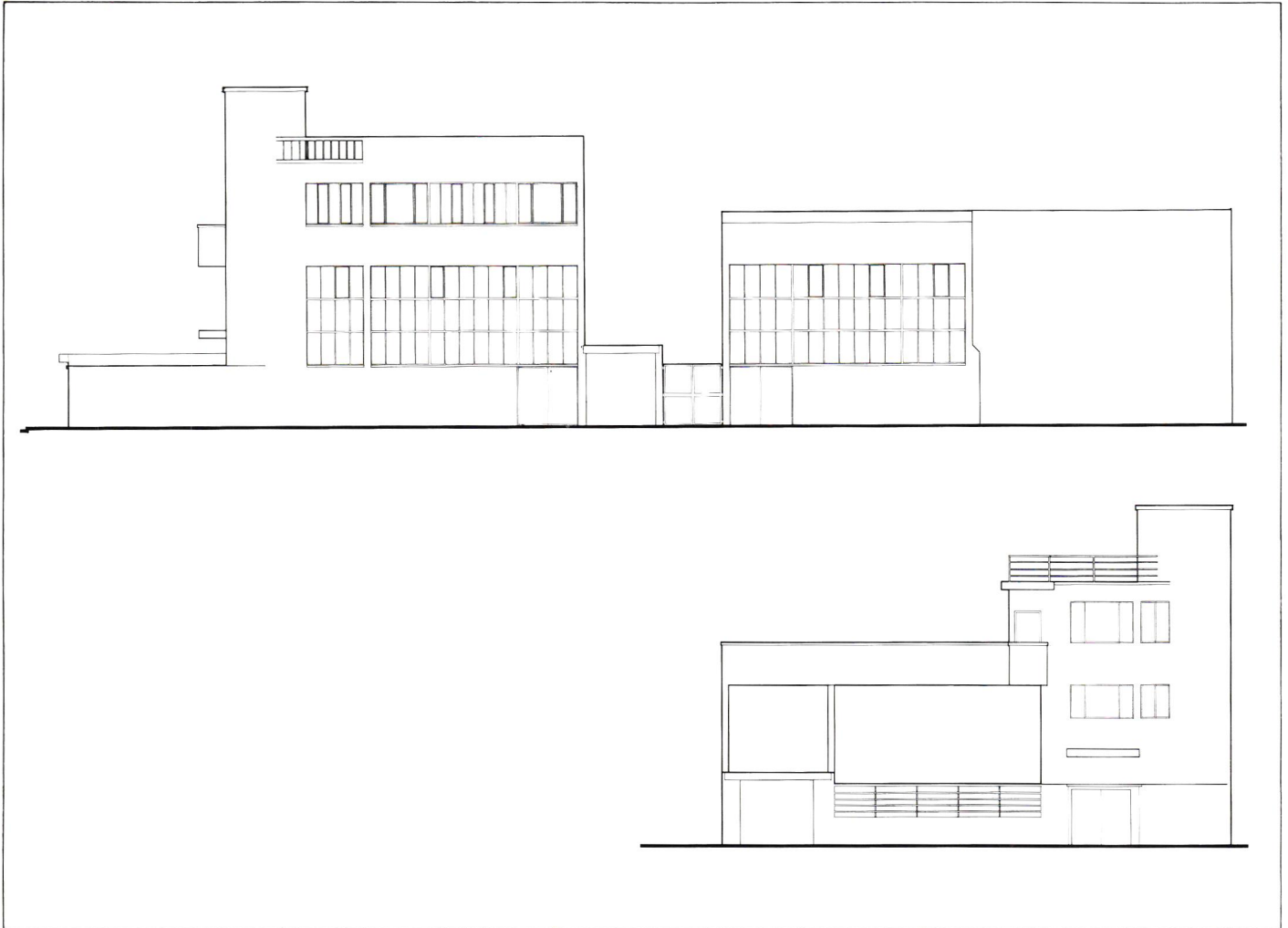


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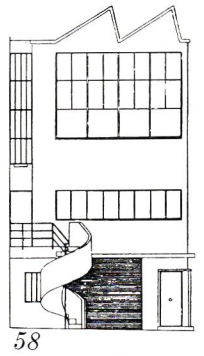


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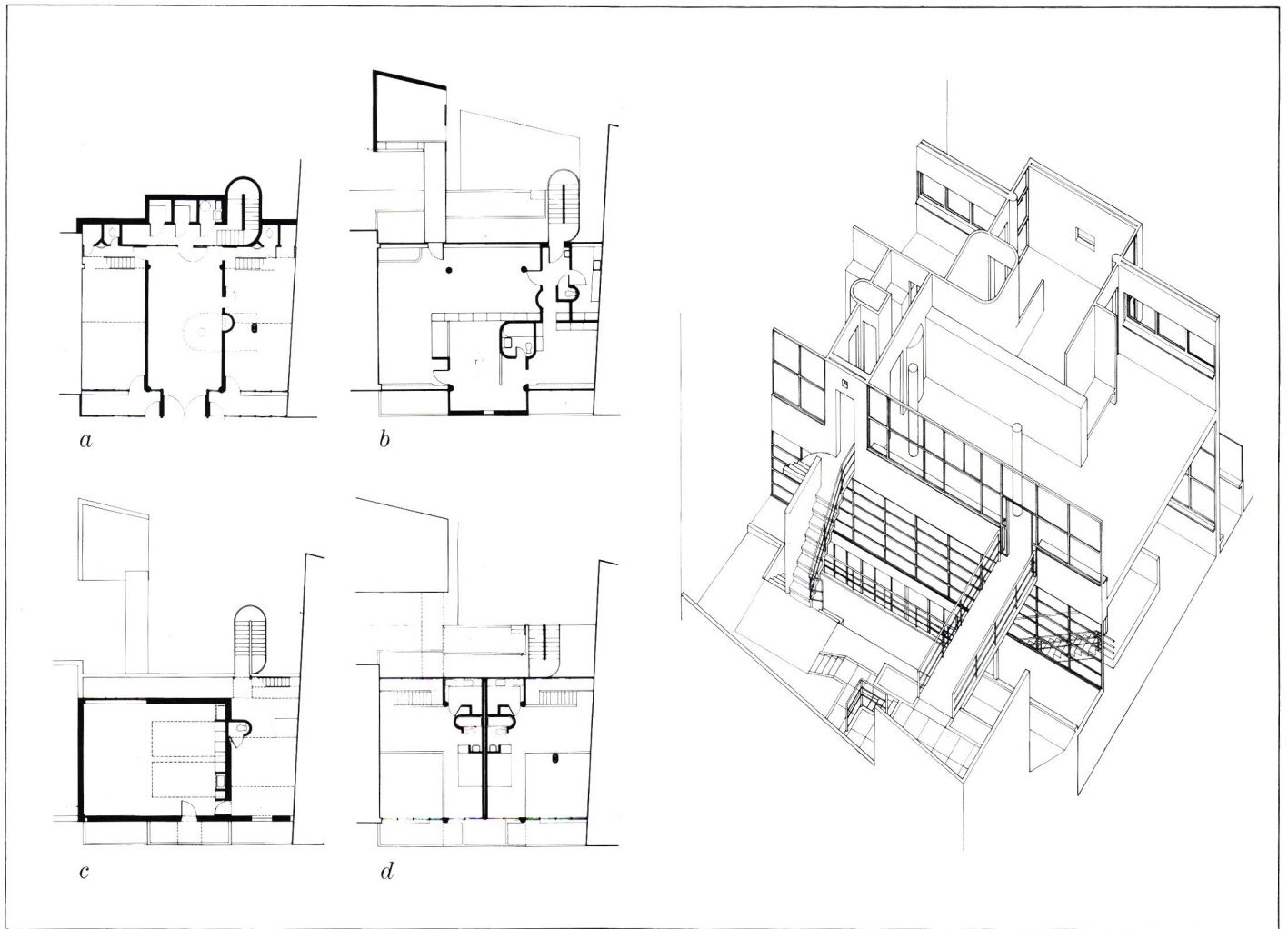


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- 57  
 54 *Maison Cook*, 1926. *Cut-away axonometric.*  
 55 "The Five Points of a New Architecture" from *L'Architecture Vivante*. Note the comparative historical analysis of the facade/frame relationship demonstrating the virtues of *fenêtres en longueur*.  
 56 *Miestschaninoff villa*, Paris, 1924. *Site plan.*  
 57 *Miestschaninoff villa*, elevations.



34



59

58 Ozenfant house, 1922. Street elevation.

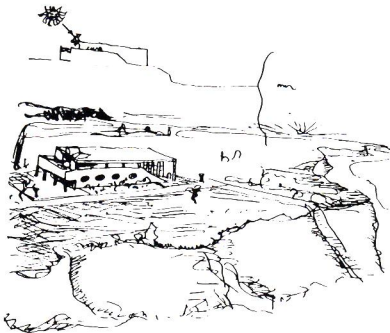
59 Maison Plainex, Paris, 1927. Floor plans and axonometric of the house as built: a) lower ground floor; b) ground floor; c) second floor; d) mezzanine/atelier.

60 Letter to Mme. Meyer, 1925. This document illustrating the first project for the Meyer house

summarizes the scope of Le Corbusier's "poetics" in the mid-1920's. He wrote: "This project, Madame, has not been done by the hasty pencil of an office designer between two telephone calls. It has been slowly ripened, caressed, during days of perfect calm before a highly classic site."

61 Villa Meyer, 1925. 2nd project.





62

**36 Villa at Garches, 1927**

*This theme, first essayed in the villa au bord de la mer for the couturier Paul Poiret and then in the various projects for Mme. Meyer, was to reach fruition with this house for the Minister de Monzie who had been Le Corbusier's patron for the Pavillon de l'Esprit Nouveau of 1925. A rift in the de Monzie family led to the purchase of the house by Gertrude Stein's brother, Leo.*

*62 Villa Poiret, 1921. The initial image from which the villa at Garches was developed.*

*63 Villa at Garches, 1927. One of numerous elevational studies carried out for this project; variously titled as the "Villa de Monzie" and "Stein de Monzie."*

*64 Villa at Garches, 1927. An early version in which the idea of "architectural promenade" completely dominates the form.*

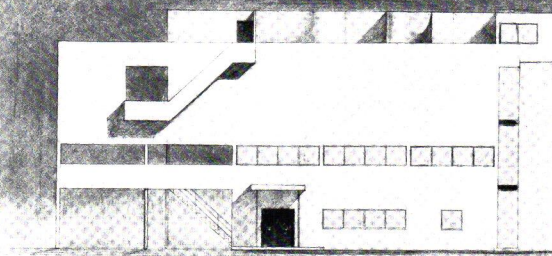
*65 Villa at Garches, 1927. Drive with porter's lodge.*

*66 Villa at Garches. Formal analysis of the axial structure of the site plan.*

*67 Villa at Garches. Garage interior.*

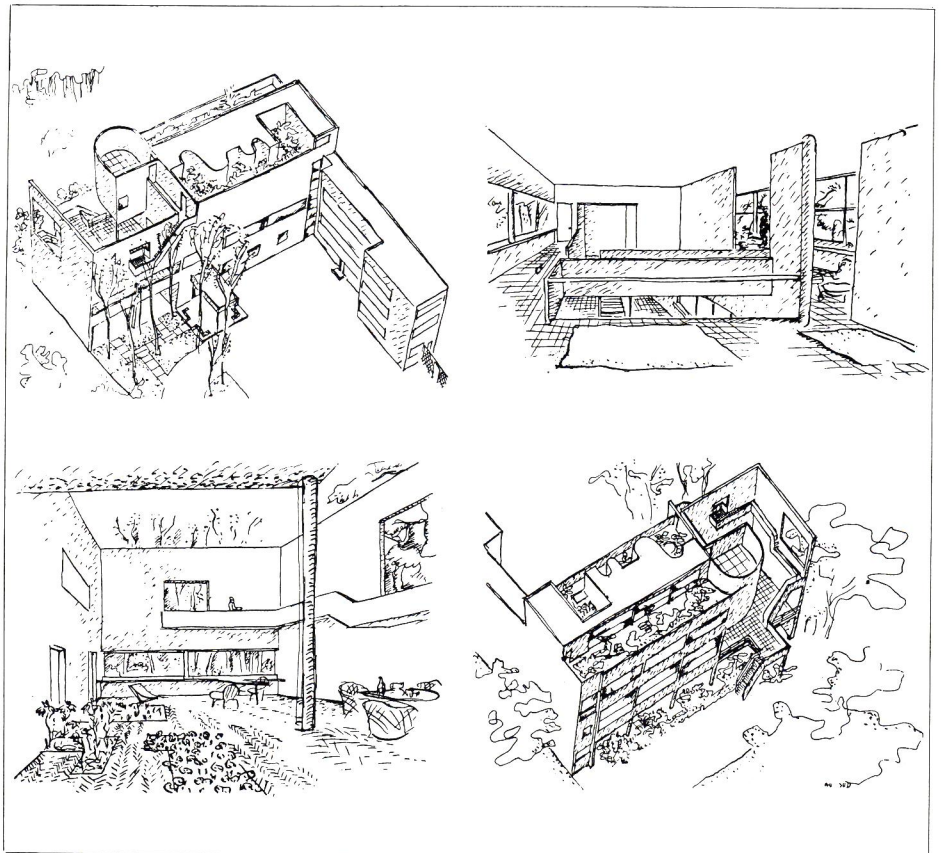
STEIN DE MONZIE

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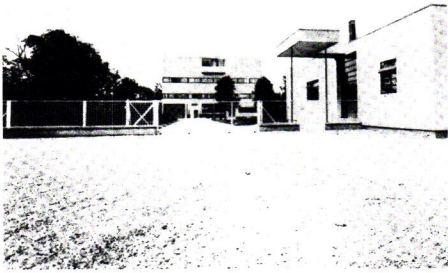


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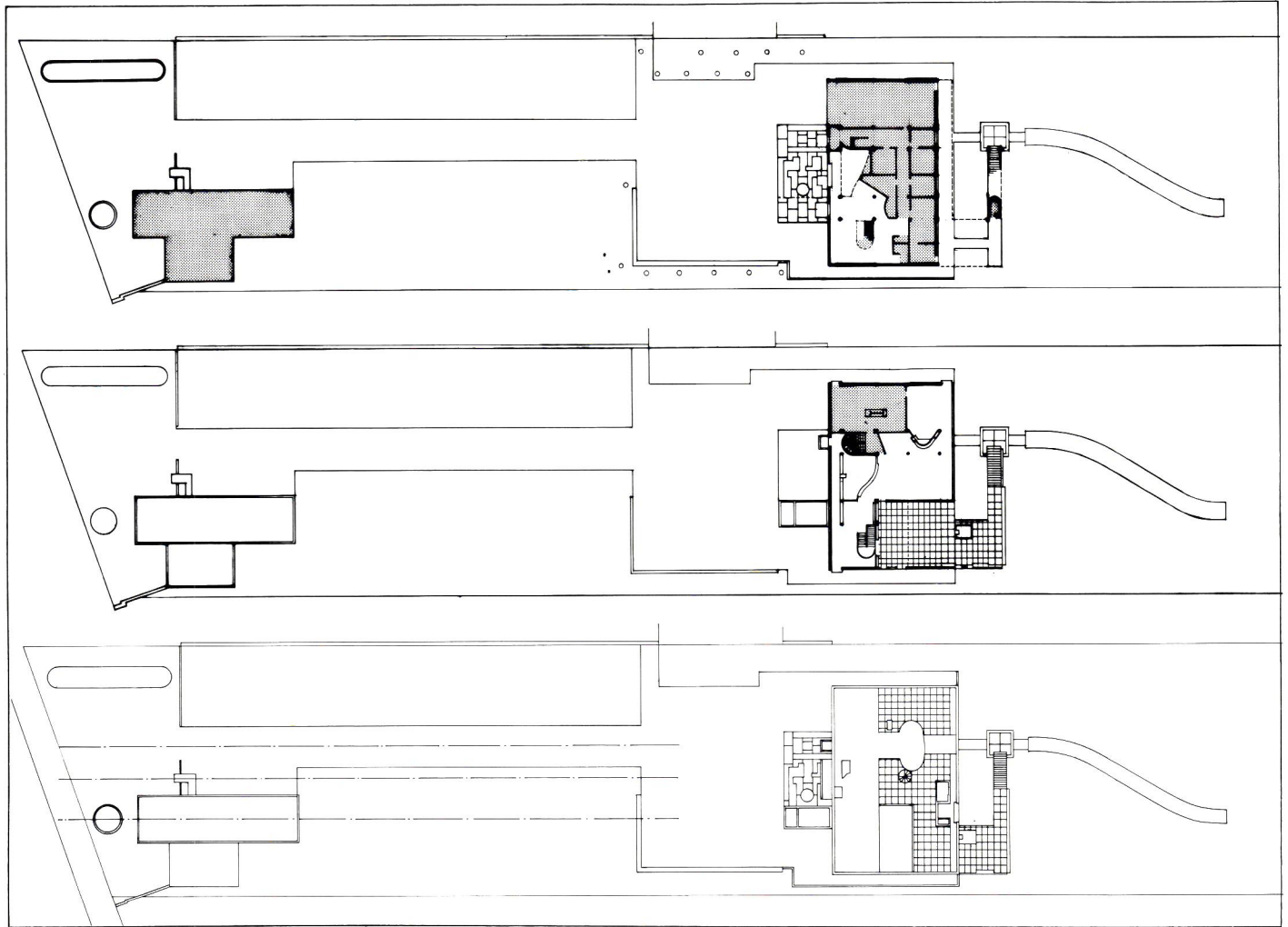
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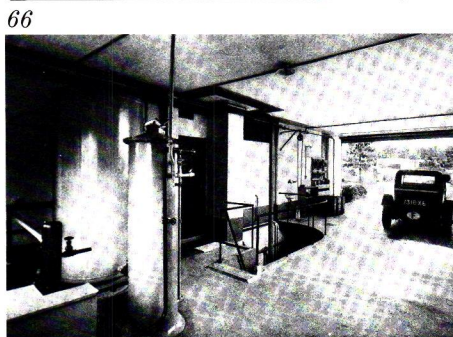
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38 68, 69 Villa at Garches, 1927.  
Construction of the entry and  
garden elevations. Nothing could  
contrast more strongly to the  
"machine finish" of the completed  
house than the brutality of the  
concrete constructional techniques  
employed.

70 Villa at Garches, 1927. General  
view of the house from the garden.

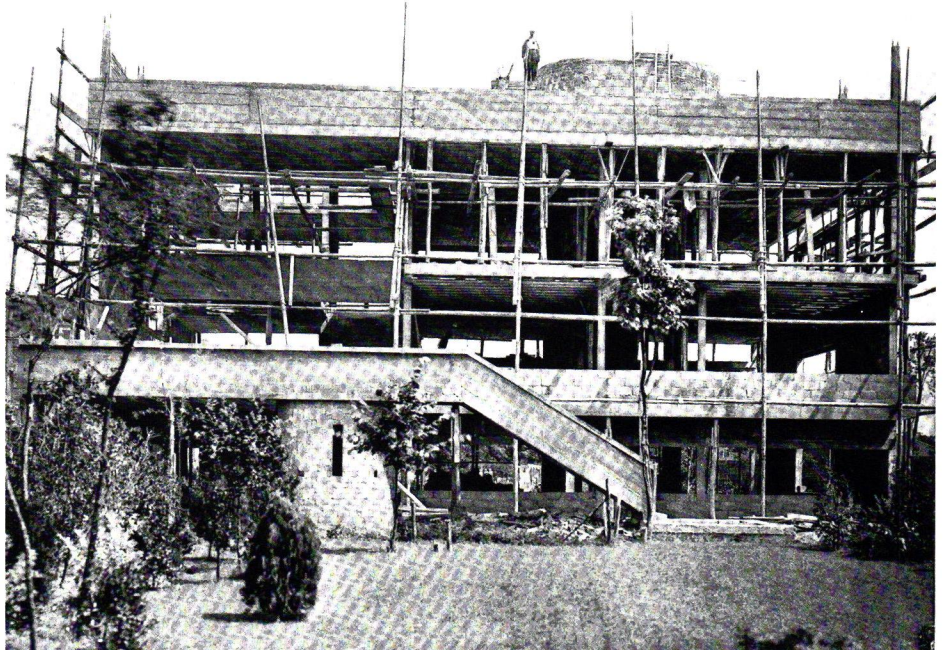
71 Villa at Garches, 1927. Plan of  
first floor entry level.

72 Villa at Garches, 1927. Plan of  
second floor living level.

73 Villa at Garches, 1927. Plan of  
the third floor bedroom level.



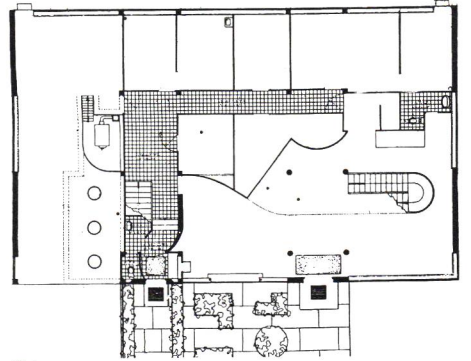
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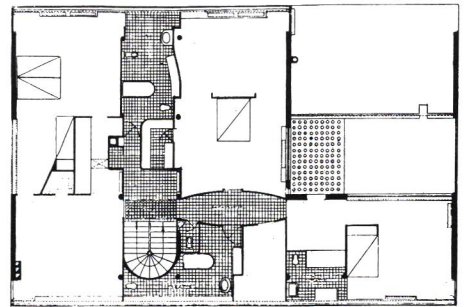
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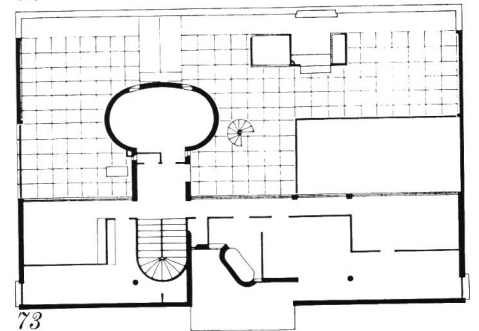
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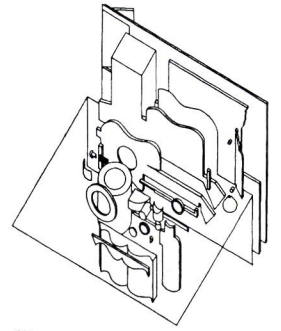
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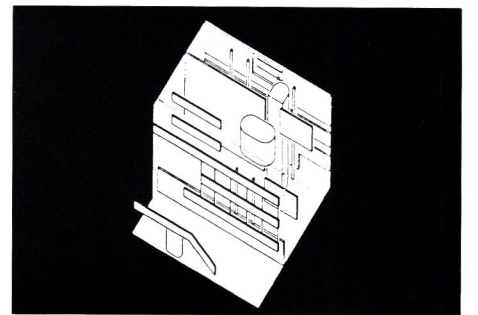
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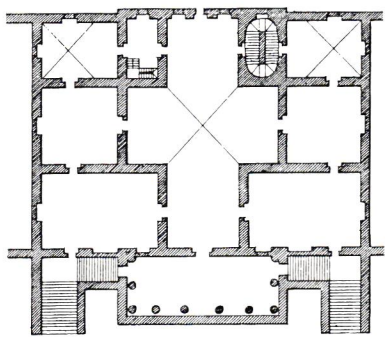
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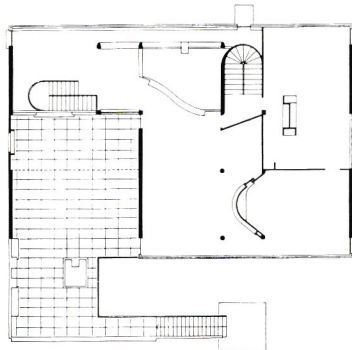
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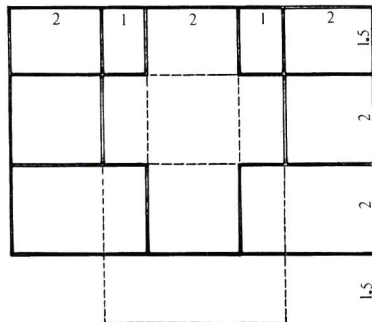
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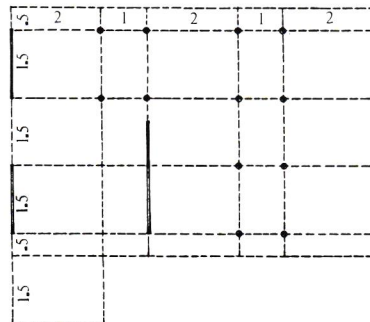
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74 Bernhard Hoesli's analysis of the implied layering of space in *Nature morte à la pile d'assiettes*, 1920, after the thesis advanced by Rowe and Slutzky in their essay on phenomenal transparency which was published under the title *Transparenz* in 1970.

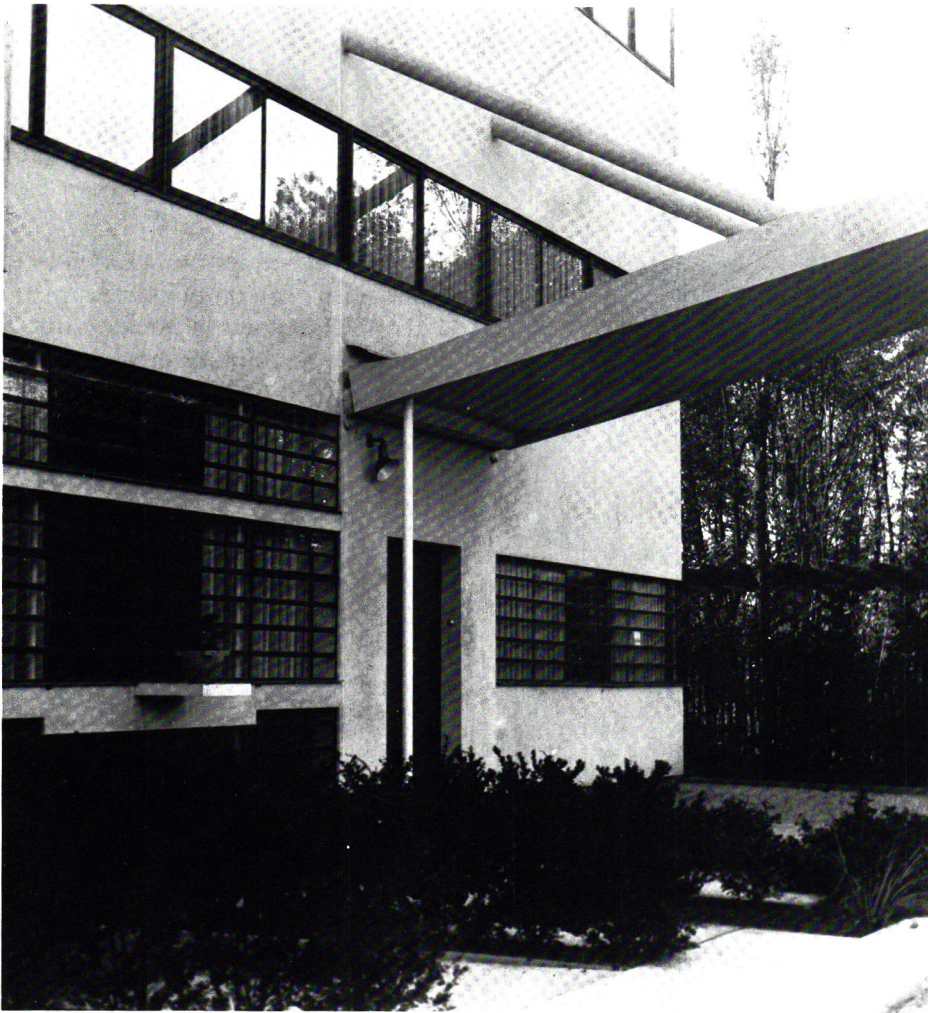
75 Villa at Garches, 1927. Entry facade soon after completion.

76 Hoesli's analysis of the layering of space in the villa at Garches (cf. fig. 74).

77, 78 Villas Malcontenta and Garches. Comparison of ground floor plans.

79 Villa Malcontenta (Villa Foscari). Andrea Palladio, c. 1550–1560. Garden elevation.

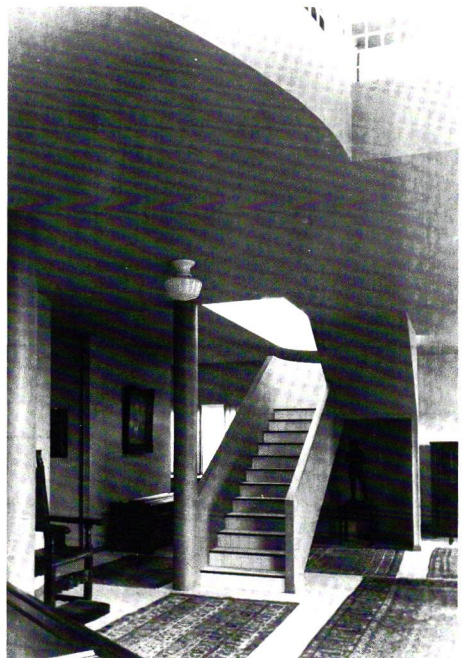
80, 81 Villas Malcontenta and Garches. Proportional grid of the respective plans compared according to the same module.



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84

82 Villa at Garches, 1927. Detail of the canopy over the main entrance. It is obvious that this element makes a direct reference to aviation technology both in its profile and in the ovoid cross-section of the suspension members. A similar section was used for the table en tube d'avion (see fig. 114).

83 Villa at Garches. Interior view showing the internal attachment of suspension members.

84 Villa at Garches. Entrance hall.

85 Villa at Garches. General view of the living room.



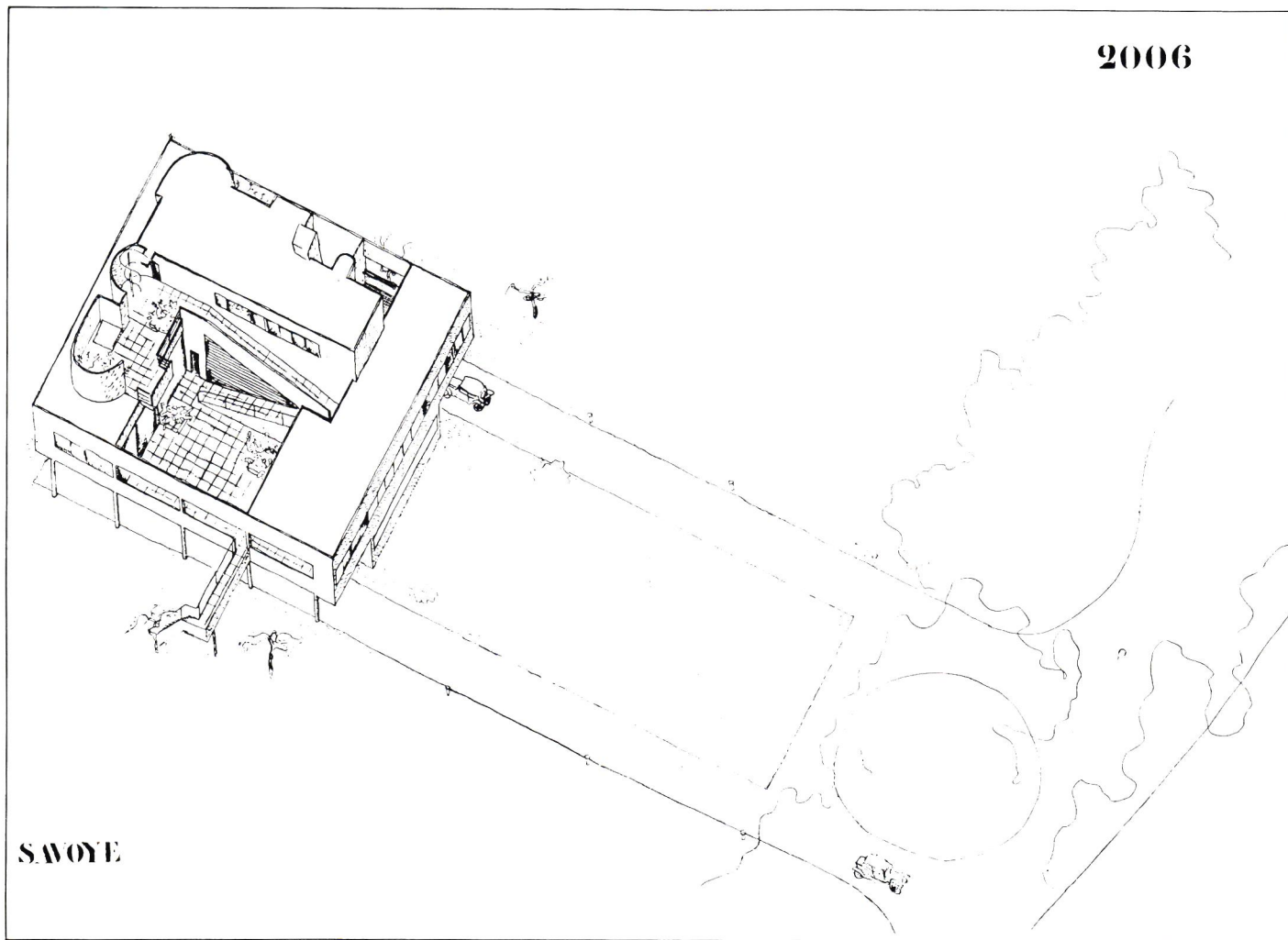
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## Villa Savoye

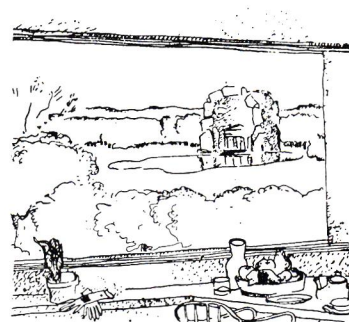
86 *Villa Savoye, Poissy, 1929.*  
*Axonomic of penultimate version.*  
87 *Villa Meyer, 1925.* *This sketch*  
*illustrates part of the second project.*  
*This view of a Virgilian landscape*  
*applied with equal force to the poetic*  
*siting of the Villa Savoye.*  
88 *Villa Savoye.* *Aerial view soon*  
*after completion.*

89 *Villa Savoye.* *Detailed view of*  
*kitchen with Purist elements—coffee*  
*pot and bread.*  
90 *Villa Savoye.* *Two cross sections*  
*and an elevation of the scheme as*  
*realized.* *These vary in detail from*  
*the plans published by Le Corbusier*  
*in the Oeuvre Complète 1910–1929*  
*and in L'Architecture d'aujourd'hui,*  
*Spring/Summer, 1929.*

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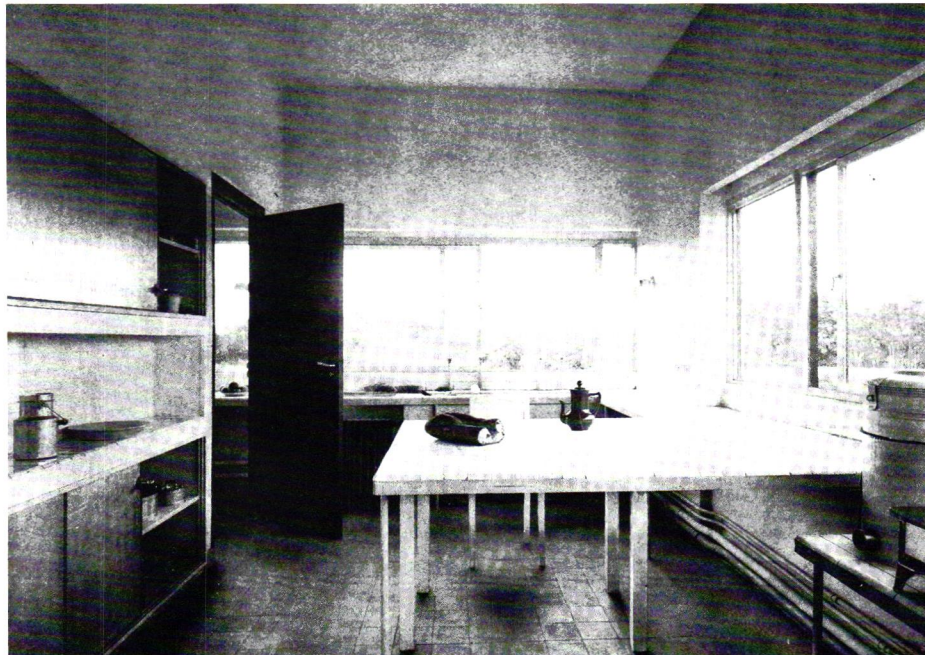
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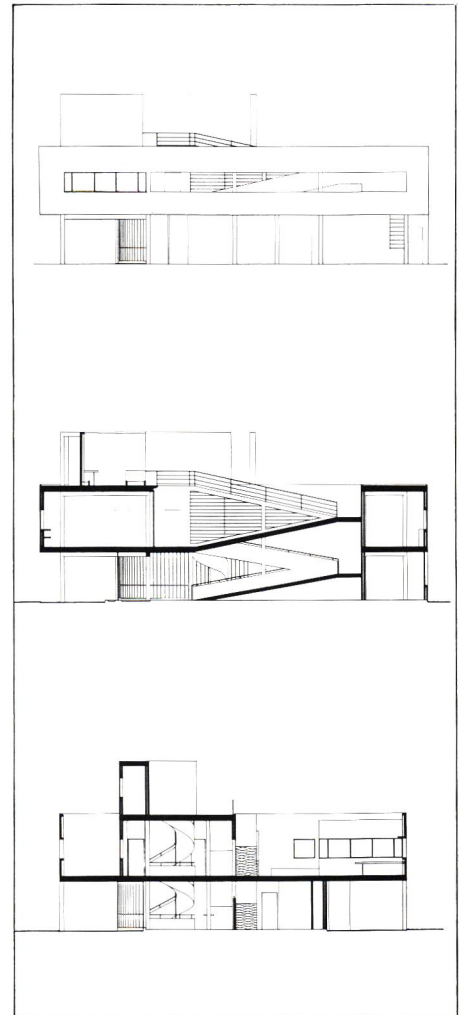
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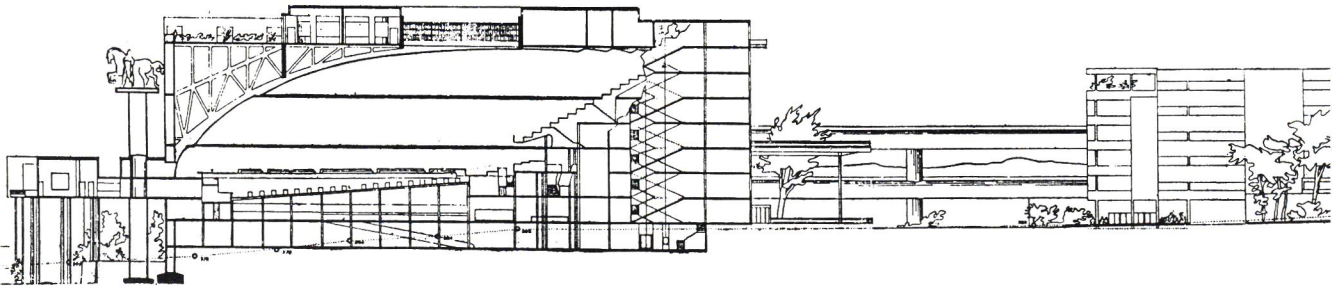


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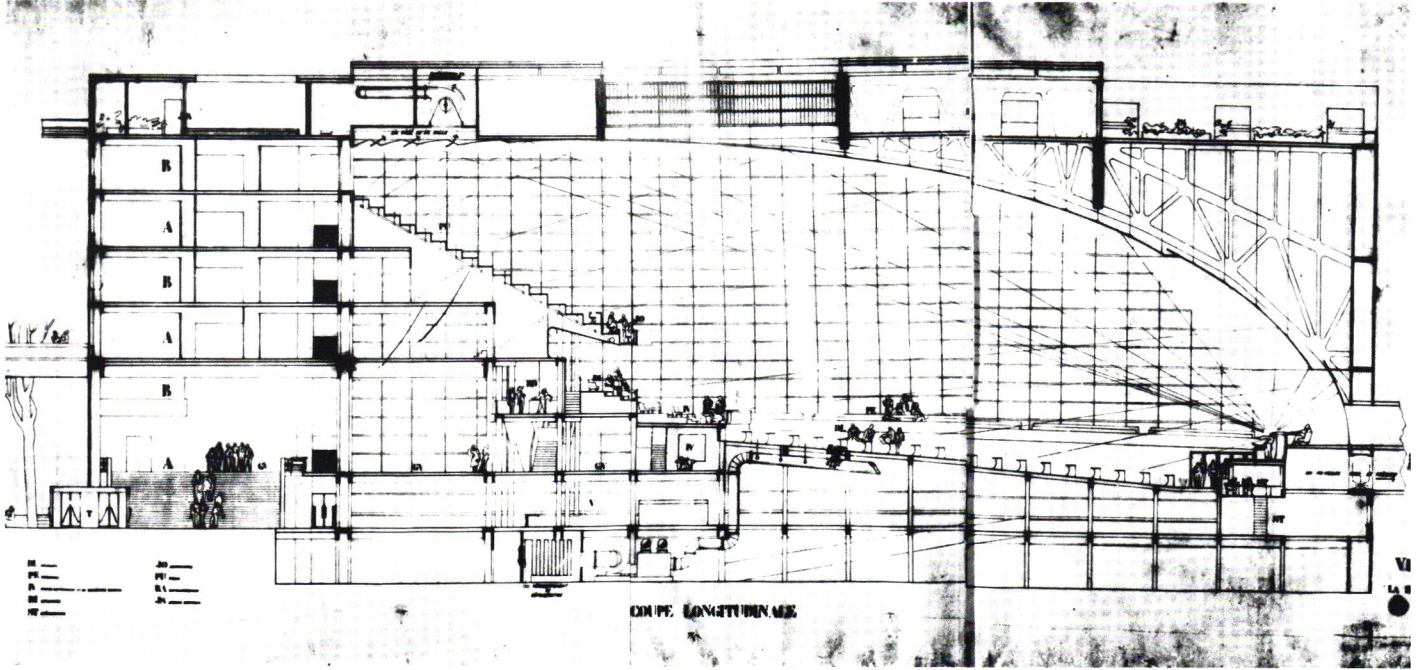
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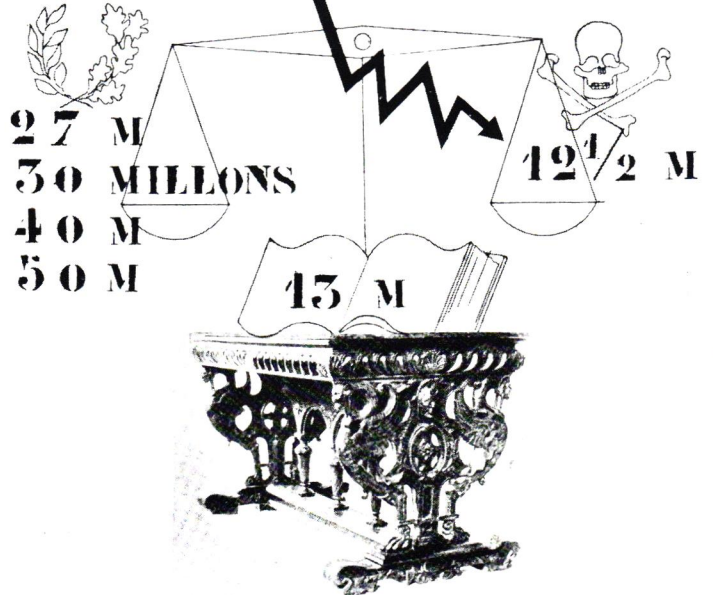
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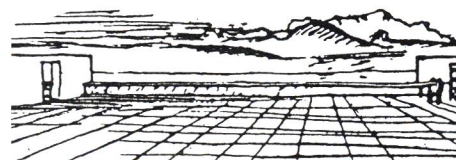
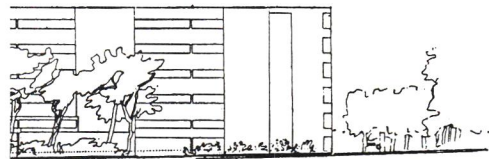
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LES ACADEMIES

LES AUTRES



94



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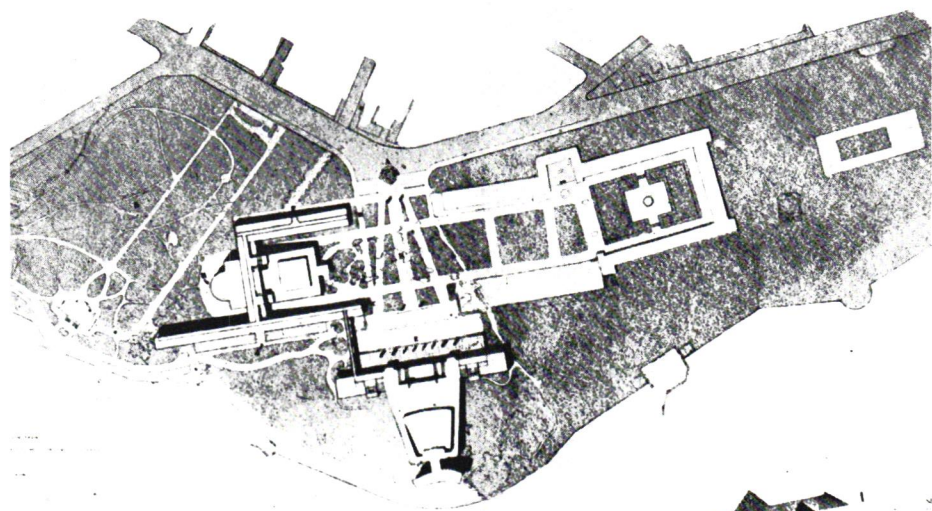
**League of Nations Competition:  
SdN project, 1927**

47

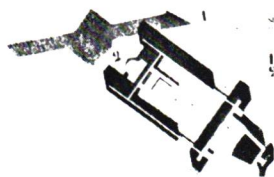
*Le Corbusier's disqualification in this competition was to be the greatest disillusion of his life.*  
 91 SdN project, 1927. Section through the main assembly hall and elevation of the secretariat.  
 92 SdN project. Section through assembly hall.

93 Caricature of Le Corbusier throwing Pierre Vago into the water. Vago was part of the team which was awarded the commission.  
 94 Comparison by Le Corbusier of the respective estimates for the academic and functionalist proposals.

95 SdN project, site plan. Note alternative layout in the right hand corner.  
 96 SdN project. Axonometric showing the layering of the secretariat wing with the tree plantation.  
 97 SdN project. Sketch of assembly hall roof garden.



95



96



98

48 **Le Corbusier in the Soviet Union**

*From July 1926 when he was invited by the Central Union of Consumers Cooperatives to enter the competition for the Centrosoyus (a commission which he gained at the end of the year irrespective of the official results) to his entry for the Palace of the Soviets competition of 1931, Le Corbusier is in contact with the Soviet Union. This fruitful exchange is often colored by political embarrassment. Aside from realizing the Centrosoyus, Le Corbusier also updates his views on urbanism in the 17 plates of the Villa Radieuse; his "Reponse à Moscow," made in answer to an enquiry as to the urban strategy to be adopted by the young socialist state.*

98 *Le Corbusier in Moscow, 1928.*

99 *Centrosoyus, Moscow, 1928.*

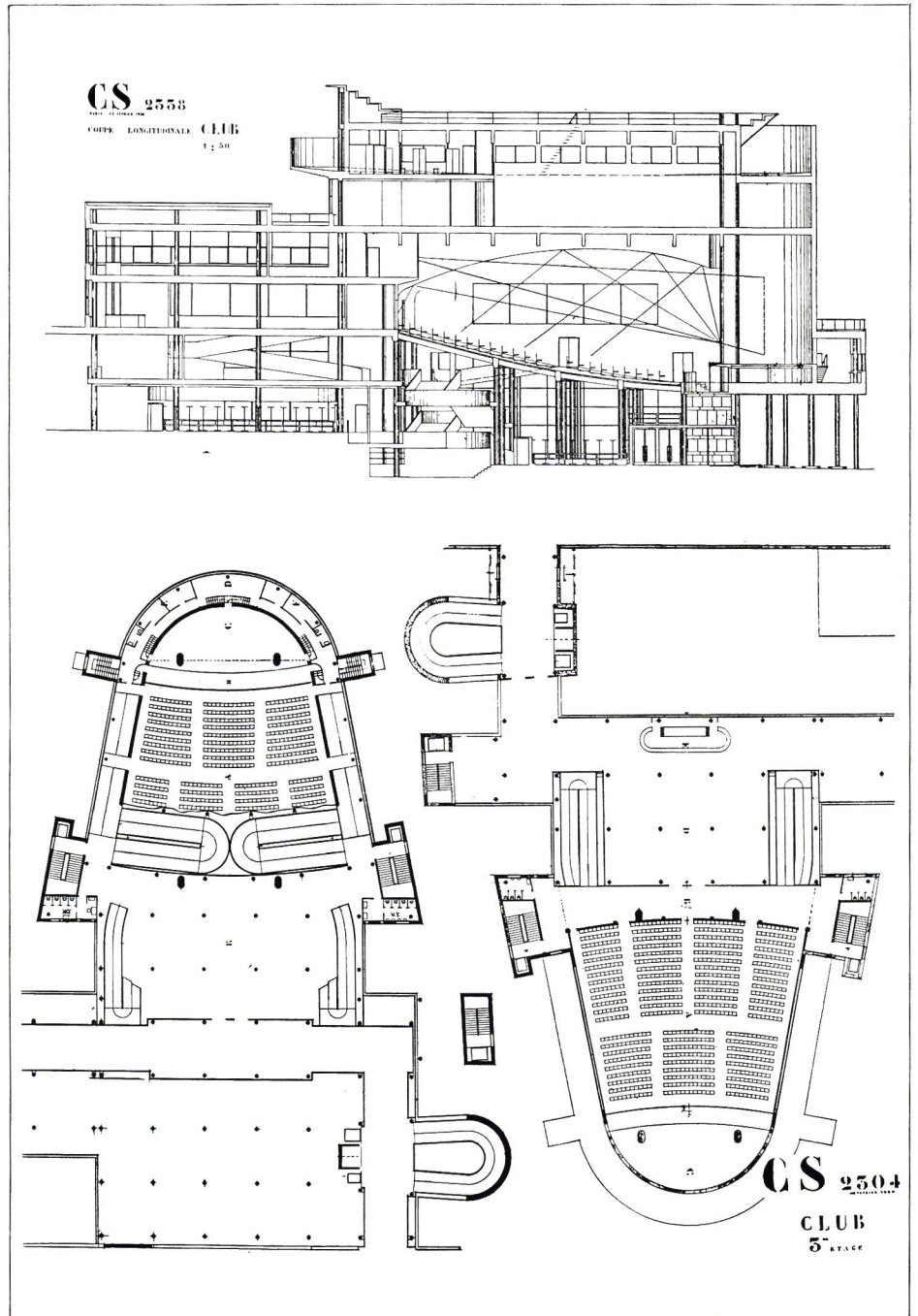
*Assembly hall: section, second and third floor plans.*

100 *Centrosoyus, Moscow, 1928.*

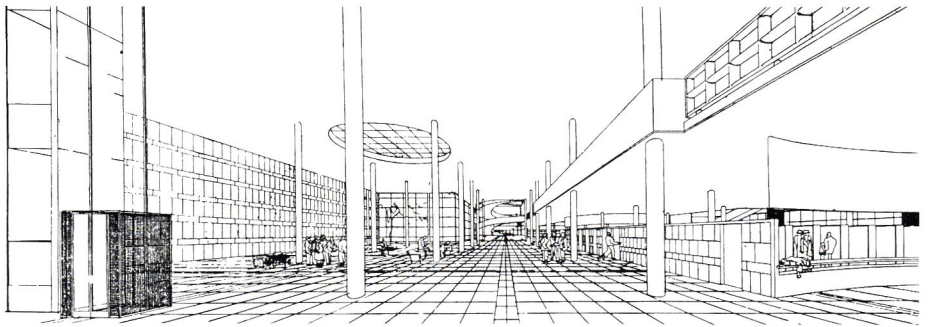
*Entry foyer of the initial project.*

101 *Centrosoyus, 1928. Model of final scheme.*

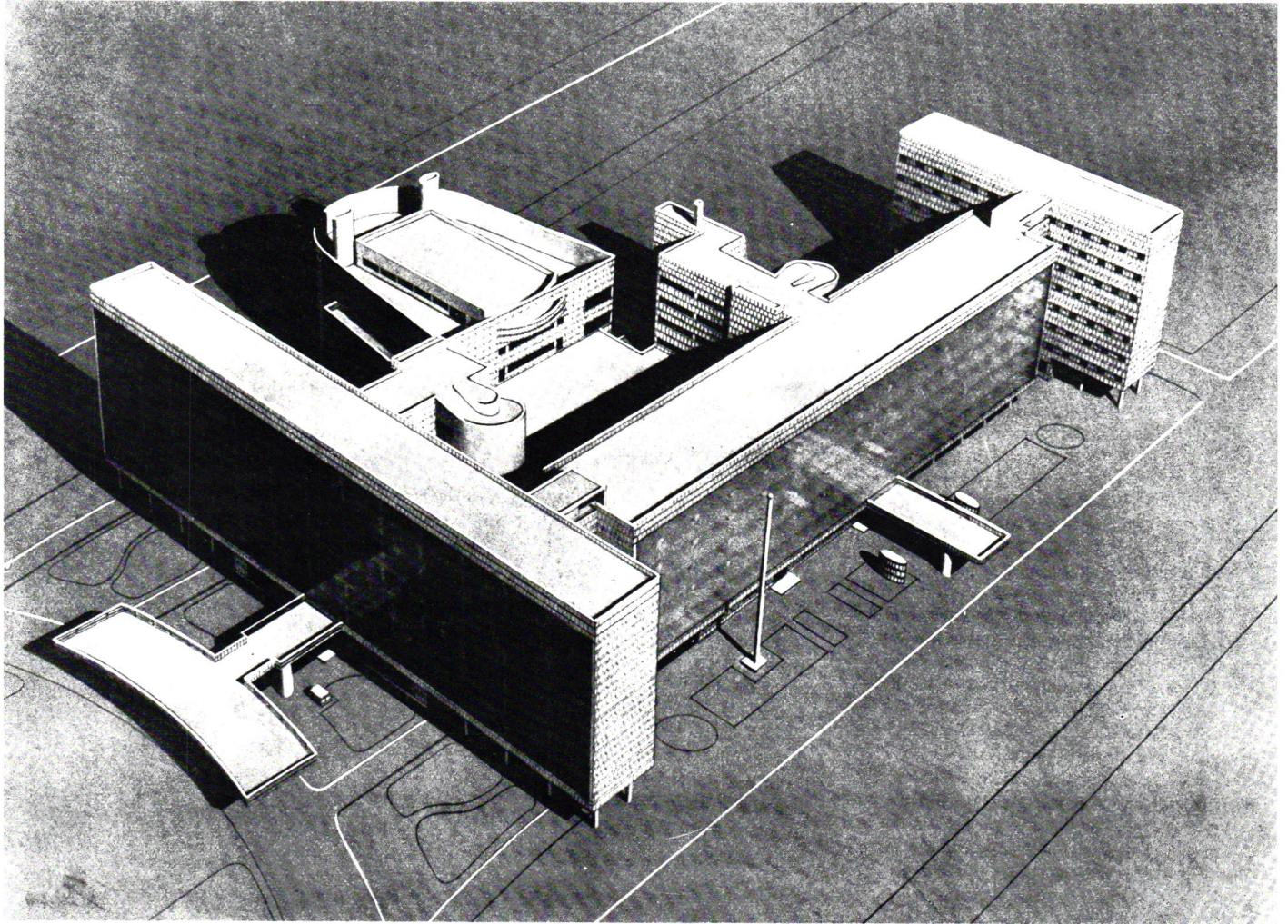
102 *Centrosoyus, 1928. Completed structure.*



99



100



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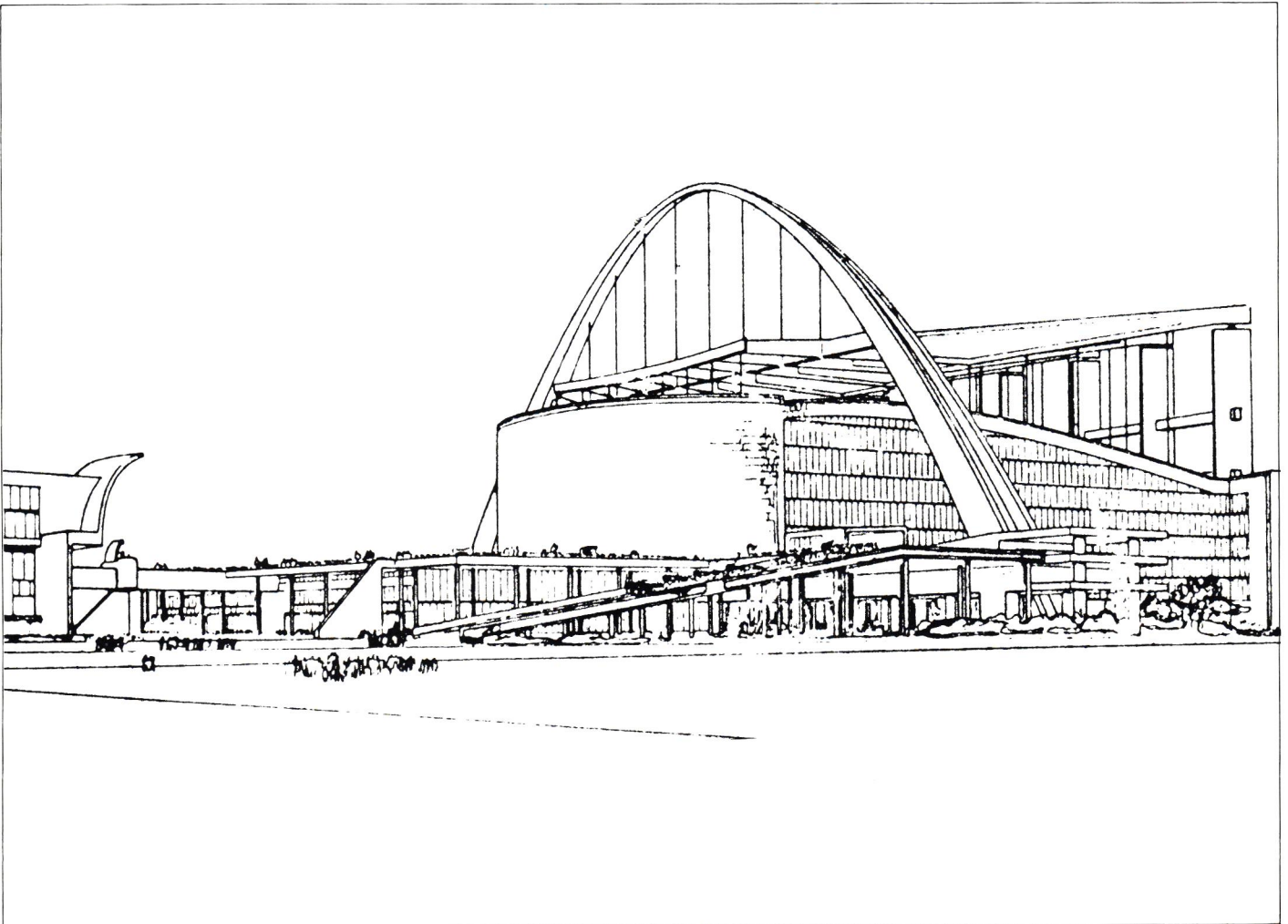
**Palais des Soviets Competition, 1931**

*Like the Centrosoyus, this competition was held in stages, one for Soviet architects only and one open to international competitors. The Social Realist verdict on Le Corbusier's exceedingly constructivist scheme was that it was too "machinist."*

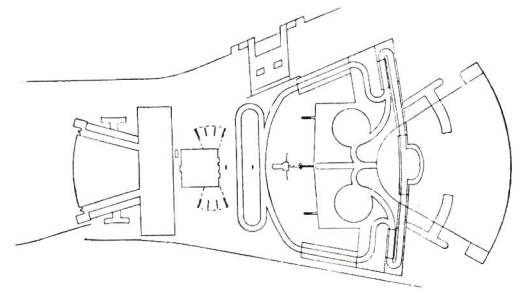
*103 Palais des Soviets, 1931. Perspective of the main assembly building during the May Day celebrations. The library bookstack behind the speaker's rostrum aspired to being an 'architecture parlante'.  
104 Plan showing principal parade routes feeding both the auditorium stage and the plaza for 50,000 people.*

*105 Symbolic profile of the Palais des Soviets seen against the skyline of the Kremlin.  
106 Various "elementarist" alternatives.  
107 Model.*

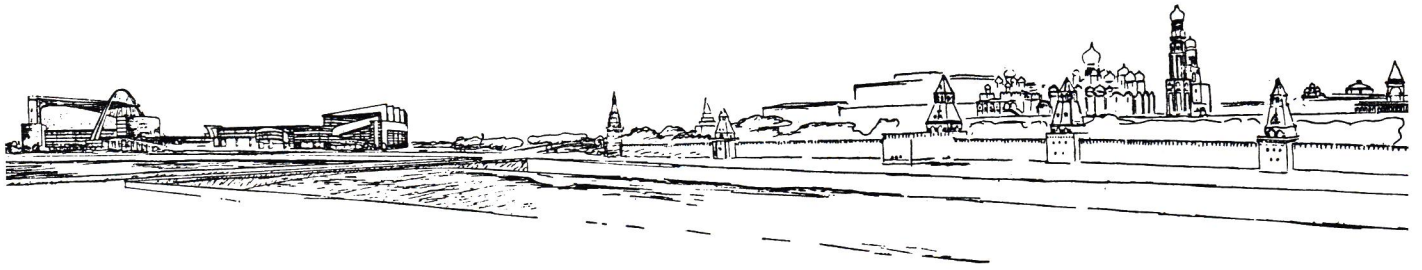
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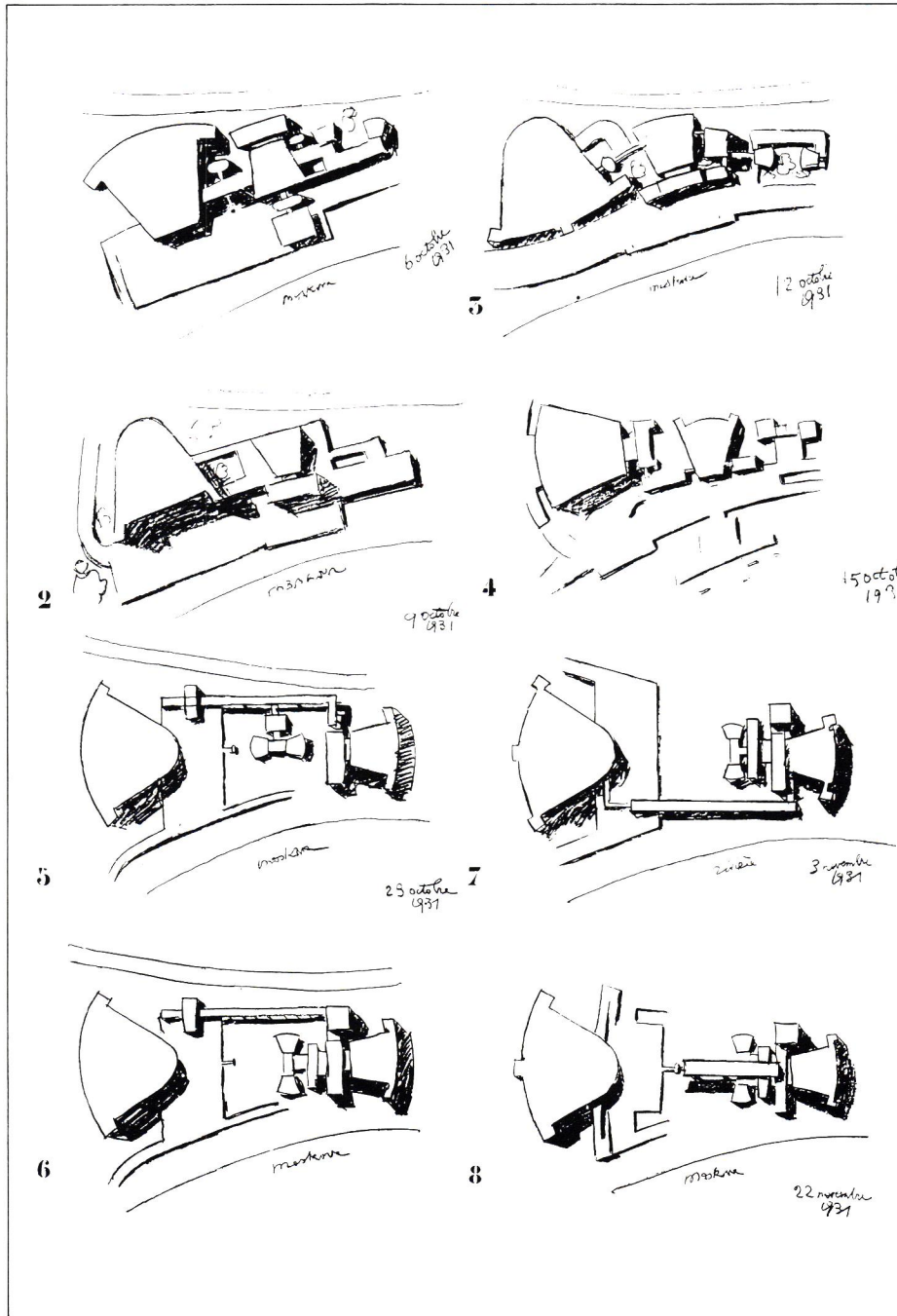
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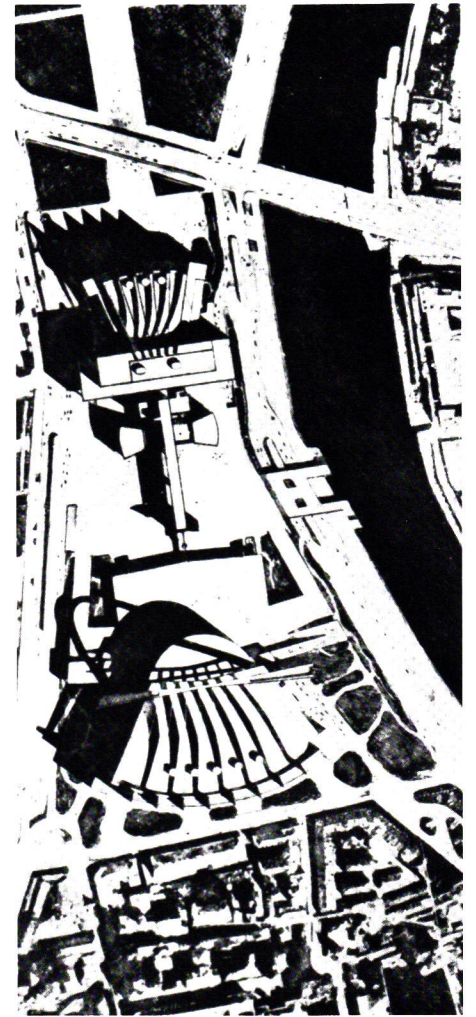
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52 **Furniture Designs 1927–1929**

*Le Corbusier's entry into the field of furniture arises out of his contact with Charlotte Perriand dating from his meeting with this designer when her "bar sous le toit" was exhibited in the Salon d'Automne of 1927. From this point on they began to collaborate on a range of tubular steel furniture. Their initial attempt to get the bicycle manufacturer Peugeot to make the prototypes was rejected. Some time later Thonet put most of the range into short run production, including le petit fauteuil basculante, le grand confort, la chaise longue, le taboret, and la table en tube d'avion. These were all exhibited together in the Salon d'Automne of 1929.*

*108 Perriand's mansard apartment in the Boulevard Raspail furnished with an early reclining version of le grand confort otherwise known as the châssis porte coussins.*

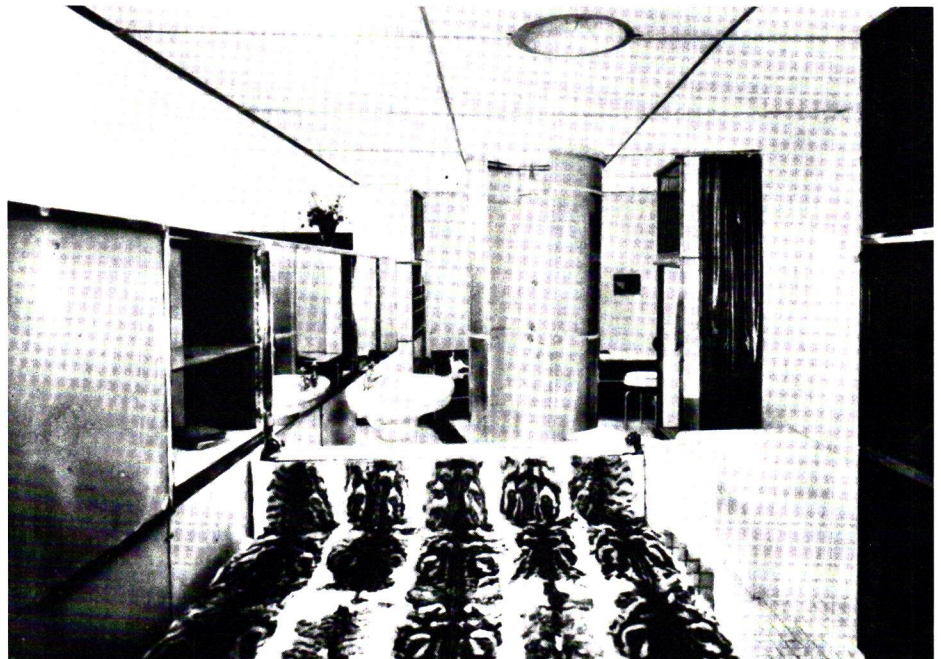
*109 Salon d'Automne, 1929. Mock-up bedroom interior by Perriand, Le Corbusier, and Jeanneret.*

*110 Chaise longue 1928. Perriand, Le Corbusier, and Jeanneret. The interaction of platonic and empirical form.*

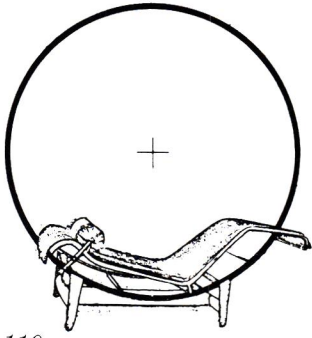
*111 Salon d'Automne, 1929. Mock-up living room interior.*



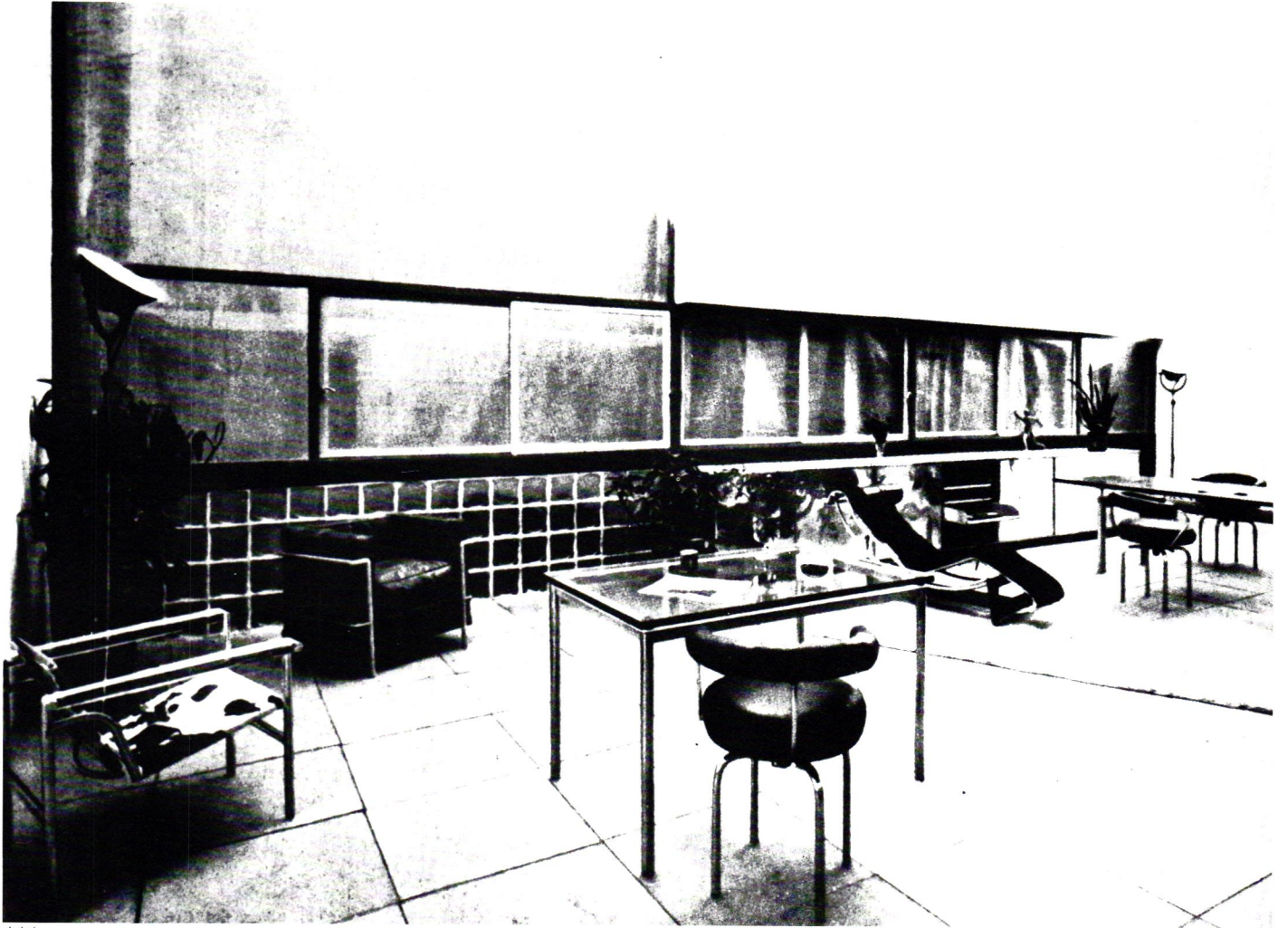
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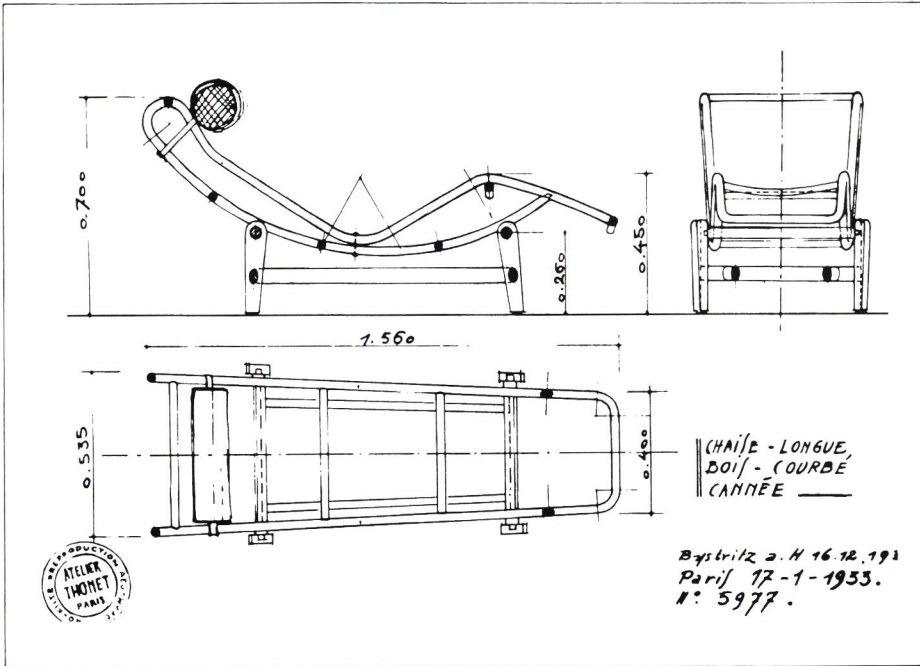


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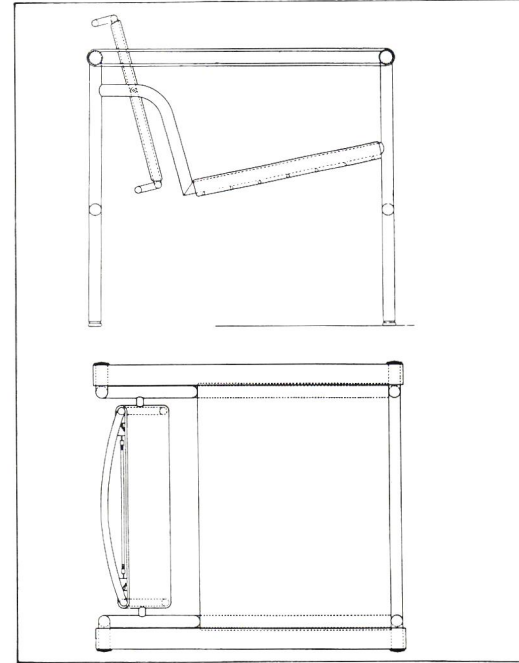


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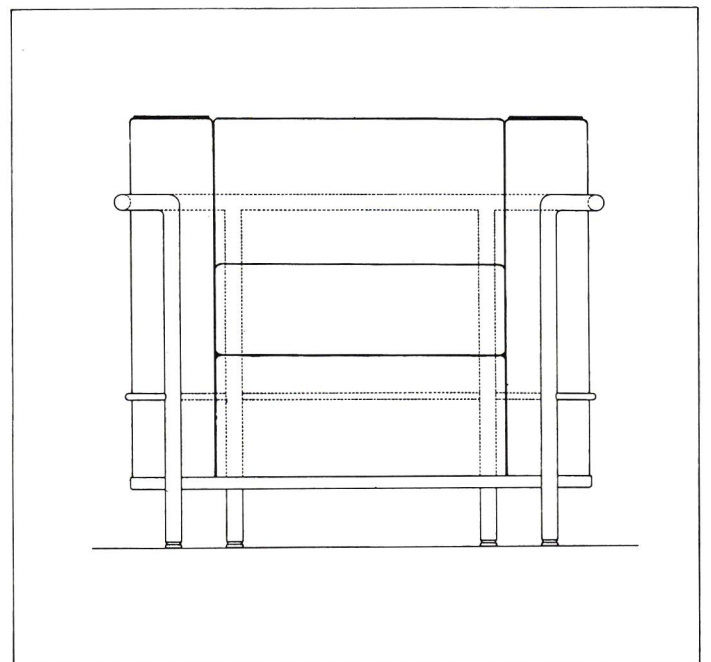




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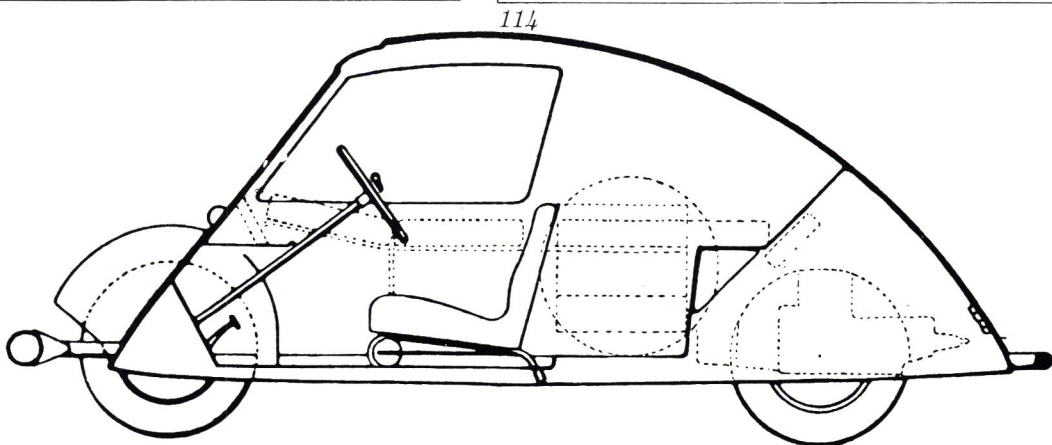
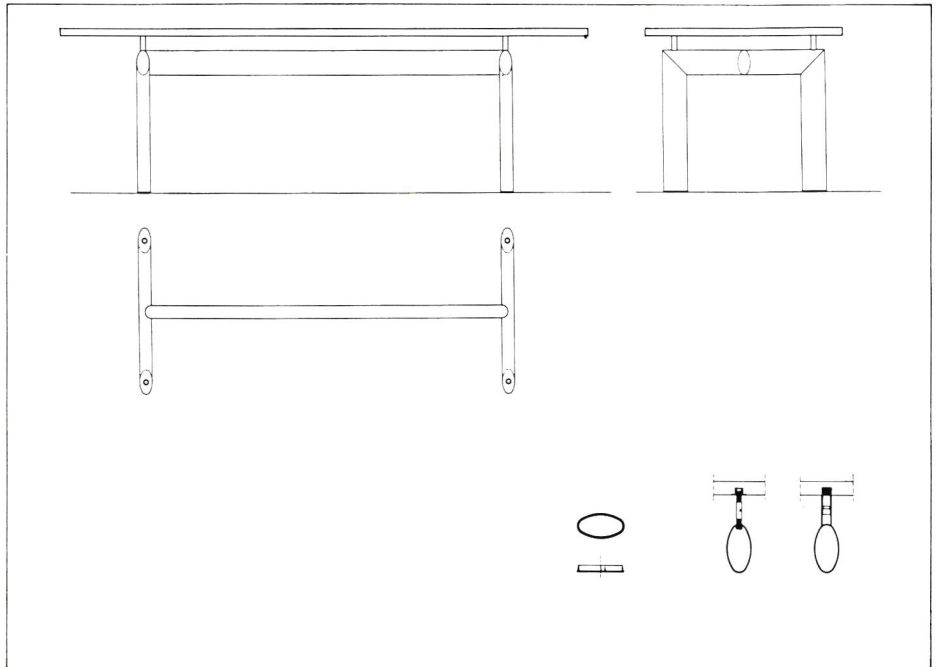
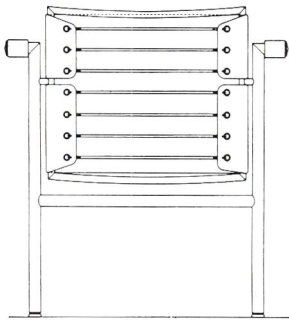
112 Thonet experimental chaise longue in bentwood and cane. Perriand, 1933.

113 Le petit fauteuil basculante. Perriand and Le Corbusier, 1929.

114 La table en tube d'avion. Perriand and Le Corbusier, 1929.

115 Le grand confort (châssis porte coussins), elevation. Perriand and Le Corbusier, 1929.

116 Maximum-car. Le Corbusier and Jeanneret, 1928. The quintessential piece of equipment for a machine-age civilization.



56 viding the space; 3) the free facade—the corollary of the free plan in the vertical plane; 4) the long sliding window or *fenêtre en longueur*; and finally, 5) the roof garden supposedly recovering as green space the area of ground occupied by the house.

The frame of the Dom-ino and the solid lateral walls of the Maison Citrohan determine to an equal degree the basic *parti* of all these houses—their liberal use of free-standing columns, their free facades, and cantilevered floor slabs. The frame of the Maison Dom-ino, as initially projected (comprising two wide bays and a narrow stair bay to one side), constitutes the rhythmic formula linking the overt Palladianism of the Villa Schwob to the suppressed Palladianism of the villa at Garches; both structures are organized about the classic Palladian ABABA rhythm of 2:1:2:1:2. However, as Colin Rowe has pointed out, a similar syncopation also obtains in the other dimension. In both houses, the basic grid rhythmically alternates across the plan as a sequence of single and double bays. In fact the basic difference between the two works arises from Le Corbusier's use of the cantilever. Thus in the villa at Garches, the back to front rhythm is  $\frac{1}{2}:1\frac{1}{2}:1\frac{1}{2}:1\frac{1}{2}:\frac{1}{2}$  (fig. 80), while at Malcontenta it is  $1\frac{1}{2}:2:2:1\frac{1}{2}$  (fig. 81) and the corresponding compression of the central bay of the villa at Garches displaces configuration to the outer bays, which are augmented by the extra half-unit of the cantilever. Palladio, on the other hand, secures a dominance for the central division and a fixed progression toward the portico. In both cases the projecting element, terrace or portico, occupies one and a half units in depth. Rowe specifically contrasts the centrality of Malcontenta to the centrifugality of Garches (figs. 79–81). “At Garches the central focus has been consistently broken up, concentration at one point is disintegrated, and replaced by a peripheral dispersion of incident. The dismembered fragments of the central focus become, in fact, a sort of serial installation of interest round the extremities of the plan” (figs. 77–79).

Aside from its Purist layering of frontalized planes in space and its play with transparency, remarked on by Rowe and Robert Slutzky (fig. 76), Garches was signifi-

cant for its resolution of a problem that had been first posed by Loos, namely how to combine the comfort and informality of the Arts and Crafts plan with the asperities of geometrical, if not neoclassical, forms or, to put it another way, how to reconcile the private realm of modern convenience with the public facade of architectural order. As Le Corbusier's Four Compositions of 1929 would indicate, Garches was able to achieve this, with an elegance unavailable to Loos, through the displacements afforded by the concrete frame and the invention of the free plan. In Garches, this disjunction was established by cantilevering the public facade clear of the structure and the subdivided interior.

If Garches is to be associated with Malcontenta, then the Villa Savoye (figs. 86–90), as Rowe points out, may well be compared to Palladio's Villa Rotunda. The almost square plan of Savoye, with its elliptical ground floor and centralized ramp, may be read as a reinterpretation of the centralized and biaxial form of the Rotunda. In his book *Précisions* of 1929, Le Corbusier made the latent Palladianism of the Villa Savoye abundantly clear. He wrote, “The inhabitants come here because this rustic landscape goes well with country life. They survey their whole domain from the height of their *jardin suspendu* or from the four aspects of their *fenêtres en longueur*. Their domestic life is inserted into a Virgilian dream.”

With Savoye, one arrives at the last of Le Corbusier's Four Compositions. The first was the Maison La Roche of 1923, which he presented in 1929 as a Purist version of the typical Arts and Crafts plan; that is, as a *genre plutôt facile, pittoresque, mouvementé*. The second was shown as an unattainable ideal. The third and fourth (in effect the Villas Garches and Savoye) were alternative strategies for reconciling the first two, the former depending on a subtle integration of the First and Second Compositions and the latter on the simple encompassing of the First Composition by the Fourth.

With their 1927 entry to the international competition for the League of Nations headquarters in Geneva (figs. 91–97), Le Corbusier and Pierre Jeanneret produced their

first design for a large and complex public structure. Their attention had hitherto been focused on the 'house' and on the concomitant simplicity of the basic prism. Now they addressed themselves to the necessary complexity of the 'palace' form. The competition's conditions stipulated two separate structures, one for the secretariat and one for the assembly, and this led the architects to take an 'elementarist' approach to the design; that is to say, they adopted a polytechnical procedure (cf. the work of J. N. L. Durand) by which the constituent architectural elements of a program are first established and then manipulated in order to generate a variety of alternatives. Such an approach, which was an extension of the 'elementarism' professed at the turn of the century by the Beaux-Arts master Julien Guadet, would no doubt have come to Le Corbusier via Guadet's principal pupils, Tony Garnier and Auguste Perret. That this soon became his usual method for dealing with large complexes is shown by his preliminary studies for the Palace of the Soviets project of 1931 (figs. 103–107). In this instance, under the published alternatives we read the caption, "The various stages of the project, wherein one sees the organs already independently established, the one from the other, take up little by little their reciprocal places to culminate in a synthetic solution." A comparable remark is appended to an alternative scheme for the Société des Nations project, published in his book *Une Maison, Un Palais* of 1928. Under a symmetrical and evidently more rational layout from an operational point of view, we read, ". . . alternative proposition employing the same elements of composition. The assymetrical organization finally adopted suggests a conflict between the circulatory logic of the symmetrical layout and a classical preference for displaying the representative facade of the assembly building on the axis of entry."

After the League of Nations competition of 1927, the Engineer's Aesthetic and Architecture seemed to refer increasingly to a schism within Le Corbusier's own ideology, rather than to an opposition that was capable of synthesis. By 1928, this split was most evident in the contrast between the undeniable monumentality of the Cité Mondiale and those delicate pieces of lightweight

tubular steel furniture (figs. 108–115) that he designed at the same time with Charlotte Perriand—*le fauteuil à dossier basculant, le grand confort, la chaise longue, la table 'tube d'avion' and le siège tournant*—all of which were exhibited at the Salon d'Automne of 1929. A certain rationalization of this difference in approach had been anticipated already in Purist aesthetic theory which had argued that the more intimate the relation between the man and the object, the more the latter must reflect the contours of his form, that is, the more it must approximate to being the ergonomic equivalent of the Engineer's Aesthetic—and that conversely the more distant the relation, the more the object will tend toward abstraction; that is, toward architecture.

#### Source Note

*This is a revised version of a chapter from Kenneth Frampton's forthcoming book A Concise History of Modern Architecture to be published by Thames and Hudson in June 1980.*

#### Note

1. Paul Venable Turner, *The Education of Le Corbusier* (New York and London: Garland Publishing, Inc., 1977), p. 93.

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 2, 4, 7, 105, 116 From Le Corbusier, *Creation is a Patient Search* (New York: Frederick A. Praeger, 1960).  
 8 Charles Jencks, *Le Corbusier and the Tragic View of Architecture* (Cambridge, Mass.: Harvard University Press, 1973).  
 11, 43, 44 From Roger Sherwood, *Modern Housing Prototypes* (Cambridge, Mass.: Harvard University Press, 1978).  
 12 Le Corbusier, *Aircraft* (London: Studio Publications, 1935).  
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 17, 33, 88, 102 From *Aujourd'hui*, no. 51. November 1965.  
 18 From *Léger and Purist Paris* (London: The Tate Gallery, 1970).  
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 24 From *L'Esprit Nouveau*, 2 (New York: Da Capo Press, 1968).  
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 38, 39, 41, 70, 75, 82–85 Photographs by F. R. Yerbury. Collection of the Architectural Association.

- 58 45 From *1776–1976 Zwei hundert Jahre Berlin* (Berlin, 1977).  
46–49, 96 From *80 Designi di Le Corbusier* (Bologna: Edizioni ente Fiere, 1977).  
51 Courtesy of the author.  
54, 55 From *L'Architecture Vivante*. Autumn 1927 (New York: Da Capo Press, 1975).  
56, 57, 59a–d, 66, 90 Drawings by Werner Seligmann.  
59e Drawing by Neil Payton.  
63 Collection of The Museum of Modern Art, New York.  
67–69, 89 From *L'Architecture Vivante*, Spring 1929 (New York: Da Capo Press, 1975).  
74, 76 From Colin Rowe, Robert Slutzky, Bernhard Hoesli, *Transparenz* (Basel: Birkhauser Verlag, 1968).  
77 From Andrea Palladio, *The Four Books of Architecture* (New York: Dover Publications, 1965).  
78, 80, 81 From Colin Rowe, *The Mathematics of the Ideal Villa and Other Essays* (Cambridge, Mass.: MIT Press, 1976).  
79 Lionello Puppi, *Andrea Palladio* (Boston: N.Y. Graphic Society, 1975).  
87, 91 From *L'Architecture Vivante*, Autumn/Winter 1927 (New York: Da Capo Press, 1975).  
92 From Alberto Izzo, Camillo Gubitosi, *Le Corbusier Designi* (Rome: Officina Edizioni, 1978).  
94, 97 Le Corbusier, *Une Maison, Un Palais* (Paris: Les Editions G. Crés et Cie., n.d.).  
99, 100 From *L'Architecture Vivante*, Spring/Summer 1931 (New York: Da Capo Press, 1975).  
103 From *Le Corbusier et Pierre Jeanneret* (Boulogne sur Seine: Editions de l'Architecture d'aujourd'hui, n.d.).  
104, 106 From *L'Architecture Vivante*, Autumn/Winter 1932 (New York: Da Capo Press, 1975).  
107 Le Corbusier and Pierre Jeanneret, *Oeuvre Complète de 1929–1934* (Zurich: Editions Girsberger, 1964).  
108, 110 From *Le Corbusier, Charlotte Perriand, Pierre Jeanneret: Machine d'Asseoir* (Rome: De Luca Editore, 1976).  
109 From *L'Architecture Vivante*, Spring 1930 (New York: Da Capo Press, 1975).  
111–115 From Renato de Fusco, *Le Corbusier designer* (Milan: Casabella, 1976).

*From the time of Brian Brace Taylor's thesis Le Corbusier at Pessac (Harvard, 1972) the genesis of the Dom-ino system has remained something of a mystery for not only did Taylor's research reveal an extraordinarily perplexing range of extant archive material on the subject of low-cost housing in the period 1912 to 1925, but the actual specifics of the procedure as a patent building system were left somewhat unclear. Since then the challenge of the Fondation archive and the curious fact (presumably unknown to Taylor) that one of the main protagonists of this sixty-five year old story still happens to be alive—namely Max Du Bois—have led to two subsequent studies based on almost identical material, first Joyce Lowman's doctoral thesis presented in the essay form as "Corb as Structural Rationalist: The Formative Influence of the Engineer Max Du Bois," published in The Architectural Review, in October 1976, and now the following essay by Eleanor Gregh dedicated specifically to the genesis of the Dom-ino system and to the way this system was seen by Jeanneret as the manifest instrument of an industrialized Mediterranean culture and a force which he conceived as bringing about a classic, Latin revitalization of European architecture.*

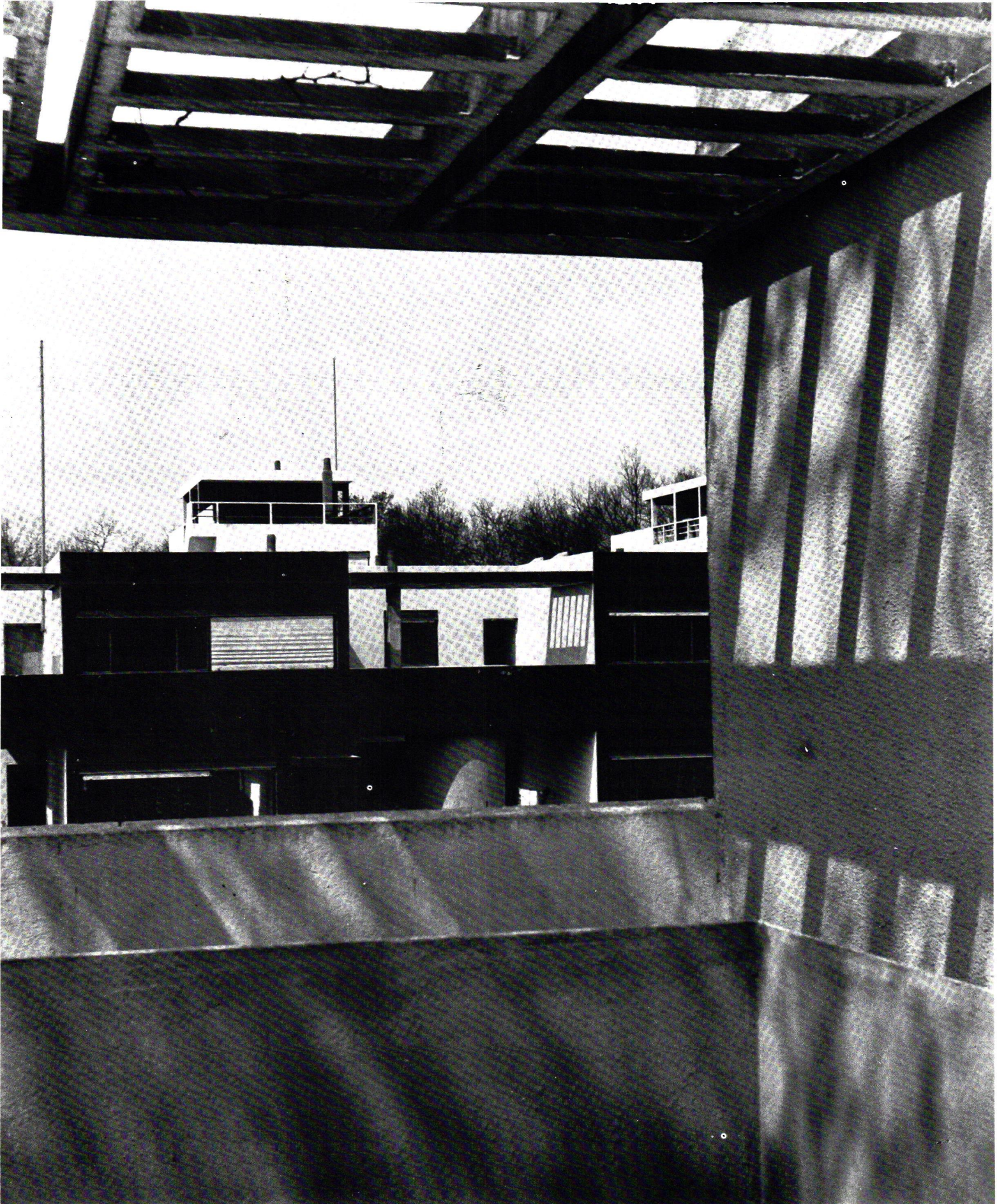
*To a greater degree than any other structural invention at the turn of the century, reinforced concrete proffered the possibility of resolving*

*into a single architectonic paradigm the disparate forces of technical progress and classical culture. The tectonic and cultural opportunities presented by this invention had already been fully elaborated by Tony Garnier and Auguste Perret by the time Jeanneret began to work on the Dom-ino system in 1913. What Jeanneret attempted to add to their rational-classical vision was his own quasi-socialist aspiration stimulated by Alfred de Foville's Enquête into the state of housing in France of 1894—the development of a generic industrialized building system, whose trabeated form would be capable of transcending the age old split between high and low culture. On numerous occasions Le Corbusier projected small settlements made up of Dom-ino units whose plan form was supposed to simulate the vernacular street-house formation of French provincial villages. In the Dom-ino system—supposedly rendered cheap and rapid through prefabrication and the use of temporary, reusable steel formwork—Le Corbusier posited a modern typological equivalent of the pure, prismatic, popular vernacular of the Mediterranean.*

*The following documentation and analysis of the vicissitudes through which this tectonic and technical idea passed between 1913 and 1916 reveal a great deal about the dubious feasibility of the Dom-ino as a system. At the same time it fails to account fully for the current*

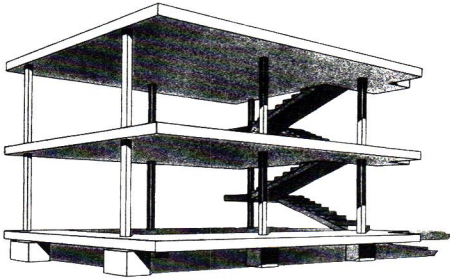
*state of reinforced concrete engineering at the time that the idea was first broached. Unfortunately we still do not know the exact form of the structural system adopted by Le Corbusier in his Villa Schwob of 1916, which in the few extant construction photographs seems curiously close to the system now known as flat plate (broad flange) hollow pot reinforced construction. Similarly while Morsch's classic text of 1908—Le Béton Armé (translated by Du Bois)—gave no space whatsoever to the subject of beamless slabs, we do know that Jeanneret possessed, soon after its publication, the American Portland Cement Association's pamphlet of 1912, which described a system of hollow tile concrete floor construction similar to that posited in the Dom-ino. Thus despite this important and exhaustive study of its genesis, the mystery of the Dom-ino remains as a strangely recalcitrant theme on which the last word presumably has yet to be written.*

*K.F.*



## The Dom-ino Idea<sup>1</sup>

Eleanor Gregh



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1 Pessac, Le Corbusier 1926. The basic structure of the Dom-ino system is reflected in the latticework over the terrace.

2 Perspective of Dom-ino system. Original caption reads "monolithic structure in reinforced concrete cast without formwork. . . ."

It is generally agreed that the Dom-ino system of 1914 provided Jeanneret-Le Corbusier with a point of departure for realizing an ideal and personal vision of a new architecture in new materials. In this way, it holds the key to Le Corbusier's architecture of the 1920's and heralds the famous Five Points of Architecture, which sum up the aesthetic of that period. 61

Dom-ino is a frame system of reinforced concrete construction invented in response to the urgent problem of rapid rehousing, which arose as a result of the destruction of whole villages and towns at the beginning of the war in 1914. The frame is rectangular, slightly raised from the ground on six equidistant footings. From these rise six reinforced concrete columns of standardized measurements, which support the floor slabs and the stair element. The floor slabs, likewise of reinforced concrete and completely smooth, without supporting beams, overlap the columns on the short sides and cantilever slightly on the long sides. As a result, the columns are on the perimeter of the structure, but do not appear on the facade. The simplicity of the frame means that any number of individual units may be combined in a variety of ways (fig. 2).

The architectural potential generally attributed to Dom-ino may be summarized as follows. The reduction of the building to a few standardized elements provides the basis for systems of modular proportion.<sup>2</sup> Since the columns alone bear the full structural load, the architect can enjoy a maximum freedom in organizing the interior space of his construction. The overlapping of the floor slabs on the short sides and the slight cantilever on the long sides mean that the columns do not appear on the facade, leaving a clear surface for the architect to manipulate at will. The complete smoothness of the structural elements means that, when exposed, a column presents a free-standing volume and a floor slab a clear planar surface. In short, the Dom-ino system so liberates the elements of architecture from the exigencies of structural necessity as to reduce to a minimum the limits on the architect's freedom to design both functionally and aesthetically.

This widely accepted view of the Dom-ino idea, though



62 true, is, in *historical* terms, but a partial one. Seeing the idea simply as a *beginning*, it takes account of future developments in Le Corbusier's architecture and ignores the past.<sup>3</sup> To have a more complete historical picture, it is necessary to consider Dom-ino as both a *beginning* and an *end*, to relate the idea to Le Corbusier's past as well as to his future thinking. The Dom-ino idea was a moment of synthesis, when Jeanneret-Le Corbusier succeeded in focusing a welter of ideas, attitudes, and aspirations that had preoccupied him over many years. In gathering up the past, Dom-ino oriented him toward the future.

This article is an attempt to further develop our already existing view of the Dom-ino idea (see note 1), but to approach this objective by means of two preparatory stages: first, to give as full an account as possible of the idea itself (as we shall see, the account is not complete and compiling it poses certain problems); and second, to establish as full a chronology as possible of the project (1913–1916) as a framework for investigation. Once the idea has been clarified in these ways, an attempt can be made to relate it to the rest of Jeanneret's preoccupations until that time (1907–1916), with a view to defining its place in the development of his thought.

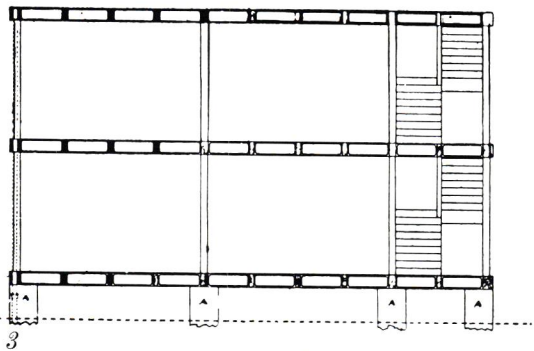
Perhaps because it was never put into practice as such, the Dom-ino system, as a system, has rarely been examined, despite the fact that Le Corbusier himself does say that the idea set off fifteen years of experiment and research, culminating in the system which he and Pierre Jeanneret conceived in response to the passing of the Loucheur law on housing of 1928–1929. Le Corbusier's text on Dom-ino, in his *Oeuvre Complète, 1910–1929, Vol. I*, leaves questions unanswered, notably concerning the technical method for erecting the structure, but it throws some light on the more complex significance we must give the idea, and therefore provides us with a good point of departure for our investigation.

Le Corbusier makes six points about the Dom-ino system.

1) It is purely structural, being quite independent of the interior plan of the house; whatever the plan, the structure remains the same. 2) The constituent elements are

standardized and may be assembled in a variety of ways, this flexibility being a source of diversity in designing groups of houses. 3) The reinforced concrete columns are poured *in situ*. Once they have set, metal spigots are attached to each column, their function being to hold in suspension a grid of steel I-beams, formwork for the pouring of the floor slabs, which must be completely smooth on both sides. This new technique does away with traditional, costly, wooden formwork, replacing it with a metal system which may be reused any number of times. 4) An engineering firm is responsible for delivering the Dom-ino frames to the site, grouped in accordance with the architect-townplanner's particular design. 5) As regards the design of the house itself, the particular position of the concrete columns on the perimeter of the structure (therefore not in any way impeding the interior space) and yet just inside the outer edge of the floor slabs means that the architect has complete freedom in the disposition of the interior walls, doors, cupboards, and other fitments, as well as complete freedom in the organization of the facade. 6) Another firm, sister to the first, is responsible for the manufacture of all possible fitments, inside and out, according to standardized measurements. The building procedure is then as follows: the structure is erected; the fitments are placed; finally the interior dividing walls and exterior walls are constructed.

There are two important implications in Le Corbusier's statement. First, the *economic* advantages of such a system as Dom-ino are manifold. The simplicity of the structure and its adaptability to any kind of plan, the standardization of the parts and the invention of re-usable formwork, all make it possible to envisage a simplification and rationalization of the building process and its organization on a national, even international, scale. Once the frame and fitments have been designed, production can go on uninterrupted and it becomes possible to plan and calculate precisely the requirements of any particular scheme. The economy in time and materials that this represents is clear. The second, more important implication is that, far from limiting an architect's freedom to design, as we might have supposed, this rationalization of the building process can increase it. The reason for this is that



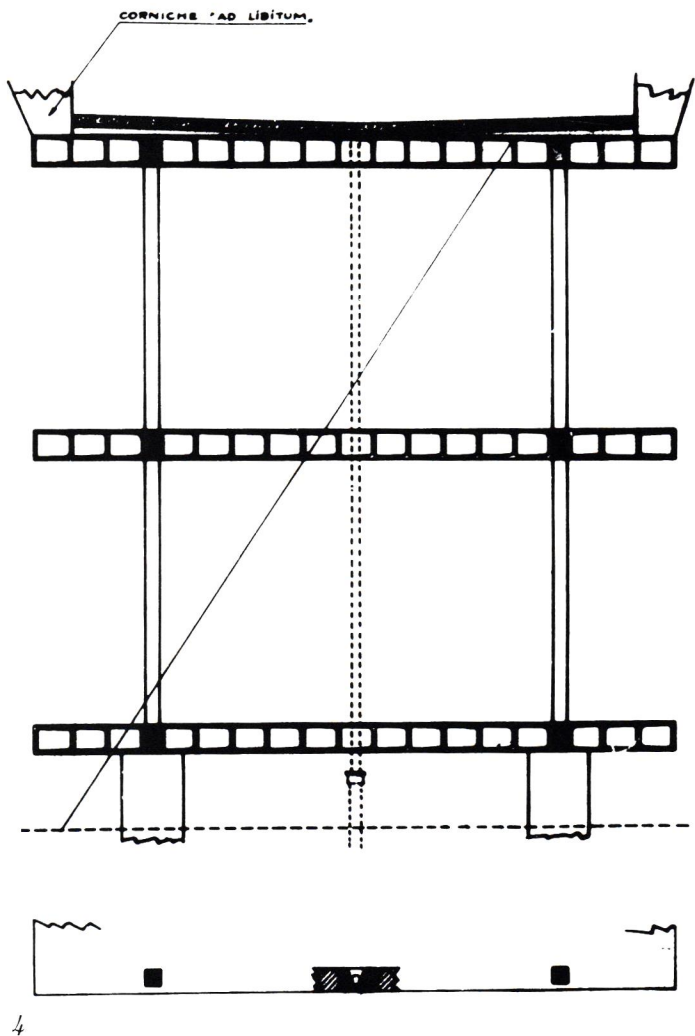
3 Dom-ino, longitudinal section.

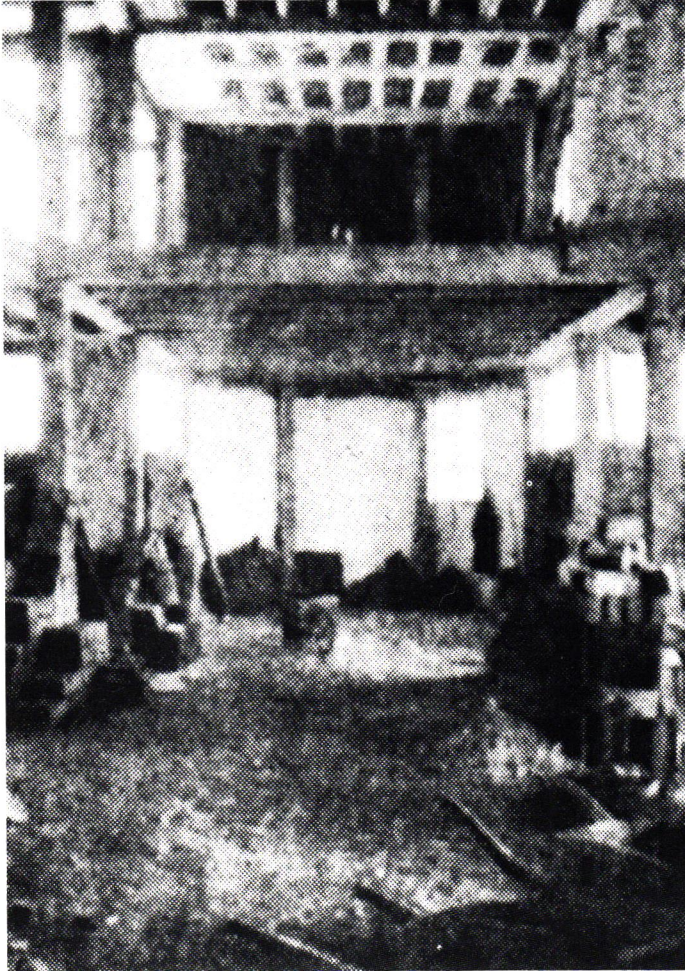
4 Dom-ino, cross-section.

3  
 it is an *architect* who takes the initiative and designs a frame which *a priori* will give him maximum freedom in the design of both the interior space and the facade (the reinforced concrete columns on the perimeter of the structure yet just inside the outer edge of the floor slabs and the complete smoothness of all the structural elements are the essential architectural requirements). Further, the standardized fitments designed by the architect give him unprecedented control over the expression of the interior space. Once the frame and fitments have been designed, the constructional problems may be left to the technicians and engineers to solve. And once the frame and fitments are being produced by specialized industrial firms, the architect's task, once more, becomes purely one of organization of the elements so as to satisfy both the functional and aesthetic needs of his clients.

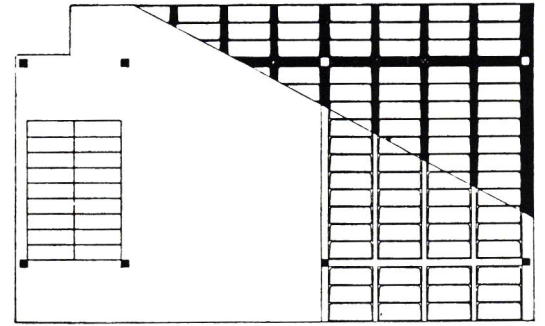
These two implications, taken together, give the Dom-ino idea in 1914 the character of a vision. For sheer economic reasons, it was inevitable that the new building materials and industrial processes of construction would triumph. If architects continued to ignore the new tendency (as in 1914 they were still doing), if the rationalization of the building industry was left entirely in the hands of the engineers, who could not be expected to understand the special requirements of the architect, then architects would surely lose their creative freedom and become slaves to the building process. For a new architecture to be born of the new materials and techniques, architects would have to take the lead, posit their requirements, and enlist the aid of the engineers to realize them. The standardized elements designed by architects and engineers together could then become the formal vocabulary of modern architecture.

So much can be deduced from Le Corbusier's text on Dom-ino. What remains obscure is precisely the technique he envisaged for making the frame. First, the text is misleading in its suggestion that the frame was, at least in part, prefabricated (cf. references to standardized elements and to an industrial firm responsible for the delivery of the frame) since both columns and slabs were, in fact, to be poured *in situ* and the only elements to be





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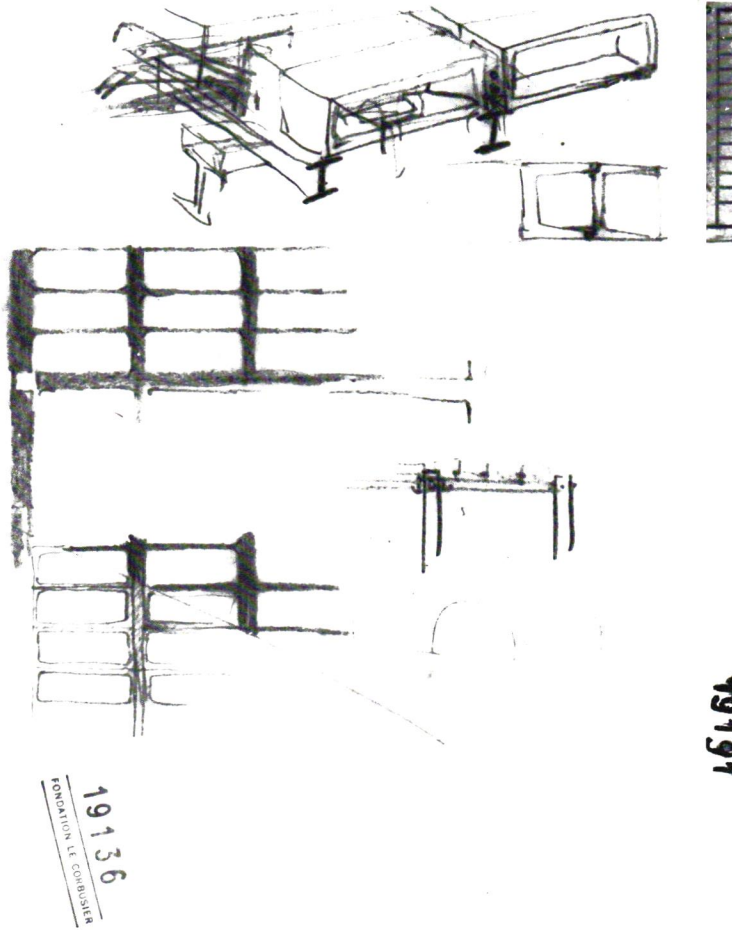
prefabricated were the reusable metal formwork and the various fittings inside and out. No text has yet been found giving a final description of the constructional technique (it has been impossible to find trace of the Dom-ino patent among the archives of the Institut National de la Propriété Industrielle in Paris, where all patents in France are kept), so that it is only possible to conjecture (as Brian Brace Taylor has done in his thesis, see note 1), using the drawings in the *Oeuvre Complète*, Vol. I (sections through the frame and floor slab, figs. 3, 4, 6); an undated sketch (fig. 7); and a few very rough sketches (fig. 8) in Jeanneret's 1915–1916 sketchbook (see note 1), as to what the constructional system was intended to be.

Our conjecture runs as follows. The footings are equally spaced upon the ground (fig. 10), and the first floor slab placed directly on them.<sup>4</sup> The six reinforced concrete columns are then poured as far as first floor level, presumably using traditional wooden formwork. Once they have set, metal spigots are attached to the upper part of the columns. Their purpose is to support temporary steel beams a little below the level of the top of the columns, in such a way as to form the perimeter of a rectangular frame (figs. 9, 11, 12). Then, smaller steel I-beams are laid breadthwise across this stout frame (overlapping it to form the cantilever on the long sides) at regular and frequent intervals, in order to serve as supports for rows of hollow tiles (figs. 6, 7, 9, 11, 12). Steel reinforcement is introduced along the small I-beams between the rows of tiles, and concrete poured to give concrete joists between the tiles. In this way, the lower surface of the floor slab, alternately tile and concrete joist, is coincident with the top of the smaller I-beams. Once the concrete has set, all the steel beams are removed, leaving a slab with smooth surfaces on either side. The columns are continued as far as roof-level, and the same process repeated for the final slab.

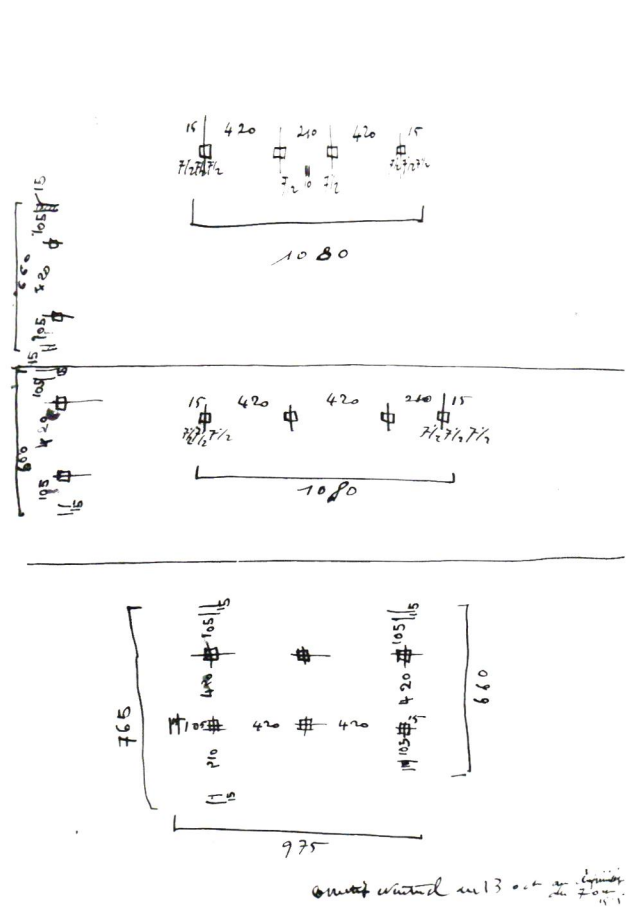
This conjecture leaves certain questions unanswered. 1) Would not extra formwork be needed to support the floor slab on the short sides during pouring? 2) Figure 6 shows the rows of hollow tiles interrupted at just two points, so that reinforced concrete may also be poured lengthwise,

5 Villa Schwob. Le Corbusier, 1916.  
 It is evident that this work already  
 utilized a system of construction  
 similar to that of the Dom-ino.  
 6 Dom-ino. Typical floor plan with  
 horizontal section through the  
 structure.

7 Dom-ino. 1915/1916 sketch  
 showing temporary support to  
 hollow floor units.  
 8 Dom-ino. 1915/1916 sketch of  
 overall dimensional system.



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66 across the small I-beams and between the concrete columns, linking them. Again would not this need extra formwork? 3) Would steel formwork, unless used on a massive scale be more economical than the traditional wooden formwork? 4) Would not the steel formwork require time and skill to set up and dismantle? All these considerations together—the expense of producing the formwork, the time and expertise needed to put it in place raise queries as to the greater cheapness and rapidity of the Dom-ino system compared with other systems, and *might* suggest reasons why the idea was not implemented.<sup>5</sup>

But are these reasons valid? First, it must be emphasized, our description of the system *is* conjecture. Lack of evidence and especially of a final description of the system<sup>6</sup> make it impossible to ascertain how the technique for producing Dom-ino evolved or what the final solution exactly was. Our criticisms may therefore be misplaced. Second, the principle of hollow tile and concrete joist construction for producing smooth floor slabs was perfectly orthodox in 1914. The system, using wooden formwork, is described in a 1912 handbook on concrete published by the American Association of Portland Cement Manufacturers.<sup>7</sup> Third, two engineers, Max Du Bois<sup>8</sup> and Juste Schneider,<sup>9</sup> and not Jeanneret himself, were responsible for finding the method of construction and making the necessary calculations. Schneider was himself the inventor of the floor slab.<sup>10</sup> Finally, Jeanneret showed the Dom-ino project to Auguste Perret, master of reinforced concrete construction, in June 1915, and received from him, apart from a few slight criticisms, approval and encouragement.<sup>11</sup> These facts surely force us to conclude that, if Dom-ino at some stage in its development displayed technical disadvantages, there were none that could not have been overcome, and that convincing reasons that the Dom-ino project was not realized at the time will have to be found elsewhere. The chronology of the project, as far as we are able to establish it, may suggest the reasons. More important for our purpose, however, the chronology enables us to develop further the more complex significance we must give the Dom-ino idea.

In 1909, after a journey to Italy, Vienna, and Paris (where

he worked with Auguste Perret, see note 11), Jeanneret returns to his native La Chaux-de-Fonds. There he renews contact with his childhood friend Max Du Bois (see note 8), who gives him a copy of his recently published translation of E. Mörsch's book on reinforced concrete, *Le Béton Armé*. According to Du Bois, in the course of their discussions about reinforced concrete construction, he suggests to Jeanneret that building methods would be greatly simplified if elements were pre-manufactured and assembled on site. If this is true, then this suggestion must be the seed of the Dom-ino idea.

In 1912, after a second journey, this time to Germany and the Orient, Jeanneret returns to La Chaux-de-Fonds for good and takes up his career as an architect. In the air is a proposal (frequently alluded to by Jeanneret in his letters to Du Bois during 1912) for building a factory on Du Bois family land. Jeanneret hopes that he and Du Bois will be able to collaborate on the project and so demonstrate how industrial building may be endowed with architectural qualities.

In 1913, a building slump in La Chaux-de-Fonds causes Jeanneret seriously to consider finding work elsewhere on a larger scale. He turns his attention away from the factory project to a more general and far-reaching problem: housing. In a letter to Du Bois of 17th January 1913, Jeanneret sketches what must be the first outline of the Dom-ino idea. Here, Jeanneret goes beyond the notion of applying architectural procedures to industrial building. He now wants to use industrial building procedures in architecture, realizing that that same alliance between the engineer (master of the new economic constructional techniques) and the architect (master of proportion) can be the means of effecting a transformation in domestic building. He proposes such an alliance to Du Bois and suggests he exert his influence in order to turn this new idea into a reality.<sup>12</sup>

No further allusion is made to the proposal for two years, but there are signs to suggest that it remains in Jeanneret's mind as he works toward a definition of the central problem in modern architecture and of his own role as an

architect. Between 20th and 23rd December 1913, Jeanneret visits the Salon d'Automne to see an exhibit of forty modern interiors.<sup>13</sup> He becomes aware of the pressing need "to determine the house appropriate to the times"<sup>14</sup> and for architects to do so by adopting the attitude of engineers, "who work for what is useful, sound, and strong" and "understand the solemn seriousness of their task."<sup>15</sup> The experience anticipates Jeanneret's article *Le Renouveau en Architecture*, mentioned in a letter to Du Bois, 29th January 1914, at the same time as an interest in the new developments in German town-planning theory.<sup>16</sup> The house and the city become Jeanneret's main preoccupations at this time. Since, in defining a problem one inevitably defines the context in which it will be solved, so, in defining the central problem of modern architecture as that of the house, on the one hand, and urban design, on the other, Jeanneret seems to come to a greater awareness of the modern architectural context. So a letter to Du Bois of July 1914, written on his return from the Cologne Werkbund Exhibition and a visit to Lyon,<sup>17</sup> would seem to suggest: "I have prepared a tract on ultra-modern architecture: concrete, iron, American houses, the Perrets, Tony Garnier-Lyon,<sup>18</sup> reinforced concrete bridges, New York tramways (*sic*), etc. . . . I feel I have it in me to be someone one day. I am obsessed with building on a large scale, useful and noble, for that is what architecture is about."<sup>19</sup> The context, which Jeanneret here defines, is the European avant-garde.

The invasion and devastation of Belgium follows almost immediately the declaration of war in the first days of August 1914. At once, Jeanneret recognizes that the war will precipitate the revolution in modern architecture.<sup>20</sup> During October and November, Du Bois is back in Switzerland. He agrees to collaborate with Jeanneret on the Pont Butin project for Geneva<sup>21</sup> and discusses his proposal of 17th January 1913 in the light of Belgium's plans for rapid reconstruction.<sup>22</sup> The form and character of the Dom-ino frame must have been conceived at this time.<sup>23</sup>

In December, Du Bois returns to Paris and Jeanneret begins work on the two projects, producing a first series of sketch plans using the Dom-ino system by the third of

the month.<sup>24</sup> During the Christmas break, Jeanneret looks through his files on the subject, discusses his ideas with "certain reliable persons"<sup>25</sup> and convinces himself of the viability and originality of the Dom-ino idea. He decides to make it his first priority, planning to complete the scheme in all its details by the spring. Acutely aware of the likely competition in this field, Jeanneret emphasizes the need for speed and thoroughness in planning, so that they may be ready to put up whole villages at a moment's notice. In Paris, however, Du Bois does not seem to attach great importance to the idea: "if it fails, it will still have been an interesting study."<sup>26</sup> During the months following, he seems to keep a studied silence on the subject.<sup>27</sup>

In June 1915, news reaches Jeanneret of laws being passed in France covering the reconstruction of destroyed towns and villages and of plans published by Reims and other cities. The added stimulus of a visit to Auguste Perret in the South of France leads Jeanneret to raise once more the question of the Dom-ino project, in a letter to Du Bois dated 15th June 1915. Perret gives the idea his wholehearted approval and even points out the system's suitability for *all* building types, a remark which causes Jeanneret to perceive the obvious link between the Dom-ino idea and his own long-standing research on town planning.<sup>28</sup> Perret also indicates the areas requiring more study: the floor slabs, which need to be strongly reinforced; the formwork; the marketing of the product (see note 11). Perret's approval gives the idea an air of reality; the news from France confirms that the context is appropriate; a final boost comes from Jeanneret's friend William Ritter, who promises to arrange a meeting with a member of the Belgian Government, Carton de Wiart.<sup>29</sup>

Shortly after his visit to Perret, Jeanneret arrives in Paris for a protracted stay (probably 28th July until 16th September 1915),<sup>30</sup> with the intention of conducting extensive research into the various subjects preoccupying him. As well as reading widely at the Bibliothèque Nationale on town planning past and present, and preparing a book on *L'Allemagne-France*,<sup>31</sup> he fills a sketchbook with notes and drawings on the various aspects of the Dom-ino project.<sup>32</sup> The sketchbook contains notes on house types and

68 plans based on his reading of Foville<sup>33</sup> and Janet.<sup>34</sup> There are also a few general statements about the kind of architecture he envisages: “in broad, organic lines,” “Roman,” and based on the multiples and divisions of a geometric module, like all great architecture of the past (see note 2). Most important for us, however, are the notes which indicate a development, even slight, in Jeanneret’s concept of the constructional system and the degree of his reliance on the advice and invention of his engineering friends Du Bois, Schneider, and even Perret, as well as his plans for the practical organization of the scheme and the marketing of the product.

According to the sketchbook (p. 67), Jeanneret designs the frame and Du Bois is to devise the formwork. Yet it is Schneider who answers Jeanneret’s query (p. 64) as to how the reinforcing rods and formwork for the columns are to be carried up from the footings, and it is also he who invents the floor slab (see note 10). At the same time, the sketch book seems to reveal Jeanneret’s own tenuous grasp of the constructional technique. One sketch (p. 25) shows a concrete column with the first steel beam lying on top of it and the smaller I-beam resting on top of that, such as to create three different levels. A note alongside reminds Jeanneret to consult Auguste Perret about this problem. A later sketch (p. 63) corrects the picture by showing the concrete column fitted with a round iron rod to hold the metal spigot, such that the first steel beam is flush with the top of the column.

Most of all, the sketchbook investigates the commercial aspects of the Dom-ino idea. An association is planned between Du Bois, who is to assume administrative control, Jeanneret, who is to act as consultant architect, and a third collaborator (p. 32). But before the new firm can be launched, Du Bois must register the patent by September, and Jeanneret must complete the drawings for a sales brochure by October, to be printed during November-December, and then, in January 1916, move definitively to Paris (p. 33).

In trying to define the aims of the new firm, Jeanneret asks two questions. Will it be an expanding enterprise,

ready to branch out into other kinds of architectural activity, or will it simply supply the requirements of the national reconstruction program and fold up after 1920 (p. 93)? Jeanneret’s notes for a sales brochure show that his interest lies in an expanding firm concerned with producing whole houses. The brochure is to include: (1) a brief but complete description of the frame, with a page on the details of the constructional process; (2) a commentary on the aesthetic virtues of the frame, on the traditional architectural values of the North, and on materials; (3) a description of the consultant architect’s role; (4) illustrations of the standardized elements (windows, doors, cupboards, etc.) and the different ways of combining them; (5) a description of the various sales procedures open to the client (p. 30).

With this concept of the association in mind, Jeanneret notes in detail its practical organization: the division of tasks, the sources of revenue, the payment of fees and commission, and the distribution of profits. The firm’s resources are dues on the patents for the frame, the roof design, the cornice design, and the various standardized elements used in constructing a Dom-ino house. The fees and commission due to each partner are calculated as precise rates and percentages.<sup>35</sup> All three partners share in the task of attracting business: B. (third partner) by issuing brochures,<sup>36</sup> Du Bois by exploiting his contacts, Jeanneret by advertisement. Then, Jeanneret and B. draw up the estimates, negotiate the sales, and make the final agreements. Once the sales agreement is signed, Jeanneret executes the final drawings and makes supervisory visits to the site, while B. monitors the deal.

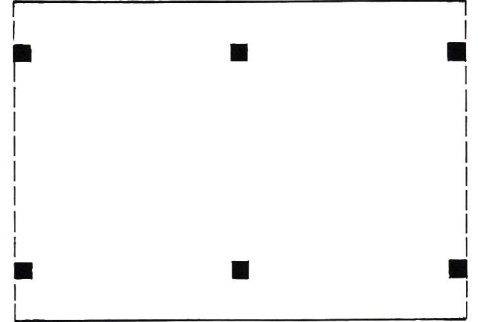
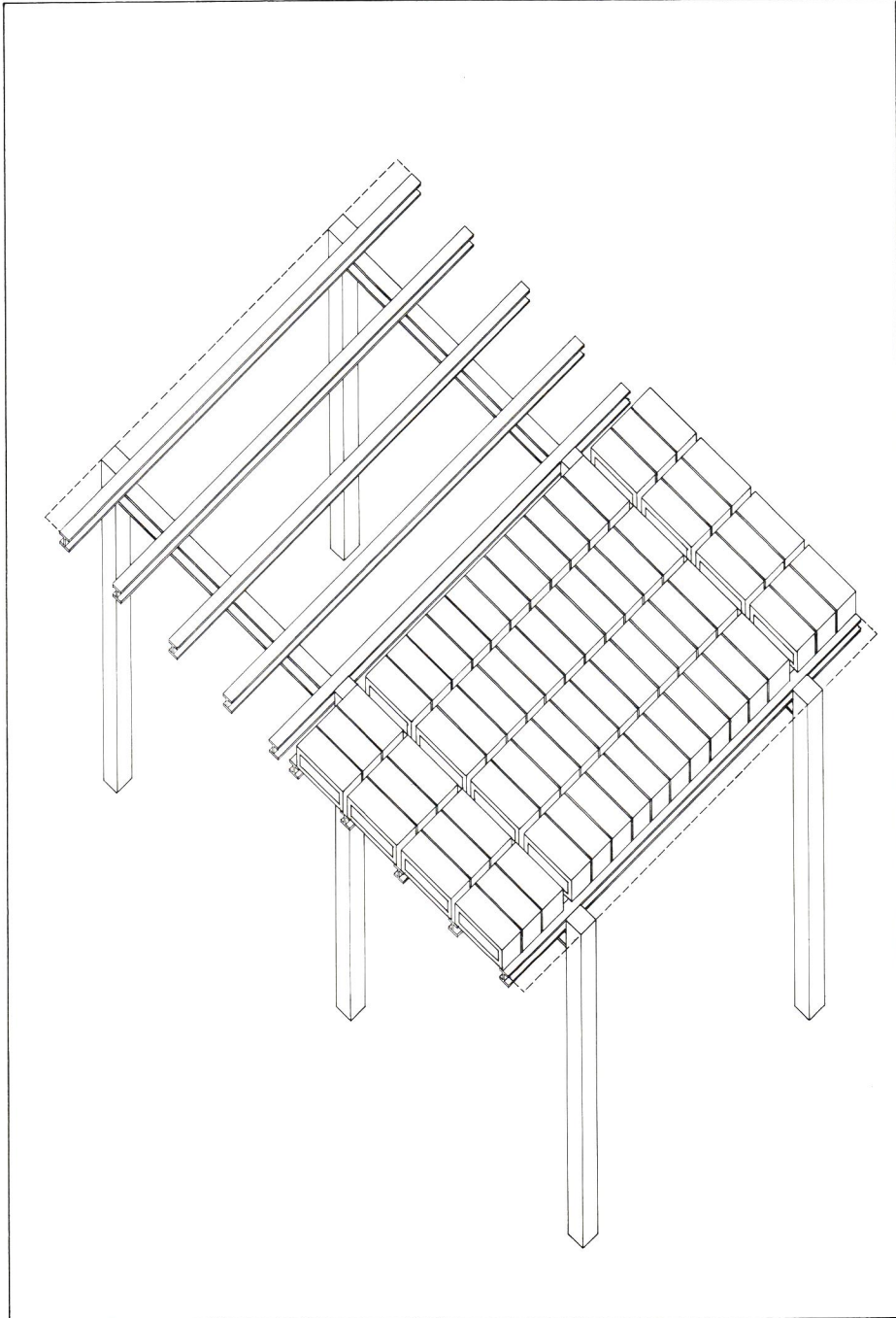
The sketchbook alone, with its explorations of the sociological (Foville and Janet), architectural, technical, and practical (economic and administrative) aspects of the Dom-ino project, adds greatly to our first assessment of the idea’s significance. It also bears witness to Jeanneret’s initiative. As if he were aware of others’ coolness, it shows him preparing to take on the greatest share of work, so determined is he to realize the scheme and establish himself as an architect in Paris. He designs the frame in all its detail, makes plans, elevations, and interior arrange-

9 *Dom-ino. Axonometric of  
constructional method without stair  
bay.*

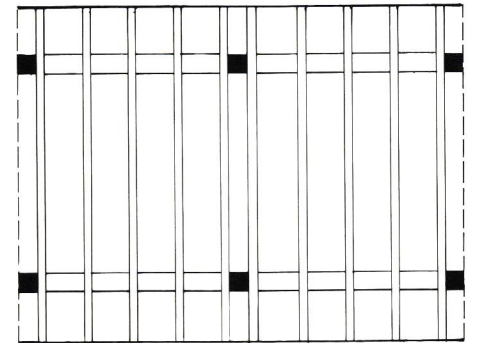
10 *Dom-ino. Floor plan without  
stair bay.*

11 *Dom-ino. Plan of columns and  
temporary support system.*

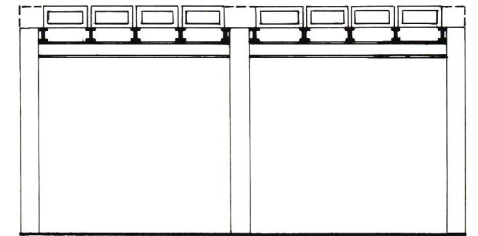
12 *Dom-ino. Section showing  
temporary support system.*



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70 ments; he writes, illustrates, and prints the sales brochure; he participates in the sales, as well as discharging his particular function as consultant architect. The responsibilities of his partners are relatively light. "Is it then a crime if the common destiny enables Jeanneret more easily to establish himself in Paris? And for Du Bois, eventually, there will be the benefits of partnership and the returns of his shares" (p. 93).<sup>37</sup>

By 1st October 1915, Jeanneret has mailed five batches of drawings to Du Bois so that he may assess the quality of the project and take the necessary steps toward patenting the idea. But, unluckily for Jeanneret, the invasion of the Balkans soon after dashes of all hope of an early end to the war and an early start to reconstruction. Jeanneret accepts that now is perhaps not the time for patenting Dom-ino, although he inveighs against Du Bois for attempting to withdraw completely from the scheme, accusing him of blindness to Dom-ino's potential and of not keeping his part of their bargain, namely finding the capital resources and clients to back the idea. In working on the drawings for the sales brochure, Jeanneret has been enlarging and clarifying the Dom-ino concept, making exciting discoveries. The system, he tells Du Bois, will make it possible to design villas on a grand scale at the current price of workers' housing, and will become the basis of an architecture that can be expanded into urban design. Standardized elements (including windows, doors, gates, etc.) are the key to order and diversity in modern design: "Order, rhythm, and unity reign in our invention."<sup>38</sup>

In spite of Du Bois's recalcitrance, preparations to take out a patent move ahead slowly. By 17th November 1915, Jeanneret has completed all the drawings for the patent and is waiting impatiently for news from Du Bois.<sup>39</sup> He wants to know how to sign the drawings and when to send them, to see Du Bois's text for the patent in order to sign it, and to complete the formalities making Du Bois his mandatory in Paris. The knowledge that American consortiums are already making overtures to North European industrialists for contracts to rebuild destroyed villages and factories heightens Jeanneret's sense of urgency. By 26th November, Jeanneret knows at last that

Du Bois is taking action. A French Député, interested in Dom-ino, requires a complete dossier of drawings. Before this is possible the patent must be registered. Jeanneret expects this to be done by 10th December, but on 15th he is still filling in forms and again suspecting Du Bois of trying to opt out of the scheme altogether.<sup>40</sup> It is only on 11th January that Du Bois at last files the application for a patent of the Dom-ino idea.<sup>41</sup>

On completing the drawings for both patent and sales brochure in November 1915, Jeanneret turns his attention to promoting the project. Between November and March 1916, besides the French Député, the Italian, Polish and Belgian Governments show interest. Jeanneret tries first to exploit his contacts in Parisian journalistic and artistic circles and prepares to publish his two tracts on the construction of towns and *L'Allemagne-France* (see note 31). Most crucial, however, to the realization of Dom-ino is founding the firm to manufacture and sell the frame on a large scale, for the scheme remains unviable so long as no factory is committed to producing the frame. Jeanneret's hopes that some arrangement will be made with S.A.B.A. depend wholly on Du Bois, whose continuing coolness over the Dom-ino idea causes Jeanneret to tread carefully.<sup>42</sup> A letter from Rupert Carabin,<sup>43</sup> telling him that the time is ripe for giving Dom-ino full publicity and that an exhibition, *La Cité Reconstituée*,<sup>44</sup> is to come to the Jeu de Paume, at last moves him, in March 1916, to suggest to Du Bois that S.A.B.A. construct a model Dom-ino house for the exhibition in order to promote the idea. He promises "for our project critical views of a high caliber, such that the press may be of service to us. I have important connections in this respect."<sup>45</sup> Subsequently, Jeanneret abandons this idea because of Perret's negative opinion of it. Perret suspects that the exhibition, being in the hands of a clique, will achieve nothing and favors more direct action through private enterprise: "it will be better for S.A.B.A. to take it on. But let her get on with it!"<sup>46</sup> Without the publicity of a national exhibition, it becomes even more imperative to convince Du Bois and S.A.B.A. quickly of the viability and importance of the Dom-ino idea, and Jeanneret continues to press Du Bois for an agreement by the summer.<sup>47</sup>

But Du Bois does not move for several months and, ironically, when he does, early in September 1916,<sup>48</sup> and the way for Jeanneret to go to Paris is clear at last, it is Jeanneret, who, suddenly overwhelmed with work,<sup>49</sup> has to postpone his arrival for the finalization of the agreement beyond the assigned date 15th September.<sup>50</sup> He does not manage the journey before the end of October,<sup>51</sup> but at last an agreement between Du Bois, Bornand (see note 36), and Jeanneret is signed on 17th November 1916.<sup>52</sup> Jeanneret's pact with Paris, center of the new architecture, is sealed, and the first assignment, the Plan d'Imphy,<sup>53</sup> reaches him in La Chaux-de-Fonds in December.<sup>54</sup>

“And all this, simply in order to give an idea, born and set down on ephemeral paper, the durability of stone. Thus man is not content merely to invent; he must experience the realization of his idea, feel its weight, its body, the reality of it.”<sup>55</sup>

Why then was Dom-ino dropped after 1916? The chronology suggests three possibilities: Du Bois's lack of enthusiasm; the missed opportunity of *La Cité Reconstituée*; the prolongation of the war until 1918.

From the beginning, Du Bois not only failed to do the research Jeanneret asked him to do (see note 22), but also delayed in answering letters and tried several times to opt out of the scheme altogether. Our impression is that Schneider, rather than Du Bois, solved the key constructional problems, while Jeanneret made the most strenuous efforts to find a clientele. It has even been suggested that the association to set up Jeanneret's architectural practice in Paris was Bornand's idea.<sup>56</sup> Now, Du Bois maintained that the Dom-ino idea was not suitable for a patent and, in one sense, he may have been right (see note 41). Probably, as an engineer, he considered the idea from a constructional point of view and saw nothing extraordinary; hundreds of firms and individuals were having similar ideas (see note 44). For him, it was “a simplistic idea, which I had without bothering to develop it, but which Jeanneret, in his youthful enthusiasm, thought could be the basis of a revolution.”<sup>57</sup> This is the crucial irony. It

would seem that *because* he was an engineer, who could not be expected to understand the special requirements of the architect, Du Bois was blind to the fact that as well as exploiting all the advantages of modern materials and techniques (economy, rapidity, and flexibility), the Dom-ino frame gave the architect greater artistic freedom than he had ever before enjoyed. *Architecturally*, the idea *was* revolutionary: a clarion call to other architects to embrace the new building revolution and make it theirs. Perhaps for this reason also, Du Bois was right: the idea was not material for a patent.

Jeanneret accepted Perret's opinion of *La Cité Reconstituée* because it favored action instead of show.<sup>58</sup> But to be effective, the action had to be immediate. It was a question of launching a private organization for reconstruction as an example to override the efforts of the Establishment in the exhibition (see note 46). Action was not immediate. Perhaps it was too late?

The war turned out to be a long war and perhaps Du Bois understood this better than Jeanneret. His firm S.A.B.A. was mainly concerned with industrial, not domestic, building and from 1914–1918 must have been given over entirely to the war effort. Jeanneret, rendered idle by the building slump at the beginning of the war, had time to consider the implications of the aftermath when it came. These circumstances may also, to some extent, explain Du Bois's coolness toward the Dom-ino scheme (it seemed premature) and why an agreement with S.A.B.A. was not immediately forthcoming. The prolongation of the war until 1918 meant too that Jeanneret had time to transform his ideas. By 1918, he had met the painter Amédée Ozenfant, become familiar with the Parisian avant-garde and begun to paint himself. The transformation manifests itself in the Citrohan idea of 1920 and then in Le Corbusier's subsequent architectural development.<sup>59</sup>

We defined Dom-ino as the synthesis of many ideas held over a long period. The chronology helps us to separate the elements of that synthesis. 1) For economic reasons, modern architects would be forced, eventually, to use the new materials and building technique. It was a matter of

72 urgency that architects and engineers cooperate in order to develop the formal vocabulary of the new architecture. 2) The revolution in the building industry, where one process could now be used for all building types, would lead to an increase in the *scale* of operations. If the central problem of modern architecture was the house, then it would have to be considered in terms of the whole urban environment. In this way, modern architecture would extend into town planning and assume a new *social* dimension, involving study of the sociological aspects of design. 3) The new law of economy governing decisions to build and the inevitable increase in the size of projects would lead to the commercial organization of architecture. In his sketchbook, Jeanneret visualizes the ideal situation: a profitable and expanding architectural firm concerned with the design *and* manufacture of standardized elements and the erection of whole buildings, even towns. The upshot, of course, would be a streamlining of the architectural process, since the architect would be involved at every stage. 4) The increase in the scale of operations would cause new patrons to emerge: industrialists, businessmen, and public institutions, including governments. To persuade them, the modern architect would have to master the economic arguments in favor of his design, exploit press publicity, and play the political maneuvering games of judicious timing and string-pulling.<sup>60</sup> 5) Finally, in spite of all this, architecture, “both useful and noble,” would have to continue to express both functional *and* spiritual values, and the modern architect, like all his predecessors, would remain first and foremost an artist. In modern architecture, proportion would be of the essence: standardized elements would guarantee a controlled expression of diversity, giving rhythm, order, and unity to the total design.

To sum up, the position was that a new, modern architecture was possible if architects accepted without delay the challenge and implications of the revolution in the construction industry. Their grasp of the technical, sociological, commercial, and administrative repercussions for architecture would be the only means of guaranteeing, and even extending, their creative freedom of action and authentic self-expression: “Palaces, embankments, bridges,

great Gothic churches . . . an epic in stone, epic of the individual, his age and his ideas, his likes and dislikes! I, my Self, here in stone!”<sup>61</sup>

The notion of an alliance between art and industry was with Jeanneret from the outset, for La Chaux-de-Fonds founded its art school to train designers for the local watch and watch-engraving industry, and it was with this career in view that he became a pupil there.<sup>62</sup> Competition from Europe’s industrializing countries, threatening the industry since the turn of the century, led L’Eplattenier, Jeanneret’s art master, in 1906–1907, to launch the Cours Supérieur in an effort to extend the range of artistic and industrial production in the region. Thus Jeanneret turned from watch-engraving to architecture and espoused the dream which grew out of the change, that a generation of young artists (painters, sculptors, architects, and decorators) should found a new popular art, an authentic and consistent expression of the Swiss Jura civilization. Since such a popular art is, by definition, democratic, L’Eplattenier’s ideal has an obvious social dimension: its realization would depend on the people of La Chaux-de-Fonds identifying with the new art, showing solidarity with the artists and uniting with them in transforming the town, its aspect, and its industry.<sup>63</sup>

In the absence of a living, regional, artistic tradition (broken off since the eighteenth century),<sup>64</sup> L’Eplattenier’s students, following the precepts of Ruskin and Owen Jones, returned to nature, studied local flora and fauna for an understanding of the character and structure of form, and synthesized their findings by creating ornamental designs. Though, as a result, Jeanneret’s conception of form must have been an essentially two dimensional one, this study of nature trained him to think both analytically and synthetically, especially about his environment, and also gave him his first inkling of the mathematical or *proportional* relations suggestive of an order in the natural world.<sup>65</sup> Then ideas, derived from his early reading, must indeed have reinforced Jeanneret’s idealism. They were ideas about an imminent architectural revolution using new materials and a purer architecture destined to bring about an amelioration of society.<sup>66</sup> However, so far,

Jeanneret's direct personal experience had been limited to daily contact with provincial, *Swiss* architectural traditions and to the practice of Owen Jones's principle, that the artistic merit of good architecture lay in good ornament. It seems realistic to assume, therefore, that there existed, at this time, a gulf between Jeanneret's first-hand experience and the very abstract ideas he had gained from books, since these were expressed in terms of a wider context, that of the *European* tradition, which he had yet to discover for himself. The beginning of this discovery, of the widening of Jeanneret's horizons and the gradual metamorphosis of his ideas, was in 1907, when L'Eplattenier, their formal training now complete, sent his students abroad to study the contemporary artistic context and to ascertain the true character of the times (see note 64). On their return, they and their master together would lay the foundations of the new Swiss Jura art.

Vienna, where Jeanneret passed the winter of 1907–1908 after his visit to Italy, was a disappointment. He came to the conclusion that its modern art, because it was not based on nature or the honest use of materials, could not provide a valid model for the La Chaux-de-Fonds movement, and that he and his colleagues would not have to seek their artistic inspiration away from the Teutonic countries.<sup>67</sup> At the same time, however, Jeanneret realized that his understanding of modern Viennese architecture was hampered by his own lack of technical education, which was to the architect what knowledge of grammar and syntax is to the writer: it left him free to practice his art.<sup>68</sup> Because of his difficulties in German, Jeanneret first sought this education in Paris.

Paris proved to be the technical and artistic center he was seeking.<sup>69</sup> In Auguste Perret's office (see note 11), he learned the first principles of reinforced concrete construction and design, while at the same time studying mathematics, Viollet-le-Duc's dictionary (which he acquired), and the art of Paris's monuments and museums. The drawings of this period, as Dr. Sekler's thesis shows (see note 1), reveal a new awareness of three-dimensionality: structures are considered from several points of view;

form is treated as a solution to a problem; the architectural object begins to be related to its environment. This gradual awakening to the real nature of architecture brings with it a growing interest in the unity and continuity of the city, in the sequential experience of architectural form and urban space.<sup>70</sup>

Thus Jeanneret's reunion with Du Bois in La Chaux-de-Fonds at the end of 1909 came in the wake of these radically new experiences and was opportune, for he could be receptive both to Du Bois's newly published translation of Mörsch's book on reinforced concrete and to any suggestions for a prefabricated system of reinforced concrete construction.<sup>71</sup> But, on his return, Jeanneret did not swerve from his master's ideal of a new regional art. During the period of assimilation from December 1909 until April 1910, when he set off again, this time for Germany, the Jura landscape, "an environment conducive to the blossoming of a healthy art," inspired Jeanneret and his master to "cherish sublime thoughts of purely ideal schemes";<sup>72</sup> "dreams . . . and . . . faith in their realization."<sup>73</sup>

From April to November 1910, Jeanneret was based in Munich, where he met Theodor Fischer and, probably through him, became acquainted with the organization of the Werkbund and many of its leaders. Awaiting a vacancy in an architect's office where he might continue his technical education, Jeanneret followed up his new and growing interest in urbanism, undertaking, with La Chaux-de-Fonds as his focus, a research project into the problems of town planning, which undoubtedly oriented his analysis of modern German developments. He also made journeys, notably to Berlin in June for the *Stadtbau* Ausstellung, where he was impressed by the German planners, especially Jansen with his plans for Gross Berlin, and met, among others, Behrens, Muthesius, and Bruno Paul.<sup>74</sup> At last in November he gained admission to Behrens's office and stayed until March 1911.<sup>75</sup> Then, until mid-May, before leaving for his journey to the Orient, Jeanneret toured the remaining German towns in order to complete his research for the commissioned report on the *Mouvement d'Art Décoratif en Allemagne*.<sup>76</sup>

74 Jeanneret was impressed with the organization of the Werkbund and its large conceptions; he could “feel how badly organized we are, . . . how little modern, how little architects. What we do is too small, too Gothic.”<sup>77</sup> This statement might sum up Jeanneret’s lesson in Germany: that, contrary to the principles of Owen Jones, ornament could not be “the very soul of an architectural monument,”<sup>78</sup> being itself essentially non-architectonic; that it was small-scale, individualistic, and provincial, and therefore not in tune with the spirit of an emerging industrial society.

Jeanneret identified the secret of German success as having created a “milieu” (in his word) in which industrial art could flourish. It reflected a national ability—to grasp the whole and not merely the details of any situation—which expressed itself not only in industrial organization, but also in art: “What I have seen here has taught me one excellent principle: that it is only the beauty of the whole which counts.”<sup>79</sup> La Chaux-de-Fonds completely lacked such a coherent environment, within which the individual artist could produce his works. The result was that the artist continually failed to communicate with his public, which, having lost its natural instinct for beauty, could only respond to the strong impact of an overall design and no longer to the beauty of an isolated object.<sup>80</sup> However, Germany had created the right milieu, thanks to government backing. La Chaux-de-Fonds, whose movement had affinities with the German one, might do the same<sup>81</sup> if it were not that in doing so she would negate the ideal of a popular art: “We dream of a popular art . . . to be able to realize it depends on the people’s agreement; we shall have their approval and encouragement only when we have learned to seize hold of it, or at least to inspire it” (see note 63). The brochure in which Jeanneret intended to publish the fruits of his research on towns was his first exercise in the art of public persuasion.

In his plan for the brochure,<sup>82</sup> Jeanneret defined the ideal city as the expression of man’s dream to improve his condition by living in society. The security it offered him, based on a high standard of civic order, both physical (health) and moral (discipline), left him free for the higher

pleasures and the pursuit of a common ideal. Modern movements toward reform in towns were reactions to the abuses of the nineteenth century. The twentieth century would be an age of public institutions, in which each individual would play his part: “Hence our need to widen considerably all our activities.”<sup>83</sup> An analysis of the bad planning and extreme ugliness of La Chaux-de-Fonds (a “leprous spot,” see note 64), followed by an exposition of past Swiss traditions “showing the beauty we have within ourselves, inherited from the past,”<sup>84</sup> was to provoke in the reader first disgust for the present and then hope for the future. (Jeanneret’s alternative plans would undoubtedly have followed the recent German models of the Berlin Stadtbau Ausstellung, described by him as “art brought back into the streets and so into daily life.”)<sup>85</sup> The replanning of the town and the re-education of the people in new kinds of schools, which would lay the “emphasis on beauty and a greater contact with nature,”<sup>86</sup> would together create a milieu favorable to “large-scale popular movements towards an ideal goal” and restore “to its former excellence the people’s natural instinct . . . destroyed by a wretched education.”<sup>87</sup> In other words, the reformed town, expression of the new popular art, embodiment of the common aspiration to a better state, would be a reflection of nature,<sup>88</sup> itself “an environment conducive to the blossoming of a healthy art, of happiness and serenity.”<sup>89</sup>

Certain metaphysical and aesthetic notions had begun to crystallize around these newly developed concepts without the relationship between the two becoming clear: such adjectives as “calm, serene, healthy, and strong,”<sup>90</sup> and such ideas as “it is only the beauty of the whole which counts and this beauty depends on proportion and on the vitality of the main planar relationships; on strong contrasts in tone and the use of strong materials; finally on the contrast brought by introducing with discernment a touch of richness into a design of overall simplicity” (see note 79). In Behrens’s office, however, “the impact was violent”:<sup>91</sup> there, Jeanneret *suddenly* realized the significance of the fact that Germany’s leading architects—Behrens, Paul, Messel, and Schmitz—were all basing their designs on classical principles. He took a fresh look at

recent history and everything seemed to fall into place, giving him a total picture of Germany's role in the development of a *modern, European* tendency in art.<sup>92</sup>

Writing to L'Eplattenier, 16th January 1911, Jeanneret exposed his views.<sup>93</sup> The creation of a Federal Germany had assured her economic rise. Art had been made just "one of the stones in the economic edifice." Accordingly, the useful arts had flourished, but "the metaphysical nature of the creative act, which constitutes the sublime quality of art, is not even suspected here: in Germany, painting and sculpture, the sole outward expressions of the spirit of our age, are stupid and always behind the times." So full-scale economic and political "autocratic" organization had not been a guarantee of spiritual development. Modern German architects, servants and industry, used classical principles in order to express the functional unity of the State, which had been achieved by industrial organization, but remained blind to their spiritual implications. Thus, in Germany, the new tendency had tenuous roots in tradition—in Schinkel's architecture and the criticism of the nineteenth century—and none at all in *contemporary feeling*. In France, however, Germany's economic inferior, individual painters and sculptors had for long been pioneering the new classical tendency, "which confines itself to creating volumes that respond to the play of light in what are essentially geometrical rhythms, and is the rediscovery, at last, of the joy of form," expressing "that simplicity and joy, that *need for unity and return to health*" (my italics).<sup>94</sup> Once France organized herself to take up the German economic challenge, and once her people, "who worked change solely by revolution," recognized this new expression of its own genius, then, being the traditional home of modern classicism, she would take Europe by surprise and outstrip the German achievement. "Having set herself up as minister and congregation of a new religion, Germany will realize with amazement that her new God, still unrevealed, is the spirit of Mediterranean culture" (see note 93).

In Vienna 1907–1908, Jeanneret had declared that the La Chaux-de-Fonds movement would have to seek its inspi-

ration away from the Teutonic countries, whose art was "essentially a product of the will and reason and not of intuition."<sup>95</sup> In Paris 1908–1909, he had discovered (as well as the principles of modern construction, the third dimension, and the unity and continuity of the city) French classical architecture, "those wonderful styles, *so closely related to our own*" (my italics). The grandeur of Versailles had brought about "the crumbling of my obscure and archaic beliefs" and the reign of "classical lucidity." For Jeanneret, Germany in 1910 seemed to confirm his initial, instinctive responses.<sup>96</sup> He saw that France possessed what Germany lacked and that it, alone, could provide a valid model for a future popular art movement at La Chaux-de-Fonds.<sup>97</sup>

Since leaving La Chaux-de-Fonds in 1907, Jeanneret's observation and analysis of his environment had caused a revolution in his thought. In four years, he had succeeded in clarifying three important issues: first, the massive scale of the modern industrial development (inducing in every sphere of activity large, bold conceptions); second, the kind of context necessary for a popular art to flourish; third, the most appropriate direction to follow in developing a modern style. Translated in terms of architecture and the modern architect's role in society, this meant responding to the expansion of the construction industry and planning for whole environments instead of individual buildings; and evolving in the new materials an architectural style, inspired of classical sources, which would express the unity of a society, where all productive activity was to be coordinated and directed toward a common goal. Translated in terms of the La Chaux-de-Fonds art movement, it meant rejecting provincialism in favor of becoming an integral part of the wider European context; accepting voluntarily to coordinate the various branches of local industrial and artistic activity; and developing a regional, modern style in harmony with both past Swiss classical traditions and the spirit of an emerging, *European* industrial civilization. So now, having completed his technical education in Behrens's office and his study of the German industrial and artistic context for the commissioned report *Etude sur un Mouvement d'Art Décoratif en Allemagne* (see note 76), and with these ideas now

76 clear in his mind, “to conclude my life of study,”<sup>98</sup> Jeanneret set off in May 1911 for the Mediterranean, to steep himself in the ancient classical sources.

The journey was also undertaken as a kind of escape. Jeanneret was by now acutely aware that he had outgrown L’Eplattenier’s plans. He knew that his new ideas would be unacceptable not just to the town but also to his art master. He knew too that a popular art movement in a hostile town was bound to fail. Yet feeling under a moral obligation to return, he made the journey east in the naive hope that it would calm his heretical ideas.<sup>99</sup>

Events forced Jeanneret to confront his dilemma. In Constantinople in July 1911, his post in the Nouvelle Section of the La Chaux-de-Fonds Art School, and so the inevitability of his return, was confirmed.<sup>100</sup> At the same time, a chance meeting with Auguste Perret offered him the opportunity of sharing in the design of the Théâtre des Champs Elysées in Paris. This renewed contact with Perret filled him with the “dread of a petty, provincial life, for he brought with him all Paris, with her modern poets, musicians, and painters,”<sup>101</sup> and yet, despite this, Jeanneret refused Perret’s offer and decided to return to La Chaux-de-Fonds. There were several reasons for this decision. There was his sense of loyalty to L’Eplattenier: “I am disposed to care deeply for things; I often catch myself thinking heretical thoughts, that would give the ‘pope’ back there grounds for fear. But would you have me leave him all alone, the ‘pope’, my most devoted friend? After all he has done, I must go back, even though my faith has left me, because I know success is impossible.”<sup>102</sup> There was his love of the Jura and the persistent *dream* of a Jura art: “Then should we leave behind us Coliseums and Baths, an Acropolis and mosques, and our Jura mountains would provide as beautiful a setting for these as the sea.”<sup>103</sup> There was his fear of the loneliness and pain of a rupture with the past: “I have been made particularly aware, during this long journey, of the true nature of friendship . . . the more support one has, the more one feels stable, secure, and serene. I feel the immensity of Europe and how one man alone is lost in it.”<sup>104</sup> And finally, there was his longing to share in a group

effort, “to live integrated with one’s environment,”<sup>105</sup> “to be a source of support, not conflict . . . to be one small unit in a large crowd.”<sup>106</sup> So Jeanneret decided to continue to support L’Eplattenier in trying to found a popular art movement at La Chaux-de-Fonds, and to hope that his ideas might be influenced to change.

But conflict was inevitable, for Italy brought Jeanneret again “under the harsh, tyrannical sway of an autocratic tendency, which I feel within me,”<sup>107</sup> and from which, on this journey, he had been trying to escape.<sup>108</sup> The dramatic contrast between Italy and the Orient so crystallized his thought that now, for the first time, he could visualize the new architecture: “Italy is a graveyard, where the dogma of my religion now lies rotting. All the bric-à-brac that was my delight now fills me with horror. I gabble elementary geometry; I am possessed of the color white, the cube, the sphere, the cylinder, and the pyramid. Prisms rise and balance each other, setting up rhythms . . . in the midday sun the cubes open out into a surface, at nightfall a rainbow seems to rise from the forms. In the morning, they are real, casting light and shadow and sharply outlined as a drawing. . . . Straight roads, no ornament. A single color and material for the whole town . . . roads on rooftops midst the trees and flowers . . . and wide open spaces, where one can breathe. We should no longer be *artists*, but rather penetrate the age, fuse with it until we are indistinguishable. Then, should we leave behind us Coliseums and Baths, an Acropolis and mosques, and our Jura mountains would provide as beautiful a setting for these as the sea. We too are distinguished, great and worthy of past ages. We shall even do better still, *that* is my belief. . . . But we need dogma, renewal, a harsh, bracing climate, and to take the whip to those who dissent. I shall return, cut my friends, call insults down upon me . . . and create a void all around me.”<sup>109</sup>

In November 1911, Jeanneret returned to La Chaux-de-Fonds with “the sense of something bitter and tragic within me.”<sup>110</sup>

Jeanneret’s contact with European tradition, past and

present, had transformed the simple notion of founding a popular, regional, industrial art into a sophisticated concept, which gave deeper purpose to his study of architecture/urbanism and modern constructional techniques, and eventually led to the crystallization of the Dom-ino idea. The organization and presentation of the project and the determination with which Jeanneret sought and won real support for it, while owing something to the German experience, was mainly due to the lessons learned at La Chaux-de-Fonds 1912–1916, the milieu where he began the struggle to earn his living as an architect. Through bitter experience, he had learned his mistake in not going to Paris; he had learned too the role of business and political maneuvering in architecture and the true nature of patronage.

Jeanneret came home to an ugly town hemmed in by mountains, “a harsh country,” “incredibly dark,” “the firs about as friendly as a saw ready to cut you in two,” the horizon right up under your nose.”<sup>111</sup> Seemingly cut off from the outside world, community life appeared to Jeanneret narrow, provincial, and governed by petty politics; the people materialistic, mercenary, and philistine. Building was small-scale and architects’ fees low, making professional rivalry intense and shady dealings the norm. In La Chaux-de-Fonds the architect was like a “traveling salesman,” *art* being “the gorgonian mask, which makes opportunity vanish from sight.”<sup>112</sup>

From the first, the Nouvelle Section was under attack and it was clear that L’Eplattenier, “too caught up in politics,”<sup>113</sup> would be unable to pursue his own artistic evolution and come abreast of Jeanneret’s ideas. Jeanneret’s own efforts to communicate with the people failed; his articles on the Orient, published in the local *Feuille d’Avis* during 1911, met with ridicule, and his report on Germany, published in 1912 (see note 76), a stony silence.<sup>114</sup> The hostility and philistinism severely eroded his faith in the ideal of a popular art; his isolation intensified his nostalgia for Paris.

The town authorities lacked an overall planning policy: “there are no large-scale works in this town . . . and there

will be no building in 1913. My ambition prompted me to such work. This profession drives one to support autocracy.”<sup>115</sup> From 1913 until mid-1916, the building sector stagnated and, despite his title of “architecte en béton-armé,” most of Jeanneret’s work was interior design. His discouragement became deep depression, almost morbidity, as he felt his best years slip by: “The weeks and months pass by and I feel as though my energy were frittering away.”<sup>116</sup>

The worst trial was his enforced self-prostitution. To subsist, Jeanneret had to seek success and success meant compromise: “Business! What a dilemma! If you try to please people, you become corrupt and sell yourself; if you do what you feel you must do, you cause displeasure and create a void around yourself.”<sup>117</sup> Once the commission was won and his rivals outwitted by fair means or foul, “it is then that purgatory sets in”<sup>118</sup>—the *actual* loss of artistic integrity by designing to please the client; the invasion of more important speculative thought by business and money matters; the horrors of “machinations”<sup>119</sup> “which have to be covered up with a veil of chaste decency: to call it a lysol dressing covering a syphilis would be more to the point.”<sup>120</sup> Active or inactive, Jeanneret felt his stagnation and moral degeneration. And when, eventually, success came (albeit in interior design), he lived in constant dread of recuperation by the Establishment and so of the total loss of his personal vision. By 1916, he was almost cynical: “I shall write . . . ‘The Book of a Pupil, who thought he could trust his Master’. Several of us these days believe in the baseness of the world and in the dead end, where one is done for.”<sup>121</sup>

1912–16, then, was a period of intense frustration and depression. Paradoxically, for it accentuated these feelings, only the growing triumph of a modern art movement in Paris, confirming his ideas and with which he *could* identify, saved Jeanneret from complete despair: “Hope fills my heart anew when I hear the glorious notes of Paris. Today’s art is great and how I long to be but a small brick in the great wall it will raise.”<sup>122</sup> This aspiration was nourished by his friend and confidant William Ritter (see note 29), who, from the first had realized the



78 disaster of a return to La Chaux-de-Fonds and tried to dissuade Jeanneret from his decision.<sup>123</sup> And Jeanneret, in his turn, more and more pinned his hopes for salvation on an alliance with his friend the engineer Max Du Bois (see note 8).

The electrical factory, to be sited on Du Bois family land in the Doubs Valley,<sup>124</sup> seemed a unique chance for Jeanneret to try out his new aesthetic of “endowing [Du Bois’s] work as engineer with architectonic proportions,”<sup>125</sup> by “grouping geometric prisms” and by creating rhythmical relations in such a way as to guarantee the grandeur rather than the degradation of the site.<sup>126</sup> As we have seen, Jeanneret had pestered Du Bois for the commission until November 1912, but by January 1913 he had changed tack and was proposing an alternative scheme, on a larger scale, for their collaboration: the Dom-ino idea in embryo, which was clearly only realizable away from La Chaux-de-Fonds (see note 12).

The final rupture with L’Eplattenier came in September 1912, after “ten months of suffering,”<sup>127</sup> freeing Jeanneret from his obligation to stay in La Chaux-de-Fonds and changing the direction of his thought. Looking again to Europe, Jeanneret saw the triumph of the classical tendency that he had discerned in German architecture, but also saw that the slowness of architectural evolution in Paris was increasing the danger of a modern architecture that would be expressive only of *functional* values, which would bring industrial and economic might and yet remain inexpressive of the *spiritual* values on which the modern citizen might found a more civilized society: “Greece will triumph . . . And Asia, repository of all that is poetic, will lose her sway over us, the inactive, who shall merely mourn her. The skyscraper will triumph, Pathé and the phonograph and German glassware . . . and the straight roads . . . and the businessmen and the construction firms of Germany.”<sup>128</sup> Recognition of this danger gave urgency to Jeanneret’s desire to join in the European movement and inspired the enlarged vision outlined in his proposal to Du Bois, January 1913 (see note 12). It also gave new impetus to his aesthetic thought: “Reinforced concrete and the Orient dominate my thought—and the new, which

involves a profound understanding of our forebears.”<sup>129</sup>

The new élan died in the demoralizing climate of La Chaux-de-Fonds, but in May 1913 the foundation of *L’Oeuvre*, the Swiss Werkbund, revived “the hope of action” and brought opportunities for journalism and travel.<sup>130</sup> In Paris in October, Jeanneret saw the sudden explosion of literary and dramatic activity and the triumph of Perret’s Théâtre des Champs Elysées as the beginning of the “era of realization.”<sup>131</sup> As well as hope, it provoked a new crisis: “Du Bois, at all costs help me get out of this town. If once I have a pied-à-terre in Paris, I am another man. Here, there is too much to choke down. I have to hide my clenched fist in my pocket and almost bite off my tongue.”<sup>132</sup>

The depression continued into 1914: “I could do work out of the common run, but I don’t know where to start.”<sup>133</sup> The lack of direction perhaps seems strange. The Salon d’Automne 1913, as we saw above, had confirmed the intuition underlying Jeanneret’s proposal to Du Bois that the crucial problem in modern design was the house conceived as an urban unit. Jeanneret’s aesthetic ideas had been maturing since his stay in Germany in 1911. With both design and aesthetic problems now so clearly defined, an exact aim might surely already have been formulated: to design a house-type (urban unit) expressive of functional *and* modern spiritual values. But it required a *particular* circumstance, the destruction of Belgian towns and villages at the start of the war, to bring about the necessary crystallization of thought. However, as 1914 wore on, Jeanneret gained in confidence, increasing his journalistic activities, extending his contacts abroad and deepening his knowledge of modern architects’ work.<sup>134</sup> When, finally, the war broke out, Jeanneret realized that it would precipitate architectural change: “I see that the propitious moment is at hand. . . . My dream of going where I can play my part, be useful, work in a milieu which sustains me, and realize or at least try to realize my ideal as constructor and designer.”<sup>135</sup> He was not wrong. The long awaited opportunity of an alliance with Du Bois materialized and, with it, the prospect of a move to Paris. In the Belgian plans for reconstruction, Jean-

neret *recognized* at last the embodiment of his aim as a modern architect and “the springboard for the ascent.”<sup>136</sup>

The Dom-ino idea was the synthesis of Jeanneret’s reflections 1907–1916 on the nature of architecture and the role of the architect in modern industrial society; it stated the central problem and defined the context in which it had to be solved. It did not *provide* a solution and indeed the house plans, based on the Dom-ino system and drawn to illustrate the idea, have often been deemed disappointing for this reason.<sup>137</sup> In defining the problem, however, it laid down the *principles for a solution*: namely a reinforced concrete frame, which, as well as exploiting the advantages of modern materials and techniques, would give the architect maximum freedom in design and aesthetic expression. In this way Dom-ino looked forward to Le Corbusier’s Five Points of Architecture and to his pioneering work of the 1920’s.

#### Figure Credits

2–8 © S.P.A.D.E.M., Paris/V.A.G.A., New York, 1980.

1 Photograph by F. R. Yerbury. Collection the Architectural Association, London.

2, 3, 6 From Le Corbusier and Pierre Jeanneret, *L’Oeuvre Complète de 1910–1929* (Zurich: Editions d’architecture Erlenbach, 1946).

4, 7, 8 Courtesy Eleanor Gregh. Microfilm 19204, 19136, 19191 from the Fondation Le Corbusier, Paris.

5 From *L’Esprit Nouveau*, no. 6, n.d.

9–12 Drawings by James Wasser.

1. This spelling of “Dom-ino” occurs in Jeanneret’s sketchbook of 1915–1916 (property of Fondation Le Corbusier).

It is possible to treat Dom-ino as an *idea* (an idea for a system of reinforced concrete construction that could become the basis of a coherent architectural aesthetic) and also as a *project*, for Jeanneret drew a series of plan-types connected with the Belgian reconstruction problem and which illustrated the idea. A complete historical picture would require a consideration of these plans and a comparison between them and Jeanneret’s design work of the same time. Brian Brace Taylor in his thesis (see below) makes a start on this aspect of the problem. This article, however, concentrates on Dom-ino as an *idea* and attempts to develop the already generally existing view of the significance of the project.

Primary sources are: *Correspondence Jeanneret to Max Du Bois*, quoted with kind permission of Mr. Du Bois; *Correspondence Jeanneret to William Ritter*, Berne, Swiss National Library, Fonds Ritter, quoted with kind permission of Mr. Josef Ritter Tcherv; *Correspondence Jeanneret to L’Eplattenier*, quoted with permission of the Fondation Le Corbusier. The sketchbook of 1915–1916, property of the Fondation Le Corbusier, Paris, is referred to but is not to be reproduced.

Secondary sources are M. P. M. Sekler, *The Early Drawings of Charles Edouard Le Corbusier 1902–1908*, Harvard Ph.D., April 1973; P. V. Turner, *The Education of Le Corbusier 1900–1920*, Ph.D. Harvard, April 1971; Brian Brace Taylor, *Le Corbusier’s Mass Housing 1914–1928*, Ph.D. Harvard, June 1974; J. Lowman, “Corb as Structural Rationalist,” *Architectural Review*, October 1976; P. V. Turner, “Romanticism, Rationalism and the Dom-ino System,” in *The Open Hand*, ed. Russell Walden (M.I.T. 1977).

2. The first advantage noted by Jeanneret in his notes for the patent, in Sketchbook 1915–16, p. 58 (note 1).

3. This view has been encouraged by Le Corbusier himself, who places Dom-ino at the beginning of the *Oeuvre Complète*, Vol. I., 1910–1929.

4. It is not clear whether the metal formwork could be used for pouring this floor slab, since there was nothing to which the metal spigots could be attached (see below in text).

5. This conjectural description of the Dom-ino system as well as the criticisms of it owe much to my discussions on the subject with M. Bourlier, architect and director of the Fondation Le Corbusier in Paris. The basis of the conjecture is in Brian Brace Taylor’s thesis, *Le Corbusier’s Mass Housing 1914–1928*.

6. I have already noted that I was unable to find trace of a patent at the Institut National de la Propriété Industrielle. The drawings for the Dom-ino project at the Fondation Le Corbusier are very incomplete. It is possible, going from Jeanneret’s letters to Max Du Bois, that some key drawings are still in Du Bois’s possession. Perhaps J. Lowman, who has been given access to many Du Bois papers, will shed light on the Dom-ino question in her thesis.

7. *The Concrete House and its Construction*, Association of American Portland Cement Manufacturers, Philadelphia 1912. According to Brian Brace Taylor, this book was in Le Corbusier’s personal library, but it does not appear in Paul Turner’s catalogue of Jeanneret’s library until 1920. This suggests that

we cannot be certain that Jeanneret knew of the book in 1914. We should assume however that the principle *was* generally known, at least to engineers (here Juste Schneider, see below). “*Concrete Joist Construction* for buildings where the floor loads are comparatively light. The main supports of the floor are concrete joists, reinforced with steel rods, and the intervening space between the joists is filled in with hollow terra-cotta tile. Where the load is very light and the rectangular joists are strong enough to carry their portion of the load from center to center of the adjacent tiles, the surface of the floor slab coincides with the surface of the tiles. Where the construction needs to be stronger, several inches of concrete are placed upon the top of the tiles and being monolithic with the concrete joists, additional compressive area is provided, thus ensuring the capability of the floor for carrying greater loads. The purpose of the hollow tile in this floor construction is purely to fill in the space between the joists and to form sides into which the concrete can be poured. The tile also provides a plastering surface to form a flat ceiling.”

8. Max Du Bois (1884– ), Swiss engineer of Le Locle, near La Chaux-de-Fonds, closely connected with the Jeanneret family through the friendship of his aunt with Jeanneret’s mother, qualified at Zurich Polytechnic and from 1907 worked in Paris for Gros and Loucheur. In 1909 he published his translation of E. Mörsch’s *Eisenbeton Bau (Le Béton Armé, Béranger, 1909)*, of which he gave a copy to Jeanneret. c. 1910. He founded the Société d’Application de Béton Armé (S.A.B.A.) to promote the use of reinforced concrete in industrial building and certainly Jeanneret saw from the first the possible usefulness of Du Bois as head of S.A.B.A. in finding a way of moving to Paris. See Lowman’s article, “Corb as Structural Rationalist” for more details (note 1).

9. Juste Schneider, Swiss engineer from Geneva, joined Du Bois in S.A.B.A.

10. Letter to Du Bois, 26 November 1915. “Vous m’avez mal compris avec question plancher Schneider. Il est entendu que ça n’entre pas dans le brevet. Mais c’est par exemple dessiné sur mes héliographes bleues et comme Schneider qui est l’inventeur m’a montré ça amicalement et confidentiellement, je ne voudrais pas que sa trouvaille lui soit pillée à cause de moi. Avertissez-le.” The author has not been able to trace a patent in Schneider’s name for this invention.

11. Letter to Du Bois, 15 June 1915. Auguste Perret (1874–1954), pioneer architect in the struggle to have reinforced concrete adopted as a suitable material in architecture, was Jeanneret’s teacher 1908–1909 (see below in text), instructing him in the first principles of the material. In this particular letter to Du Bois, Perret’s remarks are reported in some detail: “J’ai été voir Auguste Perret dans le Midi. Je lui ai soumis mes dossiers de reconstruction. Il trouve *très bien*. Et il n’a pas eu à faire une objection, sauf qu’il trouve que notre procédé avec le même moule pourra faire la fabrique, l’école, les Etablissements Publics etc. Auguste Perret trouve qu’il nous faut des dalles un peu fortes et il dit: ‘votre carcasse, c’est juste une plusvalue; si on peut faire supporter par la société de prêts hypothécaires et faire que la municipalité ou le particulier ne le paient pas? voilà le problème. De même, il faut s’occuper du coffrage.’”

12. Letter to Du Bois, 17 January 1913. The text of this letter is misquoted in English translation in Lowman’s “Corb as Structural Rationalist” (note 1). Here is the original text. It does not always make syntactical sense, but since Du Bois shows only the transcripts of his letters to researchers, this may be due to an error in transcription. “J’en reviens donc à ma proposition ‘Monolythe’ et au lieu d’attendre que me soit remise la fabrique en question, que tout le monde s’arrache maintenant en jouant des coudes, j’aimerais être mis à l’essai avec ou sans cette fabrique-là (je connaîtrai du reste la décision d’ici 8 à 10 jours) sur un problème qui puisse s’y prêter. Je répète ce que j’entends à ce sujet. Les ingénieurs n’étudient pas la proportion qui est une chose innée et qui fait partie du domaine de l’architecture. C’est hors la construction, dans la construction. Et je me sens tout préparé pour cela: votre maison monolythe, faire des usines parfaitement agencées, bien calculées, au prix le plus juste. Elle ne s’occupe pas de faire une usine qui ait *bonne façon*. Aussi faire couler des maisons semblables à ‘monolythe’, faire autrement serait se compléter d’une spécialité très intéressante pour le client et extrêmement utile pour la réclame illustrée. Et comme un homme ne vit dans cette sale société que par les points d’appui qu’il trouve autour de lui (et non hélas par lui-même), soyez mon appui pour cette fois et je me tiens ici prêt à la réciprocité avec le meilleur entrain et la plus dévouée bonne volonté.”

13. Among those exhibiting in the Architecture and Art Décoratif section of the Salon d’Automne 1913 were: Maurice Dufrené; Paul Fallot; André Groult; Léon-Albert Jallot; Gustave Jaulmes; Francis Jourdain; Robert Mallet-Stevens; Charles Martin; Jacques Ruhlmann; Henri Sauvage; Tony Selmersheim; Louis Suë. Henri Sauvage showed the principle of his *maisons à gradins* adapted on the one hand to the problem of workers’ housing, on the other to blocks of flats (illustrated by the block in the rue Vavin). There were also drawings of Sauvage’s concept of the modern street.

14. Letter to Ritter, 19–23 December 1913: “de résoudre pour ceux de son époque l’habitat conforme.”

15. Ibid.: “qui oeuvrent pour l’utile, le fort, le sain, . . . en concevant la tâche si solennelle, si sérieuse. . . .”

16. Letter to Du Bois, 29 January 1914. “Le Renouveau en Architecture” was published in *L’Oeuvre* (organ of the Swiss Werkbund, also of this name), no. 2., 1914. The letter does not specify what the new developments in German town planning theory were which had caught Jeanneret’s attention.

17. Jeanneret would surely have visited the Exposition Internationale Urbaine, May–November 1914. Tony Garnier (see below) was architect-in-chief and played a dominant role in the organization of the exhibition. His “Abattoirs de la Mouche,” then in the course of construction, provided the cadre. The 42nd Congress of French Architects took place at the same time as the exhibition, 22–27 June, shortly before Jeanneret’s visit in July. It is quite possible that he met Tony Garnier at this time; we know for certain that he did in 1915 (letter to Garnier 14 May 1919, quoted by Taylor in his thesis) and there are many similarities between Garnier’s Cité Industrielle and Jeanneret’s Dom-ino designs for workers’ villages. There is a claim for a meeting in 1907, but it has never been substantiated.

18. Tony Garnier (1869–1948), a Lyonnais, won the Grand Prix de Rome 1899. In Rome 1901–1904 he worked on his ideas for a Cité Industrielle. He returned to Lyon where he stayed until the end of his career, becoming the town's main architect, responsible for the design of many of its new public buildings and districts. In 1917 he published his *Cité Industrielle*, which won him wide acclaim. The relationship between his vision and Le Corbusier's requires study. Links can be found in their concern for hygiene and the sociological aspects of an architectural problem; in their concern to separate different functions, for example the vehicle from the pedestrian in the town, abandoning the street-corridor and creating green spaces; in their sensitivity to the site and landscape; in their interpretation of the character of reinforced concrete; in their notions of pilotis, roof terrace, simplicity of form without decoration, continuous windows, the use of standardized elements to create an impression of diversity. They are also linked aesthetically, by their recognition of classical antiquity as a source of inspiration for modern architecture (see below in text).

19. Undated letter. Jeanneret had been invited to attend the Werkbund Congress in Cologne 3–5 July (letter to Ritter, 17 June 1914). The letter must have been written after this event, but before the outbreak of war on August 1, 1914. "J'ai préparé un décisif sur l'ultra-moderne architecture: le béton, le fer, maisons américaines, Perret-frères, Tony Garnier-Lyon, des ponts en béton-armé, des tramways New Yorkais etc. . . . Je me sens les forces pour être une fois quelqu'un. . . . J'ai la hantise de la grande bâtisse, utile et noble par là: voilà l'architecture."

20. Letter to Du Bois, 15 September 1914 (misdated by Lowman as 24 June). "Nous sommes à un tournant de l'architecture. Les ingénieurs ont tout fait . . . mais le coup d'épaule est donné en 1914 et Paris moderne va éclore et naître."

21. Letter to Du Bois, 5 January 1915, written after Du Bois's return to Paris. The Pont Butin project was prepared for a competition in Geneva. Jeanneret's entry, a stone bridge with three arches (concrete and iron were not allowed), was unplaced. The project is important for having been Jeanneret's first collaboration as an architect with engineers (Du Bois and Schneider): "Concernant l'adaptation au milieu, c'est ma tâche. Vous aurez la partie calculs et graphiques." He also expressed particular satisfaction with the design (letter to Ritter, 25 January). Little is known about the project: there are no archives or drawings at the Fondation Le Corbusier, Paris. The only source known to the author is the brief paragraph in the *Oeuvre Complète*, Vol. I. In this letter to Du Bois, Jeanneret proposes to go and visit the site (not identified) and asks Du Bois, in the meantime, to prepare certain documents: "calques de ponts intéressants," with "cotes ou échelles pour voir les normes et distributions." Then Jeanneret will come to Paris and they will pool their ideas.

22. Ibid. Taylor and Lowman both claim that Jeanneret visited Paris in autumn 1914 to research the sociological aspects of the Dom-ino project at the Bibliothèque Nationale. I have not been able to find any evidence of this. Given the uncertain war situation at that time, the trip seems unlikely. Most Swiss seem to have returned to their native country, as Du Bois did. No mention of the trip is made in the abundant Ritter correspondence.

Dates occurring in the notes Jeanneret took at the B.N. (Fondation Le Corbusier, Paris) would seem to indicate August 1915 as the most likely date (see also note 30). In this letter, Jeanneret asks Du Bois to conduct specific research into the Dom-ino project, similar to the kind he himself did later on Foville. It is unlikely Du Bois ever obliged and Jeanneret, in the end, probably had to do it himself, during his summer visit in 1915 (note 30).

23. Undated letter, written to Du Bois soon after the Balkan invasion in October 1915. "Ensemble nous avons par discussion trouvé la piste l'an dernier."

24. These drawings are at the Fondation Le Corbusier, Paris, and reproduced in Taylor's thesis.

25. Letter to Du Bois, 5 January 1915: "à quelques personnes de confiance"; these persons are not identified.

26. Ibid. "Si ça ne réussit pas, ce sera toujours une étude intéressante que nous aurons faite."

27. Letter to Du Bois, 9 March 1915. Jeanneret renews his appeal to Du Bois to consider seriously the Dom-ino project. Du Bois is clearly keeping silence on the subject.

28. Letter to Du Bois, 15 June 1915. "Une chose se greffe là-dessus. Le moment me paraît judicieux de publier mon étude, déjà toute écrite, sur la construction des villes." Jeanneret's study of urbanism dates from April 1910, when he began to prepare a brochure (never published) on the construction of towns, using La Chaux-de-Fonds as his focus (see below in text). The notion that the Dom-ino system might be adapted to all building types and so become the key to unity in urban design must have led Jeanneret to think on an even larger scale than that of worker villages.

29. William Ritter (1867–1955), Swiss water-colorist, art critic, writer, and musician. As a well-to-do young man, he had benefited from the privileged education of the *fin-du-siècle*, which took him to Vienna where he studied painting, art history, and also music under Bruckner; to Paris, where he lived as a novelist; and finally to Munich, where he became established as an art critic of celebrity. Here, he frequented brilliant international society, artists, intellectuals, and members of the nobility. It is probably in this way that he made the acquaintance of Carton de Wiart. Jeanneret met Ritter in spring 1910 soon after his arrival in Germany and from then on Ritter gradually became the young artist's most intimate confidant, sharing in and encouraging his artistic development.

30. Dates derived from the Ritter correspondence. Lowman assigns a letter to Du Bois to this period, dating it as 28 July 1915. It concerns the negotiations for Jeanneret's appointment as "architect-Conseil" and should be dated 28 July 1916, since the projects mentioned in it belong to that year.

31. Thinking on a larger scale than before (note 28), Jeanneret's research in the B.N. is not merely concerned with worker housing, but with the design of large cities, notably Paris, through the ages. Among the many books consulted were Hénard's *Etude sur les Transformations de Paris 1908–1909* and his *Rapport à la Commission des Perspectives Monumentales de Paris*, 1911. The notes covering Jeanneret's reading are at the Fondation Le Corbusier, Paris. In the 1915–16 sketchbook are notes (pp. 35–36) for the idea of "Les Villes Pilotis," illustrated later in *Vers*

82 *une Architecture*, p. 45, with a text indicating that Perret was also a powerful stimulus at this time.

First notes on *L'Allemagne-France* occur in the sketchbook, pp. 42–46. The tract is also mentioned in Letter to Du Bois, 15 December 1915. There does exist an unsigned convention for the publication of the book (with the title *France ou Allemagne*), although it was never in fact published. It was certainly intended as a development of his ideas expressed first in a letter to L'Eplattenier, 16 January 1911 (see below in text) and then again in *Etude sur un Mouvement d'Art Décoratif en Allemagne*, 1912. His aim was “un Album qui soit la synthèse de toute l'activité des deux peuples pendant cette période historique. Les arts sont l'image des peuples. Mais dans l'anarchie d'aujourd'hui, les peuples ignorent ce qu'ils sont. Que cet ouvrage soit un miroir où l'on se voit et où l'on mesure son rival.”

32. The sketchbook is undated. The contents being largely concerned with plans for launching Dom-ino, contemporary correspondence enables us to situate it in 1915. When Jeanneret plans the economic life of the new firm for Dom-ino, he calculates sales from 1916 onward. There is a draft for the patent, which was eventually requested in January 1916 (note 41). Le Corbusier claimed that the Ville-Pilotis idea was conceived in 1915; the sketches for it are in this book (note 31). At the end, a sketch of a woman's head made at the exhibition of Reims and dated 13 September 1915. Finally there are one or two extraneous elements: notes made in Switzerland dated 21 June 1916 and a sketch for the 1919 painting *Le Bol Blanc*.

33. Alfred de Foville, a statistician by profession and founder of the Institut Français de Statistiques. He participated in the research of the Section des Sciences Economiques et Sociales du Comité des Travaux Historiques et Scientifiques of the Musée Social, which produced in 1894 *L'Enquête sur les Conditions de l'Habitation en France, Les Maisons Types*. The book is an early example of what we would call social engineering. The engineers, economists, business men, and politicians who promoted the enquiry hoped that by examining and defining the characteristics of a universal house-type, that of the French peasant, they would be able to arrive at a rational explanation of the relationship between the utilization of space and social, economic, and moral behavior. The assumption was that, if it were possible to control all aspects of house design—social, economic, biological, and technical—then the progress of society could be directed along desired lines. This new scientific and statistical approach to design had inescapable political implications.

34. Janet was author of *Les Habitations à Bon Marché*, which Jeanneret read and noted.

35. Sketchbook, p. 71. «Mensuel. Bénéfices. 1/ tous frais 2/ appointements dûs Jt. heure 4f. journée 30f. mois 500f. sur bénéfice avec effet rétroactif; 3/ appointements D.B. 4/ Solde a/  $\frac{2}{3}$  à Jt. pour compléter les appointements échus à 1000f. b/  $\frac{1}{3}$  à D.B. 5/ Solde moitié-moitié. Eventualité Sté. Anonyme. 1/ remboursement de tous frais; 2/ Jt. Directeur-administrateur, appointement; 3/ intérêt (?) 5 à 6%; 4/ réserve conseil; 5/ (?) fondateurs.»

36. B. stands for E. L. Bornand, who was the third party in the affair. He remained one of Jeanneret's business associates

through the early twenties.

37. “Y a-t-il mal si l'avenir commun . . . permet à Jt. de s'établir plus facilement à Paris? Pour Du Bois dans la suite: parts et bénéfices d'actions.”

38. Undated letter to Du Bois, probably mid- or late October 1915, written in reply to Du Bois's decision to put the Dom-ino project into cold storage as a result of the Balkan invasion, which took place 3–11 October 1915. “L'ordre règne dans notre trouvaile, le rythme, l'unité.”

39. Letter to Du Bois, 24 November 1915. This letter is the recapitulation of a letter sent 17 November to which Du Bois never replied.

40. Letter to Du Bois, 26 November 1915.

41. See note 6. On finding no trace of a patent at the Institut National de la Propriété Industrielle, the author wrote to Max Du Bois and received the following reply (16 August 1978): “*La demande de brevet* (my italics) a été déposée à Paris le 11 janvier 1916 par moi, mandataire de Jeanneret demandeur. Il s'agissait d'une demande, mais non pas de l'attribution du brevet. Comme le paiement des droits n'intervenait qu'après la délivrance du brevet (a process which took c. 12 months) n'importe qui pouvait déposer une demande sans frais, mais la demande constituait le droit d'antériorité et protégeait contre des concurrents ayant même idée. Tout cela ressort d'ailleurs de la hantise de Jeanneret de se voir souffler l'idée. *Je suppose* que le brevet n'a jamais été attribué car l'idée n'était pas brevetable” (my italics). We should note Du Bois's uncertainty as to the outcome of the application for a *brevet* and the fact that he himself has a low opinion of the importance of the project. In engineering terms of course, it was not specially significant; its importance was and is *architectural*.

41. Letter to Du Bois, 25 January 1916. Jeanneret's tentativeness is conveyed by the conditional tense. It is clear from the wording that he more than expects a negative answer: “A propos de notre affaire de béton, vous ne verriez pas à déjà voir avec S.A.B.A. comment nous pourrions nous unir utilement; ou bien faut-il laisser dormir jusqu'au moment utile?”

43. François Rupert Carabin (1862–1932), trained as sculptor and goldsmith, pupil of Perrin, he was one of the founders of the Société des Indépendants, in 1884 and exhibited until 1891, when he became member of the Société Nationale des Beaux Arts. His main struggle was toward a renewal of industrialized sculpture (see Bénézit). As one of the leaders of Parisian Design, Jeanneret had called on him as a witness, when writing the book: *Un Mouvement d'Art à La Chaux-de-Fonds*, 1914.

44. *La Cité Reconstituée*, May–July 1916 in the Tuileries gardens and at the Jeu de Paume in Paris, was organized by the Association Générale des Hygiénistes et Techniciens Municipaux de France et des Pays de Langue Française, in conjunction with the large national architectural and artistic organizations, the civil engineers, the Musée Social and organizations concerned with health and hygiene. The exhibition's main aims were to create a climate of favorable opinion which would facilitate the reconstruction of villages and towns, destroyed in the war, along rational lines using the new industrial building methods; “de répandre les principes féconds de l'association, de la co-opération, des remembrements, qui faciliteront singulièrement la réalisation des plans d'aménagement, s'ils entrent dans les

moeurs. . .” The exhibits covered the problems of the reconstruction of towns and villages; public buildings; housing and flats; the difference between rural and industrial architecture; building materials and methods; interior installations, including ventilation, lighting, sanitary fittings; building legislation. The exhibition also ran competitions: the reconstruction of an industrial village in the North, of a rural village in L’Aisne, and of a mountain village in the Meuse, as well as the reconstruction of Belgian villages. The organizing committee included Bonnier, Frantz Blondel, Agache, Jaussely, Jourdain, Plumet. Of these, only Agache exhibited apparently. Of the many, many exhibitors, there were as many private enterprises as individuals, with a heavy emphasis on industrialized building methods, new materials, prefabrication etc. One well known name was Hénard, who exhibited plans. The exhibition is a good indicator of the general context into which Dom-ino was born and also of the project’s appropriateness. It should also be seen as a continuation of the tradition set up by Foville and others of the Musée Social (note 33), whose work Jeanneret had already studied so carefully. The exhibition’s stress on winning public favor for and even participation in the new ideas, so that reconstruction could become a national activity undertaken speedily, harmoniously, and on a large scale, is strangely in keeping with Jeanneret’s own analysis in 1910–1911 of the kind of context required for a modern, popular, industrial art to flourish and his prophecy that the model for it would be found in France (see below in text).

45. Letter to Du Bois, 20 March 1916: “pour nos projets des critiques de haute compétence, de manière que la Presse nous soit utile. J’ai de sérieuses relations pour cela.”

46. Letter to Du Bois, 17 April 1916: “mieux vaut que S.A.B.A. s’en occupe, mais qu’elle s’en occupe!” Jeanneret quotes Perret’s own words about the proposed exhibition: “C’est l’organisation d’une petite coterie Plumet, Frantz Jourdain et Cie. Pour ce qui me concerne, je ne marche pas! . . . Ce sera gentillet. J’ai une maladive horreur de ces manifestations.”

47. Ibid. Jeanneret proposes the month of the exhibition, June 1916, as the time for signing a final agreement.

48. Letter to Du Bois, 8 September 1916. “Je suis ravi que vous arriviez à constituer les rouages utiles à l’emploi de nos idées. Merci.” Du Bois has just sent a set of proposals (29 August 1916) which Jeanneret intended to study in five days’ time (13 September 1916) when a little less under the pressure of work.

49. The main projects were the Villa Schwob and the Cinéma La Scala. The “Variety Theater” mentioned in Letter to Du Bois, 28 July 1916 (misdated by Lowman as 28 July 1915, note 30) is identical with the Cinéma mentioned in a later letter to Du Bois the same month. The Cinéma was commissioned in late June or early July; the Villa Schwob in mid-July (dates from Ritter correspondence). The Villa Schwob was constructed on a reinforced concrete frame system, which is described in general terms in *L’Esprit Nouveau*, no. 6, Julien Caron (actually Amédée Ozenfant), “Une Villa de Le Corbusier 1916.” It has been suggested that the system used bears some resemblance to the Dom-ino system and the illustration in *L’Esprit Nouveau*, showing the villa in construction, certainly appears to indicate a hollow tile and concrete joist system for the floor slabs. Whether a metal formwork was used is doubtful, considering

the costs. The author has no further evidence as to the construction of the villa.

50. Letter to Du Bois, 8 September 1916. Instead of arriving in Paris on 15 September, Jeanneret plans to study Du Bois’s proposals on the 13th and to arrive in 15 to 20 days’ time, that is on the 23rd or 28th of September 1916.

In her article, Lowman says that Jeanneret visited *La Cité Reconstituée* (note 44) in summer 1916 and at the same time finalized the agreement with Du Bois and Bornand. This mistake is largely due to her misdating of the letter 28 July 1916 (notes 30, 49), though not entirely. Jeanneret *intended* to visit the exhibition in June and at the same time to finalize an agreement with S.A.B.A. (note 47, Letter to Du Bois, 17 April 1916). There is no reference in the correspondence of Du Bois or Ritter to that June visit. There is, however, a break in the Ritter correspondence of two weeks in June, so that it *is* possible that Jeanneret made the exhibition. It is not possible, however, that an agreement was even drawn up at that time. In the letter of 28 July 1916, Jeanneret answers an initial set of proposals from Du Bois. He stipulates that his rôle must remain solely that of consultant-architect and that his salary must be more than the offered 250f. a month. Jeanneret awaits a visit from Schneider in order to discuss matters further. Another letter, undated, but evidently written soon after, reveals that Schneider has not come and that Jeanneret is without news. On 29 August 1916, Du Bois sends Jeanneret a new set of proposals, which he acknowledges in the letter of 8 September, and promises to study by 13 September. He evidently finds them promising, for in a letter to Ritter, 17 September 1916, he says: “la société se constitue à Paris.” Jeanneret still does not come to Paris for the end of September and the conclusive proof that the agreement is still not finally drawn up is a letter to Du Bois, 5 October 1916: “. . . j’ai commencé les démarches pour mon passeport. J’espère que je n’arriverai tout de même pas trop tard. Peut-être même cette lettre arrivera-t-elle après moi. Nous pourrions alors facilement *mettre au point* la convention relative à notre société et aux diverses affaires envisagées.”

51. A letter to Ritter, 14 October 1916, makes clear that Jeanneret was finalizing his travel arrangements. He traveled via Zurich and Bern. The first letter from Paris is dated 31 October 1916. Jeanneret returned to La Chaux-de-Fonds after signing the agreement on 17 November 1916.

52. Although Jeanneret opens his practice in Paris in the New Year 1917, he does not stay there permanently until October 1917. Affairs, notably the Villa Schwob, still involve him in Switzerland. He first leaves for Paris 13 January 1917 (letter to Ritter) and again 9 February 1917. He makes at least five more visits to La Chaux-de-Fonds in March and April, June, July, and September. He leaves for the last time on 4 October 1917: “Je pars. Et abreuvé d’amertume et impuissant devant les roueries et les saletés. . . Je pleure le pays. Je plaque les gens. Le cycle se referme” (letter to Ritter. Jeanneret is referring to the Villa Schwob scandal and other intrigues). In her article, Lowman suggests that Jeanneret was to move into his first Paris office, 13 rue de Belzunce, by 1 October 1916. But a letter to Du Bois, 9 December 1916, asks whether office premises have yet been found. A letter to Ritter, 26 January 1917, announces both

84 the find (“*un sale trou*”) and the address.

53. Letter to Du Bois, 9 December 1916. There are no archives or drawings for the project at the Fondation Le Corbusier in Paris. It is not certain it was ever realized. A sketchbook 1916–22, p. 73, does offer a small sketch of the exterior of a tall narrow house, with an exterior staircase in wood forming a diagonal across the entire long side of the house up to the first floor. The sketch is accompanied by the note: “type des maisons ouvrières construites à Imphy, escalier de bois.” There are other sketches on the same page of lower pitched dwellings, also two stories, but with an exterior stair in stone, placed on the short side of the house (p. 75).

54. The most curious thing in the whole story is that from this date onward there is no further mention of the Dom-ino idea, even though the period is covered in detail by Jeanneret’s correspondence with Ritter.

55. Letter to Ritter, 17 September 1916. “Tout ça à seule fin de muer en pierres durables une idée couchée et accouchée sur papier éphémère: donc, il ne suffit pas à l’homme d’inventer; il lui faut la sensation de la réalisation, le poids, le corps, le réel.”

56. Lowman, “Corb as Structural Rationalist,” October 1976, p. 231. “In the summer of 1916 Jeanneret visited Du Bois to see the ‘Reconstructed City’ Exhibition, staying in the small flat that Du Bois had rented in the Avenue Trocadéro. Though the job with S.A.B.A. did not seem to offer enough financial inducement to Jeanneret and no promoter had appeared for ‘Dom-ino’, he was still very keen to settle in Paris. The manager of S.A.B.A., a builder called E. L. Bornand, was willing, with Du Bois, to back him in forming a Paris practice. While in Paris Jeanneret discussed this with Du Bois, who was agreeable to the idea and, in consequence, a partnership agreement was drawn up between Jeanneret, Du Bois, and Bornand.”

57. Letter to the author from Du Bois, 16 August 1978 (note 41). “Idée simpliste que j’avais eue sans l’approfondir mais avec son enthousiasme juvénile, Jeanneret avait décidé que ce serait une révolution.”

58. Letter to Du Bois, 17 April 1916. “Voilà une opinion que je fais volontiers mienne; elle consiste à remplacer le spectacle, la comédie par les actes.”

59. The author is preparing a Ph.D. thesis at the Courtauld Institute of Art, London, on the relationship between Le Corbusier’s painting and architecture.

60. Undated letter to Du Bois (note 38). Jeanneret actually calls Du Bois a “string-puller” to his face. The text is quoted in English in Lowman’s article: “Vous êtes le tireur de ficelles . . . Notre combinaison vous attribue ce rôle. Jouez-le donc.”

61. Letter to Ritter, 3 May 1917. The letter continues: “Le passé demeure sous forme de siècles; ces objets de pierre ne sont plus qu’admirables abstractions. Les hommes de ce jour se détestent et s’assemblent par petits paquets, pour se mettre ensemble contre d’autres qui s’assemblent. Il y en a qui ne s’assemblent que pour voler de l’argent aux autres; mais il y en a qui s’assemblent parce qu’ils voudraient exprimer leur âme et qu’au moins trois ou quatre entendent. Ce présent est grotesque.” Jeanneret here expresses the classical conception of the Self, the self which the individual shares with his fellows. These ancient buildings, in expressing that general Self, become the

embodiment of their age. By implication, modern architecture does not yet, but must, perform the same function for modern man. Being able to find in contemporary architecture the same authentic expression of Self as he finds in older monuments is essential to contemporary man’s sense of being part of a continuous and living tradition.

62. Sekler, Ch. 1., where we find quoted from the 1887 *Report of the Classe de Gravure*: “D’aucuns prétendent encore qu’on ne peut concilier la perfection artistique et le bon marché, c’est une erreur qu’il faut combattre.” *Oeuvre Complète*, Vol. I. 1910–29 (Introduction): “C’est par le rayonnement spirituel, par le sourire et la grâce que l’architecte doit apporter aux hommes de la nouvelle civilisation machiniste la joie et non la stricte utilité!” The same notion being entertained, though in different form, over a span of some 45 years.

63. Letter to L’Eplattenier, 1 October 1910 (cf. note 80). “Nous rêvons d’art populaire. . . pour que nous puissions le réaliser, il faudra que ce peuple soit d’accord; et son approbation et son encouragement, nous l’aurons quand nous aurons su l’empoigner ou du moins lui en imposer.”

64. Letter to Ritter, 6 September 1910.

65. Sekler, Ch. 2.

66. See Turner’s thesis.

67. Letter to L’Eplattenier, 26 February 1908, quoted by Sekler in Ch. 7. of her thesis: “. . . un mouvement d’art, qui aura un résultat valable parce qu’il est essentiellement basé sur la nature d’une part, sur la probité dans les moyens d’exécution d’autre part. Une logique fondamentale le régit, la logique de la vie, qui se développe à partir de l’embryon par les racines, la tige et les feuilles pour arriver à la fleur.” L’Eplattenier and his students had expected, from their thorough reading of contemporary art journals, that, on the contrary, modern Viennese art would give them the key to a *modern* Jura art. In his letters, Jeanneret gives detailed analyses of certain articles and journals and of their visual material, to show how far they had falsified the reality.

68. Letter to L’Eplattenier, 2 March 1908, quoted by Sekler, Ch. 7. The text is a paraphrase of Jeanneret’s own words at this point.

69. Letter to Du Bois, early 1910. “Paris était beau et l’empreinte qu’il a laissée en moi est ineffaçable . . . la noblesse est dans son ciel.”

70. Sekler, Ch. 8.

71. See note 8 and above in text.

72. Letter to Du Bois, early 1910 (see note 69): “milieu propice à l’éclosion d’art sain . . . véritables apothéoses de projets purement idéaux caressés avec insistance.”

73. Letter to Du Bois, undated, but the phrase: “des pâquerettes en plein mois de février” places it in February 1910. “Les rêves . . . et nous avons foi en leur réalisation.”

74. Letter to L’Eplattenier, 27 June 1910, and Letter to Ritter, 21 June 1910. See also below in text and note 85. In his letter to Ritter, Jeanneret is very specific about what held his attention at the Stadtbau Ausstellung: “Pour cela, de nouveaux tracés, radicalement opposés à ceux ‘américains’. Mouvement vraiment général: L’Allemagne surtout donne beaucoup, puis l’Autriche et l’Angleterre avec ses cités-jardins (Hampstead et Bournville

et Port Sunlight, toutes déjà connues), la Suède, la Hollande-Belgique-Zürich et des villes américaines qui persistent dans leurs tracés géométriques. Vienne donne des résultats du concours pour l'aménagement du Karlplatz avec la Schwarzenbergplatz; puis l'intéressant projet d'une trouée à travers Innere-stadt. Cela par le moyen d'une rue très bien tracée, allant parallèlement à la Kartnerstr. et la 'soulageant'. Si Vienne s'est développé en *roues concentriques*, Berlin adopte le parti meilleur, *rayonnant*, laissant des forêts entières pénétrer jusqu'au coeur de la ville. C'est ce que montre l'exposition des projets de Gross Berlin, avec projet essentiellement pratique de *Jansen* et celui d'un caractère plus utopique de Bruno Schmitz, qui a comme motto 'Wo ein Will, da ein Weg', mais avec des solutions architectoniques tendant au grandiose. A remarquer l'exposition du concours pour la ville de Gothenberg (Suède), l'aménagement du parc de Hambourg (par Schumacher de Dresde), l'aménagement de cimetières. Diverses propositions de Fischer, cité de Hellerau (Riemerschmied), Darmstadt, Stuttgart etc."

75. Letter to Ritter, 1 March 1911.

76. Letter to L'Eplattenier, 16 May 1911. Jeanneret's *Etude sur un Mouvement d'Art Décoratif en Allemagne* was published in La Chaux-de-Fonds, 1912 (see note 31).

71. Letter to L'Eplattenier, 16 April 1910. "Je sens combien nous sommes . . . mal organisés et peu modernes, peu architectes. Ce que nous faisons est trop petit, trop gothique."

78. Owen Jones, *Grammar of Ornament*, quoted by Sekler, Ch. 9.

79. Letter to L'Eplattenier, spring 1910. The quotation is given in full below in the text: "Moi, je tire une excellente leçon des choses que je vois ici. C'est qu'il n'y a que la beauté de l'ensemble tout entier qui compte et que cette beauté tient à la proportion et à la vigueur des grands plans et des fortes oppositions de valeurs. A l'emploi des matériaux forts, au contraste de beaucoup de simplicité avec de la richesse judicieusement amenée."

80. Letter to L'Eplattenier, 1 October 1910. The letter concerns Jeanneret's thoughts arising from the recent manifestations of the unpopularity of L'Eplattenier's new monument, *The Republic*, erected in one of the squares at La Chaux-de-Fonds. The last two sentences of text summarize his view: "Je penserais même qu'il est beaucoup des admirateurs eux-mêmes, qui doivent savoir très peu à quoi de réel et d'objectif se rattachent vraiment leurs sentiments." "De cela, j'ai pensé que le grand mal de notre époque était non de ne savoir, *mais de ne pouvoir* mettre à nos créations d'art un cadre, une ambiance de beauté. Et devant les échecs successifs que tout artiste doit subir devant le peuple chaque fois qu'il produit une oeuvre dans de telles conditions, peu à peu recule son enthousiasme et se précipite la retraite de l'homme devenu fort, loin de cette trop avilissante lutte où lui donne l'or et où il reçoit la boue."

81. Letter to L'Eplattenier, 27 June 1910. "Il nous faudrait un prince ou un roi pour épauler pécuniairement et *autocratiquement*" (my italics).

82. Included with Letter to L'Eplattenier, 16 April 1910 (cf. note 77). The brochure itself was never published.

83. Letter to L'Eplattenier, 16 April 1910 (cf. note 77). "D'ou l'élargissement considérable à effectuer dans tout ce que nous faisons maintenant."

84. Letter to L'Eplattenier, 1 October 1910 (cf. notes 80 and 63): "montrant la beauté de ce que nous avons en nous de l'heritage ancestral."

85. Letter to Ritter, 21 June 1910 (see note 74): "l'art ramené dans la rue et par là dans la vie quotidienne."

86. Letter to L'Eplattenier, 16 April 1910 (cf. note 77): "Nouvelle conception des écoles: beauté et contacte plus grand avec la nature."

87. Ibid.: "de grands mouvements populaires vers un but idéal."

88. Cf. note 67.

89. Letter to L'Eplattenier, 16 April 1910 (cf. note 77): "l'excellence de l'instinct populaire . . . détruite par une malheureuse education."

90. Letter to L'Eplattenier, 16 April 1910 (cf. notes 77, 83, 86, 87, 89): "tranquille, serein, sain, fort et sobre."

91. Letter to L'Eplattenier, 16 January 1911. "Le choc a été brutal."

92. This realization is the watershed, the point where the gradual metamorphosis in Jeanneret's thought becomes apparent. Understanding what constitutes 'modern' equals understanding the history of modern European art, which in turn brings about an appreciation of what contribution the small Swiss Jura province could usefully make to the larger movement (see below in text).

93. This paragraph is based on a reading and reorganization of the contents of the letter, which, being over twenty pages long, is more of a pamphlet than a letter. It is an exposition of the situation in Germany and its historical roots, in order to explain why France must now be seen as the future leader of a European movement in art and architecture. It is impossible to quote a section short enough to include all the ideas summarized. Instead, I quote in full a number of short sections in the order of occurrence. It will be seen how rambling Jeanneret's argument is at this stage when the ideas are still being formulated. They will achieve greater clarity in the *Etude sur un Mouvement d'Art Décoratif en Allemagne* of 1912. I have italicized those sentences used directly in the text (see note 31).

(a) "la nouvelle tendance d'aujourd'hui . . . s'en tient à créer les volumes qui jouent sous la lumière en rythmes à base géométrique, joie de la forme enfin retrouvée. . . . Cette tendance, comme celle de toute la pensée d'aujourd'hui vient de Paris. La ville que le commun pense bien d'appeler fatiguée. Paris va de nouveau éclater un jour et c'est l'Allemagne orgueilleuse qui tirera le voile."

(b) "Cependant l'orgueil né des victoires économiques s'est identifié avec l'orgueil que celles-ci provoquèrent par leur effet dans le domaine esthétique. Et cet orgueil des artistes aveugle l'Allemagne d'aujourd'hui, ce pendant que le fond même de ce mouvement de la pensée moderne se meut et évolue de telle façon que d'ici peu de temps nous allons assister à un coup de théâtre fabuleux, déconcertant et de haut comique pour l'Allemagne, qui, s'étant faite prêtre et troupeau d'un Dieu nouveau, volé encore, reconnaîtra avec stupeur, que ce Dieu, posé sur l'autel de son adoration, c'est le génie latin."

(c) Amidst the chaos of the nineteenth century, Germany with her sense of discipline and scientific logic developed steadily, even in art. Going beyond the reigning fashion for the style



86 Louis XV, she responded to the new ideas of the first Empire. "Mais de nouveau la foule française réagit sur la foule allemande et seuls les savants poursuivent l'étude vers le classicisme. Un de leurs plus grands génies, l'architecte *Schinkel* exprima concrètement en splendides édifices cet appétit scientifique des chose helléniques. Puis l'Europe dormit, hormis Paris qui travaillait: *Courbet*, *Manet* et leur suite furent de grands dévastateurs: tels des mineurs, ils rongèrent l'édifice lentement à sa base et provoquèrent la tempête actuelle.

"L'Allemagne économiquement triomphait en 1870 et après, son patriotisme fouetté d'orgueil et son organisation en confédération . . . favorisa tout le développement économique. *L'art ici ne fut qu'une partie, une des pierres de l'édifice économique*. En effet, les arts, qui, ici, triomphent, ce sont ceux objectifs, utilitaires, l'architecture dérivée des arts industriels. *Ce qui fait l'abstraction sublime de l'art, le fibre, la création, la métaphysique n'est même pas soupçonnée ici. La peinture et la sculpture, puisque seules extériorisations métaphysiques de notre époque sont stupides en Allemagne et toujours retardataires*; à moins qu'au contraire elle ne se lance aveuglément sous l'égide parisienne, à la conquête de ce que devine et montre à toute l'Europe, le mouvement moderne parisien. Il y a même ceci d'extraordinaire. C'est que la France, *n'opérant que par révolution*, ignore dans sa masse les beaux fruits qu'elle possède, et l'Allemagne plus ouverte par son développement industriel à tout ce qui est nouveau, l'Allemagne révèle à la France que la France a des génies."

(d) While France quickly tired of the art of the Secession, Germany persevered along this path and gradually rediscovered the validity of the earlier researches (*Schinkel*, etc.) into classicism. "1910 montre l'évolution amenant à un point inattendu, quoique logique et préparé depuis des décades: le retour à l'empire et probablement le départ en avant depuis cette période-la. Ainsi la chaîne continue des arts est renouée et la logique sauvée. Mais l'Allemagne, si elle repart depuis l'empire, trouvera en les français les maîtres. Et la France, qu'a fini par fouetter le mépris allemand et la constatation flagrante de son infériorité économique va se secouer."

(e) "Quand je vous marque les tendances rétrogrades quoique logiques du mouvement moderne, je sous-entends cependant, qu'étant donnée la nouveauté des problèmes, les matériaux nouveaux etc., les oeuvres produites pour la plupart, sauf quelques cas déconcertants, sont empreints d'un souffle nouveau."

94. *Ibid.*: "cette simplicité, cette joie, ce besoin d'unité et ce retour à la santé." The artists *Jeanneret* has in mind here are *Courbet* and *Manet*, then, omitting the Impressionists, *Cézanne*, *Gauguin*, *Van Gogh*, and *Rodin*, ending with the contemporary work of *Maillol*, about which he is especially enthusiastic.

95. *Ibid.*: "essentiellement faite de volonté et de raisonnement et non d'intuition."

96. *Ibid.*

97. In addition, a book by the Swiss *Cingria-Valneyre*, *Les Entretiens de la Villa du Rouet* (Geneva, 1908), read while at *Behrens's* office, endorsed *Jeanneret's* opinion that a revival of Suisse-Romande art should be based on Latin, not teutonic, tradition. The book is discussed in *Turner's* thesis.

98. Letter to *Ritter*, 1 March 1911: "pour clore ma vie d'étude."

99. Letter to *Ritter*, September 1911 (see note 102 for dating). "J'avais autrefois cette cure, ce voyage pour me guérir. Et . . . j'avais cru m'être guéri. . . ."

100. Letter to *L'Eplattenier*, 6 July 1911. La Nouvelle Section was an extension of the Art School designed to provide the educational basis for the new art movement. There, the students were to benefit from the new knowledge, which the first generation of students, including *Jeanneret*, had gained abroad.

101. Letter to *Ritter*, summer 1911 (undated): "la terreur d'une petite vie provinciale, puisqu'il apportait tout Paris avec ses poètes modernes et ses musiciens et ses peintres."

102. Letter to *Ritter*, undated. The postmark seems to read 8 September 1911 or perhaps 18 September 1911 (Athens). "Je suis prêt à aimer beaucoup; je me surprends même souvent hérétique; le pape de là-base en aurait des craintes. Mais voulez-vous que je le laisse tout seul, ce pape, mon ami le plus dévoué? Après tout ce qu'il a fait, il faut que j'aie quoique ma foi soit tombée. Car je sais l'impossibilité d'une réussite" (*The pape de là-bas* is *L'Eplattenier*).

103. Letter to *Ritter*, posted 1 November 1911 from La Chaux-de-Fonds on his return. "Il resterait de nous alors des Colisées et des Thermes et une Acropole et des Mosquées, et nos monts du Jura leur seraient un cadre aussi beau que la mer!"

104. Letter to *Ritter*, 10 September 1911. "Je me suis aperçu particulièrement pendant ce grand voyage de ce que sont les vraies amitiés . . . plus il y a d'appui, plus il y a de stabilité, de sécurité, de sérénité. Je sens l'immensité de l'Europe et combien un homme est perdu là-dessus."

105. Letter to *Du Bois*, 15 September 1914 (see note 135 below): "vivre d'un milieu."

106. Letter to *Ritter*, 5 March 1912 (from La Chaux-de-Fonds): "être un jalon d'apport et non de combat . . . être petit dans une grande masse."

107. Letter to *Ritter*, September 1911 (see note 102 for dating): "sous la despotique et aigre étreinte d'un autocratie que je sens en moi."

108. See notes 99 and 102.

109. Letter to *Ritter*, posted 1 November 1911 from La Chaux-de-Fonds on his return.

110. Letter to *L'Eplattenier*, autumn 1911 (no date): "quelque chose de tragique et d'âpre qui demeure en moi."

111. Letter to *Ritter*, 25 November 1911: "pays . . . revêche," "incroyablement sombre," "les sapins sympathiques comme une scie qui va vous tronquer," "les horizons sur le nez."

112. Letter to *Ritter*, 27 July 1917: "commis-voyageur"; "le masque gorgonien qui fait s'évanouir l'occasion."

113. Letter to *Ritter*, 15 December 1911 (posted 18 December). The politics involved local maneuvering as a result of hostility toward the Nouvelle Section and what it stood for: "on nous déteste à-priori parce que nous pensions faire bien. . . . Alors, les socios haïssent *L'Eplattenier* parce que le monument l'a fait radical (= Monument de la République, note 80). Les bourgeois nous détestent, les jeunes, parce que nous ne frayons pas avec eux, parce que la plupart de mes amis sont des rustres, des sauvages aux barbes fauves. . . . Et puis, toute l'Ecole d'Art, dont nous ourdissons soi-disant la perte, avec notre Nouvelle Section, ourdit notre perte à nous. Plutôt, ils sentent que nous

sommes jeunes et plus capables; ils ont une peur bleue de la comparaison qui pourrait un jour être faite: et voilà la guerre déclarée, à mort.” A similar elucidation of the situation is given in Jeanneret’s *Un Mouvement d’Art à La Chaux-de-Fonds*, 1914. The main factors were jealousy of L’Eplattenier’s success among the young with his new, radical ideas about art teaching and the rôle of art in society, and fear at the possible consequences of this success for the old part of the school. The Socialists, due to take control of the municipality in spring 1912, jumped on the bandwagon and tried to make political capital out of the feud.

114. Articles on the journey to the Orient were published in the *Feuille d’Avis* of: 20, 25 July; 3, 8, 18, 25, 31 August; 4, 13, September; 13, 19, 24, 25, 30, 31 October; 14, 16, 18, 22, 25 November 1911. *L’Etude sur un Mouvement d’Art Décoratif en Allemagne*, La Chaux-de-Fonds, 1912 (see notes 31 and 76). According to Jeanneret, the town reacted scarcely at all to the book, while abroad it was quickly sold out and brought him some celebrity in *art décoratif* circles.

115. Letter to Ritter, 9 May 1913: “on ne fait pas de gros travaux dans cette ville . . . on ne bâtera pas en 1913. Mon ambition . . . me poussai(ent) à grands travaux. Ce métier pousse à l’autoératisme.”

116. Letter to Ritter, 19–23 December 1913. “Les semaines et les mois passent et il me semble que mon energie s’émiette.”

117. Letter to Ritter, 22 May 1916. “Et le business! Cette impasse: plaire aux gens et fauter, pécher, se vendre. Faire ce qu’on sent devoir faire, et déplaire, et créer du vide autour de soi.”

118. Letter to Ritter, 9 January 1915 (posted 19 January 1915): “c’est alors que le calvaire commence.”

119. Letter to Ritter, 22 May 1916 (cf. note 117). “Les affaires, les sous! les combines!”

120. Letter to Du Bois, undated, probably late 1913: “qui doivent rester couvertes d’un voile pudique: autant un pansement de lysol sur une siphilite.”

121. Letter to Ritter, 16 February 1916 (posted 23 February 1916). “J’écrirai . . . ‘Le Livre d’un Elève qui crût pouvoir croire en son Maître’. ‘Nous sommes plusieurs, ces jours, à croire aux noirceurs du monde’, ‘dans l’impasse où l’on est foutu’.”

122. Letter to Ritter, 5–8 March 1912 (cf. note 106): “quand je vois les notes glorieuses de Paris . . . l’espoir me gonfle, le courage me revient. Oui, l’art d’aujourd’hui est beau et combien je voudrais être un tesson de brique dans la gigantesque muraille qu’il élèvera.”

123. See correspondence with Ritter, September 1911, notes 99, 101, 102, 104, 107, and accompanying text.

124. See above in text, chronology of the Dom-ino idea (1912).

125. Letter to Du Bois, 26 February 1912: “la mise en proportions architectoniques de votre travail d’ingénieur.”

126. Letter to Du Bois, undated, but probably written c. 18 November 1912. The letter states that the Salon d’Automne has just closed, and in 1912, it closed on 18 November 1912. It also records the removal of the Jeanneret family into their new villa eight days before. “Votre usine en fort beau et bon béton devra donner à ce site de la grandeur et non l’avilir. . . . Un problème ainsi, c’est une tentative d’Architecte. *Le groupement de grands*

*prismes géométriques*. Seul le rythme se veut, seul le rapport agit. C’est du vrai travail d’architecte avec des matériaux neufs et la griserie de la création” (quotation in text here italicized).

127. Letter to Ritter, 4 September 1912: “après 10 mois de souffrance’. ‘Il a fallu terrasser . . . écraser et jeter loin beaucoup de choses, des espoirs et des gens que j’aimais.’ ‘J’ai commis, sur les maisons que je bâtis cette année des anachronismes. . . . J’ai écouté d’une oreille poltronne des on-dits et des aphorismes douteux. J’ai été scandaleusement inconvenant’.”

128. Letter to Ritter, 17 November 1912. “Le Grec triomphera . . . Et l’Asie, réceptacle, giron et matrice de toute poésie, n’aura plus d’empire que sur nous, les inactifs, qui la pleurerons. Le gratte-ciel triomphera, Pathé, et le phonographe et la verroterie allemande . . . et les rues droites . . . et les hommes d’affaires et les sociétés allemandes de construction.”

129. Letter to Ritter, undated, probably mid-December 1912. “Le béton-armé et l’orientalisme me dominant, et le neuf, impliquant la très forte compréhension de nos ancêtres.”

130. Letter to Ritter, 27 September 1913. “L’espoir d’agir.” For Jeanneret’s publications and travel, see above in text the chronology of the Dom-ino idea and notes 16–19.

131. Letter to Ritter, 3 November 1913. “L’ère de la réalisation.”

132. Letter to Du Bois, late 1913 (see note 120). “A tout prix, Du Bois, aidez-moi à me dépêtrer de cette ville. Si j’établis un pied-à-terre à Paris, je suis un autre homme. Mais ici, il faut trop ravalier . . . faire le poing dans sa poche et se mordre la langue au point de se la couper.”

133. Letter to Ritter, 15 January 1914. “Je pourrais travailler hors du labeur commun. Mais je ne sais que commencer. . . .”

134. See above in text, chronology (1913), and notes 13, 17–19.

135. Letter to Du Bois, 15 September 1914 (see also note 20 and 105). “je vois poindre l’occasion favorable,” “Mon rêve de m’en aller là où je puisse jouer mon rôle, être utile, oeuvrer dans un milieu, vivre d’un milieu, réaliser ou du moins tenter mon idéal de constructeur.”

136. Letter to Ritter, 6 April 1913: “le tremplin pour l’escalade.”

137. In view of the complexity of the ideas, which Dom-ino synthesizes, an architecture radically new in appearance would probably have been premature. Further, it should be noted that the story of Dom-ino, of Jeanneret’s strategy to win support for it, even the description, much later, in the *Oeuvre Complete*, Vol. I., 1910–1929, all bear witness to the fact that the alliance between art and industry in the new context was *not* intended to be an open one, for all three are informed by the dictum: “art, yes, in petto, but outwardly a businessman” (Letter to Ritter, 27 July 1917: “de l’art, oui, in petto, mais il faut être homme d’affaire en façade”). A radically new aesthetic at this stage, when Jeanneret was trying to persuade Du Bois and others of the scheme’s validity, would have been misplaced.

*The two pieces that follow address themselves in decidedly different ways to the significance of the Dom-ino paradigm, although the initial approach in both cases clearly stems from Colin Rowe—a figure whose writings have certainly contributed much to our understanding of Le Corbusier, above all his seminal text “The Mathematics of the Ideal Villa.” But while the common origin is evident and acknowledged as such by both authors, the differences that are manifest in their secondary interpretations are by no means so easily perceived. Where Maitland concentrates upon the contingent grid of the Dom-ino as a serial generator and dialectical field for the reciprocal modulation of structure, volume circulation, and geometry, Eisenman interprets the Dom-ino as a kind of minimalist hermetic form whose importance lies not in its generative capacity but rather in its own intrinsic discourse. He posits this architectonic invention as a Neoplatonic speculum whose structural discourse is reflexive and infinite. The Dom-ino is thus seen as the definitive épistème of architectural modernism, an apocalyptic ideogram conjured into being by Le Corbusier soon after the turn of the century.*

*Such a prospect reduces the Dom-ino to a self-referential object—to a kind of degree zero, the full implications of which may well have remained opaque even to the master himself. In this hermetic reading of*

*Le Corbusier’s oeuvre, the poetic elaboration of the Villa Garches is seen as merely modern rather than modernist, as a romantic synthesis of Platonic form and empirical technique which only escapes its literal and formal references when the entry facade reduces the third dimension to a pictorially modernist, shallow space; that is to say, when the frontal datum collapses the energy of the other three sides into a single shallow plane. In all of this, the boundaries between a late Humanist volumetric culture and a modernist process-oriented conception of the world seem to become curiously conflated, the former category invading the latter and vice-versa. And yet to claim that the marking alone is the sine qua non of modernism—a minimalist recording of data and nothing more—and at the same time to attach a priority to “wallness,” “beamness,” and “planeness,” is surely to return, despite the “anti-illuminist” jargon, to some of the self-same essences which were an intrinsic part of the Renaissance.*

*Maitland on the other hand sees the “grid” of the Dom-ino as an agent of selection capable of generating a rich sequence of permutations on the basis of a singular three by five bay matrix. This constitutes the initial Dom-ino paradigm—a Pythagorean schema which determines by virtue of its intersections the potential positions for twenty-four columns. This primary rectangle whose three by five ratio approximates to the*

*golden section is constituted by two other basic schemas whose ratios are related to the golden mean, namely the square and the double square. Maitland demonstrates how the half-bay cantilever beyond the double square of the basic Dom-ino plan initiates the principle by which the ordering grid may be counterpointed in such a way as to mark certain facades as primary (i.e., front or back) or alternatively to create special conditions in the central bay.*

*The Villas Garches and Savoye incorporate both of these operations, for apart from having cantilevered facades they each differentiate their central axes in a similar way: the former by syncopating the rhythm of its bay structure, the latter by subdividing two inner bays so as to accommodate a central ramp. Maitland goes on to identify the possibility of performing three basic operations on any given grid: first, the permuted selection of different sectors from the grid—the three by five format in the Dom-ino; second, the distortion of elements in this grid so as to accommodate centralized inflections; and third, the introduction of a Freudian and/or Mannerist ‘effect of error’. In all this it is clear that Maitland sees the Dom-ino in particular as permitting the infinite manipulation and enrichment of the free plan while still maintaining precise proportional and volumetric control. K.F.*



“Architectural abstraction has this about it which is magnificently peculiar to itself, that while it is rooted in hard fact it spiritualizes it, because the naked fact is nothing more than the materialization of a possible idea. The naked fact is a medium for ideas only by reason of the ‘order’ that is applied to it.”<sup>1</sup>

We could take this statement of Le Corbusier’s as providing us with three aspects of architecture with which this analysis will be concerned: fact, idea, and order. Without a proper consideration of each one of these aspects, architecture becomes to some degree unsatisfactory. Without recourse to the naked fact we have formalism, which is architecture insulated from what Yeats called “the barbarism of truth”; without an acceptance of the role of ideas we have a sterile functionalism, in which the building is envisaged as a passive response to facts; without order we have a willful and arbitrary artistry. Each of these exclusive positions, which we have called unsatisfactory, makes an appeal to some external authority: the first to some unique conception of order; the second to a misconception of the scientific method; the third to some mysterious aesthetic sense. In this respect the word “possible” in our original quotation is important, for the element of choice, which will always come between the facts and their resolution, suggests that a building cannot be authoritarian in this way, but must always be just one of any number of possible or conceivable architectural worlds. It may be that not all of these possible worlds will be acceptable at a given time, but the consistency and richness of the relationships between fact, idea, and order can, in any given case, be known and therefore analyzed. As a program for architectural analysis, one could not do better than take another passage from *Vers une architecture*, in which Le Corbusier describes his aims in writing that book: “We wished to set forth facts of greater value than those in many dissertations on the soul of stones. We have confined ourselves to the natural philosophy of the matter, to things that can be known.”<sup>2</sup>

Analysis is inevitably historical, for in considering an existing building one is dealing with the past. The purpose of analysis, however, may not be simply historical. If we

concentrate upon a particular architectural world, as we do here upon the buildings of Le Corbusier, it is not because we wish to do a piece of historical research, nor is it because we wish to learn how to make buildings in the *style Corbu*. We do it because we wish to understand better the relationship between fact, idea, and order, and because we believe that both theory and practice in architecture can and should be accessible to reason as well as to imagination.

In this essay we shall consider a particular class of ideas which might be described as grid-like. By this is meant anything which exists less for itself than as a discipline or frame of reference to something else. In its usual sense the word “grid” suggests something of a geometric nature, as in ‘planning grid’, ‘structural grid’, ‘gridiron’. Here, however, it is intended to use the word in a wider sense to cover any idea which has this function: to select, relate, fix, or otherwise order a set of particulars or possibles.

We choose to discuss this idea because the establishment of a frame of reference of some kind must be a basic action in the making of an ordered architectural language or world. And since the grid is useful insofar as it relates to other things, we have coupled with it the idea of a dialectic, which describes these relations. We shall be principally concerned with these two, the grid and the dialectic, as they are found in the buildings of Le Corbusier in the interwar period.

### *The Grid as an Agent of Selection*

To consider a building as a small world, with its own elements and laws, raises the question of the relationship between this artificial world and the ‘real’ one.

Le Corbusier gives one interpretation of this in his description of the primitive man clearing a space in the forest and establishing within it his axis, right angle, and square.<sup>3</sup> The relationship is not simply one of contrast, however, as might be seen from those recurring statements in architectural theory that a building is ‘like’ something or other—an animal perhaps, or a tree, a steamship, a transistor radio. For these similes are used not only for

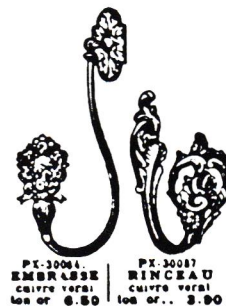
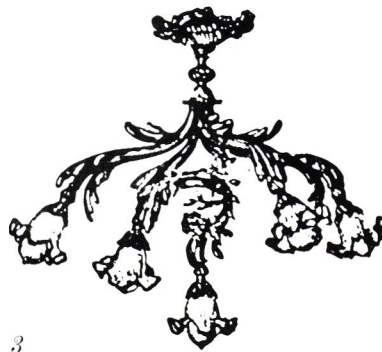
1 (frontispiece) Le Corbusier's perspective of the street elevation of the flats at Porte Molitor, Paris, 1933.

2 The four compositions, 1929: 1) La Roche house type; 2) villa at Garches; 3) villa at Tunis?/Stuttgart?; 4) villa Savoye.

3 The artificial jungle. Illustration from L'Art Decoratif d'Aujourd'hui.

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1		<i>autres compositions pyramidales</i>	<i>genre plutôt facile, pittoresque, mouvementé. On peut toujours le discipliner par classement et hiérarchie</i>
2			<i>très difficile (satisfaction de l'esprit)</i>
3		<i>compositions cubiques (même pour)</i>	<i>très facile, pratique, combinable</i>
4			<i>très pénible on affirme à l'extérieur une volonté architecturale, on satisfait à l'intérieur à tous les besoins fonctionnels (circulation, coquilles, circulation).</i>



PX-30064 EMBRASSE CHAIRS TOTAL 100 of 6.50  
PX-30087 RINCEAU CHAIRS TOTAL 100 of 3.90

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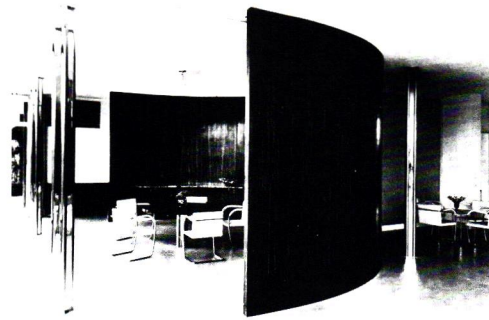
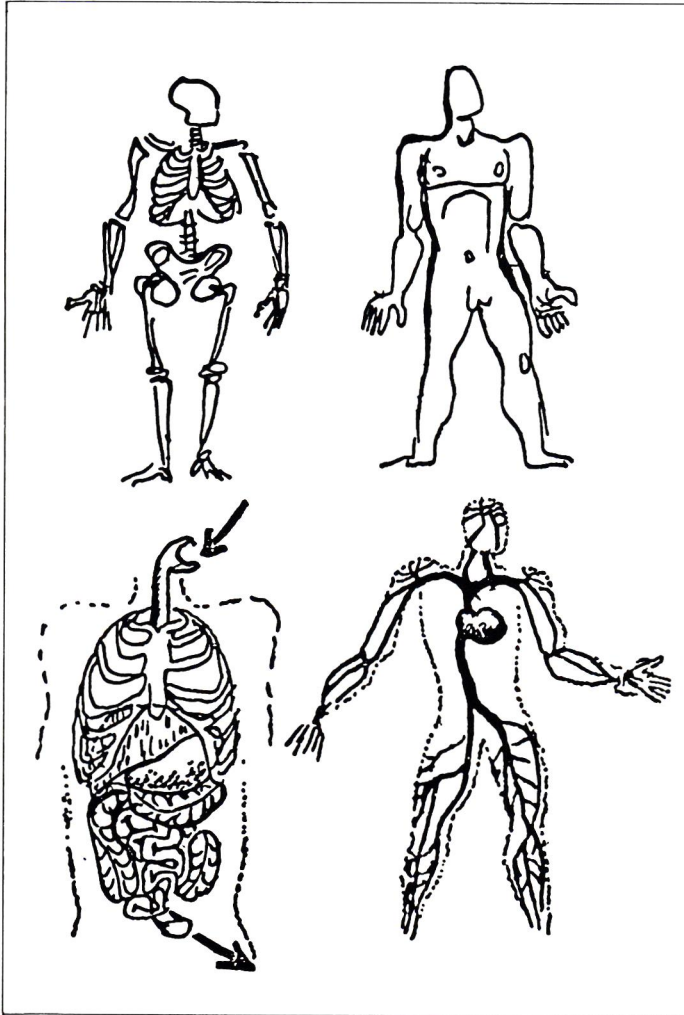
instruction, but also as a source of architectural material. It might be a principle of organization which they evoke, or an appeal to some authority. The reference might also appear as a symbol or anecdote, and the referred-to object found as a whole or in fragments within the building. The picture of the man in the forest is not contradicted by this process, for one imagines a relatively simple artificial world provided in this way with material which has been mined, visually and intellectually, from a profuse and apparently chaotic source. Thus the means of selecting this material, of choosing references, is important and a function of what we have called a grid.

The situation might be further explored by considering an extreme case, in which the simple artificial world is constructed within a natural world which can itself be seen to be simple and ordered. Such must have been the case in ancient Egypt, for within the clearly defined boundaries of the flanking deserts the immediate world had a simple linear structure, beginning with the swamps to the south and ending at the Nile delta. Within this framework, and maintained by the seasonal flooding of the river, a limited number of species of plants and animals flourished, and the form and character of these species was emphasized both by their economy in number and by the emptiness of the desert which contained them within its narrow fertile strip. One might say then that the material was preselected, the agent of selection being the desert. As the only available material, it had to serve as vocabulary for all of the artificial worlds that the Egyptians wished to create. In their architecture this vocabulary can be recognized in a number of modes—in the varieties of vegetable forms for columns and their capitals; in the human caryatid columns in the temple of Hatshepsut; in the symbolism of the pylons and in the star-painted ceilings which suggest that the building is intended as a reproduction of the natural world. Both the axis and the right angle are most explicitly present in this architecture, but then the whole country is an axis along which date palm plantations define a rectangular of geometry with a precision approaching that of the columns at Karnak.

The enthusiasm with which the ancient Egyptians re-

garded the invention of writing may be judged from a wall relief at Karnak which portrays the deity of this craft showering the symbols of life and immortality upon a seated Pharaoh. A similar enthusiasm can be seen in the way in which such scenes, together with their histories, are spread over every available column and wall surface of temple or tomb. Partly perhaps because of the way in which they are cut back from the surface of a seemingly homogeneous material, these solemn graffiti are strikingly similar to those "signs" which Le Corbusier cast in the concrete of his post-war buildings. At Chandigarh, for example, the subjects imprinted into the concrete as "signs," the bullock-cart wheel, the snake, the bolt of lightning, suggest their affinity with Egyptian hieroglyphs. Similarly, the attendants of Rameses are full-sized, broad-shouldered, narrow-hipped Modulor men. However, it could be argued that the intentions involved in the use of such signs are in each case quite different. In the Egyptian case, they are a vivid and an inevitable vocabulary used to express abstract and literary ideas. For Le Corbusier such signs are far from inevitable, their sole purpose is to remind us that the things they represent are significant objects in a world full of objects; that the human scale, the rule of the sun, the natural elements, are the basis of all, a fact which might otherwise be forgotten. That is, while the purpose of the Egyptian symbols was to build up a rich variety of abstract systems from a few natural forms, Le Corbusier's intention is reductivist, using his signs as his primitive man uses his axe to clear the forest.

This metaphoric opposition between the desert and the forest seems to be implied by the illustrations of Le Corbusier's attack on the decorative arts of 1925 in *L'Art Decoratif d'Aujourd'hui*,<sup>4</sup> wherein the nature of this forest or rather jungle is made frighteningly evident (fig. 3); a tropical proliferation of vegetable-like chandeliers, pepper pots, sofas, and ceilings. Le Corbusier opposes this cultural jungle with two arguments which point in opposite historical directions: in the first place he asserts that it betrays the spirit of the modern age, that it represents an insufferable schizophrenia in modern man; in the second he claims that it also falsifies our historical origins,



that it represents a corruption of the tradition. Both of these arguments aim at selection and eradication of the irrelevant, and contain elements which we can describe as grid-like, in the same sense in which the desert acted as a grid for Egyptian culture.

Le Corbusier argued that in the modern world the industrial methods afford us a means of selection, a way of establishing standards, and thus they act as a selective grid, as the modern counterpart of the desert. Le Corbusier does more than just accept industry, he extols it. If it is said that our industrial cities are wastelands, he replies that they are not wasted enough. To the charge that the Ville Radieuse is an arid and sterile place, he answers yes, for that is its virtue. In his eyes the whole city becomes a grid, a framework which enhances, by contrast, the importance of its inhabitants and their significant objects. One must imagine a citizen of this place, a confident businessman perhaps, returning after a day's work to his apartment, where, after a refreshing bout on the veranda with a punch-bag, and with no thought of night clubs, he meditates, with his briar pipe, upon a painting. This painting, a Léger perhaps, is the only focus of attention on an otherwise bare white wall plane, an oasis in a white desert. One might propose one of those paradoxical aphorisms which John Summerson<sup>5</sup> attributes to Le Corbusier; namely "an oasis sits in a desert" to which Le Corbusier is supposed to have replied "no, we will put a desert in an oasis, a city of glass in a sea of verdure."

Throughout this argument there is a strong moral undercurrent which is present also in the second argument, that contemporary architecture has lost its continuity with the past. It is as if the prophet is scolding his people for having forsaken the true path.

The current disillusionment with the industrial world is entirely absent in the early Le Corbusier, who on the one hand, appeals to industry and science as providers of a new and healthy architectural vocabulary, and on the other, makes a comparable appeal to the authority of the past and nature. It should not be supposed that these



4 *The anatomical analogy. Sketches from The Home of Man, 1948.*

5 *Interior of Tugendhat house. Mies van der Rohe, 1930.*

appeals are contradictory, for it is felt that an animal, a machine, and a building can all attain an internal harmony, the consequence of evolution, selection, and refinement, by which they acquire that air of inevitability which places them in accord with the laws of nature. The idea is put more fluently by Antoine Saint-Exupéry, in this description of an aircraft: "It is as if there were a natural law which ordained that to achieve this end, to refine the curve of a piece of furniture, or a ship's keel, or the fuselage of an airplane, until gradually it partakes of the elemental purity of the curve of the human breast or shoulder, there must be the experimentation of several generations of craftsmen. In anything at all, perfection is finally attained not when there is no longer anything to add but when there is no longer anything to take away, when a body has been stripped down to its nakedness . . . so that in the end there is no longer a wing hooked to a framework but a form flawless in its perfection, completely disengaged from its matrix, a sort of spontaneous whole, its parts mysteriously fused together and resembling in their unity a poem."<sup>6</sup>

Le Corbusier asserts that this is as true for the airplane as for the steamship, the motor car, and the Parthenon. But what of modern architecture? It is the problem of the house, he says, to which these principles must be first applied.

In considering whether such principles can be seen in his domestic projects of the twenties, we shall take the idea of the grid as a theme of development, but apply it now in its more specific sense as a structural and planning grid.

#### *The Evolution of the Dom-ino Paradigm*

Describing the structural diagram of the Dom-ino House, Le Corbusier relates that there was an interval of fifteen years between its conception and realization. According to him these were years, he says, "of experiment, of specific clarification, and of the different details of the system."<sup>7</sup> The investigation was not, however, confined to the structural implications of the diagram. As Colin Rowe has emphasized in his essay "Chicago Frame,"<sup>8</sup> it was to play a major role in developing the formal system

of modern architecture. The essence of this role is illustrated in the third of Le Corbusier's Four Compositions. In this the Dom-ino structure is used as a disciplining frame of reference to a system of non-load bearing walls which define the specific volume of the building (fig. 2). A dialectic operates between two systems which are antithetical in every way. The first is structural and general, in the sense that it is undistorted by the demands of the particular building and can be imagined to extend beyond the limits of its realization. The second is non-structural and specific, enclosing and defining just those volumes which the particular building requires.

The work of Mies van der Rohe also provides examples of this dialectic in which the opposed characteristics of the two systems are maintained in a very correct manner. In the Barcelona Pavilion, the Tugendhat House, and the 1931 Berlin Building Exposition House, for example, the structural character of the columns is expressed by the regularity of the bay size, while the non-structural character of the partitions is emphasized by their decorative finish of marble or timber (fig. 5).

The above description of the dialectic implied by the third composition, however, is insufficient to describe the work of Le Corbusier. It serves as a first approximation only, for, unlike Mies, Le Corbusier does not maintain the column grid in its pristine form, but rather distorts it so that each of his buildings has its own specific grid. It is with the logic of these distortions that we are concerned, and before analyzing particular examples, we might consider some of the possibilities which are open to us.

In the first place, the irregular column grids of Le Corbusier's buildings seem to arise from pressures external to the dialectic mentioned above. We should therefore ask what other systems are operative in a building, a question which presupposes the idea that a building may indeed be considered as a set of discrete but related systems. This idea brings to mind Alberti's definition of beauty as depending upon the relationship between parts. To demonstrate the truth of this definition, Alberti in the ninth book of his *De re aedificatoria* states that: "The most

6 Elevation drawings of the *Maisons Minimum* project, 1926.

7 The proportions of the rear elevation of the villa at Garches, 1929.

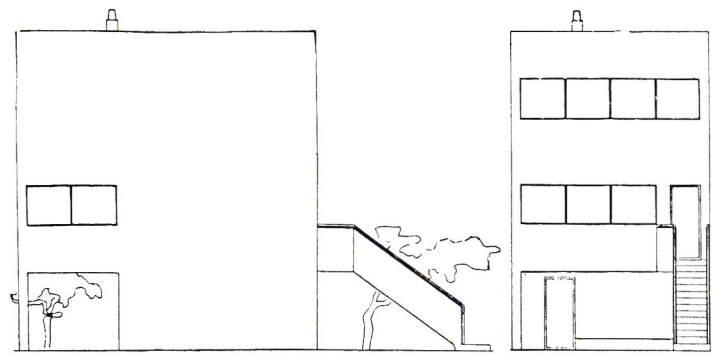
8 Diagrammatic plan of Dom-ino structure, 1914.

9 Plan of a primitive temple:

A) entrance, B) portico, C) peristyle,

D) sanctuary, E) instruments of

worship, F) oblation vase, G) altar.



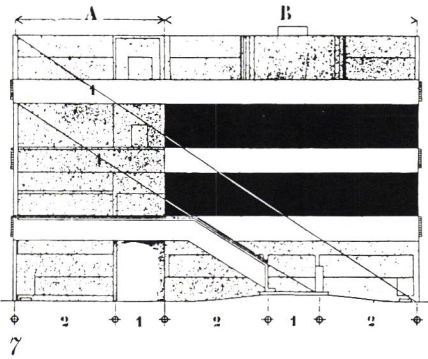
96 expert artists among the ancients were of the opinion that an edifice was like an animal, so that in the formation of it we ought to imitate Nature.”<sup>9</sup> In order to discover the roots of architectural beauty, therefore, he analyzes those of natural beauty, and concludes “that the beauty of all edifices arises principally from three things, namely the number, the figure, and the collocation of the several members.”<sup>10</sup> This reference is interesting in that Le Corbusier makes use of the same analogy between architecture and biology to demonstrate a similar point. In *The Home of Man* he shows four sketches of the body of a man (fig. 4) and comments below, “Nature, the eternal lesson, Architecture, town planning, determination of functions, classification of functions, hierarchy. Architecture, town planning = impeccable biology. Final harmony crowning a complex work, an arrangement of perfection.”<sup>11</sup> Le Corbusier’s argument differs from Alberti’s, however, with regard to the nature of the elements which constitute the whole. For Alberti these were such things as arms, torso, columns, and pediment; while Le Corbusier is here concerned not with these “members” but with the systems functioning within them, a reinterpretation of the old analogy made possible by the invention of the structural frame. His sketches show the human skeleton, the organs of the digestive system with its entrance and exit, the circulatory system of the blood, and finally the complete human figure. A corresponding list of the elements of a building would run: the structural skeleton, the volumes of the building defined by their own system of walls independent of the structure, the circulation system (which might be said to begin beyond the limits of the building proper), and finally a proportional or geometric system demanded by the building as a whole. For Le Corbusier, these four systems—structural, volumetric, circulatory, and geometric—are the ‘elements’ from which he builds the complex dialectics of his house designs. The geometric element may be thought of as being analogous to the way in which a complex and asymmetrical system of organs is contained within a relatively simple and symmetrical form, imposed by demands made upon the complete organism.

In Le Corbusier’s work such a geometric discipline is

exerted upon the building as a whole, although it is not necessarily symmetrical. One aspect of this is the “regulating line,” the importance of which can be seen in *Vers une architecture*. In the chapter devoted to the subject, he describes the regulating line as “an inevitable element of architecture,” while “the choice of the regulating line fixes the fundamental geometry of the work; it fixes therefore one of the ‘fundamental characters’.” The choice of the regulating line is one of the decisive moments of inspiration, it is one of the vital operations of architecture.”<sup>12</sup> It is clear from this chapter and from his later work on the Modulor, that Le Corbusier was to accord particular importance to the golden section regulating line.

Le Corbusier’s third composition only uses two out of the four terms operative in Le Corbusier’s work, namely; the *structural* and the *volumetric*, or the point support system (columns) and the non-loading bearing elements (screen walls, etc.). In theory it would be possible to devise six such dialectical pairs from a permutation of the four terms, i.e., structural/volumetric, structural/circulation, structural/geometric, volume/circulation, volume/geometric, geometric/circulation.

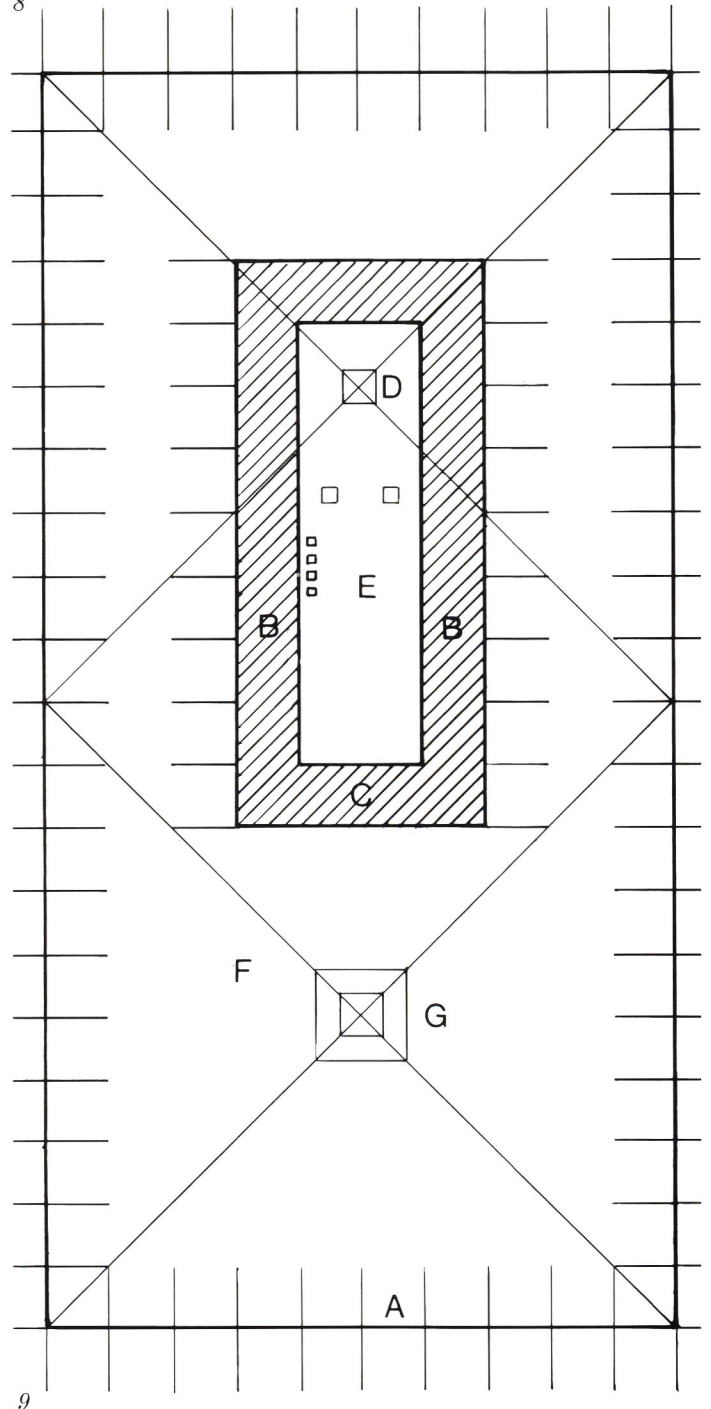
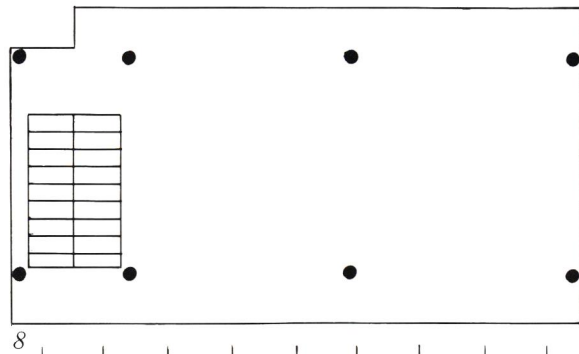
In the same chapter on “Regulating Lines” in *Vers une architecture* there is a suggestion of another of these pairs: “A unit gives measure and unity; a regulating line is a basis of construction and a satisfaction.”<sup>13</sup> Later, this satisfaction is taken to arise from “the quality of rhythm” which the regulating line confers on the work. This duality, between measure and rhythm, arithmetic and geometry, might be taken as the relationship between the systems of structure and geometry. On the one hand there is the even measure of the grid, providing a repetitive series of units, columns and bays; on the other, the particular rhythms, or regulating lines, adopted for the specific work. This is a strange relationship for, more often than not, it is difficult to achieve, and for this reason, the preferred rhythm is the incommensurable golden section which is to say that it cannot be expressed as the ratio of two whole numbers, or sets of units. An example of the effect of this is the drawing in Volume I of the *Oeuvre Complète* (fig. 7) of the rear elevation of the villa at



Garches, which, it is claimed, can be considered in two parts of lengths A and B, such that  $A:B = B:(A + B)$ . This would mean that the two parts would form a golden section ratio, but since it is also required that A and B be formed of a whole number of units, the equation in fact states that  $3:5 = 5:8$ , which is not quite true. The ratios  $3:5$  and  $5:8$  only approximate the golden section ratio, with an error in the first ratio of about minus three percent and in the second of plus one percent. We find these approximate ratios constantly recurring in Le Corbusier's projects, presumably as a consequence of this geometric system. In the Maisons Minimum project of 1926 for example (fig. 6), the numbers, and not merely the ratios, are employed to dimension the house, the internal dimensions of which are 8.00 meters in height and 8.00 meters by 5.00 meters in plan. The plan rectangle is then broken down into a main space of 5.00 meters square with the secondary spaces in a rectangle 3.00 meters by 5.00 meters.

Having discussed the dialectical relationships existing between *structure versus volume*, and *structure versus geometry*, we are left with one other dialectic involving the structural element namely that between structure and circulation. We shall reserve the discussion of this aspect, however, until we come to consider the way it manifests itself in particular buildings. In choosing our four systems we have been guided perhaps too literally by Le Corbusier's biological metaphor. There are no doubt other systems which are of greater importance in particular building types, as for example buildings which require an elaborate and articulated system of mechanical services. These four—structure, volume, circulation, and geometry—should, however, provide some basis for a discussion of the domestic buildings of Le Corbusier projected during those fifteen years of experiment, from 1914 to 1929. At any rate it is apparent that the deformations of the structural grid cannot be considered in isolation, and that the analysis of these buildings must read as a kind of history of the relations between all the systems involved.

We must begin with the illustrations of the structural skeleton of the Dom-ino houses (see page 118), for here



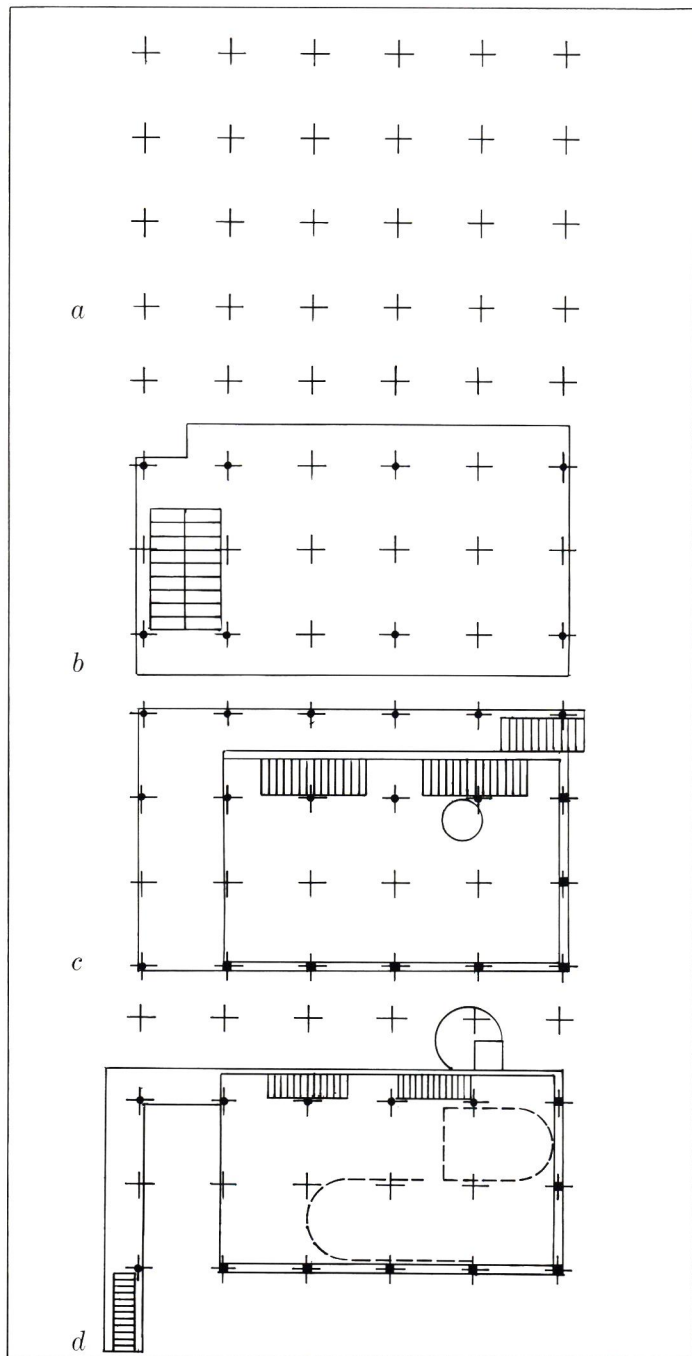
10a The basic grid of the first sequence of houses.

10b Non-alignment of planning and structural grids in the Dom-ino house.

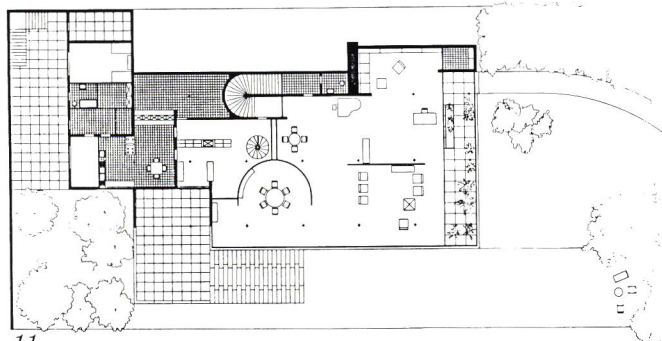
10c Basic grid applied to Citrohan house plan, 1922.

10d Basic grid applied to later version of Citrohan plan, 1922.

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Le Corbusier first intimates the character of the new elements, the horizontal floor slabs supported on vertical columns. Yet these drawings show more than a structural idea; they show the application of that idea to the problem of the house. The other three elements, of volume, circulation, and geometry, are already involved, and it will therefore be worth considering the Dom-ino diagram more closely. We find that it does indeed seem to possess three peculiarities, each of which might be seen as a function of the other systems. In the first place, the plan (fig. 8) may be considered in two parts. The first consists of two large square bays, defined by columns and the side-cantilevered projections of the floor slab. This part would house the main rooms of the building, or the system of volumes referred to in the third composition. The second, a narrow half-bay lying at one end of the first part, is devoted to the stairs, which serve as the building's system of vertical circulation. In its entirety, taking the width of the narrow bay as a module, the proportion of the building in plan is dictated by the geometry of a rectangle measuring three by five modules.

Each of these characteristics, volume, circulation, and geometry, is quite distinctive, and typical of the series of buildings we shall consider. In connection with the first characteristic—the double square of the living quarters—it is interesting that in the chapter of *Vers une architecture* to which we have referred Le Corbusier shows the plan of a “primitive temple” (fig. 9) as a double square, and writes below, “it is the plan of a house, or the plan of a temple. It is the same spirit that one finds again in the Pompeian house.”<sup>14</sup> The second characteristic, namely the end half-bay with stairs, gives us our first distortion of the regular grid which has been set by the columns defining the double square. It is perhaps significant that the majority of Mies van der Rohe's domestic projects, in which we have seen a strict adherence to a regular column grid, are single story structures in which the problem of the staircase does not arise. In his Weissenhof apartments and in the Tugendhat house, both multi-story structures, the stair is supported by walls, and thus treated independently of the column and slab system (fig. 11). With respect to the third characteristic—the overall three by

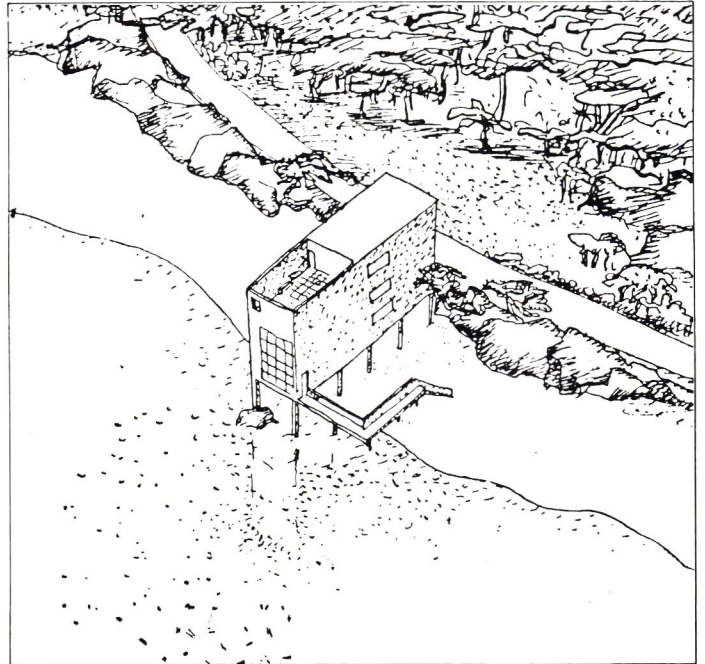
11 Plan of Tugendhat house. Mies van der Rohe, 1930.

12 Sketch of a villa beside the sea; version of the Citrohan house, 1922.

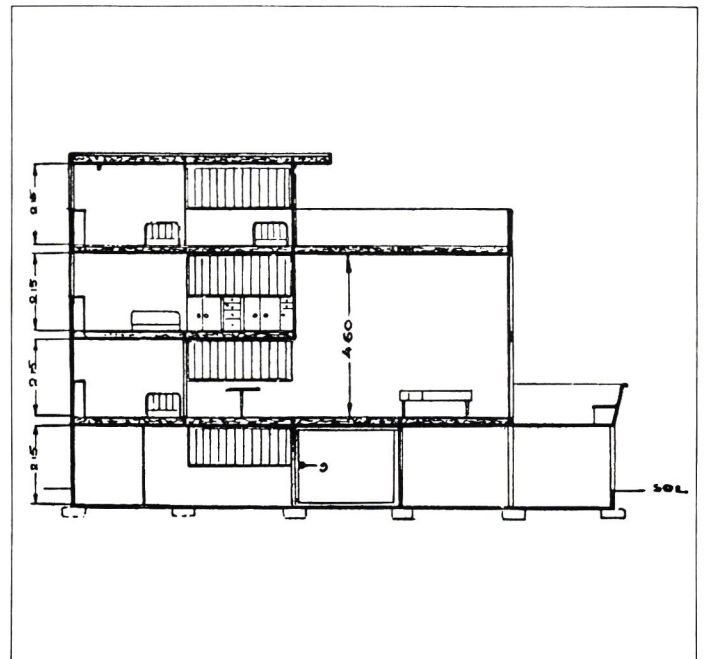
13 Section of Citrohan house, 1922.

five rectangle—it would seem likely, in the light of what has been said of the geometric element, that this plan proportion is determined not only by convenience, but also by the “vital operation” of fixing the fundamental geometry of the work. Further, we can infer a planning grid (fig. 10a) within this rectangle, three square bays by five, providing the “measure” for the “rhythm” of the golden section rectangle. It would seem that the column grid should assume this function, but since they share a common module, the two grids do not coincide and a kind of syncopated effect is produced (fig. 10b). This non-alignment of column and plan grids arises from the desire to place the two rows of columns symmetrically about the long axis of the rectangle, and it is the dropping of this traditional notion of alignment which produces the next development in the sequence of rectangular houses.

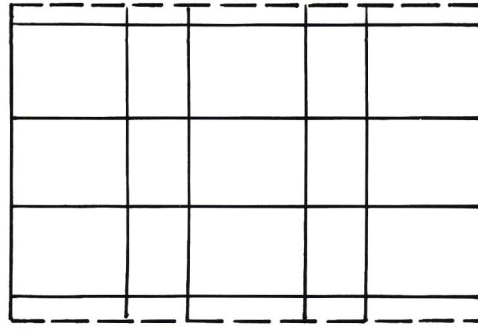
The Citrohan project (fig. 10c) of 1922 resolves the slight awkwardness in the Dom-ino plan, and in so doing establishes the characteristics of a whole subsequent family of domestic buildings. In this project we find all the themes we have discussed in the Dom-ino house—a column and slab structure, a plan rectangle three bays by five, a double square for living quarters, and a side bay for stairs and circulation—but these elements have been rearranged and the previous symmetry abandoned. The double square is now pushed to one corner of the rectangle, so that it is flanked on two sides by narrow bays, the stairs running in a continuous flight up the longer side. Structural and plan grids thus coincide so that we could now interpret the irregular grid as having been derived from a single square grid, three bays by five, from which one row of columns has been eliminated. Whatever interpretation we care to put on it, however, the result is a grid which is no longer static, but directional, a quality which is common both to it and to the rectangular plan of the house. This directionality is emphasized in the Citrohan house by a second distortion of the grid, for when we look more closely we find that its bays are not square at all, but rectangular, as if the whole structure had been stretched along its length. Moreover, the main columns are now rectangular, so that the span of the floor slab across the building is firmly established in the one direction.



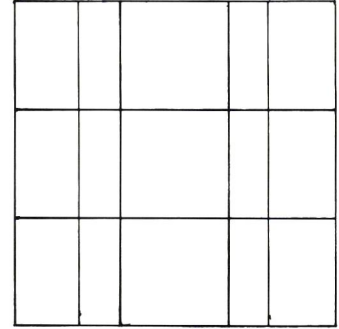
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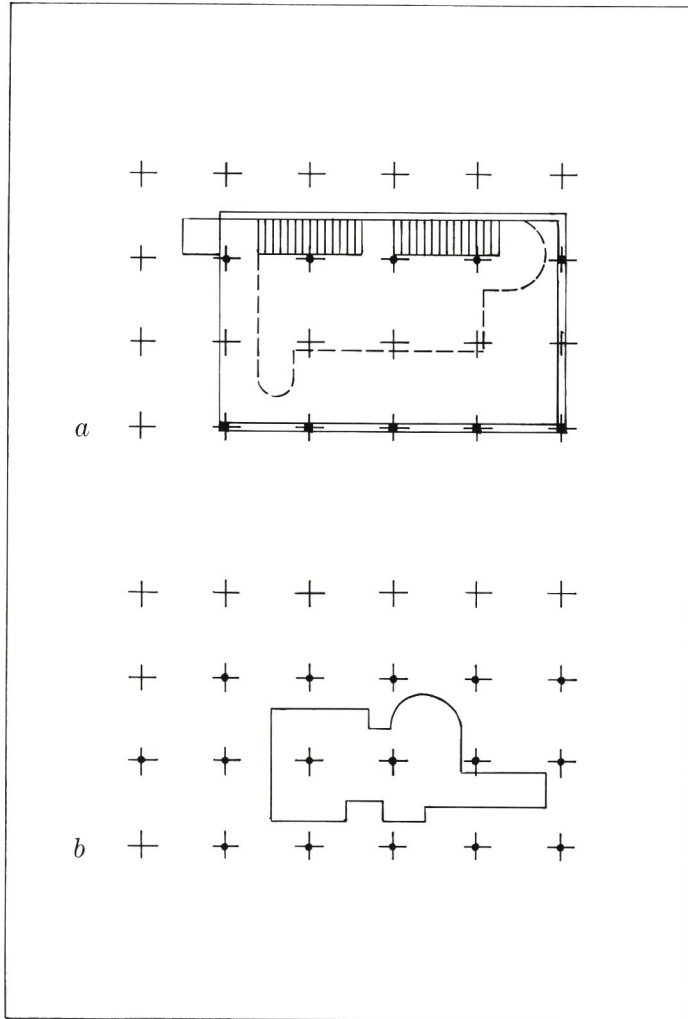
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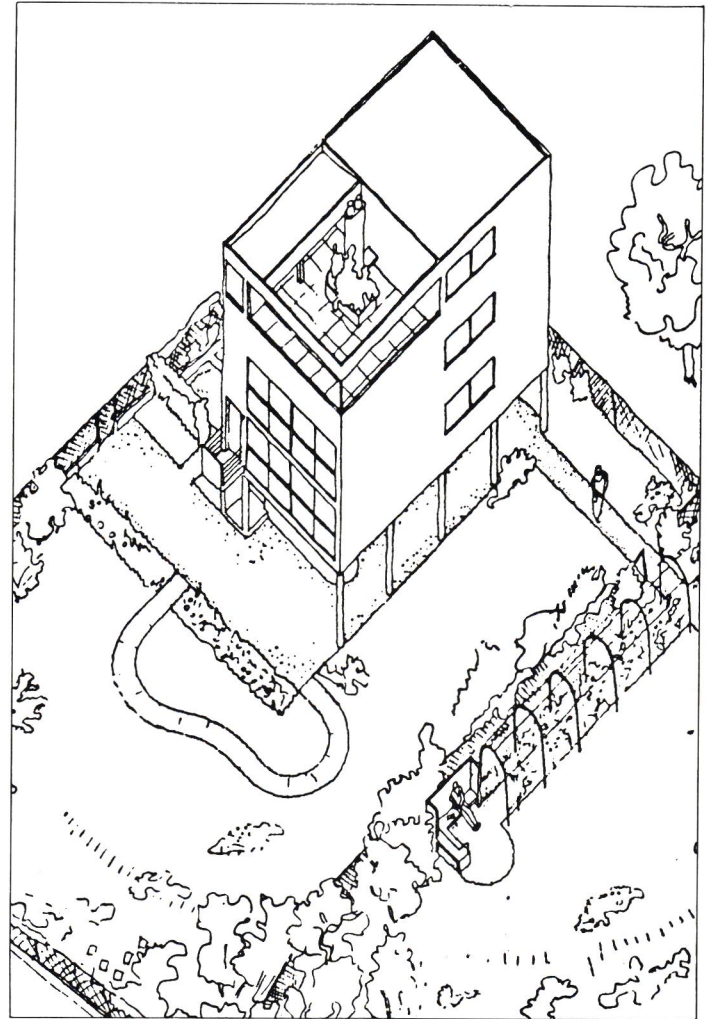
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14 Basic grid applied:  
a) to the plan of the villa at  
Stuttgart, 1927, b) to the 'third  
composition', 1929.

15 Grid of the villa at Garches, 1927.

16 The general Palladian grid, as  
proposed by Wittkower.

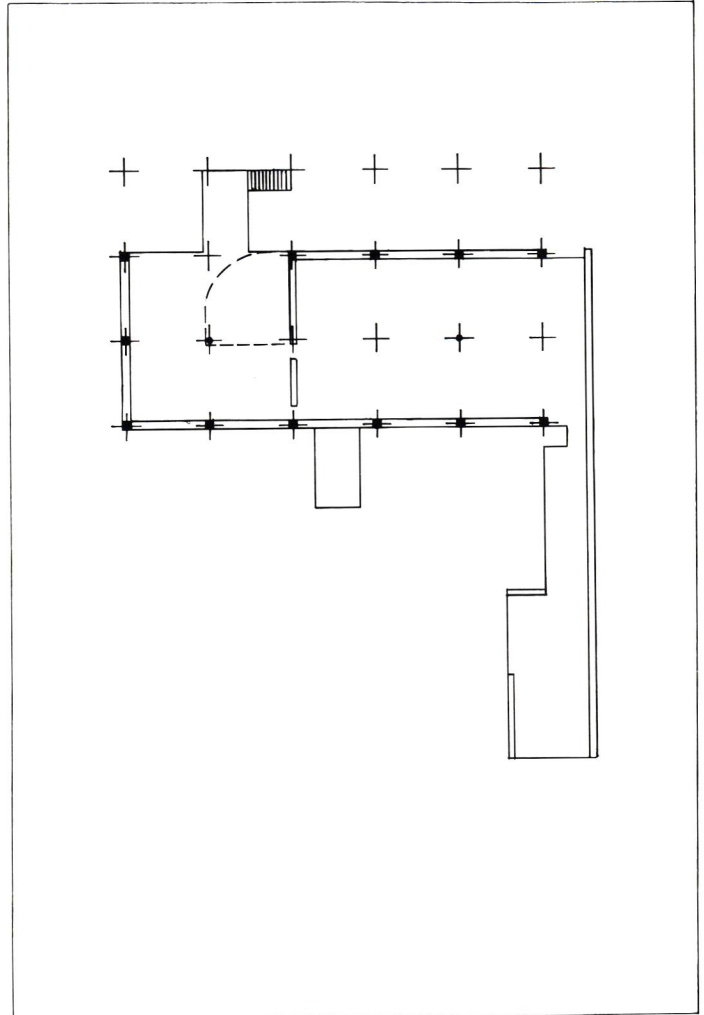
17 The Citrohan house as built at  
the Weissenhof Siedlung, Stuttgart,  
1927.

18 Basic grid applied to the 1926  
plan for the villa at Garches.

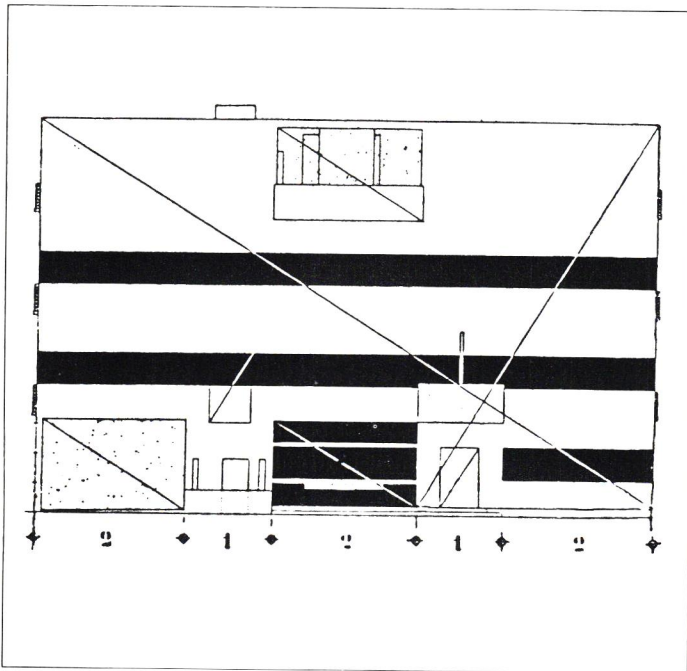
Other differences between the Citrohan and the Dom-ino project arise from the greater three dimensionality of the volumetric development (fig. 13). The two squares of the living areas are distinguished by one being given a double height and containing the principal room of the house. Also, the main body of the house now emerges above first floor level as a rectangle two and a half bays by four (that is, five by eight half-bays) with the residual areas of the original rectangle taken up by a first floor terrace. In further Citrohan house projects (figs. 10d, 12) this residue begins to be contracted until it is little more than an armature loosely extended from the building. In the Villa at Weissenhof Siedlung in Stuttgart of 1927 (figs. 14a, 17) it remains only in the balcony projecting over the ground floor entry—a coccyx where there once was a tail.

This then gives us a number of buildings which we can relate to the basic grid. Indeed, were we to take this grid literally as a unit four bays by two, we could regard the third composition as a fragment of it (fig. 14b), being that part which is regular and undisturbed by the peripheral circulation. The basic grid, we have argued, is initially square. This area is then overlaid by an ideal geometry that subdivides a sector of it into three bays by five; into this format are inserted the volumetric and circulatory systems and a row of columns is lost. This gives us an effective grid which consists of a juxtaposition of wide and narrow bays in one direction and equal bays in the other. The latter are then stretched, emphasizing the directionality of the grid and establishing a set of tensions within it, in its two directions. These characteristics give the grid a life of its own, independent to some extent of the initial parti of a staircase flanking living spaces. This may be also seen in the plan of the Pavillon de l'Esprit Nouveau in which the alternating wide and narrow bays are only partly dependent on the placing of the stairs. This dialectical theme of structure and circulation reaches its most fruitful expression in the villa at Garches, the grid of which has been subjected to a brilliant analysis by Colin Rowe in his essay "The Mathematics of the Ideal Villa."<sup>15</sup>

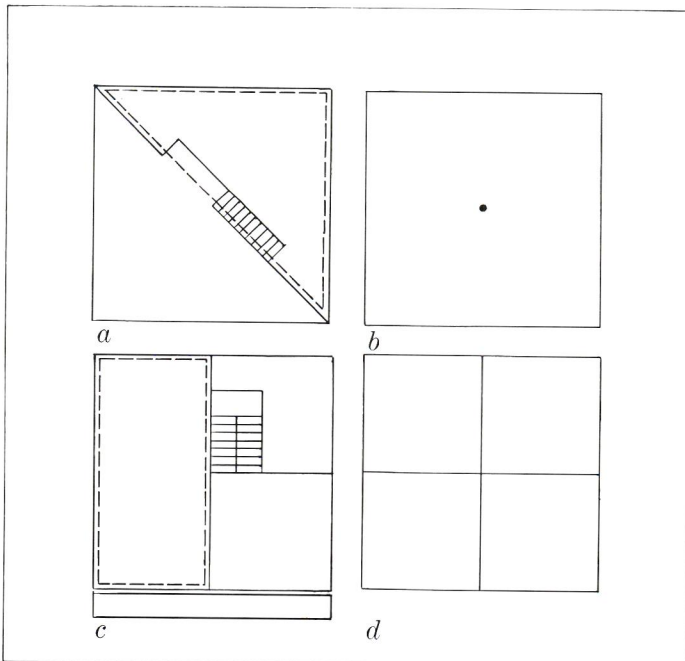
The geometric system, as the title of Colin Rowe's essay suggests, is particularly developed in this structure.



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Across its length, alternating narrow and wide bays of one and two modules in width make up a total of eight units (fig. 15), while in the other direction regular bays one and a half modules wide, with a cantilevered half bay at the front, provide the building with a depth of five units. The plan rectangle is thus five by eight, the approximate golden section proportion which is reiterated, as the drawings of the *tracés regulateurs* indicate (see fig. 7), all over front and back elevations. The building is in fact five by eight bays in proportion. As we have seen this is a significant proportion and hence the basic grid of the villa is the same as that of the Dom-ino or Citrohan houses, but it is irregularly inflated so that the bays, though correct in number, fluctuate in size. This interpretation is further suggested by an early scheme for the villa (fig. 18) in which the building is five equal square bays wide.

The same three by five bay structure does of course appear in the plan of Palladio's Villa Malcontenta as Colin Rowe has demonstrated. But Rowe's reference creates a problem of formal interpretation. This arises from the fact that in the Malcontenta the central and peripheral wide bays, although of equal width, are not of equal weight in the composition, which may be termed "pyramidal," with a concentration toward the center. In Le Corbusier's third composition, on the other hand, there is no such implication; each bay has equal importance. A further difference between the two systems is that the Palladian "pyramidal" grid is complete while that of the third composition (see fig. 14b) is potentially unlimited. To which system does the villa at Garches belong?

The peculiarity of the situation is that it seems to represent a special case of both the continuity of the third composition and the pyramidal form of Malcontenta. On the one hand the general Palladian grid (fig. 16) which Wittkower proposes,<sup>16</sup> and which is illustrated by that of the Villa Thiene at Cicogna (fig. 22), clearly shows the pyramidal tendency in that the central bay is wider than those on the edge of the building (the Villa Malcontenta [fig. 23] is a special case of its ABCBA bay spacing, in which A and C are equal). On the other hand, if the grid



19 Entrance elevation of the villa at Garches, 1927.

20a Plan diagram of artisans' dwelling project, 1924.

20b Structure of artisans' dwelling project, 1924.

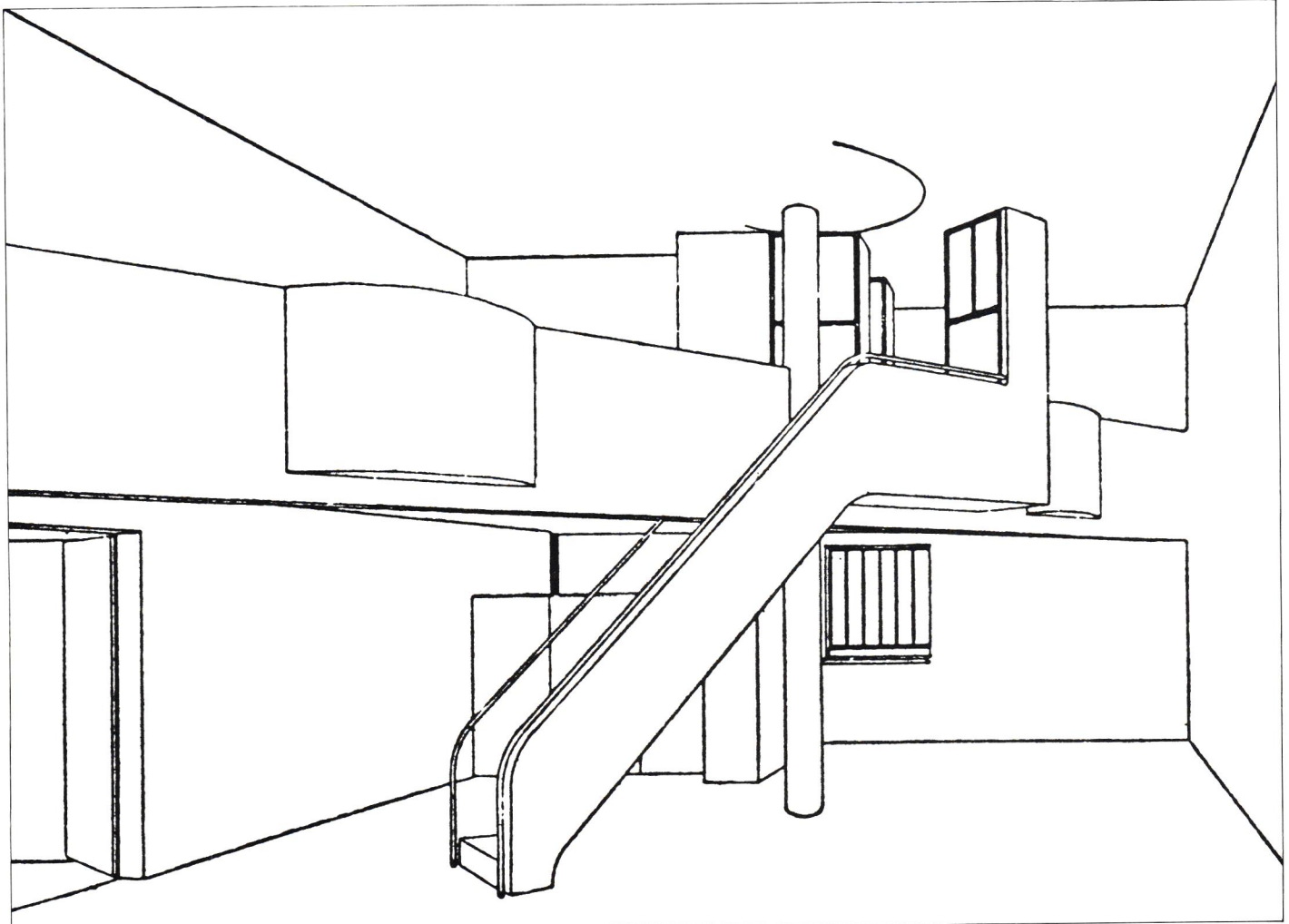
20c Plan diagram of Maison Cook, Paris, 1926.

20d Structural grid of Maison Cook, 1926.

21 Le Corbusier's interior perspective of the artisan's dwelling.

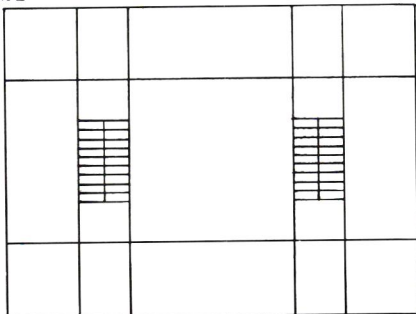
22 Diagrammatic plan of Villa Thiene at Cicogna, as illustrated by Wittkower.

23 Diagrammatic plan of Villa Malcontenta, as illustrated by Wittkower.

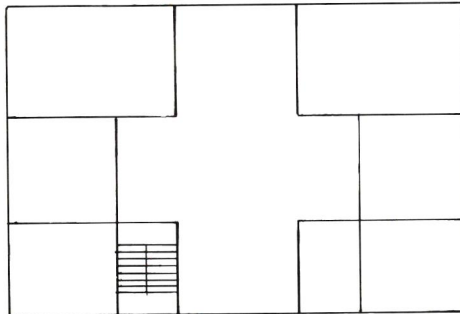


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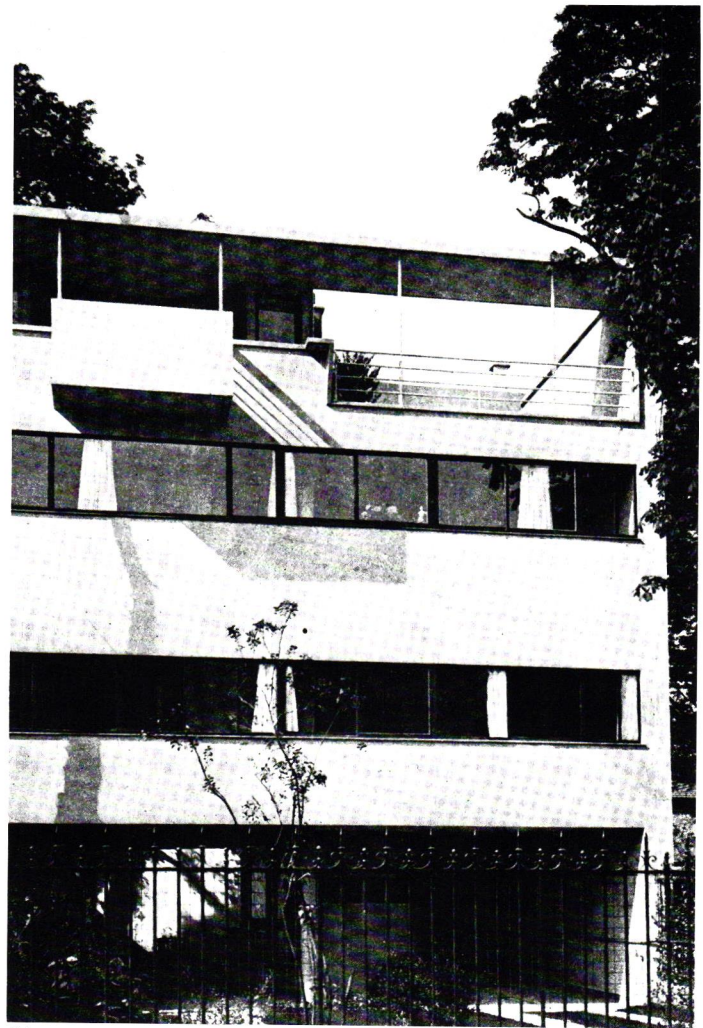


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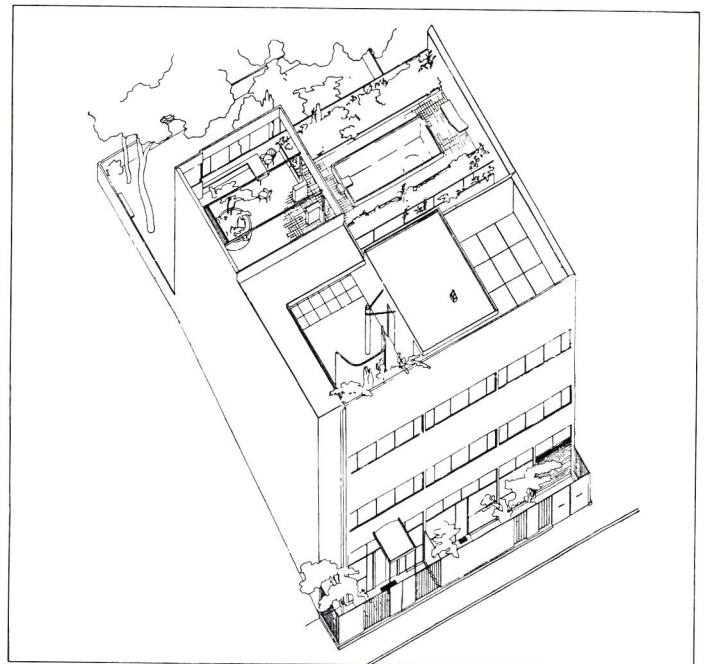
104 of the villa at Garches is to be considered as part of a continuous ABABAB . . . system, then the choice of that particular part gives rise to a central symmetry which is by no means an inevitable corollary of the general grid. If the first or Palladian “pyramidal” interpretation is correct we should expect the central bay to be dominant; if the second or continuous interpretation obtains, then we should expect the peripheral bays to be equal in importance to the central bay.

The entrance facade of Garches (fig. 19), so nearly symmetrical about the axis of the central bay, suggests the pyramidal interpretation, but we soon note that we do not enter on this bay, but rather through the narrow bays, one of which is preferred. The plans and rear elevation reveal that the axes of these two narrow bays and *not* that of the central bay are in fact the axes of symmetry of the composition, and that at each level one or the other is dominant. We may then read the plan as two groups of three bays each, ABA, overlapping in the central bay which thus corresponds to either of the peripheral wide bays, which one depending upon which narrow bay is dominant. This reading reveals the villa at Garches as the most elaborate example of the grids developed through the Dom-ino and Citrohan houses. Throughout the same period of experimentation however, a second grid-type is being explored which offers an illuminating comparison.

If the mark of the first family of grid buildings was a golden section rectangle, then that of the second is a square. Our first example (figs. 20a, 20b) though not chronologically the first of the series, is a project of 1924 for mass-produced artisans’ dwellings, for this is perhaps the simplest statement of the problem. The ideas may be summarized as follows: the plan is square and a column is simply placed in the middle; this square is entered asymmetrically—in this case in one corner—and an internal diagonal heavily emphasized (fig. 21). In its enigmatic juxtaposition of column and wall, and in the literal expression of the diagonal, this house is unique among those we shall consider, but it nevertheless carries, almost in caricature, the principal ideas of the sequence.



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24 Entrance elevation of *Maison Cook*, Paris, 1926.

25 *Le Corbusier's* isometric drawing of the *Villa Meyer*, Paris, 1925.

26a Plan diagram of *Immeubles Villas* project, 1922.

26b Structural grid of *Immeubles Villas* project, 1922.

26c Plan diagram of *Villa Meyer*, 1925.

26d Structural grid of *Villa Meyer*.

27a Plan diagram of *Villa Savoye* at Poissy, 1928 project version.

27b Plan diagram of *Villa Savoye*, as executed, 1930.

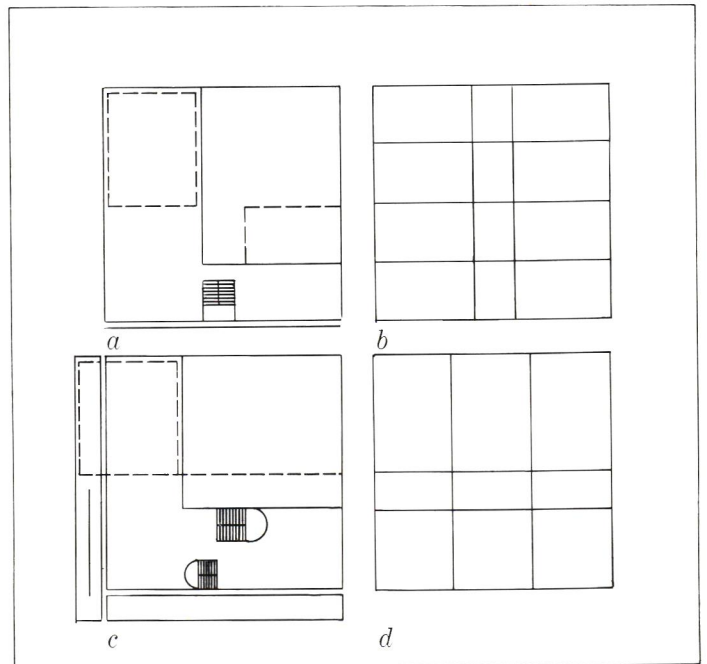
27c Structural grid of *Villa Savoye*, 1928 project version.

27d Structural grid of *Villa Savoye*, as executed, 1930.

The *Immeubles-Villas* project of 1922, the *Villa Meyer* of 1925, and the *Maison Cook* of 1926 all share the characteristic of a basically square plan, and all differ from the artisans' houses in that they are not open on all four sides to their sites, a condition which tends to confine their format to a front, a back, and two sides.

The *Maison Cook* (figs. 20c, 20d) shows the simplest adaptation of the structure to meet this condition, a line of three columns situated at mid-span between the party walls. This structure implies the primary breakdown of the square into its four quarters, into which configuration the plan comfortably adapts itself. We enter on foot to the left, and by car to the right of the central axis. The two movements then converge at the foot of the stairs which, with kitchen and bathrooms, rise through the top right hand quarter of the square. At second floor level the double-height living room takes up both left hand quarters and we now move to the other side of the central axis to mount a single flight of stairs to the third floor, where an 'L' is formed by the internal volumes around an open roof terrace in the bottom right quarter. Within the admirable economy of this plan there is in this last movement a tension in the vertical circulation from one side of the central axis to the other. This axis is firmly held by the line of structure, the movements of entry and internal circulation to be devised around it and to be shifted from one side to the other. The question of an asymmetrical entry is less acute here than in the artisans' houses, but the third-floor projection in the facade (fig. 24) seems as perfunctory an indication of which side of the axis we should enter as the canopy at Garches. In other words, the dialectic between the structural system and circulation is truly operative here, and will prove to be a central theme of this series of buildings.

In the *Immeubles-Villas* project (figs. 26a, 26b), the jockeying for position in the central axis is resolved in favor of the stairs, about which the central line of columns divides, creating a narrow bay down the center of the square. While this may be read as a partial ABA unit taken from the villa at Garches, a simpler interpretation would be to read it as a square grid in which some defor-



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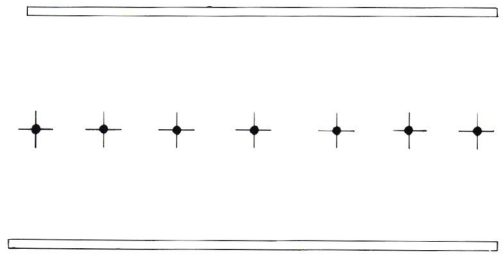
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106 mation has occurred about the central axis. As in the other examples we enter asymmetrically, and the diagonal of the square is emphasized, more clearly than in the Maison Cook, by the arrangement of rooms about two sides of a garden terrace, the double-height living room being situated at the end of one arm of the 'L', opposite the point of entry.

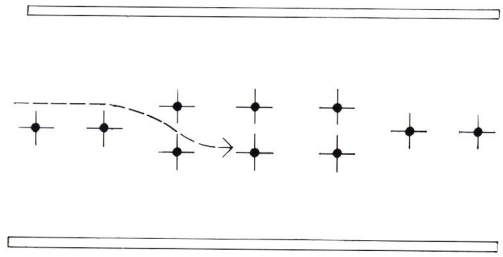
In the Villa Meyer (fig. 25), the question of precedence in the central axis is neatly avoided by dividing the square into three equal bays across its width, so that the stairs lie in the central bay without disrupting the structure (figs. 26c, 26d). In the other direction, however, the grid fluctuates, the square being divided first in half and the front half then sub-divided unequally. Further, there is a preliminary narrow bay which lies between the square and the front facade, a sort of buffer zone which is present also in the Maison Cook and the villa at Garches. In the Villa Meyer this zone continues with a ramp around the flank of the square, further emphasizing the diagonal established by the 'L' of the living quarters about an open terrace and reminiscent of the first-floor promenade which flanked two sides of the first Citrohan house.

The Villa Savoye at Poissy, of 1928, concludes the sequence of square plans and most clearly illustrates the nature of the structural grid in this sequence. Unlike the previous three examples, this building stands free on its site, so that "the house ought not to have a front."<sup>17</sup> Nevertheless it is approached from just one side, a fact which is sufficient to disengage "front" and "rear" facades from the line of columns, as at Garches, and to establish one of the central axes as dominant. The *Oeuvre Complète* gives us two preliminary plans for this building (figs. 27a, 27c) differing in some respects from the final project (figs. 27b, 27d). Both, however, have a basic structural grid four bays by four established by the peripheral columns, and therefore immediately concerned with the question of the central axis. This concern is particularly acute here, since "situated at the summit of the hill, the house ought to be open to the four horizons,"<sup>18</sup> and thus the point which lies at the center of these four horizons is of the utmost importance. It seems rather anti-climatic to place

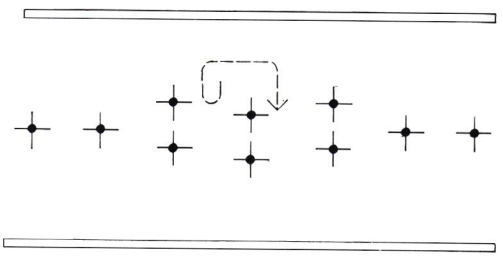
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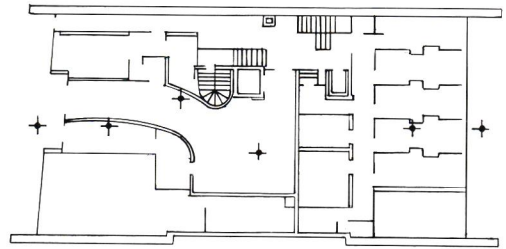
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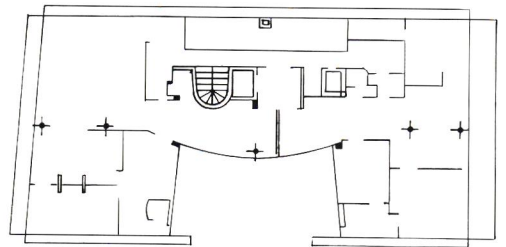
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28 *Generic grid of flats at Porte*

*Molitor, Paris, 1933.*

29 *Intermediate grid of flats at Porte*

*Molitor.*

30 *Final grid of flats at Porte*

*Molitor.*

31 *Ground floor plan of flats at*

*Porte Molitor.*

32 *Upper floor plan of flats at Porte*

*Molitor.*

a column here, as the grid would imply, and one wonders whether perhaps the resident will stand here, basking in the importance of this central position. Le Corbusier, however, assures us that this will not be the case, for the building is organized on “a principle contrary to that of baroque architecture which is conceived on paper, about a theoretical fixed point. I prefer the lesson of Arab architecture.”<sup>19</sup> It is interesting to examine how he accomplishes this. We first enter the square of the building on a corner, as in the artisans’ houses, and then circle behind the peripheral screen of columns until the principal axis is reached. On this axis a peripheral column is established, but behind that the line of columns splits, allowing us to reach the central point only by moving to one side in order to mount a ramp on which we revolve about the unassailable position. Indeed, the point can hardly be said to exist at all. The center of the square end of the four horizons is, in fact, as in some Dantesque allegory, an upward spiral.

The difference between the column grids of the two schemes lies in the treatment of those six bays of the square grid which are disturbed by the disruption of the central line of columns. In the earlier plan (fig. 27c) the nine rectangular bays which result from the splitting of this line are made equal, so that we have a ‘U’ of square bays containing an area of grid which is regular but more dense. In the built version (fig. 27d) the central bay, containing the ramp, is made narrower than the flanking pair and the result reads as two interlocking U’s with the ramp in the middle.

When we come to compare the two families of plan-types which we have discussed—the “golden section” and the “square”—their differences become immediately apparent, the more so when we recognize the different methods we had to adopt in order to analyze them. With the first group we could proceed in an almost determinist fashion, defining first the systems and then their consequences, and finally arriving at a grid which was not specific, if by this is meant something dependent on the particular demands of each site and building. Rather, the rectangular grids solved the problem on a general level and could then

be applied to a range of particular buildings in which the position of each column was predictable. 107

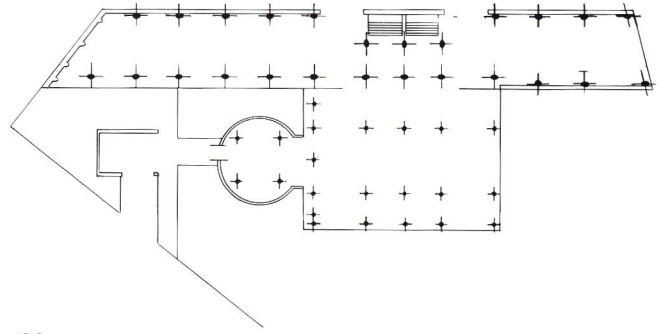
The second series could not be considered in this way, for the column grid, at first seemingly regular and neutral, as in the *Maison Cook*, became in the *Villa Meyer*, a means of subdividing the total volume of the cube and subservient to the volumetric manipulation. Each building thus had its own grid, quite orderly and geometric, but nevertheless quite specific as to its content.

The situation is summarized by the villas at Garches and Poissy; the grid of the former is at first complex and irregular but, once recognized, predictable and repetitive, while that of the latter is first established around its periphery as simple and regular and then allowed, within this general framework, to become unpredictable and specific.

#### *Further Examples*

Within a few years of completing the houses so far examined, Le Corbusier designed three buildings, the *Porte Molitor* flats, the *Cité de Refuge* (Salvation Army building), and the *Pavillon Suisse*, with which we shall extend the scope of this study to cover some building types other than houses.

The *Porte Molitor* flats in Paris (see fig. 1) built in 1933, serve as a convenient transition since they are related to the houses both in program, which is domestic, and in the use of many of their themes. The structural grid of this building is not what it seems, if we begin, that is, with the ground floor plan (fig. 31). Here we see four columns, two at the front and two at the back, on a central axis between the party walls. Between these columns, in the middle area of the building, two more free-standing columns are placed on each side of the axis, in a manner which seems somewhat random, if responsive to movement through the entrance hall. These six columns are, however, only part of the system, which in fact comprises ten internal points of support in all, and which can be found in the basement plan. From this we see (as illustrated in diagrammatic form in fig. 30), moving from front

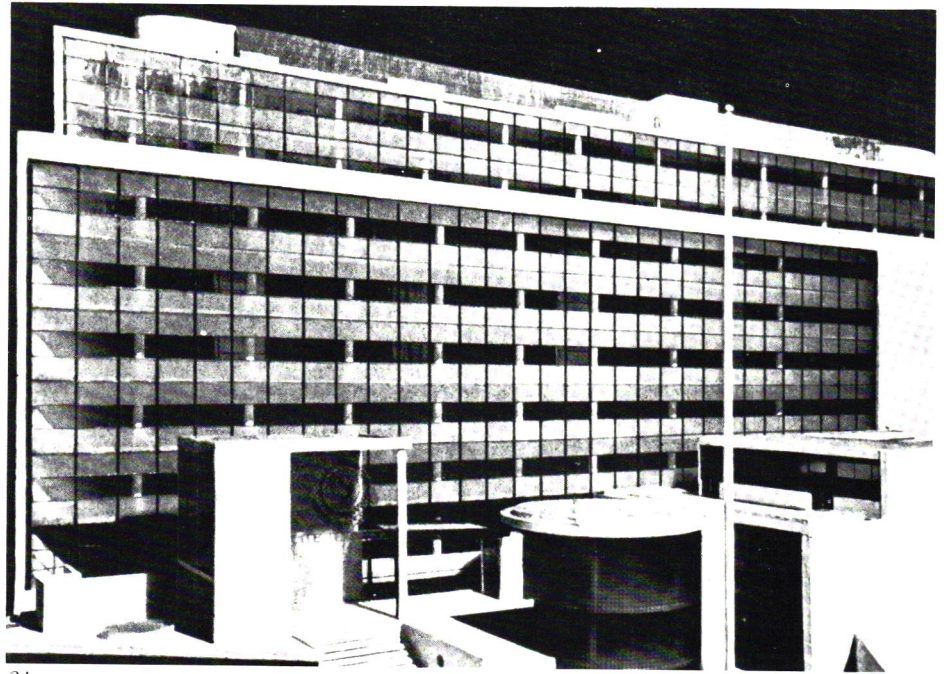


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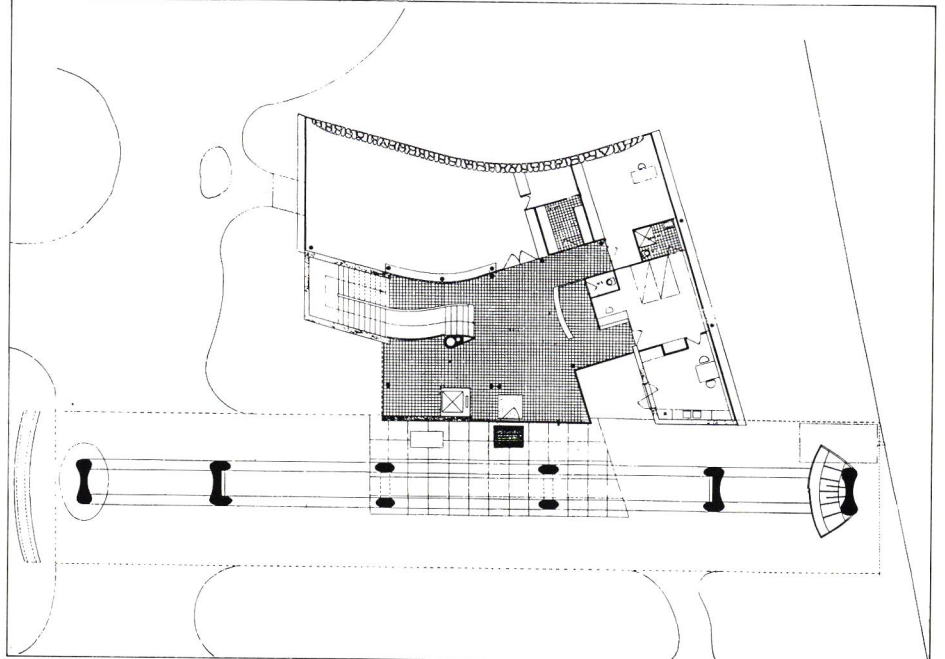
108 33 Structural grids at entry floor level of the Cité de Refuge, Paris, 1933.

34 Model of the Cité de Refuge.

35 Ground floor plan of Pavillon Suisse, Paris, 1930–1932.



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to back, the two columns on axis, followed by a pair whose center lies slightly to left of axis, then another pair with center rather more to right of axis, a further pair with center to left of axis as with the first pair, and finally the two columns on axis at the rear. The development of the argument which results in this arrangement might run as follows.

The “generic” structure (fig. 28) is a central line of seven columns running down the site between the party walls (cf. the *Maison Cook*). Lying on the central axis of the site, this line of columns interferes with the entry, which otherwise would tend to be placed centrally. Consequently the entry is displaced to the left of center, and we pass alongside the first two columns. The entry vector then, as at *Poissy*, moves into the usurped central axis, and in so doing causes the splitting of the central columns. This substitution of a pair of columns for a single one appears as a fragment of the grid of the villa at *Garches*, for the two columns divide the space between the party walls in the proportion 2:1:2. The movement to the right, channeled by the surrounding walls, in fact compensates for the previous non-axial position, and takes us across the center line and into the entrance hall. From this we turn back across the axis once more, toward the elevator and stairs.

We note three systems at work here; the walls which, in accordance with the third composition, curve against the discipline of a system of columns which is, however, disturbed by the circulation from the entry, which in turn is channeled by the walls. There is also another displacement which arises from the plan of the upper floors (fig. 32). Unlike the ground floor plan, with its entrance from the street and main axis running from front to back, each upper floor consists of two apartments, more or less symmetrically planned about the other central axis of the building rectangle, at right angles to the first. On these floors the positions of “front and back” and “sides” of the building are reversed, and the symmetry of plan about the second axis produces a corresponding symmetry in the structure. There is then an initial amendment to the generic diagram, whereby the middle three columns are

replaced by three pairs, each balanced about the central axis, and producing a system symmetrical about both axes of the plan (fig. 29). The second distortion occurs on the upper floor plans where the transverse center line substitutes for the major axis on the ground floor. For when we reach the entrance to these apartments on the upper floors, we are in a similar situation to that encountered when first entering the building. The logical place for entry would seem to be on the central axis, but this is again taken up by a line of structure. Once more the entrance is displaced to the left, and the offending columns, instead of splitting, respond by a shift forward, in the direction of movement of the entry vector. This destroys the symmetry of the column system about the long axis, and, in compensation, the two pairs of columns to each side of the displaced central pair are similarly moved off axis, but to the other side and by a smaller amount. The final result (fig. 30) is a symmetrical system about the short axis and a balanced but asymmetrical one about the long. There is one other adjustment to the grid which should be noted, namely the slight broadening of the bay widths toward the center along the longer axis, a distortion which further emphasizes the short axis.

Having arrived at this system, we find that Le Corbusier never reveals it completely on any one floor, but rather picks out just a few columns to stand for it in a particular situation. Thus only six of the ten columns are expressed at ground floor level and five on the floors above. Thus an ambiguity arises in the roles of the columns and the walls. Our first impression is that the former are somewhat informally arranged, and thus can hardly be expected to discipline the free play of walls. Upon analysis we find that the columns in fact do form part of an ordered system, but one which shows the influence upon it of the form of the walls, resulting from the latter's ability to control and define paths of movement. The dominant character of the column system is thus thrown into question, and we might be led to speculate whether it would be possible to envisage a situation in which the roles are entirely reversed; in which, that is, the walls act as the disciplining frame of reference for a subsidiary system of columns. For this to be possible the walls must make some form which we

110 could recognize as being grid-like. We should expect such a reversal to occur when movement is uppermost, as in a difficult entry situation, or in a *promenade architecturale*. This follows from the observation that it is the walls, rather than the columns, which define movement. Such a situation is to be found in the Cité de Refuge of 1933, in Paris.

This building may be considered in two parts: first a long narrow block, taken up mostly by the dormitories for men and women and rising eight floors above the entry level; then a series of low pavilions placed in front of the long block and accommodating social services (fig. 34). The photographs of the long block in the course of construction remind us, as they are presumably intended to, of the diagram for the Maison Dom-ino, and we could note in this connection a slight contraction of bay width around the stairs (fig. 33). There is, it is true, in the columns at the Cité de Refuge, a tapering toward the top of the building, at which point only are they cylindrical, but we accept this amendment to the normative structure as both respecting the laws of statics and implying the finality of the top floor. On lower floors the columns are elongated in the direction of the length of the block, but we also find that the grid of these columns is subject to a similar stretching in the other direction, perpendicular to the rear wall. Whereas the columns are kept back from the surface of the building when this surface happens to be a glass wall, they appear to be pulled toward it when the wall is solid. The result is not the ambiguous situation of the house at Stuttgart, or the early scheme for the villa at Garches, where the lines of structure and envelope coincide. Here the two functions are distinguished but the columns are pressed so hard against the wall that they appear in places to be attached columns or pilasters.

With the column systems of the pavilions in front of the long block we return to our conjecture regarding the possibility of reversing the roles of column and wall. The organization of the long block divides it in two parts, for men and women, with services, stairs, and an expansion joint between. It is here that we enter the block, and since this point is some distance from the main entrance

to the site, the pavilions form a sequence of volumes which lead us to it. By adopting primary forms, the cube and cylinder, the first two pavilions could be said to satisfy the requirement that they should be, in some sense, generic. The third volume in the sequence of entry, the great hall, is more ambiguous in this respect, and might be read more as being dragged out from the long block than as an independent cell. This is suggested also by the side wall, to which columns attach themselves in much the same manner as in the long block. There is thus a sequence established by increasing dependence upon the dormitory block, beginning with the free-standing cube and followed by the cylinder, this time physically connected with the third pavilion, which ends the sequence and is firmly attached to the block. A similar progression may be seen in the column system, which falls into three parts: first there is the primary system of the long block which, though subject to the distortions we have discussed, establishes the kind of precedence seen in the Dom-ino diagram; this major system is followed in the great hall by a minor one, in which the columns maintain the grid established in the dormitory block; finally, in the cylindrical vestibule, the columns are no longer part of this grid, and become secondary elements within the strongly defined form of the walls. A complication is provided by the doubling up of the line of columns of the second group closest to the cylinder. This results in a column being situated on the axis of the cylinder, and has the double effect of implying a screen through which we pass from one volume to the other, and of relating, by means of the axial column, the columns of the second and third groups, so that we may recognize them as parts of the same family. We might also regard this axial column as similar to those at Poissy and the Porte Molitor flats, and suggest that this choice of position, which here seems structurally unnecessary, proves that the intention in those other buildings is to bring the structural grid into conflict with the axis of entry. The theme is illustrated here independently of any structural or planning problem which may have been its source, just as the theme of alternating wide and narrow bays achieved independence at Garches and in the Pavillon de l'Esprit Nouveau.



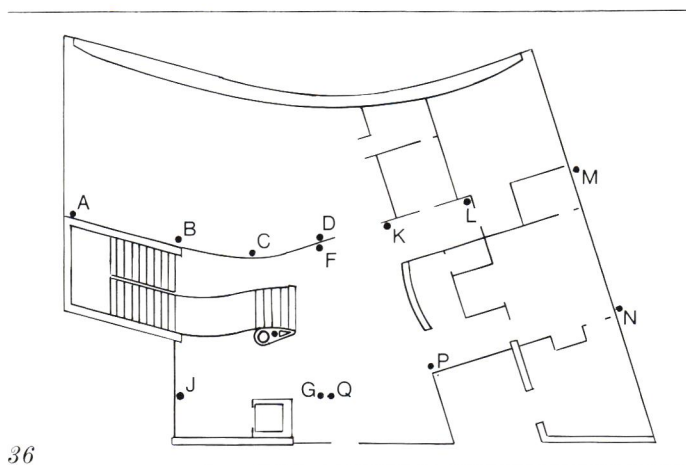
36 Ground floor plan of hall and refectory wing of Pavillon Suisse, Paris, 1930–1932 project version.

37 Ground floor plan of hall and refectory wing of Pavillon Suisse, executed version.

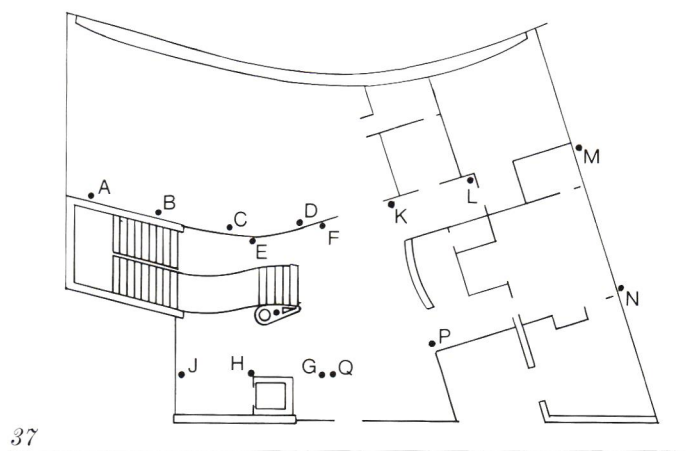
38 Implied structural grid of hall and refectory wing of the Pavillon Suisse.

The Cité de Refuge introduces three new ideas into the discussion of the column grid. In the first place, we find that the column system may, under certain circumstances, become secondary to that of the walls, with its grid determined by the form of the latter. Secondly, there is the possibility of breaking the column system down into a number of groups, or fields, of columns, as here the first group is distinguished from the second by a change in scale, and the second from the third by a change of grid. Thirdly, we find the density of columns within a given grid subject to alteration, as when the line of columns of the second group doubles in number. The first idea shows the column system in a passive relationship with the walls; while the second and third reveal a new attitude of the column system to the problems of entry and movement, and one which may be considered both active and passive. It is active in the sense that the form of the column grid is now calculated to affect our passage through the building. The four columns in the vestibule cause a momentary pause in our movement; the doubled line of columns suggests an imminent change of direction; the elongated grid in the great hall denotes this turn; and the change in column scale finally tells us that we have arrived. In order to do all this, however, it must relinquish its position as a detached frame of reference. The circulation must be determined before the grid, and in this sense the latter is passive. We are here one stage further removed from the idea of the generic grid, for this is not simply the distortion of a predetermined grid by a specific situation. Here, the grid may not be fixed at all until the specific conditions are known. We might put it another way by saying that it is the architect, and not some entry vector or other inevitable force, who determines the irregular form of the grid.

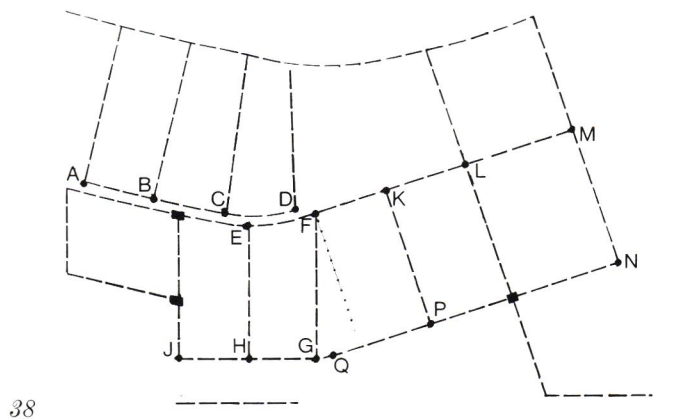
Such an interpretation surely must also be applied to the distortions in the column grid in the Pavillon Suisse of 1930–1932 (fig. 35). As with the Cité de Refuge, a clear distinction is made between a tall residential block and auxiliary functions housed in a low structure at its base, by way of which the building is entered. We might therefore begin by noting the similar contrast in scale between the column structures of the two parts at ground floor



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112 level. However, the supports of the residential block are quite different in nature from the columns of the Cité de Refuge. These are pilotis which act as props to a platform which is raised above the ground, and upon which a separate structure is erected, independent of the pilotis. The spacing of the pilotis, ABBBA, and the evolving sequence of their forms emphasize the central axis of the residential block above, but neither this axis nor the pilotis grid seems to be recognized explicitly in the column grid within the low building—or rather grids, for the columns of this low wing fall into two, or possibly three, separate groups, and it is the form and relationships of these groups which principally concern us here.

There are two plans (figs. 36, 37) for this part of the building, the one given in the *Oeuvre Complete* and the one executed which differs from it in some respects. In both cases, however, the three groups of columns (fig. 38) can be identified as, first, a row of four columns in the refectory A, B, C, and D, running alongside its southern wall; second, the three columns of the first scheme F, G, and J, and five of the second E, F, G, H and J, which carry the wing which projects on the upper floors from the back of the residential block and links this block to the staircase; third, the remaining six columns K, L, M, N, P, and Q, which are ambiguously related to the second group in that, while the columns on the north side of the hall appear to be part of the same system as those of the second group, the pair of columns on the south side, which are met on entering the hall, seem to emphasize the existence of two distinct systems. Both plans are subject to what Le Corbusier describes as “deliberate deformations,”<sup>20</sup> in which there is a band of tension about the area at which the upper level connection to the residential block occurs, and on either side of which the walls and column grid bend away from the block as if unwillingly attached to it. One can hardly speak here of the play of walls against the discipline of the column grid, for both are warped by the same force and in the same manner. A further deformation occurs, however, in the various elements that are “pulled” toward the residential block at different points, the curve of the stairs, the wall between hall and refectory, and the stone north wall to the refec-

tory. The clue to this distortion lies in the difference between the *avant projet* and the executed work. In the first case the columns of the first group, while articulated from the second group, maintain the same grid, while in the second case they take up a regular spacing of their own which is now slipped off the grid of the second group. The stages of the development of the plan might therefore be reconstructed as follows: we begin with the low block running orthogonal to the residential block. A tension is now set up between the two about the point where they join at an upper level. This causes the bending of staircase and walls and the twisting of the grids of the first and third groups of columns. The third and final stage occurs when the parts of the plan become disjointed and slide in relation to one another, as if some geological fault had occurred.

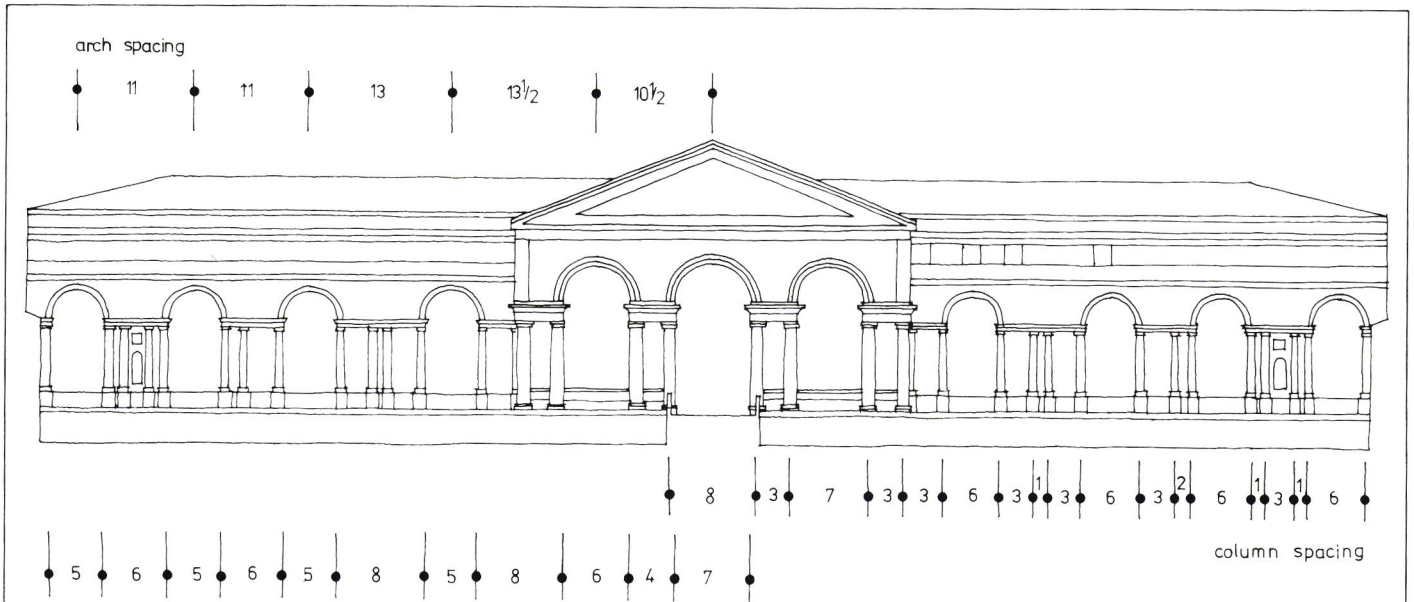
This final series of distortions leads one, with Summerson, to a discussion of Cubist ideas of space, and of the dislocation and reconstitution of forms, a discussion which we shall take up in the next part of this essay.

#### *Space and Place: Grid vs. Volume*

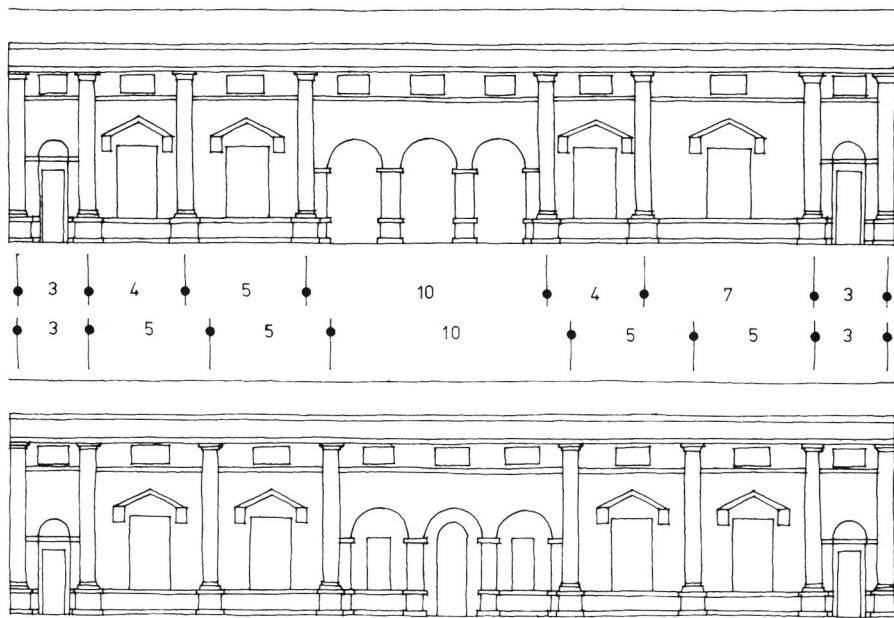
In his “Mathematical Principles of Natural Philosophy” Isaac Newton wrote of space and place that “absolute space, in its own nature, without relation to anything external, remains always similar and immovable” and “place is a part of space which a body takes up.”<sup>21</sup> These statements properly belong to metaphysics, and were challenged in their time by the relational theories of Leibnitz. Although the absolute idea of space is not necessary for Newtonian dynamics, an inertial system is, by which is meant a system of co-ordinates relative to which bodies move in accordance with Newton’s laws of motion. These ideas might be considered in relation to the first part of our analysis of Le Corbusier’s buildings, concerning the two sequences of domestic projects, and in particular the third composition and those projects of Mies van der Rohe which express a similar argument. The Newtonian system could act as a model for these buildings in that, as we have argued, the function of their column grids was to establish just such an absolute space, or at least a reference system, within which a particular “place” could be



39 *Palazzo del Te, Mantua. Giulio Romano, 1526–1534. Garden front: abrupt change of scale and complex irregularities of the grid.*



bay spacing  
40



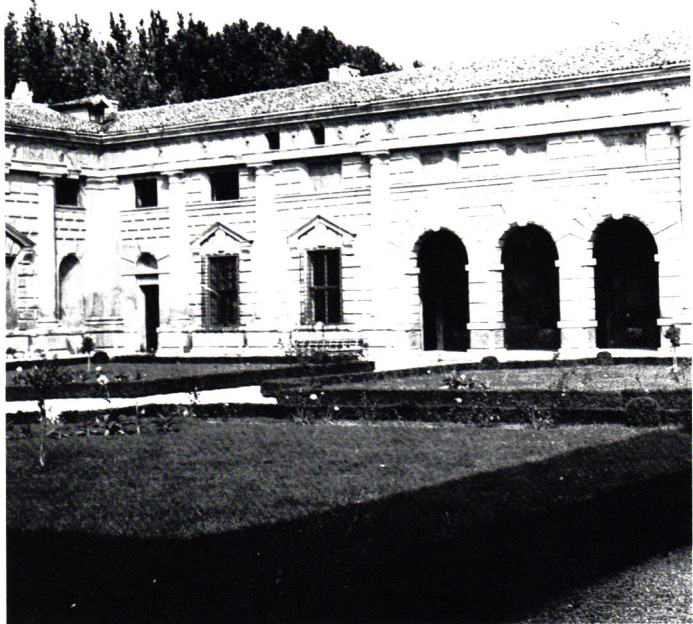
demarcated. In some of Mies's projects the analogy is made more striking by the use of cruciform columns which further imply the idea of a co-ordinate system. Such a model might suggest the following adjustment in our terminology: the word "space" would stand for that three-dimensional continuum which is implied by the structural grid, while "volume" would be that three-dimensional "place" which is defined by particular walls and masses. One would say that space stands to the grid as volume stands to surfaces. Space, at least according to the Newtonian notion, is uniform and "immovable." Volume, on the other hand, is subject to the formal laws operating within the context. Thus volumes, but not spaces, may be described as "flowing," "compressed," and so on.<sup>22</sup> It should also be noted that, in our analyses of the sequences of houses, we tried to account for irregularities in the column grid by hypothesizing some external force, an entry movement or directional stress, a kind of explanation which itself was Newtonian. This kind of mechanistic explanation became more difficult in the second group of analyses, particularly with respect to the Pavillon Suisse and the Cité de Refuge where both the generic grid and the reasons for its distortions were more obscure. We might wonder, then, whether a new model for these buildings might not give us a more adequate picture of their formal structure.

In a popular book written in the twenties, James Jeans described the recent changes in the ideas of physics: "The effect of a mass of gravitational matter was not, as Newton had imagined, to exude a 'force', but to distort the four-dimensional continuum in its neighborhood. The moving planet, or cricket ball, was no longer drawn off from its rectilinear motion by the pull of a force, but by a curvature of the continuum."<sup>23</sup> This idea, that the continuum, or, in our case, the grid-space, may be itself totally warped, and not merely irregular in the disposition of some of its defining members, is an interesting one in relation to the Pavillon Suisse, which, for the first time in Le Corbusier's work, presents the example of a non-rectilinear grid. In another passage Jeans referred to "the crumplings, some large and some small, some intense and some feeble, in the configuration of the space itself"<sup>24</sup>—a

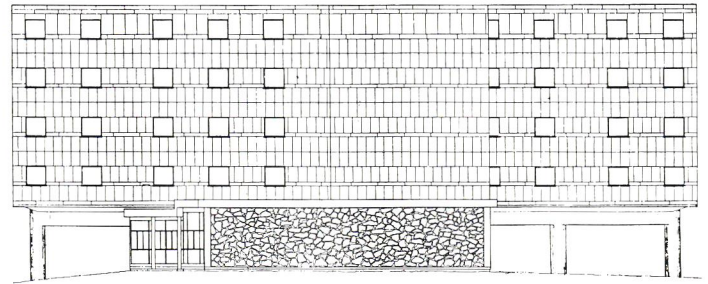
*40 Palazzo del Te, Mantua. Giulio Romano, 1526–1534. Garden front: analysis of fluctuations in spacing of arches, columns, and bays.*

*41 Two courtyard elevations: analysis of column grids illustrating apparently arbitrary variations.*

*42 Courtyard elevation: fluctuations in column spacing with a weak central zone.*



42



43

116 description which is perhaps reminiscent of the modulations from zone to zone in the grid of the Cité de Refuge. Some such analogy may be of assistance in unraveling the involved relationships between the grid and the other elements in these buildings, relationships which, as was seen in the case of the Porte Molitor flats, depend upon one another, so that the result is dialectical rather than a simple statement of opposites.

#### *Mannerism, Error, and the Distortion of the Grid*

In his *Introductory Lectures on Psychoanalysis*, Freud defined errors as “mental acts arising from the mutual interference of two intentions” and, in a series of lectures devoted to the psychology of errors,<sup>25</sup> cites a classification of verbal mistakes which runs as follows: interchanges (in the positions of words, syllables, or letters), anticipations, compoundings (contaminations), and substitutions. One could apply all of these, by analogy, to a Mannerist building, such as Michelangelo’s Laurentian Library and its details. The list is also remarkably similar to Wittkower’s classification of Mannerist principles as being those of double function, inversion, and permutation.

Since Mannerist buildings, in their elevations, are conceived in relation to the reference grid which the classical orders impose upon a facade, an examination of a few of these should tell us something of the ways in which the grid may be affected by this notion of intended errors.

For example, a first, and minor, Mannerist adjustment to the classical Bramantesque scheme is a slight expansion of the central bay in an otherwise regular succession of equal bays. This may be seen in Sanmicheli’s Palazzo Pompeii in Verona, or Peruzzi’s Palazzo Massimi in Rome, and the effect of this very slight amendment is to disengage the central bay from its context and thus weaken the grid at its critical point. This is particularly true in the case of the Palazzo Massimi whose facade is distorted by a shallow curvature which further emphasizes the weakness of the central bay.

A second Mannerist adjustment affects the elevation grid along its whole length, but in a regular or repetitive man-

ner. Thus in Sanmicheli’s Palazzo Bevilacqua in Verona an even grid is replaced by an alternating ABA . . . sequence of bays. This device, not in itself particularly Mannerist, is made so by the similarity of the two bay sizes. The effect, particularly at the level of the brackets which separate the principal stories, is inducing a confusing ripple into the grid. The rhythm of the grid is further compromised, or perhaps one should say syncopated, by the fact that the alternation of bays does not coincide with the variable arrangement of circular or triangular pediments or with the inflection of the spiral or fluted columns. Similar “disturbances” may be found in Giulio Romano’s Palazzo del Te where the pilasters, which should establish the predominance of the grid, imply arbitrary fluctuations toward the ends of the facade, thereby weakening the central area of the grid (figs. 39, 40).

Yet another Mannerist aberration in the grid illustrates the garden front of the Palazzo del Te (figs. 41, 42). In this case an even rhythm of semicircular arches is broken, first on its edges by unequal spacing, and then in the three central bays by a sudden increase in scale. The similarity of the elements across the facade and their ambiguous coplanarity make them all part of the same grid, one that has been mutilated by expansion, contraction, and a violent inflation of scale. One is reminded of Parmigianino’s self-portrait in a distorting mirror, a painting in which just such an effect is achieved, as if a Cartesian grid had been subjected to some kind of Gaussian transformation.

One is tempted to compare these Mannerist distortions to the modulation of the grid in the Cité de Refuge, or with the manipulation of the fenestration in the rear elevation of the Pavillon Suisse, which is basically a flat, parallel wall, interrupted where the stair tower is joined to the dormitory block and punctured by a number of square windows which light its access corridor. This use of square windows in a panel wall occurs elsewhere in Le Corbusier’s work, for example in his Centrosoyus building in Moscow where an even spacing of the standardized elements is relentlessly maintained. In the Pavillon Suisse, however, the spacing is irregular and this is odd, for the disposition of rooms on the other side of the corridor is

quite regular. According to the plans in the *Oeuvre Complète*, the spacing of the windows from left to right across the elevation is ABCABXBBBA, where X denotes the link to the staircase tower. This highly irregular rhythm is simplified somewhat in the final solution (fig. 43), becoming ABAABXBABA. Once identified, these fluctuations seem like errors in the setting out of the industrialized components of the wall, undermining the authority of its mechanical system in the same way that the 'errors' in Mannerist buildings undermined the authority of the classical system.

This third possibility of distortion in the regularity of the structural grid—the result of a manneristic “effect of error”—must be added to the two others already described: the first for which a mechanistic explanation of a particular discrepancy was adequate, and the second of which an explanation had to be sought in the deformation or warping of the grid as a whole. These three, I believe, may be extended beyond the work of Le Corbusier to clarify more generally the processes by which an architectural language is constructed.

1965

#### Notes

1. Le Corbusier, *Towards a New Architecture* (London: The Architectural Press, 1927), p. 45.
2. *Ibid.*, p. 22.
3. *Ibid.*, p. 65.
4. Le Corbusier, *L'Art Decoratif d'Aujourd'hui* (Paris: Editions Vincent Fréal, 1924).
5. See John Summerson, *Heavenly Mansions* (London: Cresset Press, 1949).
6. Antoine de Saint-Exupéry, *Terre des Hommes* (Paris: Gallimard, 1939).
7. Le Corbusier and Pierre Jeanneret, *Oeuvre Complète 1910–1929* (Zurich: Editions Girsberger, 1937), p. 23.
8. Colin Rowe, “Chicago Frame—Chicago's Place in the Modern Movement,” *Architectural Review*, Nov. 1956, pp. 285–289.
9. Leone Battista Alberti, *Ten Books on Architecture*, ed. Joseph Rykwert (London: Alec Tiranti, 1955), Book IX, chap. V, p. 194.
10. *Ibid.*
11. Le Corbusier and François de Pierrefeu, *The Home of Man* (London: The Architectural Press, 1948), p. 124.
12. Le Corbusier, *Towards a New Architecture*, p. 71.
13. *Ibid.*, p. 68.
14. *Ibid.*, p. 66.

15. Colin Rowe, “The Mathematics of the Ideal Villa,” *Architectural Review*, Mar. 1947, pp. 101–104.
16. Rudolf Wittkower, *Architectural Principles in the Age of Humanism* (London: Alec Tiranti, 1952).
17. Le Corbusier and Pierre Jeanneret, *Oeuvre Complète 1910–1929*, p. 186.
18. *Ibid.*
19. Le Corbusier and Pierre Jeanneret, *Oeuvre Complète 1929–1934* (Zurich: Editions Girsberger, 1935), p. 24.
20. *Ibid.*, p. 79.
21. Isaac Newton, “Mathematical Principles of Natural Philosophy,” reprinted in *Problems of Space and Time*, ed. J. J. C. Smart (New York: The MacMillan Company, 1964).
22. Peter D. Eisenman, “The Formal Basis of Modern Architecture.” Thesis, Cambridge University, 1963.
23. James Hopwood Jeans, *The Mysterious Universe* (Cambridge: Cambridge University Press, 1930).
24. *Ibid.*
25. Sigmund Freud, *Introductory Lectures on Psychoanalysis* (London: Allen and Unwin, 1922).

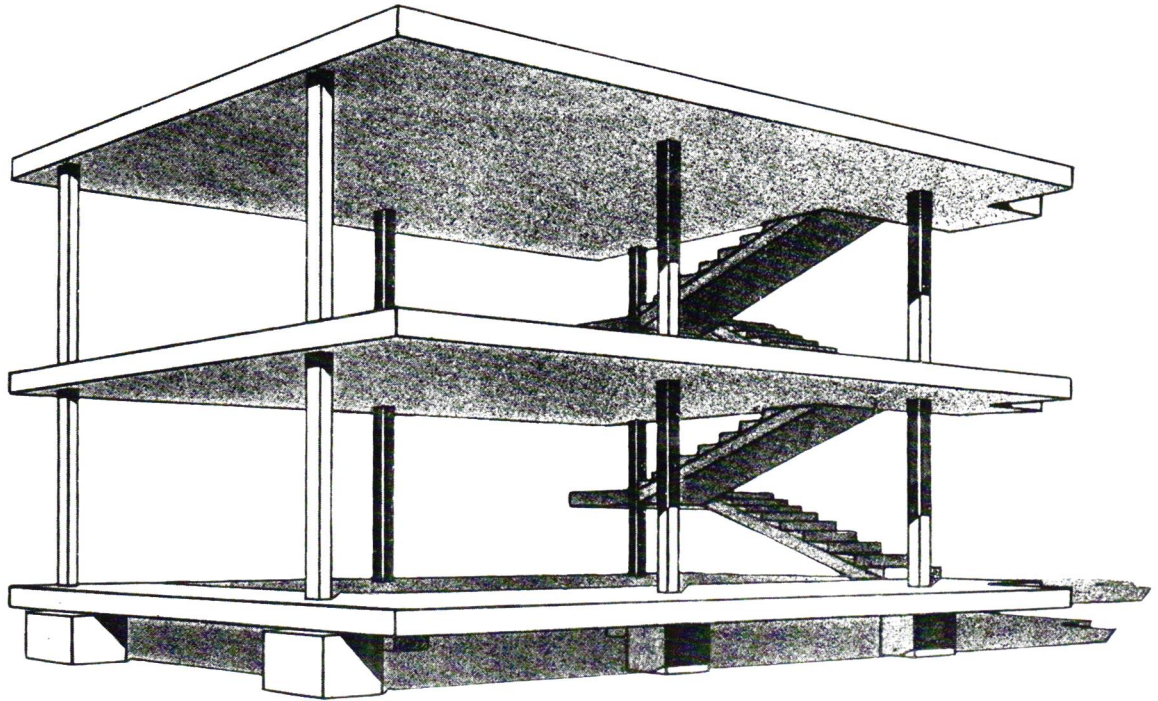
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- 1, 34, 35, 43 From Le Corbusier and Pierre Jeanneret, *Oeuvre Complète 1929–1934* (Zurich: Editions Girsberger, 1935).
- 2, 6, 7, 12, 13, 17, 19, 21, 24, 25 From Le Corbusier and Pierre Jeanneret, *Oeuvre Complète 1910–1929* (Zurich: Editions Girsberger, 1937).
- 3 From Le Corbusier, *L'Art Decoratif d'Aujourd'hui* (Paris: Editions Vincent Fréal, 1924), p. 56.
- 4 From Le Corbusier and François de Pierrefeu, *The Home of Man* (London: The Architectural Press, 1948).
- 5, 11 From Philip Johnson, *Mies van der Rohe* (New York: The Museum of Modern Art, 1978).
- 8, 10, 14, 15, 18, 20, 26–33, 36–42 Courtesy the author. Redrawn by James Wasser.
- 9 From Le Corbusier, *Towards a New Architecture* (London: The Architectural Press, 1927). Redrawn by James Wasser.
- 16, 22, 23 From Rudolf Wittkower, *Architectural Principles in the Age of Humanism* (London: Alec Tiranti, 1952). Redrawn by James Wasser.

1 *Dom-ino house prototype. Le Corbusier. Perspective.*





## Aspects of Modernism: Maison Dom-ino and the Self-Referential Sign

Peter Eisenman

*The modes and identities of representation, so weighted down with their own material history, have ceased to express the order of being completely and openly.*

*Michel Foucault.*

It can be argued that all changes in architecture can in some manner be traced to changes in culture. Certainly, the most tangible changes in architecture have been brought about by advancements in technology, the development of new conditions of use, and the change in significance of certain rituals and their domain of performance. Thus, it would seem that the nature and significance of the architectural object should reflect the gradual shift in man's consciousness that occurred between the mid-fifteenth century and the twentieth century, from a theocentric to an anthropocentric conception of the world.

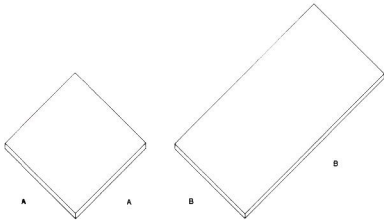
Such changes in architecture are most abstractly recorded in spatial manipulations of plan and section, which become the physical manifestations of developing formal strategies made possible by new conceptions of notation and representation. While more superficial stylistic changes are easily grafted onto the facade like applied icons, such changes in elevation are never so fundamental as changes in plan and section; plan and section have been, since the development of orthogonal projection, the repositories of the animating principles that define architecture in the classical Western sense. They are the primary notational devices that reflect both changing concepts of use and meaning and the technical capacity to produce such changes. One has only to compare a plan of Palladio (fig. 6) to one of Bramante (fig. 11), or one of Scamozzi (fig. 12) to one of Palladio, to see in the movement from the external expression of the cruciform to its envelopment in a platonic square or rectangle and finally the cruciform's complete dissolution, evolving spatial conceptions of an anthropocentric society.

The record of the later history of Western architecture, from the early nineteenth century to the present, also documents the changes which have occurred in man's conception of his object-world as they come to be reflected in his architecture. For example, if one examines the differ-

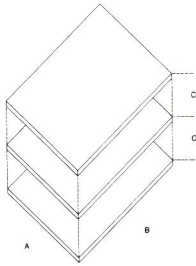
ence in conception between two buildings like Charles Garnier's Paris Opera House and Le Corbusier's Maison Dom-ino—admittedly of widely different use and significance but nevertheless typical—one witnesses an alteration of space so fundamental as to announce historical rupture. The abandonment of the plaid grid of the opera house for the free plan of Dom-ino, possibly one of the most critical changes ever in the continuous cycle of changes, appears to herald a decisive cultural phenomenon: the birth of a Modernist sensibility that is to parallel and even supersede classical Western thought.

Modernism is a state of mind. It describes the change that took place sometime in the nineteenth century in man's attitude toward his physical world and its artifacts—esthetic, cultural, social, economic, philosophical, and scientific. It can be interpreted as a critique of the formerly humanist, anthropocentric attitude, which viewed man as an all-powerful, all-rational being at the center of his physical world.

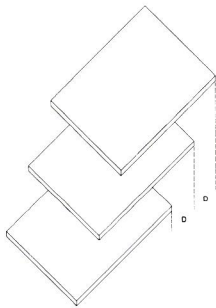
In arts other than architecture, where Modernism has signaled a profound change, it is fairly easy to distinguish a condition of objecthood and sign which can be labeled "Modernist." In each case, this condition is characterized above all by the object's tendency to be self-referential. Thus the change from narrative to non-narrative prose or from tonal to dodecaphonic music reflects in its historical evolution a change in the *conception* of the relation of man and his object world, a relation where the writer or composer is no longer necessarily interposed between the object and the reader or listener. Man is seen to be in both a more direct and also more relativistic condition vis-à-vis his object world—the "peer" of rather than the determiner of his works. Modernist prose and music incorporated not only this new relation of the object/maker, but also of the object's signification, that is, how the object reveals its condition of being and its manner of coming into being, how these are recorded and the inherent condition of such notations. Since the object of prose, music, painting, and sculpture is no longer merely a narrative record and mimetic representation of man's condition, it becomes more fundamentally concerned with its own ob-



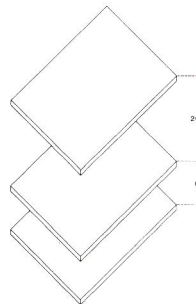
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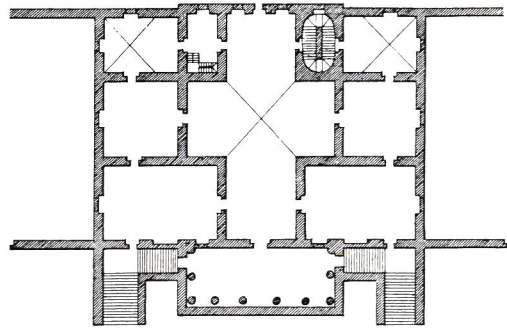
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jecthood, with an existence outside of (if parallel to) its inescapable origination by, and traditional representation of, man. This new conception of the object world naturally opens a potential for uncovering entirely new modes of existence within the object world itself.

But what is curious about most interpretations of modern architecture, and in particular those of Le Corbusier—supposedly the most modern (i.e., abstract, painterly) of all the modern architects—is that they do not view their subject in very modern terms. In fact, far from establishing the tenets of a Modernism in architecture, they seem intent on seeing modern architecture as a continuation of the Renaissance tradition. For example, up to now the most significant critical and theoretical writings on Le Corbusier have been by Colin Rowe. However, one has only to look at the titles of some of his texts to see that their thrust is decidedly anti-Modernist. In fact, of his five major texts dealing with Le Corbusier three of them contain key words in their titles which link Le Corbusier with Renaissance thought—“Mathematics of the Ideal Villa,” “Mannerism and Modern Architecture,” “The Architecture of Utopia”—and all of them develop an attitude toward space which has its origins in the sixteenth century. From a reading of these texts, there is little question that while Rowe exhibits a consistent respect for Le Corbusier he simultaneously sustains only a fragile tolerance for modern architecture and for that matter much of what can be called Modernist thought. And since Colin Rowe has provided one of the few critical matrices for analyzing modern architecture, it may be well to ask how much of his thinking has conditioned our received view of Le Corbusier, and thus even much of second generation modern architecture; and conversely, how much of his thinking is in fact a product of modern architecture itself, which it can be argued is not necessarily modern or Modernist, but rather a phenomenon of late humanism; and finally, how much the free plan, supposedly the ‘canonical’ spatial diagram of modern architecture, is merely a manifestation of a late Enlightenment view of man, and how much the free facade is merely an icon of Le Corbusier’s technological genius.



Once these questions are admitted, then it can be argued that Rowe's ideas have in fact obscured the one aspect of Le Corbusier's work that makes it truly Modernist: that is, its aspect as a self-referential sign, its existence as *an architecture about architecture*. In the interpretation of modern architecture put forward by Rowe and others, while the style preference changed and new descriptive metaphors were used, the conception of what architecture was and what it could be remained relatively constant. Architecture remained conceived by man, representing man and his condition. It assumed physical structure and shelter to be absolute conditions of architecture, and when it considered signification it was in terms of a meaning which was *extrinsic* to architecture itself; that is, to ideas which related architecture to man, rather than to intrinsic ideas which explained architecture itself. It continued to rely on the traditional drawing modes of plan, section, and elevation to conceptualize its values. But if, as Saussure has suggested of language, words tend to divide a conceptual spectrum in arbitrary and specific ways, similarly the continuing representation and conceptualization of architecture in plan, section, and elevation can be said to have determined and probably also obscured many aspects of architecture.

As a plan and a section diagram, Dom-ino seems a rather simple and straightforward statement. Perhaps for this very reason—its apparently extreme clarity—it is often taken as an icon and a structural paradigm, an example of the potential of the then new technology, a prototypical unit expressing ideas of mass production, repetition, and so on. The famous perspective drawing is cited by Rowe as the initial didactic statement of the spatial concepts of the Modern Movement (fig. 1). He argues that here in the concentrated energy of a few simple gestures are contained implications which for the next twenty-five years are to condition the development of modern architecture. But it is only within the context of a Renaissance conception of space, rather than a Modernist one, that the Maison Dom-ino can be considered a canonical spatial diagram. For in a Modernist context the Paris Opera House and the Maison Dom-ino appear merely as successive variations of the same phenomenon: historical change mirrored

in unchanging modes of representation. 'Modern' in 121 Rowe's context seems merely to indicate the new style of supposed abstraction and the symbology of the machine rather than to signal changes apparent in the notations of plan and section which might suggest a fundamental change between man and object. Thus, if we see Maison Dom-ino through the eyes of Rowe as the canonical free plan diagram, a certain category of conceptions about architecture is made available to us, but within this category only a limited concept of change can be discerned.

Moreover, while the canonical spatial diagram of Dom-ino is often alluded to as if its invocation was sufficient to support its supposed lucidity, it has never been formally analyzed in any systematic way. The general acceptance of Rowe's thesis suggests that the recognition of an obvious and compelling truth, which in turn suggests that in the diagram itself there must exist, in the few elements and their precise size, shape, number, and location, a level of communication that goes beyond the mere fact of their existence. While this communication has been described in one way by Rowe, it is also possible to read the particular configuration of the diagram in terms of an *other* condition of representation, an *other* significance, an *other* realm, which exists simultaneously with the accepted interpretations. It is precisely the simplicity and clarity of the diagram taken together with the fact of its impact in the history of modern architecture that leads us to look for this 'otherness', which might be defined as a Modernist context for Dom-ino.

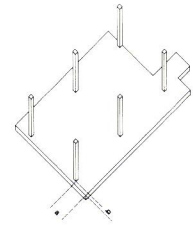
Thus, looking now at Maison Dom-ino with a different lens, proposing a different conceptual spectrum, it is possible to see in the precise selection, size, number, and location of the elements in the Dom-ino diagram the incipient presence of the self-referential sign. Such a sign notion as initiated in the Maison Dom-ino may begin to define not only a Modernist condition of architecture, but beyond that, insofar as this notion of sign is different from that which is classically thought to be architectural, to define certain minimal conditions for any architecture. Our analysis must begin with the basic elements—the three horizontal slabs, six box-like footings, six linear columns, and

122 one staircase in a primitive geometric configuration. First, it can be assumed that in any such diagram of architectural elements, the columns and slabs and their positioning have something to do with holding things up—probably also with some primitive intention to shelter, enclose, and divide, but fundamentally with obeying the laws of statics and physics. This much can be taken for granted. Thus, the configuration is initially seen as the result of necessity rather than any other intention; the columns and slabs are not read as signs, but merely as “integers” of construction.

Yet a floor slab or a door, a window or a wall may be necessary conditions for building or function but they are not sufficient in themselves to define ‘architecture’. Because while all buildings have doors, windows, walls, and floors all buildings are not necessarily architecture. Equally all of these elements, as physical entities, necessarily have three spatial dimensions, but these, no matter how pleasing their proportions, which may be recorded and understood geometrically, are not necessarily architecture.

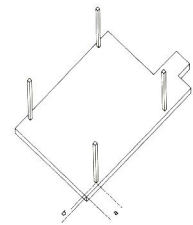
If architecture is not geometry, it must in some way be differentiated from it. In order to distinguish any one class of objects from any other, it must be possible not only to signal the difference of that class from all others (a negative signal) but to signal or identify the presence of the particular class itself (a positive signal). While all Ford Motor cars, as a class, may say something about movement, vehicles, etc., any single motor car is not necessarily the sign of another nor of the general category of motor cars. Similarly, any column, wall, or beam, while it may be saying something about structure and statics, is not *per se* a sign either of itself or of any general category which could be considered architecture. It is merely a column, wall, or beam.

The dimensions of any rectilinear plane, whether floor, wall, or column, can be designated simply by two notations: A A or A B; that is, either the two perpendicular sides are equal or they are unequal (fig. 2). However, if the dimensions of a plane are A B, and this dimension is *marked*, that is, *designated in some way as different*,



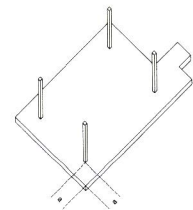
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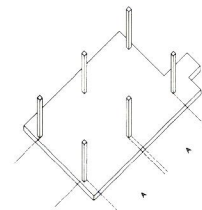
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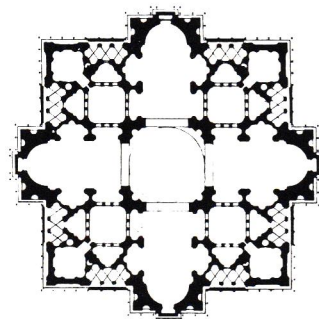
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then this marking can be considered to be a sign of that condition. The presence of an intentional sign may be the most important quality which distinguishes architecture from geometry, distinguishes an intention to be something more than a notation of a physical presence from the facts of literal existence. The three horizontal slabs of the Maison Dom-ino have an A B relationship of end to side. Initially, we do not know if this A B relationship is intentional, since such a relationship in any non-square plane is always literally there, so we begin to look for its marking as a sign. We also notice that the particular relationship of the three slabs suggests a geometric condition which can be defined by a set of proportional relationships. Of course, any number of arbitrary proportional relationships which still respect the laws of gravity can be made from these particular elements. For example (fig. 3), the three horizontal elements can be placed one over another with their corners in line so that they are equidistant from one another. They can also be placed so that while they remain equidistant from one another vertically and the two sides remain in alignment the planes step away from one edge at equal intervals (fig. 4). Alternatively, still leaving edges aligned, the interval between horizontals can be changed so that they are no longer equidistant but rather in a proportional ratio (fig. 5). These examples are merely three of many simple variants of a regular ordered geometry, but of course an almost infinite number of such alternatives could be posed. Each can be described by a different set of proportional systems and placement rules. These in turn can be explained by a simple rationale or strategy, and plans and sections can be drawn for them.

But are any or all of these variations anything more than geometry? And even in terms of their use as floor levels and the necessity to enclose them so as to provide shelter, are they anything more than a set of geometric relationships plus this use, which together in some way approximate what we have always thought architecture to be? And if we answer in the affirmative that they do constitute architecture, then do all such variations of these elements when combined with their uses constitute architecture? And if it immediately appears clear that not all of the examples qualify, then how do we begin to distinguish

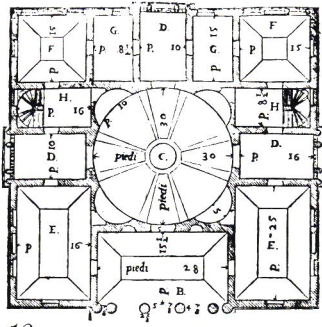
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between those that do and those that do not? Or if none of the variations are considered architecture, how do we begin to identify at what point these primitive configurations become architecture and when in this process they become a canonical spatial diagram of modern architecture? Beyond this, what, if anything, might make them a Modernist as opposed to a classical architecture?

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Clearly each diagram is potentially a framework for architecture, but no more or no less than any other three dimensional configuration. In fact, a highly simple geometric scheme is perhaps less likely to transcend its existence as mere geometry than a more complex one since it is more difficult to change it—to add or to subtract any element—without changing its description and its rationale (that is, without transforming it into some other geometric structure); the elements tend to be the manifestations of a closed system which allows for no alternation or interpretation except for more or less minor changes in their size and shape. Thus, in cases where a simple geometry exists as a basic diagram, the 'architecture' seems to be reduced to the decorative grafting of some aesthetic skin or the insertion of a particular use into the given geometry. Likewise, if we reverse the proposition and begin with some program of use or a site context which logically suggests a simple order, the question of whether the diagram is any more or any less architecture would remain exactly the same.

But let us return now to the original Dom-ino elements and their precise configuration in the Dom-ino diagram. If we analyze this configuration we begin to see that the elements together with their precise size and location exhibit an articulate level of intentionality. This cannot be seen in the configuration of the slab alone, but only in the relationship of slab to columns. Once more, one has to imagine a range of possible or reasonable column locations and a set of alternative shapes—round, square, or rectangular. The fact that the three pairs of columns are set back at an equal distance from the long sides while on the ends they coincide with the edge of the slab provides the clue to the fact that they are more than simple geometrical notations (fig. 7). First, because the columns are also in



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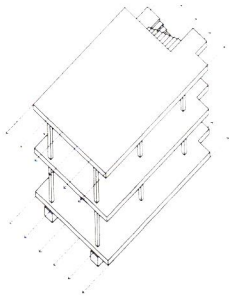
an A B relationship to the edge of the slab they can be seen to reinforce the difference between side A and side B of the slab itself. Second, while in themselves A and B are only a notation, a proportional difference—the literal fact that the slab is not a square—it can also be seen that the envisioned function—house—is not the determiner of the proportional relationship since most functions can be accommodated in any simple shape. For example, a house can just as easily be accommodated in a square as in a rectangle. Third, an equivalent A B distinction, if that had been the only proportion, could have been made by setting the two pairs of end columns back from the side and the side columns flush with the front and back of the slab (fig. 8). Again, the columns could have been set back equally, the same distance on the ends as on the side (fig. 9). In this case, it would have been only the unequal sides which would have marked the A B distinction; all the columns would have been seen in an equal A A relationship to the edge. Finally, the length B could have been marked as a function of the width A by inserting another pair of columns (fig. 10), providing two equal increments of width A. All—and of course any number of others—would have worked equally well from the point of view of structure, function, and geometry.

But again, since only one of these possibilities is in fact the case, we must assume an intentionality in the particular configuration with respect to all other permutations, and insist that the precise location of the columns with respect to the slab reveals the presence of an intention to treat the column-slab relationship as a sign and the precise location of the columns as a mark of that intention. The idea of marking and the presence of the column as a mark as opposed to a mere division or structural element are understood through the general linguistic concept of *redundancy*. Thus, when the column locations act to reinforce the original geometric A B relationship which in itself is so clear as not to need reinforcement, one interprets this as an intention to underscore a condition of being, that is as a significant redundancy. While A and B are literally present, there is also an intention to have A and B become something other than their actual presence. The redundancy of the mark thereby signals that there is

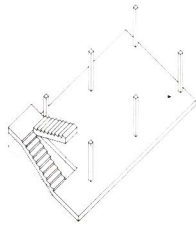
something present other than either the geometry or the function of the column and slab.

There is then an unintentional, or literal, reading of column and slab which posits A and B as unequal sides of the slab, and then an intentional reinforcement through the location of the columns, which makes A and B take on an additional presence. Thus, the fact itself—the slab—plus the spatial marking—the location of the columns—suggest an idea about sides A and B which is an idea only about itself, a self-referential statement. This then may be a primitive though truly Modernist phenomenon, one that speaks about its mere existence and its own condition of being.

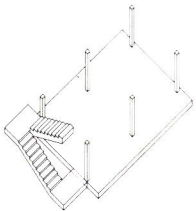
A second aspect of the Dom-ino diagram which can be called self-referential is the horizontal datum. The notion of a datum in the traditional architectural sense is not Modernist but an attitude to the vertical plane which seems to have originated in the sixteenth century. A datum was something which existed by virtue of its dominant configuration or location, and acted to inform and direct the observer's experience of the object. This can be understood if we look at Le Corbusier's villa at Garches, where the strong condition of frontality derives from the sixteenth century. It is true that its peripheral as opposed to centric composition—its conceptual "density" at the edges—seems to define it as "modern," but peripheral composition also existed in the sixteenth century, although the idea was lost in the centralizing tendencies of the Beaux-Arts. But again, the modernity, if it may be called that, exists only in the sense of the structure or composition of the image and not in a changed condition of object-viewer in relation to both the sign and the object. Garches can be said to be Modernist only when the front facade is considered as a frontal datum, as the collapsed energy of the other three sides being projected on the single plane. For in these terms it is a self-referential datum. It fixes a new object-man relationship, that is, man is no longer required to walk around the building to understand the object. Rather conception is from a single static position. It differs from the classical conception of frontality and datum in the sense that while the Renais-



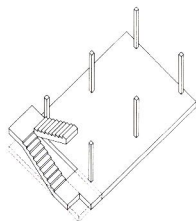
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since datum fixes a preferred viewpoint of man to object, it does not imply the collapse of the other three viewpoints into a single position.

Dom-ino places primary emphasis on the horizontal as opposed to the vertical datum. Setting the column grid back from the edge of the horizontal plane provides a dominantly sandwich-like character to the space. And, it is the location of the columns on the front, back, and sides which reveals the self-referential nature of the datum. In the equality of the setback there is the suggestion of symmetry and stasis, i.e., that the long sides are complete and will not grow (fig. 13). At the same time, the location of the columns flush on the ends marks an opposition to the setback columns on the sides, and further suggests that the ends of the slab have been cut off, implying the possibility, or former condition, of horizontal extension of the slab on the long axis. Horizontal extension is an idea about horizontality, in fact about "horizon." And since extension is implied in only one direction of the horizontal axis, the differentiation of extension and stasis themselves is what is being marked. Thus, the horizontal plane becomes a datum carrying the idea of both an infinite *extension* of space in longitudinal vectors and the denial of the same proposition in lateral vectors. Moreover, since its reference is only to horizontality, to spatial extension or compression which are intrinsically architectural ideas, it differs from both the concept of datum of Garches and the traditional datum of classical Western space. For in both of these, datum is primarily concerned with relating and structuring the perception of a viewer to an object. Datum provided the viewer with a physical reference to understand both the narrative of his movement to, around, and in an object as well as his static position at certain points along that movement. In both cases datum structured the experience of man. In this sense it speaks outside of itself and can be seen as extra-referential. The horizontal datum of Dom-ino speaks only of its own physical condition. It is a sign of that condition and nothing more. In this sense it is self-referential. It exists as a mark of its own condition and is only known through its own marking. This conception of datum at Dom-ino also begins to alter the conception and definition of architecture.

126 This brings us to the next element of the Dom-ino diagram, the staircase. Since Le Corbusier himself shows it in subsequent drawings as the element by which the units clip together, it is always assumed that its particular location derives from this intention. However, again attempting a different kind of interpretation, it is possible to find in the particular location of the staircase with respect to the slab a third self-referential notation. There are three interpretations of this relationship. First, the slab can be read as extending to the outer edge of the staircase (fig. 14); in this case, the void in the corner is read as a cut-out in the slab. Second, the slab can be read as terminating at the inner edge of the staircase; in this case, a small square piece can be read as added to the slab (fig. 15). Third, the slab can be read as extending to the mid-point of the stair; the stair being seen as half inside and half outside the slab (fig. 16). In this case both cut-outs—subtraction, and addition—can be read simultaneously. While the actual location of the staircase in relation to the slab establishes a series of vertical layers perpendicular to the long axis, it also establishes a sign notation which calls attention to the actual addition and subtraction. These, like extension and stasis, involve both the actual object and the ideas about architecture itself. There is also the counter proposition inherent in the placement of the staircase; one which expresses the integrity or wholeness of the horizontal plane. For one must leave one plane in order to go up, re-entering the next plane from outside rather than puncturing its surface from within. Thus, the location of the staircase produces two propositions which are in opposition but together refer only to the nature of the horizontal surface itself (fig. 17).

Finally, one must consider the six square base elements in relation to the first horizontal slab. Certainly their size, shape, and location suggest something more than support because, as one can easily see, other configurations could have provided equivalent support. For example, the slab could have been set on the ground (fig. 18), so the mere gesture to raise it and place it on a base makes a first, although conventional, distinction between ground and slab; but second, the particular way that the slab is raised on what seem to be traditional construction footings,

which equally could have been buried, suggests another intention for them. The most obvious gesture would have been to continue the columns through the lower slab as *pilotis* (fig. 19). But in this case there would have been no distinction between the way the vertical element meets the top and bottom of the slab. It is precisely because the columns do not continue through the slab and instead become block-like elements that the notation is self-referential. It marks not only the literal difference—that which exists between the top and bottom surfaces of the slab in structural terms—but it also marks the bottom slab as something other than the two upper slabs. This marking indicates that the shape, size, and location of the footings are something more than structural. They function, but at the same time they *overcome* their function, an idea which begins to suggest another primitive condition for an architecture.

For if architecture can be distinguished from geometry on the terms we have suggested, what distinguishes it from being sculpture? We know that sculpture too is more than simply geometry in three dimensions, it is more than a physical representation of some mathematical concept. It may, like architecture, contain geometrical orders and be explained in certain cases by them (although unlike architecture, since sculpture is not necessarily intended to be walked on and in, it does not demand surfaces which in their flatness and horizontality are determined by the laws of gravity, and hence by some form of rectilinear geometry). Sculpture then seems to contain all of what has so far been said to be the sufficient conditions of architecture without any of its necessary conditions: like architecture, it is concerned with objecthood—with physicality and spatiality, and it is also concerned with the characteristics of sign which distinguish it from geometry. But while the two have a similar relationship to geometry, what distinguishes them from each other is their relationship to use. Sculpture does not have walls, except in a metaphorical sense. It is this difference which defines a necessary condition for architecture distinct from sculpture.

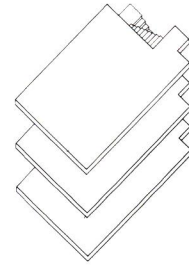
'Planeness' is a quality of all planes and thus all walls. It



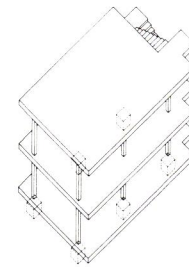
involves dimension, physicality, and extension; it signals division and contiguity. But 'planeness', as opposed to 'wallness', is not a sufficient or distinguishing condition of architecture because sculpture has 'planeness' too; moreover, it does not intrinsically imply shelter, support, and enclosure, aspects of function which we have said constitute the minimum traditional necessary conditions of architecture. 'Planeness', then, is not a necessary or sufficient condition of architecture. 'Wallness', on the other hand, contains those qualities which supply the necessary distinction between architecture and sculpture; but, by definition once again, these are merely necessary but not sufficient conditions of architecture since while they distinguish architecture from sculpture, they fail to distinguish it from mere building. As has been seen, to distinguish architecture from building requires an intentional act—a sign which suggests that a wall is doing something more than literally sheltering, supporting, enclosing; it must embody a significance which projects and sustains the idea of 'wallness' beyond mere use, function, or extrinsic allusion. Thus its paradoxical nature: the sign must overcome use and extrinsic significance to be admitted as architecture; but on the other hand, without use, function, and the existence of extrinsic meaning there would be no conditions which would require such an intentional act of overcoming.

In sum, a collection of planes and lines as projected in geometry or as materialized in sculpture can never be architecture precisely because they do not have inherent conditions of use and significance which must be overcome and subsumed. That same collection of planes and lines once they are also invested with 'wallness' and 'beammness' may become architecture when there is the presence of an additional intention to mark the 'wallness' and 'beammness' as architecture. The marking itself, the intentional recording of a condition beyond use, geometry, and extrinsic meaning, reveals that the 'sufficient' component of architecture is not merely the adding together of everything else, but rather exists as a separate, parallel, and potentially intrinsic condition of any space.

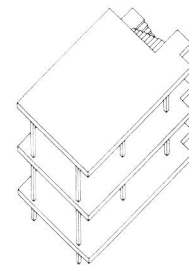
Thus, architecture is both substance and act. The sign is



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128 a record of an intervention—an event and an act which goes beyond the presence of elements which are merely necessary conditions. Architecture can be proposed as an ordering of conditions drawn from the universe of form together with the act of designating conditions of geometry, use, and significance as a new class of objects.

In this sense the Maison Dom-ino is a sign system which refers to this most primitive condition of architecture, which distinguishes it from geometry, or from geometry plus use and meaning. But more importantly in this context, the Maison Dom-ino can be seen to reflect a Modernist or self-referential condition of sign, and thus a true and seminal break from the four hundred year old tradition of Western humanist architecture.

#### Figure Credits

1 © S.P.A.D.E.M., Paris/V.A.G.A., New York, 1980.

1 From *Oeuvre Complète 1910–1929* (Zurich: Editions Girsberger, 1935).

2–5, 7–10, 13–19 Courtesy the author. Drawings by Jay Johnson.

6 From Andrea Palladio, *The Four Books of Architecture* (New York: Dover Publications, 1965).

11 From *Harvard Architecture Review*, 1, Spring 1980.

12 Courtesy the author.

*The profound influence of the classical tradition on the work of Le Corbusier has been surprisingly neglected by contemporary historians. Concerned to explore the formation of a new language, the apotheosis of functionalism, or the vicissitudes of urbanism, most critics have been content to refer to the early sketchbooks, the formative years of the "Voyage d'Orient," as evidence of Le Corbusier's self-education, and to ignore the internal evidence of his designs as continuing the high tradition of architecture. Only Colin Rowe in his two seminal studies, "The Mathematics of the Ideal Villa" and "Mannerism and Modern Architecture," has analyzed the formal quotations and transformations of Purist architecture to disclose their hidden debt to Humanism.*

*The parallel drawn by Rowe between the villa-type of Palladio and that of Le Corbusier is, as demonstrated by careful geometrical proof, more than a passing or superficial relationship: adopting the alternating bay rhythms of Palladio, Corbusier deliberately deforms the original structure of the type to develop, with an intensity rarely attained since, a new formulation; a new "villa" relying for its cultural meaning on the reference to its traditional counterpart and establishing its new semantics on the basis of inversions and displacements of the old. This ideal villa was not so much a rupture with the past as a careful*

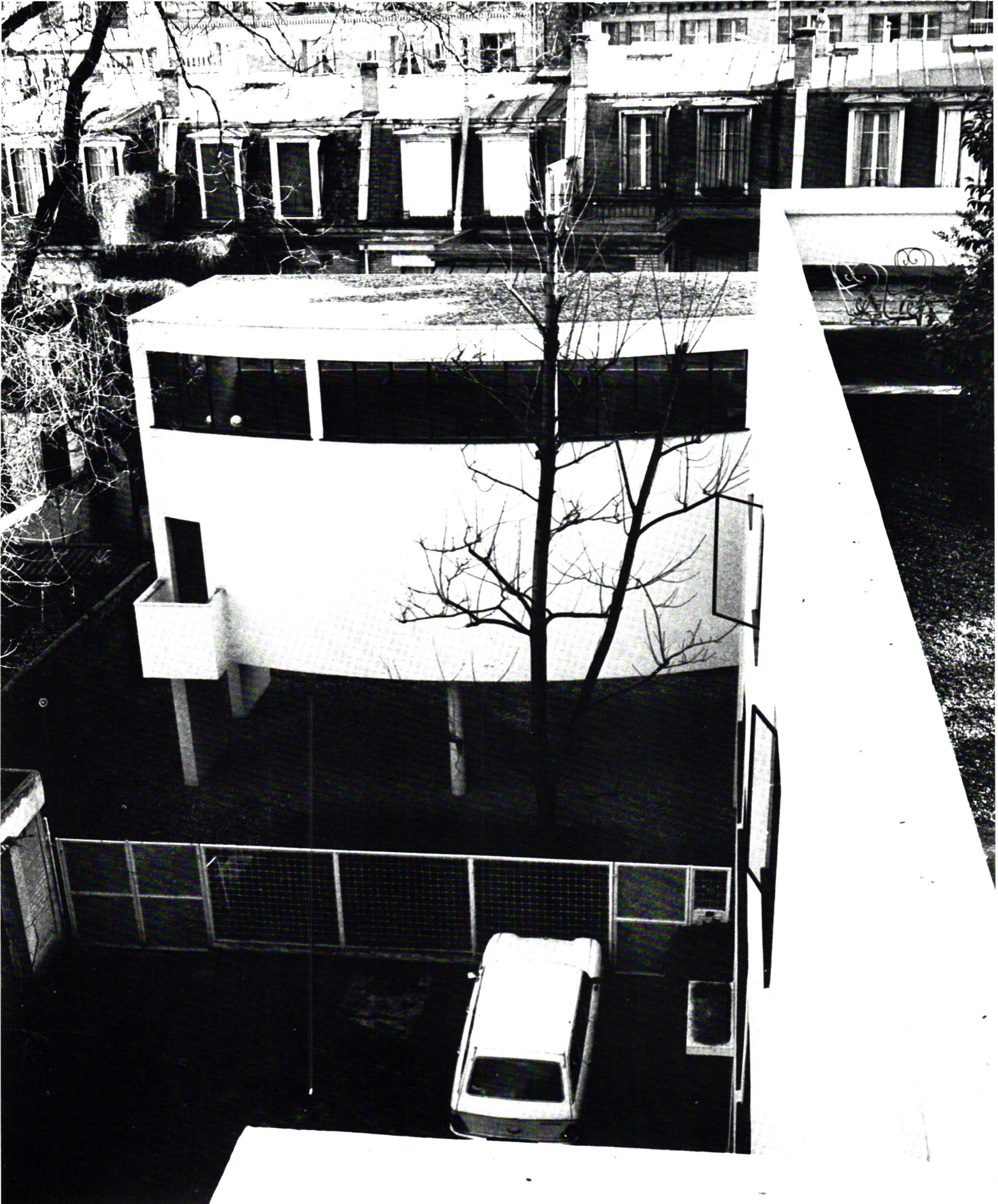
*de-construction of the classical tradition in order to renew the possibility for invention. That Le Corbusier deliberately chose the Palladian villa as his "type" indicates the force of that original form in sustaining its message of Humanism over three centuries, often by the deployment of the slightest reference. It could be utilized as the basis of a new "grammar" precisely because its plan organization constituted the quintessential "sign" of the classical Renaissance.*

*But if the clues laid by Corbusier himself, and followed up by Rowe, have been ignored in respect to the Renaissance they have been even more consistently suppressed in relation to Antiquity; and here we must confront a clear difference between Le Corbusier's use of the classical Renaissance—his reference to precedents from Palladio to Francois Blondel—and his return to Antiquity. For while the former is understood to be the "sign" of a specific cultural tradition, the latter is open to no such academicization. For the forms of Greek temples, Roman monuments, and Pompeian houses as illustrated by Le Corbusier in his canonical text *Vers une architecture* do not refer to any already formulated Humanist tradition. Instead they stand for the origin of "architecture" itself. That is, they are not so much to be measured and encoded into copy-book lexicons as they are to be experienced in their essence. Their*

*lights, shadows, and their textures, however ruined; their images of eternal form, however fragmented; and their spatial qualities must be assimilated and incorporated through direct experience if they are to become the motivating agents of architectural discourse. Antiquity is thereby equated with an eternal architectural "value" to be reinvented by means of primal allusions of an emotional kind, as opposed to Classicism, which, as the realized language of a self-conscious modern architecture, is to be referred to by purely abstract and intellectual means—mathematics, proportions, the "idea" of type. In this sense Antiquity is seen as the etymological source, the Adamic and primitive root of Humanism.*

*On the one hand then, we are confronted with the careful, witty inversion of a codified architecture: a discourse on the professional Humanist tradition that endows modernist signs with cultural signification; on the other we stand before the play of essences, embodied in "origins," which, whether they emerge as a sensibility toward the light on a surface or as a deeper constructive notion of type, remain as uncoded and as inchoate as that Neoplatonic idea of type so powerfully defined by Quatremère de Quincy: "a kind of nucleus about which are collected and subsequently to which have been coordinated developments and variations of forms."*

A.V.



## Antiquity and Modernity in the La Roche-Jeanneret Houses of 1923<sup>1</sup>

Kurt W. Forster

1 (frontispiece) *La Roche-Jeanneret houses. View from the roof of the Jeanneret house toward the gallery wing of the La Roche house. Le Corbusier, 1923.*

### *The Lesson of Rome*

Must we consider Le Corbusier's prototypical *machine à habiter* of the early twenties an alien earthcraft landed by its inventor into the ruins of nineteenth century architecture? To be sure, this is exactly how Le Corbusier wished his work to be seen, and he never tired of extolling its novelty and necessity in modern times. With a barrage of propagandistic articles for *L'Esprit Nouveau*, and their re-edition as *Vers une architecture*,<sup>2</sup> Le Corbusier called for a modern architecture in response to the challenges posed by the industrial exigencies of the present and the architectural lessons of the past. Past architecture for him consisted mostly of Greek and Roman buildings. Yet he was not alone in finding modern the "unity of procedure, force of intention, and classification of elements"<sup>3</sup> adumbrated in the architecture of Roman antiquity. His Italian contemporary Giuseppe Pagano observed in 1931 that in wandering about the ruins of Pompeii and Ostia he "felt the strange desire to complete these remains in a modern manner, as if they had been left momentarily unfinished by a Le Corbusier or a Mies van der Rohe who did not yet know the use of steel or ferro-concrete."<sup>4</sup> Reconstituted in the modern architect's eyes, "these beautiful old *macchine per abitare* could not be more disconcertingly modern."<sup>5</sup>

Le Corbusier's interest in ancient architecture grew to include particularly rigorous examples of classicizing buildings: there is already a marked Palladianism in his Villa Schwob of 1916, refracted through Behrens's Cuno house at Hagen, just completed when the young Jeanneret arrived in Berlin. His contacts and experiences in Paris reinforced the attraction of classicizing ideas—classicizing, one must add, not so much in terms of actual borrowings as in terms of generalized standards. The mass production of houses demanded not only standardization of component parts, but also the definition of new "house types." Moreover, however urgent this practical need may have appeared, Le Corbusier's personal identification with classicism was no less powerful. He found in Roman architecture a partial answer to his own quest for a formal balance between the contradictory requirements of use and design. In his view Roman architecture had achieved

132 both highly rational systems of distribution *and* clarity of volume. The wall envelopes which defined the all-important volumetric qualities were necessarily perforated for windows and passages, for example, but these perforations received a particular patterning within the wall-planes which tended to restore a general and impersonal order. The formal resolution of the conflict, while still an act of ingenuity on the part of the architect, was valid precisely because it established standards rather than personal preferences.

Among historic architecture only that of Roman times appears to have produced the kind of standardization Le Corbusier had in mind. His education led him naturally to Rome and Pompeii, but only his acute sense of modernity enabled him to draw momentous conclusions from the “Lesson of Rome.”<sup>6</sup> He found himself in full agreement with his friend Elie Faure—who dedicated a copy of his *History of Ancient Art* (written in 1921) to the “redemptor Jeanneret”—when the art historian declared that “throughout history, the Roman ideal has the sameness and constancy of an administrative rule.”<sup>7</sup>

Before the war and during the planning of the Villa Schwob, historical, examples, chosen and combined with unorthodox ideas, had furnished the formal vocabulary of Le Corbusier’s designs. But after he moved to Paris, elements of vernacular building, engineering, and industry one by one replaced the traditional vocabulary of architecture. If his villas Favre and Schwob at La Chaux-de-Fonds shared the *neoclassical* interests of Perret and Behrens,<sup>8</sup> his postwar houses tapped the classical sources themselves. Many of the antique Roman structures he sought out during his visit to Italy in 1911 either had long been stripped of their marble veneer and sculptural decoration, or where these had survived, he cut through them, arriving at what he considered the essential qualities of Roman architecture: “On the whole,” he affirmed, “the Romans constructed superb chassis.”<sup>9</sup> These “chassis” were more than a mere plan, but less than a complete building. Hence, Le Corbusier was not bound by typological schemes or infatuated with period trim like other architects interested in ancient buildings. From the time

of his early studies he must have suspected a profound analogy between his own inclinations and the tendencies manifest in Roman architecture. The polychromy of his houses of the twenties with their earth colors recalls the browns, burnt siennas, and reds of Pompeian houses he had committed to memory by sketching and rendering them in watercolors during his visit there.<sup>10</sup> Much later, in 1945, when he mapped the reconstruction of St. Dié, and in 1951, the Capitol of Chandigarh, he still had not forgotten his sketches of Hadrian’s Villa. And the enormous street front of the Roman theater at Orange looms in the pages of Elie Faure’s *History of Ancient Art*<sup>11</sup> like the mass of a mute Unité d’Habitation.

More pertinent for the definition of Le Corbusier’s architecture than any particular elements of antique architecture that may have been absorbed into his own thinking is the coincidence of his interests with broad tendencies of the postwar years. The early twenties were marked by a pervasive restoration, which led Picasso to take up overtly neoclassical motifs,<sup>12</sup> Stravinsky to compose paraphrases of classical music,<sup>13</sup> and even Schoenberg to recast dodecaphonically structured material in traditional suite and sonata form. The study Le Corbusier and Ozenfant undertook of analytic Cubism<sup>14</sup>—their *Après le Cubisme* published in 1918—and their joint development of a severe Purism kept them from falling into an easy type of classicist “charade.” Instead Le Corbusier attacked the problem of modern building from the two extremes of the architectural scale: at the *Salon d’Automne* of 1922 he exhibited both the prototype of his individual dwelling unit, the Maison Citrohan, and the Plan Voisin for a city of three million inhabitants. His ambition was to single-handedly refashion the scope of modern architecture to the dimensions and with the systematic coherence of Roman times.

The first outline for his article on the “Lesson of Rome”<sup>15</sup> betrays at once his fascination with the Roman totality of planning and its congruence of social strategy and architectural design. The mediation of the grand abstraction in every detail recommended Roman architecture to him as a point of departure for the solution of contemporary prob-

lems. How could the need to house masses in individual structures be met without sacrificing the desire to define a composite order in a series of repeated units? How could the incessant movement of modern life be reflected inside the house without a simplistic reduction to functions? Where might one find the outlines of a conceptual structure capable of establishing a bold unity of idea, construction, and experience? Before one can seek answers from Le Corbusier's planning of the twenties and uncover the historic dimension of his thought, one must examine the fitful evolution of one of his earliest Parisian projects.

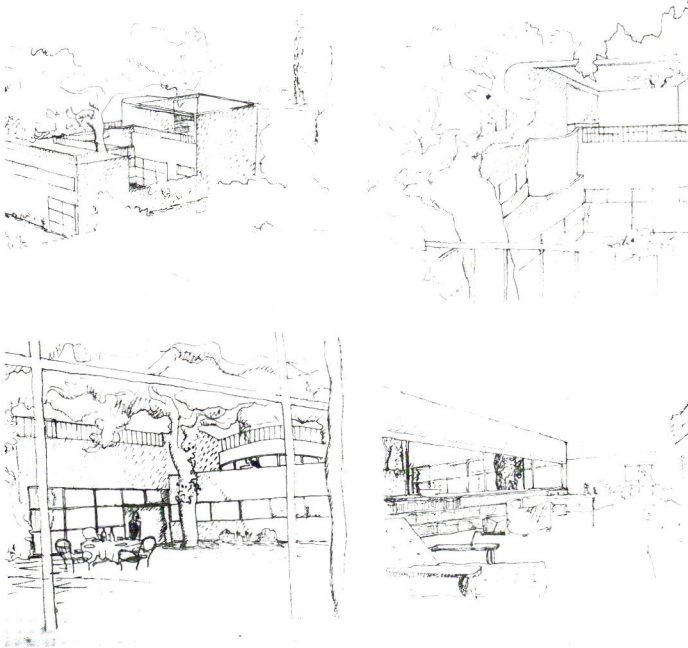
#### *Complex Symmetries*<sup>16</sup>

After a number of years of theoretical clarification and elaboration of plans and standard models, as well as an involvement with painting, a series of fortunate circumstances offered Le Corbusier the first chance to realize a major project for a modern house. Up to 1922–23 his only commissions in Paris had been a small house at Vaucresson and a studio-residence for his co-author and painter friend Ozenfant. His commission in 1923 for the Raoul La Roche house came through his involvement with an unusually sensitive collector, and at just about the same time, his sister-in-law also asked him to design a house. This gave Le Corbusier hopes that other commissions would follow so that he might construct an entire series of closely connected houses.<sup>17</sup> Moreover, the patronage of La Roche and the Jeannerets promised favorable conditions for projects unencumbered by tight budgets and petty concerns.<sup>18</sup>

But once Le Corbusier started negotiating for several plots of land in a subdivision of Auteuil, limitations began to reappear. Due in part to his inexperience in the acquisition of real estate, in part to the obvious foul play of the Banque Immobilière de Paris and its architect-agent, Le Corbusier found himself in the end with only a poorly sited parcel of land in a cul-de-sac soon to be completely ringed by houses. If the original prospect of an area large enough for four houses had had its attraction despite the unfavorable location, the final reduction of his schemes to an L-shaped block of two contiguous buildings took its toll. The threat of lawsuits by neighbors and the near

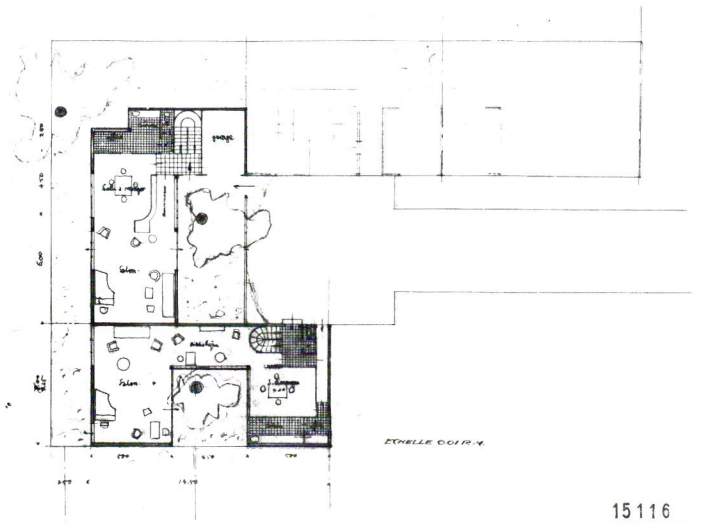
sabotage by the bank added to the difficulties of the site and its heavy constraints of *non aedificandi*.

Yet the tortuous changes required of him only seemed to have produced a more thoroughly considered and more succinctly realized project in which the principal aim, the definition of a type, also generated its own contradiction, the creation of a unique house. Acknowledging that the plan of the La Roche-Jeanneret houses was vexed and labored, Le Corbusier held that it “could be a palace” nonetheless.<sup>19</sup> In the early sketches the complex of houses was palatially symmetrical (fig. 2), but by late autumn of 1923 Le Corbusier was forced to reduce his original plans for four houses with a separate garage and a free-standing porter's lodge<sup>20</sup> to just two contiguous buildings. In the final version, which dates from late 1923, one entire wing was eliminated from the originally U-shaped configuration. Despite these massive alterations, Le Corbusier stuck to the determining axiality of approach and hence the implied symmetry. As if to counterbalance the loss of almost half the original site, he imposed a symmetrical scheme on the design of the lateral facade, extending it some twenty-five meters along the cul-de-sac. The large number of sketches and plans testifies to the gradual evolution of the project. The two chief design problems revolved around the unification of the Jeanneret house with the living quarters of the La Roche house, and the addition of a separate gallery for La Roche's growing collection of paintings. Five unpublished studies (figs. 3–7),<sup>21</sup> when arranged in proper sequence, mark the main stages in the development of the project. The earliest among them, no. 15116 (see fig. 3), envisaged four buildings clustering around a perfect square at the end of the cul-de-sac: two symmetrically identical houses to the right, and one at the back linking up with a similar one to the left. The two contiguous units to the right and the house opposite have principally U-shaped plans with small courts facing the perimeter of the lot, while the central house has its L-shaped plan completed by the adjacent units to form an elongated U-configuration. The outline of this composite form (fig. 8) enunciates the main elements, their symmetrical counterpoint, and the joint definition which Le Corbusier maintained throughout later changes in the



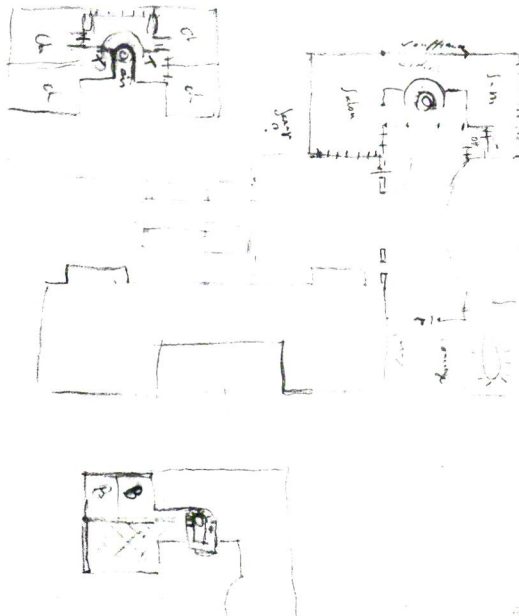
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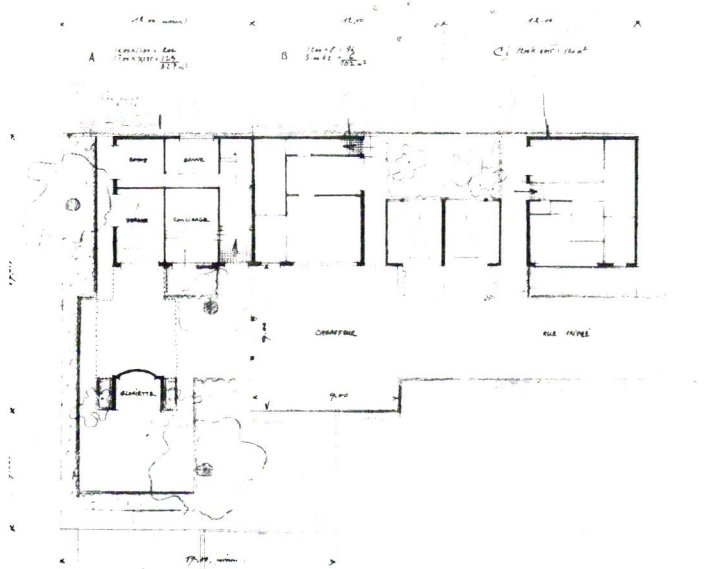
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2 Study for a group of four houses, Square du Dr. Blanche, Auteuil, Paris, 1923. Fondation Le C., no. 15113.

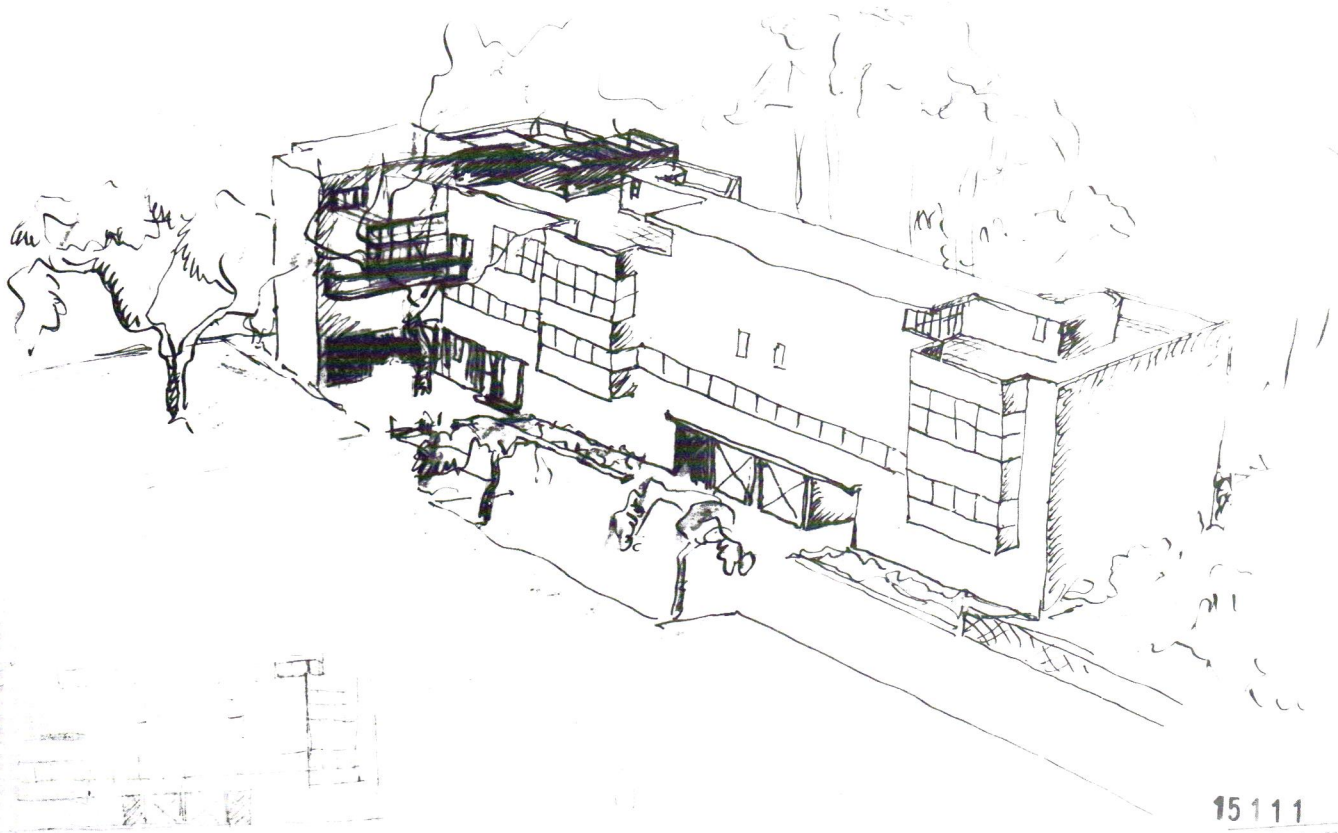
3 Floor plan of four connected residences, Square du Dr. Blanche, 1923. F.LC, no. 15116.

4 Pencil sketch of revised plans with a central gallery wing, 1923. F.LC, no. 15101.

5 Study of floor plans for three residences, Square du Dr. Blanche, 1923. F.LC, no. 15100.

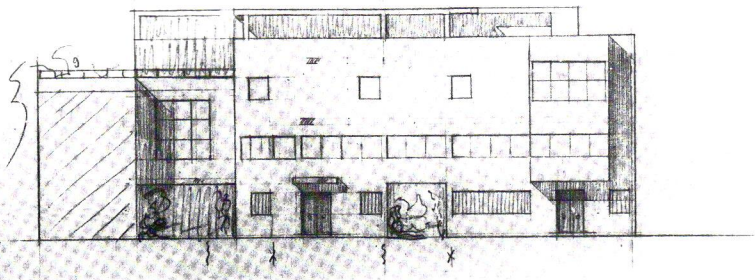
6 Pen sketch of the elevation for a group of three connected residences, 1923. F.LC, no. 15111.

7 Pencil study for the elevation of the La Roche-Jeanneret houses. Early version of the fenestration, 1923. F.LC, no. 15114.



15111  
FONDATION LE CORBUSIER

6



7

8 Outline of composite form of residences on the Square du Dr. Blanche.

9 Main facade of the House in Vaucresson. Le Corbusier, 1922.

10a Elevation of the La Roche-Jeanneret houses. Final version of the fenestration, 1923.

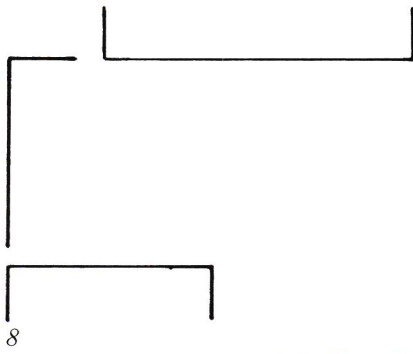
10b Second story floor plan of the La Roche-Jeanneret houses. The protruding living-room bay of the Jeanneret house to the right establishes the implied axis of symmetry for the two small balconies on the gallery and in the hall of the La Roche house to the left.

136 project. The rough pencil sketch no. 15101 (see fig. 4) introduced a new component, the convex shape of the closing wing at the rear. In contrast to this soft curvature and its circular staircase, the double unit to the right emerges in complete symmetry, its balance emphasized by extruded window bays. A measured and more detailed study, no. 15100 (see fig. 5), reduces the number of houses to three, essentially massing the living quarters into one extended wing to the right of the street and reserving the cross wing for the La Roche gallery. Raised off the ground and treated as a bridge between the living quarters and a *gloriette*, a U-shaped support at its end, the elevated wing permits access to a garage at the very back of the house. Le Corbusier noted at the lower right of this plan that he stopped working on it on May 10, 1923, by which point it must have become certain that the lot to the left of the street was no longer for sale. After the final contract between the developers and Le Corbusier (acting as the agent for his sister-in-law and La Roche) had been signed on September 21, 1923, he complained to the architect of the Banque Immobilière de Paris that he was obliged “to redo completely the plan of the three houses . . . , to let one of his clients go, and to put up only two houses with a joint facade now reduced to thirty meters.”<sup>22</sup>

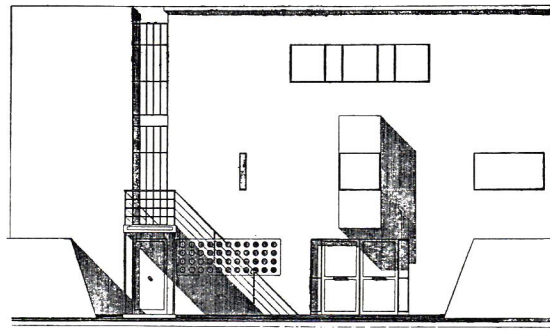
The pen sketch no. 15111 (see fig. 6) offers a first glimpse of the new scheme, with its bold stress on the lateral symmetry of the main block in plan and elevation while the short gallery wing is thrown off balance rather severely. The gallery elevation at the terminus of the cul-de-sac soon receives an equally symmetrical facade. After the principal axis of approach and the secondary cross-axis are anchored in the plan, Le Corbusier begins to set the weight of individual parts in motion. He not only had to cope with the obvious issue of accommodating spaces of greatly varying size and character behind the strict geometry of the elevations, but also with his desire to establish a “complex symmetry” among its parts. This complex symmetry came about through the use of a traditionally asymmetrical internal distribution and it was heightened by the continuous alterations of the project in response to changing conditions of the site.

From his earliest buildings Le Corbusier had tended to modify symmetric schemes in such a way as to give volumetric presence to certain asymmetries of use, such as those created by stairwells, while maintaining overall balance. The small house at Vaucresson, for example, has a fully symmetrical garden facade, whereas the addition of a stairwell extends to one side the elevation facing the street (fig. 9). In Le Corbusier’s practice, the axis of symmetry did not need to coincide with the prominent elements of the facade, such as the portals. It tended either to disappear in a blank area devoid of any mark, or to fall onto the edge of a corner. Frequently he would design his fenestration pattern by unrolling the continuous envelope of the house onto the plane of his drafting paper.<sup>23</sup> Thus, if the two facades of Ozenfant’s house are projected onto one plane (fig. 15), their symmetry is instantly apparent.

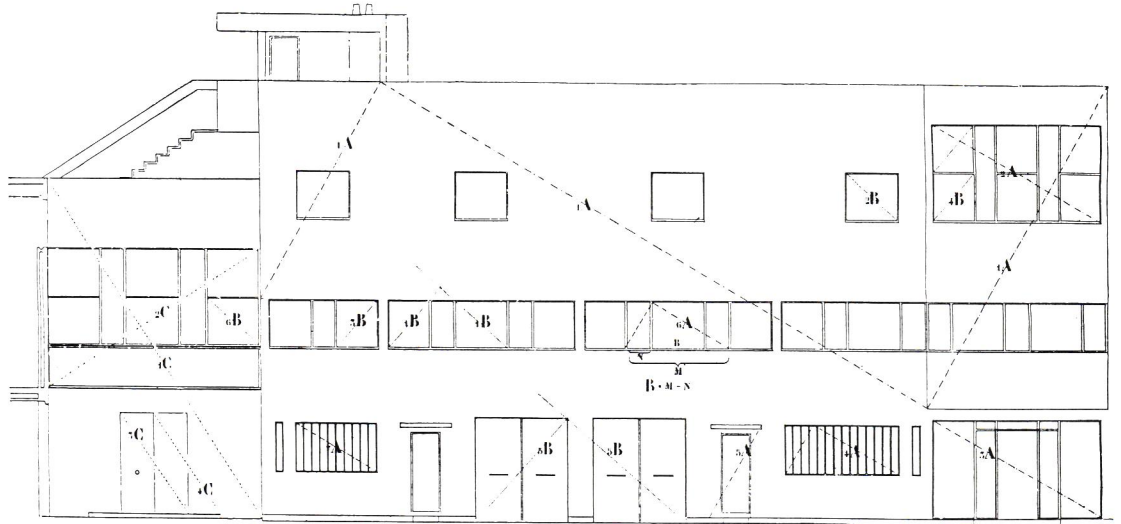
Le Corbusier was still preoccupied with the “house-type” and its replication in composite groups when he began the early schemes for the La Roche-Jeanneret houses on the Square du Dr. Blanche. Plans such as no. 15100 (see fig. 5) and no. 15111 (see fig. 6) with their starkly symmetric block recall his projected agglomeration of Dom-ino houses. Yet the final planning stages of the La Roche-Jeanneret houses propose much more than a mere variation of the type. While the facade’s axis of symmetry stays within the wall dividing the two properties so that the traditional *asymmetry* in the elevation of each is maintained within the balanced whole, the fenestration of each floor follows a different rhythm, and relates differently to that of the other two stories and to the facade as a whole. Three of the four identical square windows on the top floor (excluding those of the protruding bay) coincide vertically with windows of equal size on the second story—though they are integrated into a horizontal series there—while no such overt correspondence exists between the ground floor and the second story (fig. 10a). The nearly continuous band of second-story windows makes its appearance very early in the project and never ceases to function as a tie, while the linking element itself is marked by a composite rhythm, assembled as it is from three different units. In drawing no. 15114 (see fig. 7), the



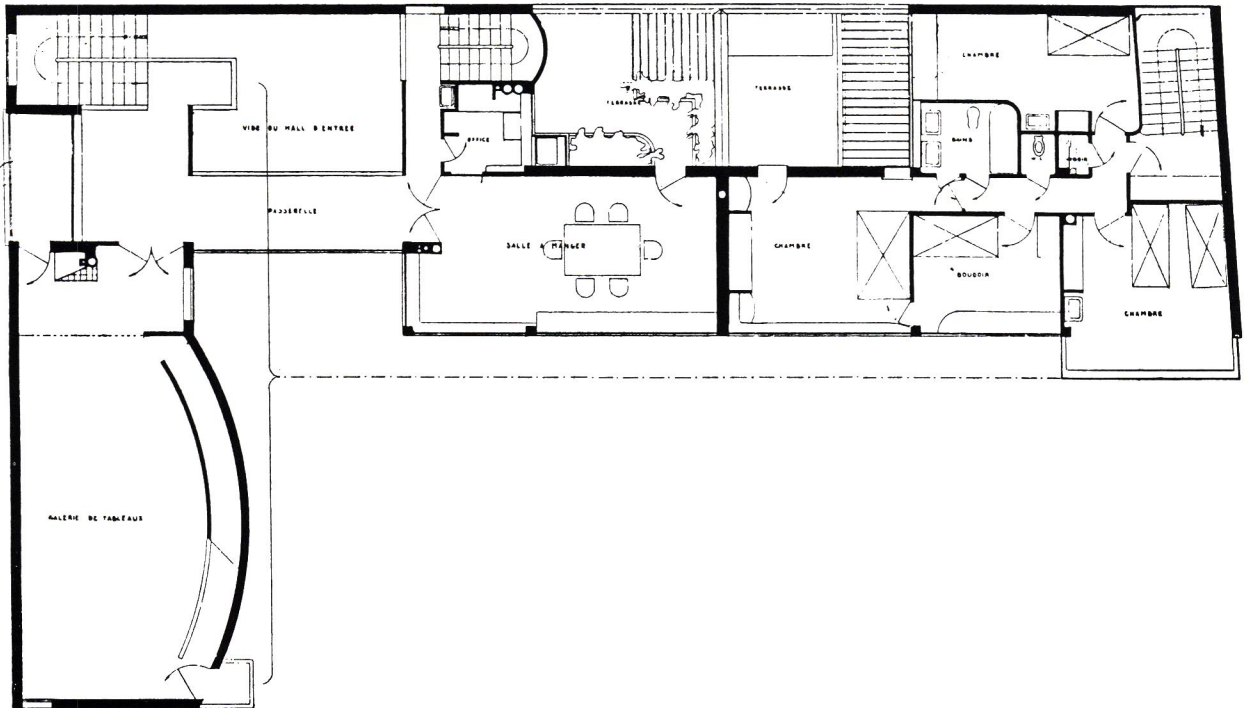
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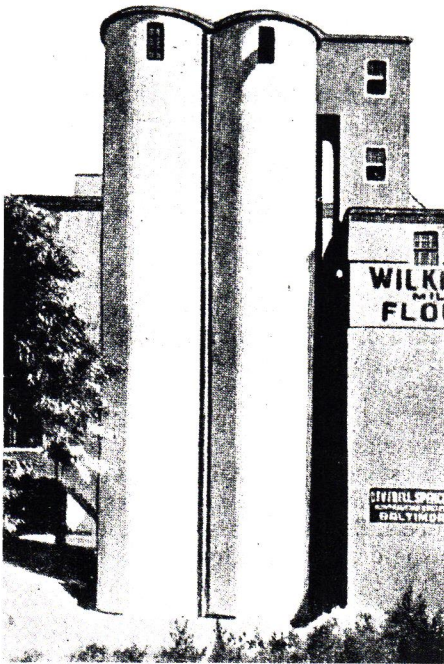
11 American grain elevator as reproduced on the title page of Le Corbusier's *Trois Rappels*, Le Volume, 1920.

12 La Roche house. Stairwell giving onto rear terrace.

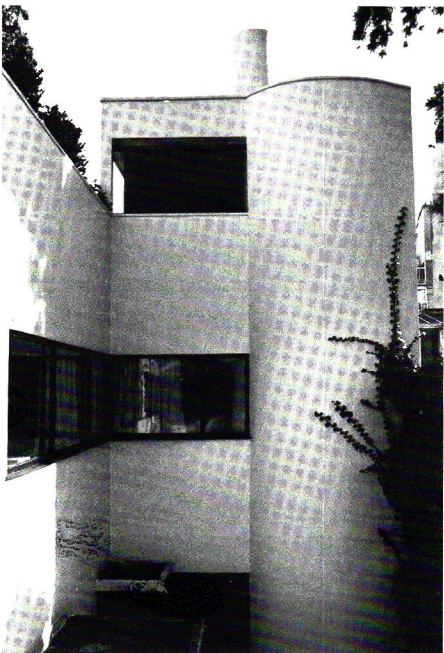
13 La Roche house. View from below the balcony of the picture gallery toward the elevation of the hall.

14 Second story floor plan of the Ozenfant house, 1922.

15 Projection of both facades of the Ozenfant house onto one plane, 1922.



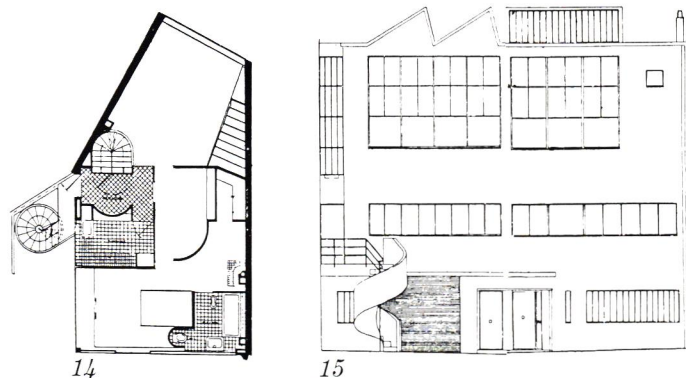
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otherwise fairly advanced stage of the facade design employs only windows of even size in groups of three and four, except for the contracted last window group to the left with its two-and-one-half units. While the overall symmetry of the facade has here received neither the clear centering nor the composite elements of the final solution, two contrasting segments of the facade are spatially detached from it on both ends. Thus, the extruded bay on the right side of the Jeanneret house and the corresponding set-back of the entrance hall in the La Roche house on the left are seen as displacements of the facade plane rather than as mere divisions in it (see fig. 7). The initial contrast of four and three windows in the Jeanneret and La Roche bays respectively is later refined to a permutation of their differing number of narrow and wide windows, three narrow units framing two wide ones in the extruded bay as against three wide ones enclosing two narrow units in the set-back portion. Such reversals are dialectical in nature, for they imply reciprocal moves among the component elements and not a static equivalence of their parts. Hence, the correlated elements cease to make a simple statement of fact and define instead the mutual transformations caused by their interrelationship.

The logic in the parallel displacement of wall planes is not confined to the treatment of facades but begins to manifest its ultimate consequences in the definition of the overall plan. The floor plans of every story are replete with internal symmetric correspondences among elements shifted laterally into balance with respect to various parallel axes.

As the project develops, Le Corbusier is forced to compress the initial scheme further and further. Thus, the cubic units begin to interpenetrate and yield a succession of parallel axes among which the division through the full length of the two houses holds the truly central position. This can be read most clearly on the level of the second floor where a number of secondary elements are also drawn into symmetrical correspondence: for example, two balconies, one jutting into the hall of the La Roche house and the other extending from the left-hand corner of the gallery pavilion, find their axis of symmetry established

by the only other protruding element of the second story, the bay advanced over the entrance to the Jeanneret house (fig. 10b). These correspondences and many others like them establish a vertical layering parallel to the approaching street, a layering that makes the role of actual walls appear conceptually relative rather than physically absolute.

Entrance into the Square du Dr. Blanche is also conceptual initiation into the sphere of Le Corbusier's architectural definition of space. The continuous pattern of the fenestration and the countermanding displacements of the facade plane strongly suggest a reading of the outer walls of the building as mere membranes. During the early twenties Le Corbusier came to think of facades as screens with only minimal volumetric definition. Manifestation of solid form began to require a curvature, a stretching of the wall-skin. He introduced such curvatures in the La Roche house with great restraint, to be sure, but also with conviction and purpose. The most conspicuous curvatures, the swelling body of the La Roche gallery (fig. 13) and the softly rounded stairwell (fig. 12) giving onto the rear terrace, reassert Le Corbusier's explicit distinction between volume and space. He illustrated his first *rappel* in celebration of volume exclusively with photographs of American grain elevators (fig. 11), and the second *rappel*, on surface as the definition of space, chiefly with skeletal factory buildings, demonstrating the membrane-like nature of spatial envelopes. The setting of the two into a dialectic relationship for the first time in the La Roche house gives that house added significance for the subsequent experimentation with curvilinear surfaces and plastic volumes which occurs in most of his projects of the later twenties.

#### *The House as a Still Life*

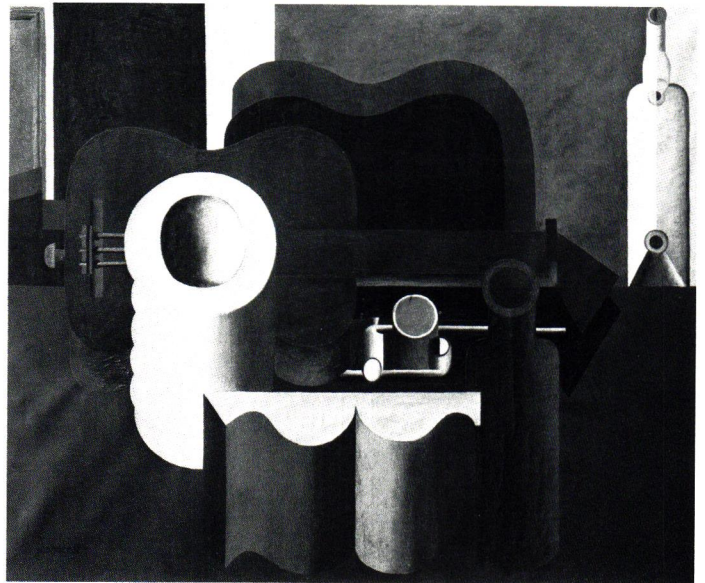
The taut facades of Le Corbusier's early Parisian houses do not prepare one for their often curvilinear interior spaces (fig. 18). Within the stark cubes of these houses, defined by rigid wall slabs, bathrooms and toilets are scooped out of adjoining rooms, rounded stairways protrude from their wells, and hallways bend softly through the house. Curvilinear enclosures invariably accommodate

140 bathrooms, closets, smaller spaces such as the library cubicle in the Ozenfant house, toilets, and chimney flues. Tubs and toilets, plumbing, fixtures, and lamps are always incorporated into the plans in such a way as to emphasize their compact, near-round bodies.<sup>24</sup> These swelling volumes cannot be dismissed as a holdover from the malleable walls of Art Nouveau, such as those which Perret employed in the flexibly adjusted distribution of his flats.

As if to bear out Le Corbusier's assertion that "painting nowadays has moved ahead of the other arts,"<sup>25</sup> the work of Juan Gris and the early Purist efforts of Ozenfant and Jeanneret himself anticipated the architectural dialectic between the cubic envelope of the house and the curvilinear dividers and objects inside it.<sup>26</sup> The first Purist paintings, taking their cues from such works as Juan Gris' *Nature morte à la guitare*<sup>27</sup> of 1918 (fig. 16), were at once more rectilinear in their composition and their recognizable objects were more illusionistically plastic than advanced Cubist images. In this respect Purist painting from the first had an affinity with the abstractions of architectural plans and a shared appreciation for plastic volumes. The formal configuration of Le Corbusier's *Nature morte à la pile d'assiettes*<sup>28</sup> of 1920 (fig. 17) closely resembles the intersections of straight and bent walls on the second floor of the 1922 Ozenfant house (fig. 14). In less than two years Le Corbusier broke the spell of rectilinearity which the Dom-ino schemes had held over the architectural projects of his first years in Paris. By 1920 Fernand Léger, under the impact of *L'Effort moderne* and the Purists, had also reduced his images to a sparse juxtaposition of curvilinear and sometimes human shapes within the per-



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16 *Juan Gris, Nature morte à la guitare, 1918.*

17 *Le Corbusier, Nature morte à la pile d'assiettes, 1920.*

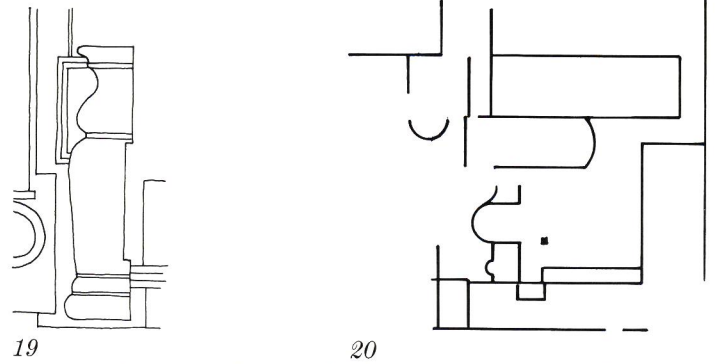
18 *La Roche house. Picture gallery.*

*Photograph by F. R. Yerbury.*

*Collection of the Architectural Association, London.*

19 Tracing of a part of Fernand Léger's Composition 7, 1925.

20 Tracing of a part of the floor plan for the "rez-de-chaussée inférieur" of the project for the Villa Meyer. Le Corbusier, 1925.



142 pendicular geometry of colored planes. In the Pavillon de l'Esprit Nouveau his work falls naturally into place next to the Purist paintings. The affinities between such contemporary works as Le Corbusier's Villa Meyer and Léger's *Composition 7*, both of 1925, reveal a common basis in late Cubist imagery (figs. 19, 20).

Throughout the twenties Le Corbusier was preoccupied with the image quality of his plans. The composite curvilinear shapes of, say, the roof level of the villa at Garches (fig. 23) or the lower stories of the project for the Villa Meyer (see fig. 20), suggest a relationship with such paintings as Gris' *Guitare et comptoir*<sup>29</sup> of 1921 (fig. 21). Le Corbusier rendered the swelling volumes of baths and stairs in his architectural drawings in much the same way that the Purists painted bottles, glasses, and guitars in their still lifes. The connection is not established by a superficial similarity of shapes, but by the essential sameness of their purpose. The curvilinear enclosures in Le Corbusier's plans (fig. 22) play the same role as the plastic objects in the pictorial work of Gris, the Purists, and Léger. Simplified shapes of vases, glasses, bottles, and guitars share fully in the geometry of Purist images without disappearing in it. As recognizable images of familiar objects they contrast with the non-objective nature of the picture as a whole. The presence of "type-objects" within an abstract setting establishes a connection to the viewer's world, but it also gives rise to a conflict within the picture. The Purists and Léger took a positive view of this conflict between utilitarian object and pictorial construct, as Ozenfant and Jeanneret argued in *La Peinture moderne*: "Purism begins with elements chosen from existing objects, extracting their most specific forms. It draws them preferably from among those that serve the most direct human uses; those which are like extensions of man's limbs, and thus of an extreme intimacy, a banality that makes them barely exist as subjects of interest in themselves."<sup>30</sup> What could be more immediately necessary for human use, more banal and intimate, than bathtubs, bidets, and toilets, precisely the "existing objects" which, shaped to the curvature of human limbs, were incorporated into the pristine envelopes of Le Corbusier's houses? Utilitarian installations were thus separated from the habitable spaces by

means of a radical formal distinction. During the later twenties, Le Corbusier allowed the curvature of stairs, ramps, and alcoves to distend more generously into space and to escape the rectilinear confinement of the plan altogether. But even then, as in the project for the Centrosoyus in Moscow of 1929, expansive curves and swelling spaces were virtually limited to areas of circulation: the turning radius of an automobile determines the curvature of the ground floor lobby of the Villa Savoye in Poissy, just as the only protruding element on the perpendicular facades of Ozenfant's studio-house, the winding stair, had served the practical purpose of direct access to the elevated ground floor.

Movement and the equipment needed for comfort retained for Le Corbusier such immediate and, one feels, psychological association with the body that he thought of them as "extensions of man's limbs" and considered them to be at once objects of "extreme intimacy" and "banality"—like cups, glasses, spoons, and pipes. An inevitable distinction arose between them and the far more abstract qualities of space. In many architectural sketches and in photographs of interior spaces the softly curving Thonet chairs and heavily cushioned *fauteuils*, teacups and kettles, felt hats and ripe fruit are placed as bodily tokens into the mostly untenanted rooms. Curvilinear surfaces, like those of the grain elevators celebrated in the first *rappel*, represent "volume"; they are or can be filled and tend to be considered as solid bodies, whereas the openness of interior spaces represents the "plan," as laid out in the second *rappel*. The plan is "an austere abstraction; nothing to the eye but an arid algebraization";<sup>31</sup> "simple or complex symmetries," "compensation" by counterbalancing equivalences, and "modulation" arise from the plan and give architectural definition to space. Thus, interior space constitutes "the basis of architectural experience,"<sup>32</sup> and the presence of an occupant establishes the contrast between the Cartesian geometry of space—"an austere abstraction"—and the dense volume of one's own body.

Le Corbusier built this experiential distinction between the organic form of the human body and the geometric structure of spatial abstractions into his architecture. In



21 *Juan Gris, Guitare et comptier, 1921.*

22 *Pen sketch of the bathroom in the Maison Guiette. Le Corbusier, 1926.*

23 *Villa at Garches. Plan of the roof level. Le Corbusier, 1927.*

moving through the house, gesturing into space, or retreating to the 'hidden places' where purely utilitarian equipment modelled on the human body has been installed in compact volumes, one experiences the dialectic opposites of conceptualized space and bodily presence. Space comes to represent abstract totality, equipment the reality of need. Inside the houses are the instruments one picks up for a purpose and drops after use. Stairs are passed through, toilets left, tea kettles carried away, but the walls remain and the sheer space they enclose—though equally a human creation—opposes time and change.

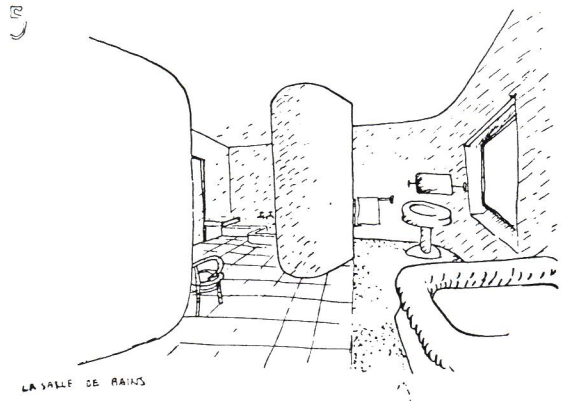
Le Corbusier pitted the body and its needs directly against the timeless abstractions of the human mind. If one can attribute to him a "tragic view of architecture"<sup>33</sup> it springs from this implacable confrontation of life with the absolute categories generated by the intelligence of that very life. The house encompasses the temporal, shaped to the body for its immediate needs, and the timeless, erected in pristine geometry over it. The sparseness of the utilitarian spaces and the complete exposure of appliances and fixtures refuse all embellishment. That notorious bidet next to the architect's own bed<sup>34</sup> admits human life from ecstasy to excrement more completely than any rhetorical devices, but without sacrificing the capacity to project absolute concepts. Raoul La Roche perceived this dimension of Le Corbusier's work when he congratulated the architect on the completion of the house, declaring that he was moved by the recognition of "the constants that are found in all grand works of architecture." "Your merit," he continued, "in linking our epoch to the preceding ones is particularly great."<sup>35</sup> But to grant such historical significance to Le Corbusier's work, one must also try to uncover the epoch of the past in which he found these constants of architecture.

#### *The House of the Tragic Poet*

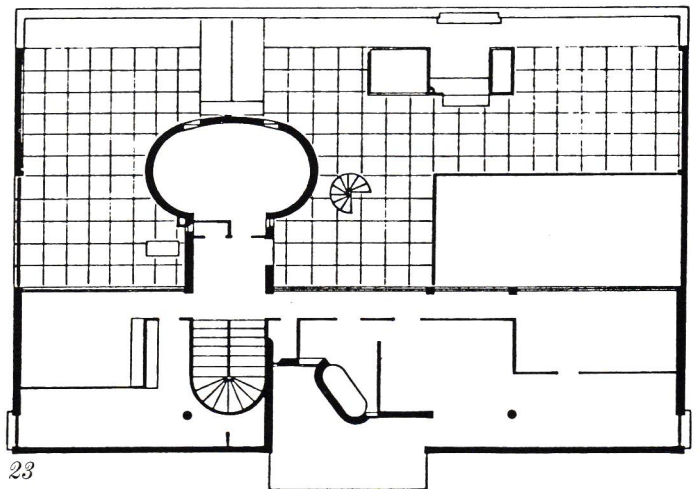
As one enters the private dead-end street of the Square du Dr. Blanche, Le Corbusier's houses, for all their incomplete realization of an originally self-contained scheme, define their sphere so totally that one stands *inside* the ideal house before reaching the door (fig. 1

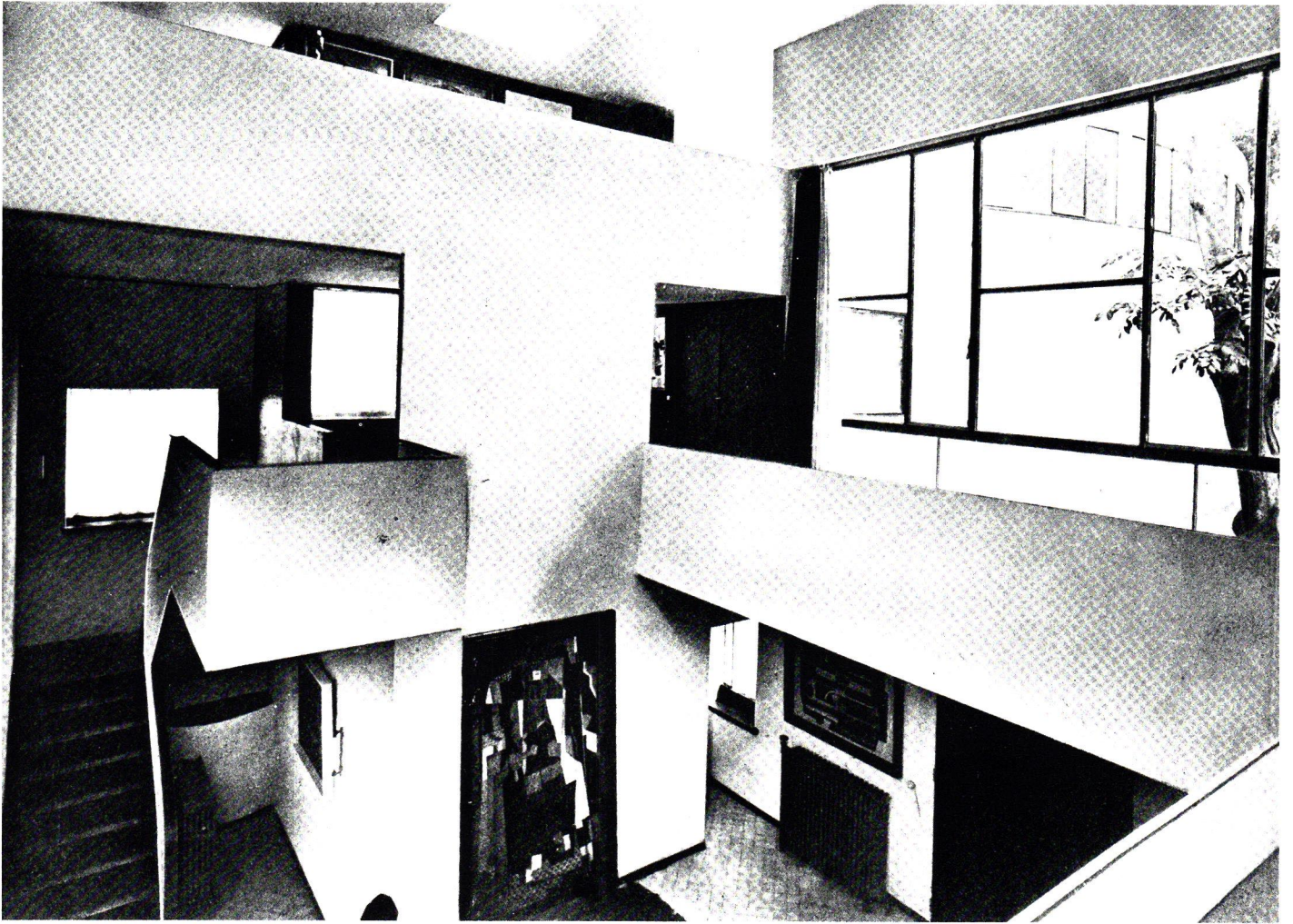


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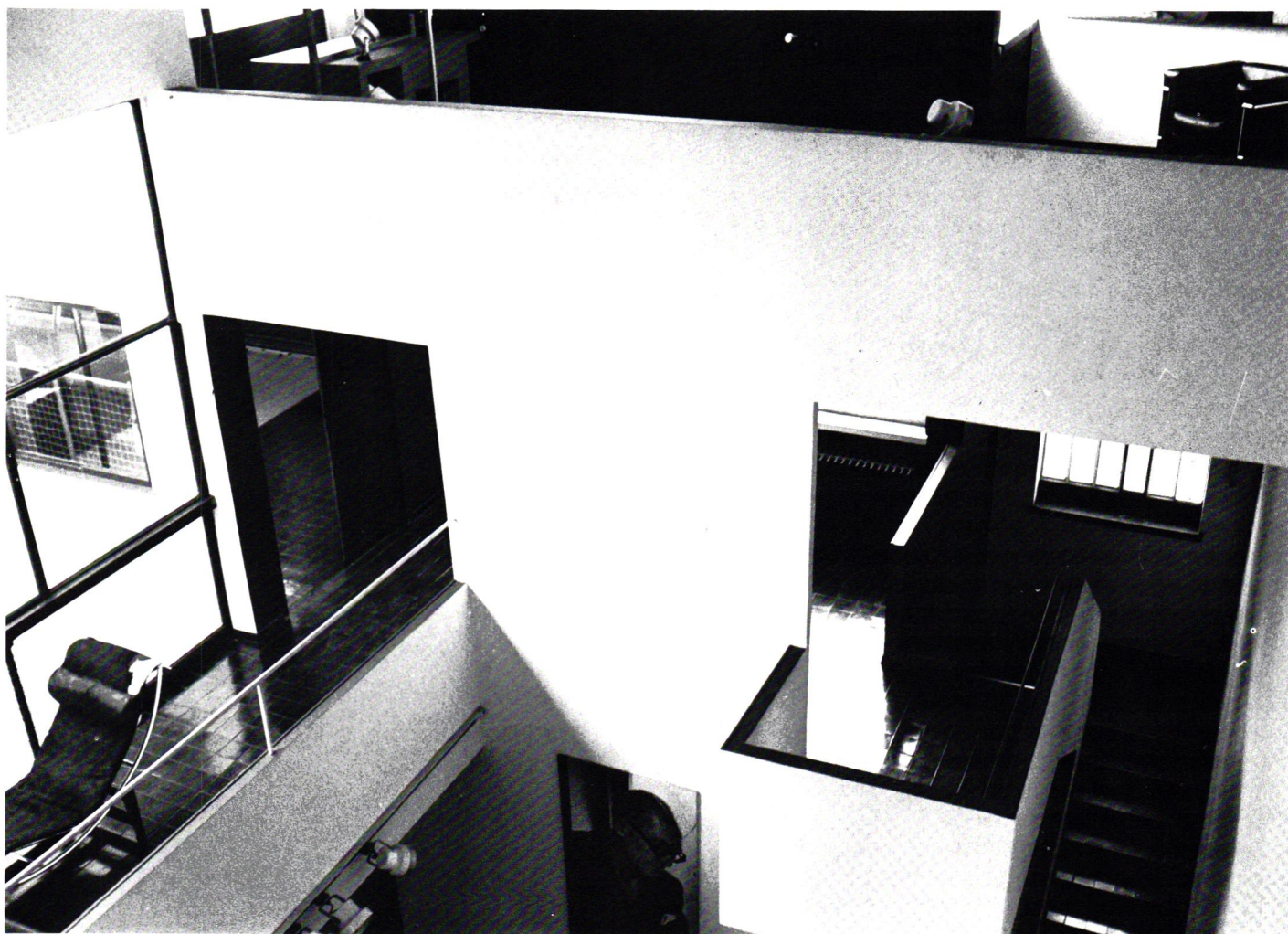


24 *La Roche house. View of the hall as reproduced in the Oeuvre complète, 1923.*

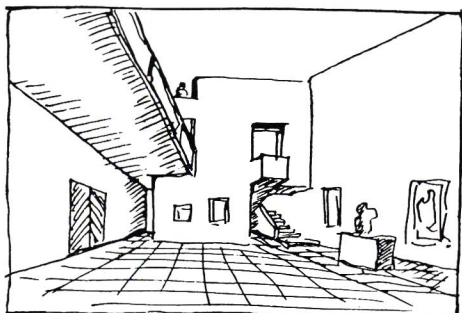
25 *La Roche house. View from the third floor across the hall, 1923.*

26 *Early pen sketch of the projected hall in the La Roche house, Le Corbusier.*

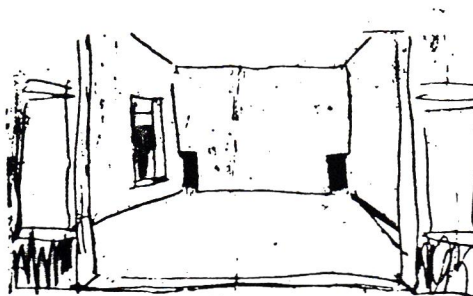
27 *Sketch of the interior of a house in Pompeii as reproduced by Le Corbusier in Vers une architecture.*



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28 *Ground plan of the House of the Tragic Poet in Pompeii (after A. Mau).*

29 *The interior of a Pompeian house in the reconstruction of August Mau, 1899.*

30 *Map of Pompeii with Le Corbusier's annotations in his Baedeker.*

146 [frontispiece]). Once actually inside the hall of the La Roche house one is curiously re-exposed to movement and passage as if the closure of interior spaces were now in question (fig. 25). The house had barely been built when Sigfried Giedion wrote that “the cool walls of concrete are parted, cut and divided . . . so as to allow spatial compartments to enter from all sides.”<sup>36</sup> The interpenetration of volumes is immediately conveyed in the familiar photograph from the *Oeuvre complète* (fig. 24). The La Roche hall, an area of passage open through the full height of the building, occupies a nodal position. It both divides the gallery and upstairs library from the living quarters and establishes, on all three floors, the necessary connections between them. Moving through the house one is guided by it up and down the stairs and led along landings on the second and third floors. In its height and with its light streaming in from above, it assumes the character of an atrium. The walls are treated as neutral slabs, and all apertures remain unframed and cut, as in an exterior facade, so as to keep the core of the house bounded like its courtyard.

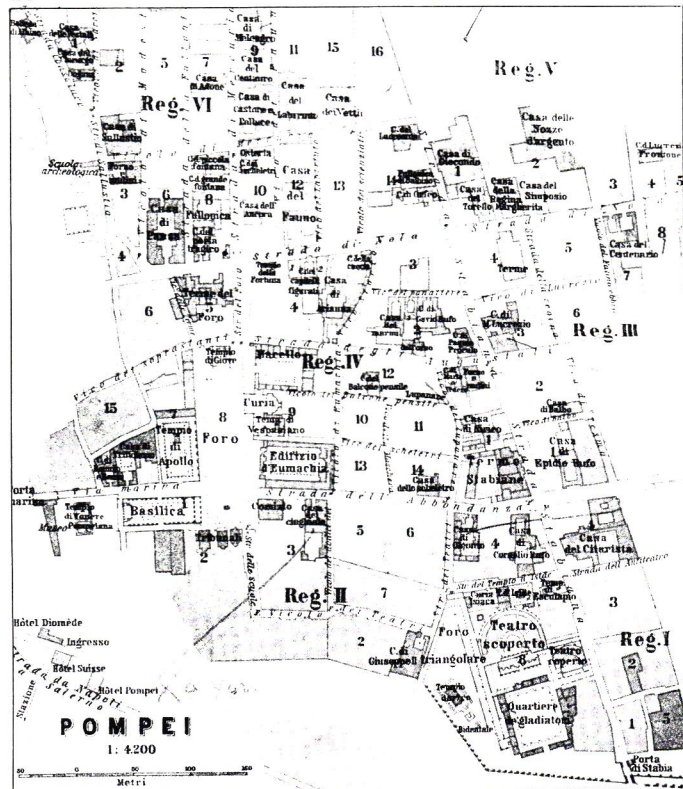
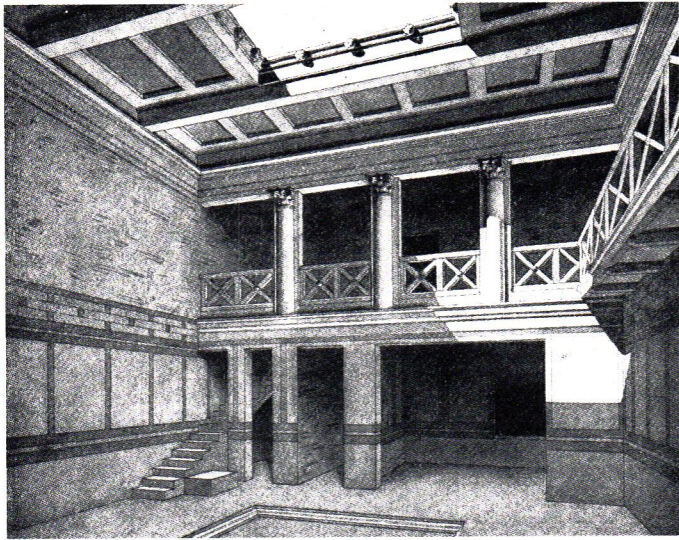
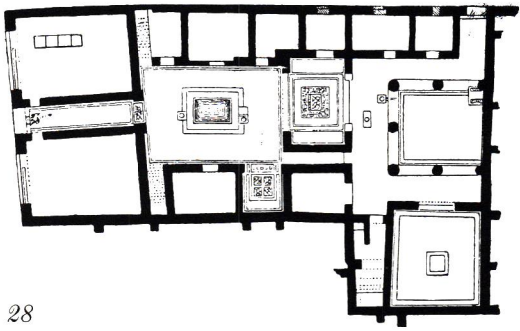
A lofty hall with an open stairwell and upstairs gangway inserted between evenly spaced piers created a similar impression in Joseph Hoffmann's Palais Stoclet of 1905 in Brussels. The rich materials of Hoffmann's hall cover the skeleton of the house with the garb of a monumental building, but they fail to disguise the starkly exposed internal structure. The connection with Le Corbusier's La Roche house lies in a similar concern with a central area spaced to the full dimensions of the entire dwelling and capable of drawing all spaces into its orbit. The deliberate identity of materials and surfaces inside and out, the lighting, and the exposure of the circulation system in the La Roche house all combine to create a thoroughly modern kind of interior, one that Henry-Russell Hitchcock rightly considered a “particular invention of the International Style.”<sup>37</sup>

But as much as La Roche is thoroughly modern, a comparison of Le Corbusier's tentative rendering of the La Roche hall (fig. 26) with his early sketch of a Pompeian interior (fig. 27) reveals the same eccentric passages (seen

from a central position!) which spare the large expanses of wall. Their neutralized surfaces enhance spatial definition while suppressing weight and bearing structure. In his discussion of plan and space, Le Corbusier had declared that “there is no other architectural element for interiors [but] light, and walls which reflect it on their wide expanse.”<sup>38</sup> His concept of space, as opposed to solid volume, aspires to a state of cubic clarity. Passages leading along the walls and unframed corner doors intimate the concept of layered depth which logically entails the modification of spaces by lateral shifts of walls and wall segments. But the sketch from Pompeii represents only a token of the vast significance Roman architecture held in the clarification of Le Corbusier's thinking. It is in fact to Pompeii that one must turn for the ultimate sources of the La Roche-Jeanneret houses.

The originally contemplated lot at Auteuil had approximately the dimensions of an average urban lot in the better sections of Pompeii, and the limitations imposed on Le Corbusier by the building code amounted to little more than the *de facto* restrictions one would have encountered on a comparable site in ancient Roman towns. Essentially, the site provided only frontal access and, as an enclosed urban lot, required a plan developing the house toward an open core rather than toward externally lit facades.

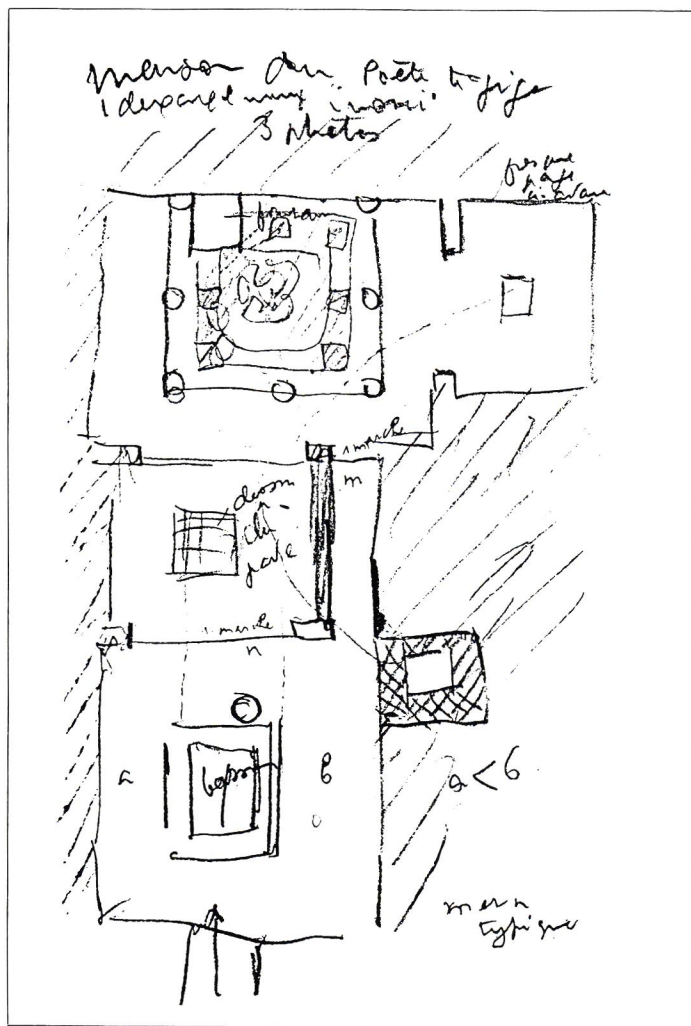
Le Corbusier had devoted exceptional attention to Pompeii in his travels: he annotated his Baedeker (fig. 30),<sup>39</sup> kept a list of houses he had examined, and made numerous sketches and watercolors on the site. Moreover, he must have been familiar with the reconstructions of Roman atrium-houses as they appeared in the widely published book by August Mau.<sup>40</sup> The facade-like treatment of interior elevations (fig. 29), the open stairs ascending to internal balconies, and the gathering of adjoining spaces around an open core were not totally new to architecture after the turn of the century—as the example of the Palais Stoclet indicates—but the Roman houses Le Corbusier examined in Pompeii combined familiar elements in a decidedly uncommon manner. The axial deployment of the atrium-house afforded a “promenade” from the street to the rear garden across hallways and atria. The unfolding



of the plan recapitulated inside the house the entire range of public spaces—squares, passages, colonnades and shut-off habitations—outside it. Roman houses miniaturized the order of the Roman city. For an architect whose ambition it was to plan a modern city of three million but who needed to content himself for the time being with the construction of two houses on an undesirable lot, the temptation to shape those houses against the background of a vast urban order is obvious, and the houses of Pompeii were better suited for this exercise than any others.

The sequence of highly differentiated cubicles and the subtle shifts in their alignment are especially remarkable in the Pompeian House of the Tragic Poet. Le Corbusier recognized in it the “subtleties of a consummate art,”<sup>41</sup> and, not surprisingly, singled it out for discussion in *L’Illusion des plans* (fig. 28). The judicious displacement of emphasis from the central axis recalls immediately the shift of Le Corbusier’s little balcony from its originally central position on the La Roche gallery to the extreme left side, as well as the counterbalance between the extrusion of the living room bay in the Jeanneret house and the recessed hall-bay of the La Roche house. The centric entrance to the atrium of the Pompeian house and the lateral displacement of the right-hand walls in front and back of the atrium-corridor (fig. 31) imply a comparable relation to the guiding axis of the houses in Auteuil. Le Corbusier observed that in the House of the Tragic Poet “the axis is not dry theory, it ties together the principal volumes which are neatly inscribed and differentiated one from the other.”<sup>42</sup> The long wing to the right with its slanted, blind end wall and staircase behind, seen upon entering the Square du Dr. Blanche, recalls in its layout the compartmentalized chambers of one half of a palatial Roman town-house, and not just any Pompeian house but the very one Le Corbusier had sketched to illustrate his argument in *L’Esprit Nouveau*.<sup>43</sup> If one blots out those areas from the ground-plan of the Pompeian house that correspond to the abandoned wing of Le Corbusier’s original plan, the affinities become self-evident (figs. 32, 33).

There is more to the correspondence than a similarity of



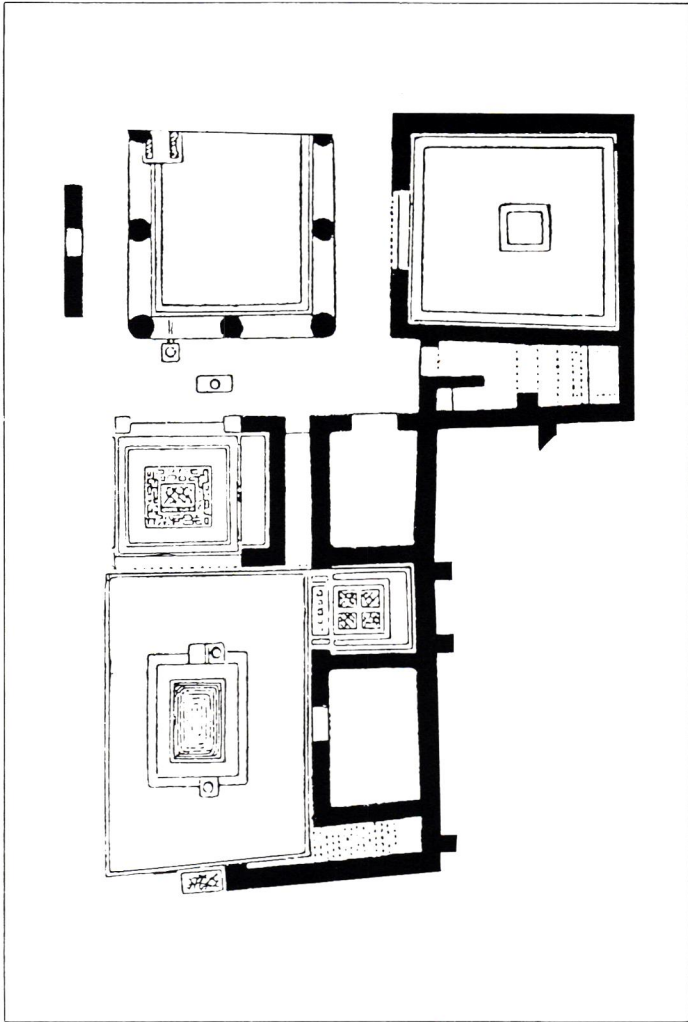
site and an affinity of planning concept, more than the curious impluvial image in Le Corbusier's repeated recommendation that water "be drained from the roof through the interior of the house";<sup>44</sup> the fundamental connection resides in the ambition to make a house in which the larger world is present.

In the twenties Le Corbusier aspired to redefine the entire structure of the house in explicit connection to modern life. This attempt meant rendering habitation more machine-like, but it also entailed accepting the compulsion of movement into the internal organization of the house. Especially in his villa projects of the 1920s Le Corbusier attached thematic significance to the connection between inside and outside, and he spoke repeatedly about the mutual dependence of optical perception and bodily movement. "Axis" became a key word and the deployment of spaces was tied to it, yet it was conditioned by the displacement of their envelopes. For this reason alone categorical distinctions between inside and outside, between total rest and incessant movement, had to yield to a mediated sense of contrasts capable of reflecting their contradictions one within the other.

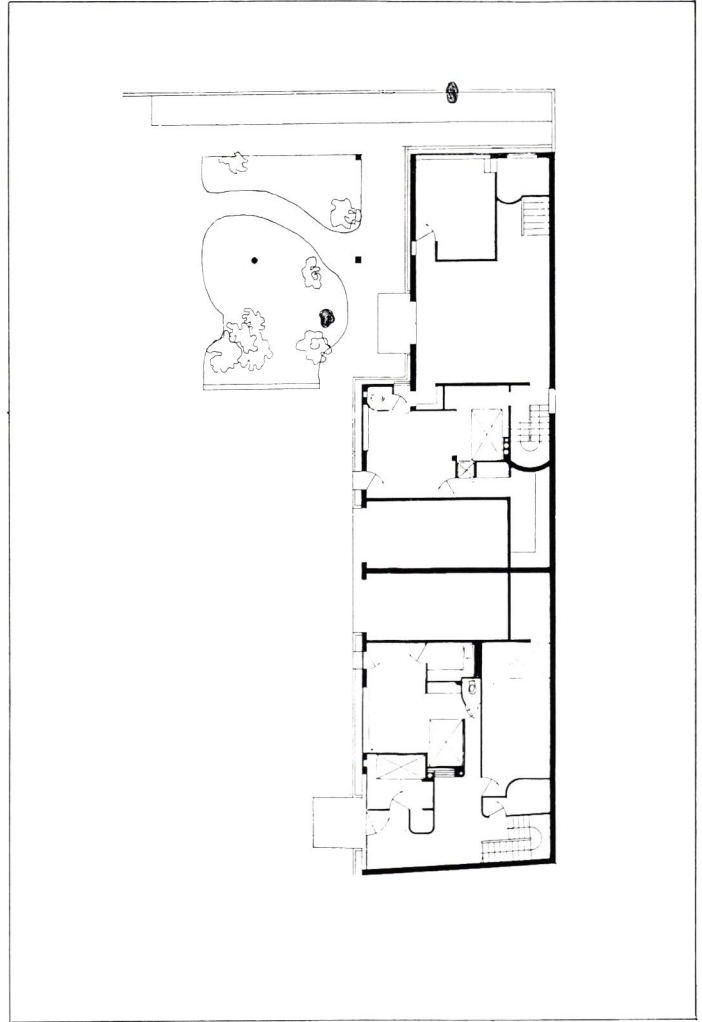
Le Corbusier's sketches rarely failed to give prominence to the automobile, and the planning of the Villa Savoye was explicitly predicated on its use.<sup>45</sup> It seems highly fitting that La Roche expressed his appreciation of the architect's work by offering him a five horsepower Citroën of his choice. Motor cars give particularly tangible and highly symbolic expression to the mobility of modern life. As an early object of standardization and mass production, they held a special place in Le Corbusier's architectural polemics of the twenties, second only to airplanes and ocean liners. The imagery derived from these means of transportation was not altogether neglected in the La Roche-Jeanneret houses; on the contrary, the roof of the La Roche house is equipped with its own little navigation bridge and the curving ramp inside the picture gallery carries the compulsion of movement fully into the house (figs. 34, 35). Le Corbusier's statement that it is "by walking, through movement, that one sees an architectural order develop"<sup>46</sup> loses its obviousness when put to

32 Ground plan of the House of the Tragic Poet in Pompeii with those parts cancelled that correspond to the eliminated portions of Le Corbusier's original plans for the houses on the Square du Dr. Blanche.

33 Ground plan of the La Roche-Jeanneret houses, 1923.



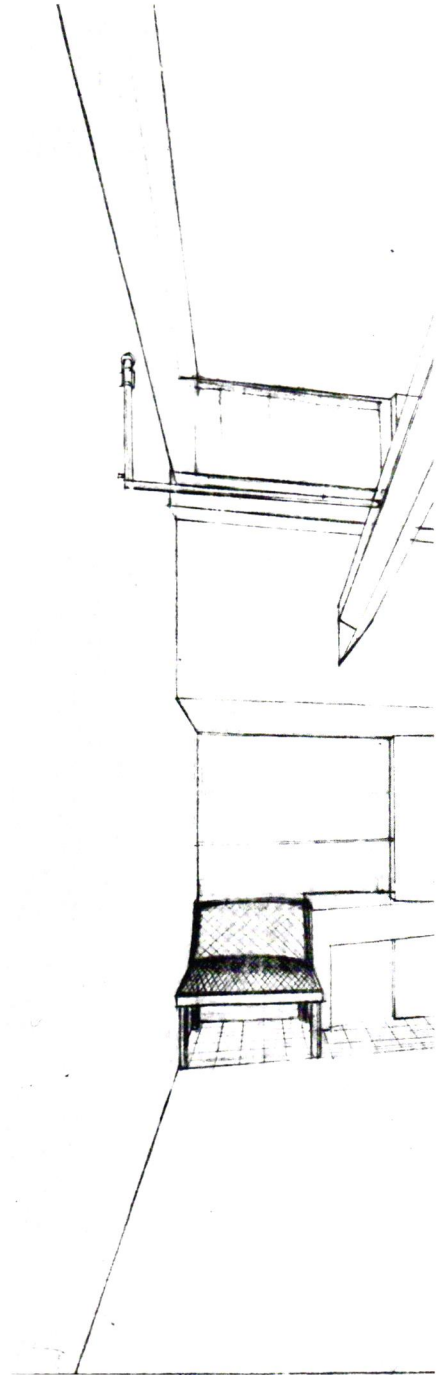
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the test in the Auteuil houses. The movement implied in the structure of the La Roche hall (see fig. 24) and gallery with their multifarious intersections and centrifugal extensions conveys even to a seated visitor an architectural analogy to the sensation of an immobile passenger in a moving car. If, for Le Corbusier, "everything was in order"<sup>47</sup> in the Pompeian House of the Tragic Poet, then for us the movement of modern life is momentarily arrested in the categories of architectural space when we visit the La Roche-Jeanneret houses.





34 La Roche house. View toward the  
"navigation bridge" on the roof level.

35 Rendering of the La Roche  
gallery, 1923. F.L.C, no. 15290.

1. I am obliged to André Wogenscky, President of the Fondation Le Corbusier in Paris, for permission to reproduce unpublished drawings by Le Corbusier, and to Mme. Françoise de Francieux and her staff for their assistance during my research at the Fondation. In my brief analysis of the underpinnings of Le Corbusier's definition and transformation of space I am generally indebted to Peter Eisenman's theoretical clarification of modern architecture. Stanislaus von Moos's writings on Le Corbusier and our conversations on the topic have been especially helpful. I have also benefited from the new examination of Le Corbusier's early work which is now being undertaken by H. Allen Brooks. As in many earlier instances Dr. Herbert H. Hymans and Diane Ghirardo have given generously of their time and knowledge for an editorial review of my draft. All translations are my own unless otherwise acknowledged.
2. The "Trois Rappels à MM. les Architectes" were first published in *L'Esprit Nouveau*, 1 (1920) and subsequently incorporated in *Vers une architecture* (Paris, 1923).
3. *Vers une architecture*, p. 127.
4. Giuseppe Pagano, "Architettura moderna di venti secoli fa," *La Casa Bella*, 47 (1931), reprinted in *Architettura e città durante il fascismo*, ed. Cesare de Seta (Bari: Laterza, 1976), p. 205.
5. *Ibid.*, p. 207.
6. Title of a chapter in *Vers une architecture*, pp. 119–140; originally published in *L'Esprit Nouveau*, 14 (1922).
7. Elie Faure, *Histoire de l'art, L'Art antique* (Paris, 1924). The personal copy in Le Corbusier's library carries the author's dedication "au rédempteur Jeanneret avec mon admiration, mon amitié et ma reconnaissance—Elie Faure." Le Corbusier also owned a now lost copy of Charles Chipiez & Georges Perrot's *Histoire de l'art dans l'antiquité* (Paris, 1894–1914).
8. The villa Schwob achieved the neoclassicism of Behrens with the structural means of Perret but stressed more overtly Palladian traditions such as the central two-story hall. See also Colin Rowe, "The Mathematics of the Ideal Villa: Palladio and Le Corbusier Compared," *The Architectural Review*, 101 (1947), pp. 101–104. I cannot share Rowe's view that "the world of classical Mediterranean culture, on which Palladio drew so expressively, is closed for Le Corbusier" (p. 54).
9. *Vers une architecture*, p. 126.
10. Among other relevant books on the topic Le Corbusier owned Pierre Gusman's *La décoration murale à Pompei* (Paris, 1924; thirty-two loose *pochoir* prints in bright colors and inaccurate but striking geometrization of Pompeian wall painting). Placed in this folder is a watercolor by Le Corbusier with an inscription on the back: "Aquarelle . . . faite sur place en 1910. -L-C."
11. E. Faure, *Histoire de l'art, L'Art antique*, p. 275.
12. Cf. Sir Anthony Blunt, "Picasso's Classical Period, 1917–1925," *The Burlington Magazine*, CX, 781 (1968), p. 187.
13. Igor Stravinsky, *An Autobiography* (New York, 1936), re-edited in the Norton Library, N.Y., 1962, esp. p. 115.
14. Amédée Ozenfant and Charles-Edouard Jeanneret, *Après le cubisme* (Paris, 1918).
15. Handwritten, detailed outline in the dossier on *Vers une architecture*, Archives of the Fondation Le Corbusier, Paris.

16. *Vers une architecture*, p. 37.
17. The sketch was published in Le Corbusier and Pierre Jeanneret, *Oeuvre complète, 1910–1929* (Zurich, 1929), p. 60 (bottom).
18. The history of the project is amply documented in the correspondence files of the Fondation Le Corbusier. The brief outline of the building history given here is far from exhaustive but attempts to avoid the inaccuracies and confusion of Russell Walden's "New Light on Le Corbusier's Early Years in Paris: The La Roche-Jeanneret Houses," *The Open Hand, Essays on Le Corbusier* (Cambridge and London, 1977), pp. 116–161. Walden has failed to examine the many dozen sketches and plans of the La Roche-Jeanneret project and he deals with the architecture only in terms of a few anecdotal observations. His single-minded stress on Le Corbusier's alleged Rousseauism amounts to a serious distortion.
19. *Oeuvre complète*, I, p. 64.
20. The final plan and elevation of the *loge concierge* is preserved in drawing no. 15136 at the Fondation Le Corbusier.
21. All of these drawings are kept at the Fondation Le Corbusier.
22. Letter from Le Corbusier to Ploussey, dated 24 October 1923: ". . . j'ai été dans l'obligation de refaire totalement le plan des trois hôtels prévus sur les 36 mètres de façade convenus, d'abandonner l'un de mes clients et de ne placer que deux hôtels sur la longueur de façade désormais ramenée à 30 mètres."
23. There are a number of drawings for various stages of the La Roche-Jeanneret project which line up the whole facade envelope of the building in continuous sequence, nos. 15169 and 15171 among them.
24. The toilets in Le Corbusier's houses of the twenties tend to be highly compact, not only in the "Maison Minimum" of 1926 (*Oeuvre complète*, I, p. 127) but even in the villa projects. The feeling of being in them is rather like crouching under the hood of a fireplace.
25. *Vers une architecture*, p. 9.
26. See my "Juan Gris' Bildarchitektur," *Gothard Jedlicka, Eine Gedenkschrift* (Zurich, 1974), pp. 157–180.
27. New York, private collection. The significance of this and related works by Juan Gris has been analyzed recently in the context of late Cubism by Christopher Green, *Léger and the Avant Garde* (New Haven and London, 1976), esp. p. 127ff.
28. Basel, Kunstmuseum, accession no. G 1963.3. Gift of Raoul La Roche.
29. Basel, private collection.
30. Quoted in the English rendering of Reyner Banham, *Theory and Design in the First Machine Age* (London, 1960), p. 211.
31. *Vers une architecture*, p. 36f.
32. *Ibid.*, p. 150.
33. Charles Jencks titled his recent book on the architect *Le Corbusier and the Tragic View of Architecture* (Cambridge and London, 1973).
34. *Ibid.*, p. 100.
35. Letter from Raoul La Roche to Le Corbusier and Pierre Jeanneret, dated March 13, 1925. Dossier of the La Roche-Jeanneret houses in the Archives of the Fondation Le Corbusier, Paris.
36. Sigfried Giedion, "Das neue Haus—Bemerkungen zu Le Corbusiers (und P. Jeannerets) Haus Laroche in Auteuil," *Das Kunstblatt*, X, 4 (1926), pp. 153–157, reprinted in translation by Peter Serenyi in *Le Corbusier in Perspective* (Englewood Cliffs, N.J., 1975), pp. 32–34. My translation is based on the original.
37. Henry-Russell Hitchcock and Philip Johnson, *The International Style* (New York, 1932), quoted after the Norton re-edition of 1966, p. 87.
38. *Vers une architecture*, p. 150.
39. Baedeker, *L'Italie des Alpes à Naples*. . . (Paris, 1909). Fondation Le Corbusier, shelf-mark J. 142. Le Corbusier's annotations begin only in Rome; the section on Pompeii carries many detailed notes. Visited monuments are customarily marked by a pencil line diagonally across the page.
40. August Mau, *Pompeii in Leben und Kunst* (Leipzig, 1900); first published in English as *Pompeii, Its Life and Art* (New York, 1899).
41. *Vers une architecture*, p. 153.
42. *Ibid.*
43. Le Corbusier was fond of republishing his sketch of the House of the Tragic Poet in later years, as, for example, in his *Mein Werk* (Stuttgart, 1960), p. 39.
44. Point two (mentioned twice) of the "Five Points" of 1927. The "Five Points" were first published in connection with the opening of the Weissenhof Siedlung at Stuttgart in 1927 and then included in the first volume of Le Corbusier's *Oeuvre complète de 1910–1929* (Zurich, 1929), p. 128. See also Alfred Roth, *Begegnung mit Pionieren* (Basel and Stuttgart, 1973), p. 36.
45. *Oeuvre complète*, II, esp. p. 24. Le Corbusier named the early prototype of his standard house "Citrohan (not to say Citroën). In other words, a house like a motor car, conceived and equipped like a motor coach or the cabin of a steamship" (p. 45).
46. *Oeuvre complète de 1929–1934*, p. 24.
47. *Vers une architecture*, p. 153: "Quand vous visitez la Maison du Poète Tragique, vous constatez que tout est en ordre."

#### Figure Credits

2–7, 9–11, 14, 15, 17, 22–24, 26, 27, 30, 31, 34, 35

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1, 8, 12, 13, 15, 19, 20, 25, 28–32, 33 Courtesy the author.

2–7, 35 From the Fondation Le Corbusier, Paris.

9, 10a, 10b, 14, 22–24, 26, 33 From Le Corbusier and Pierre Jeanneret, *Oeuvre complète*, vol. I (Zurich, 1929).

11, 27 From Le Corbusier, *Vers une architecture* (Paris, 1923).

16, 21 From Christopher Green, *Léger and the Avant Garde* (New Haven and London, 1976).

17 Kunstmuseum Basel.

18 Photograph by F. R. Yerbury. Collection of the Architectural Association, London.

*The heroic years of early modernism in Paris—that is, the epoch 1909–1939—may be seen as being subject to wild swings in expression as painting gravitated from abstract figuration toward a figureless “mechanicism” and back again. In this sequence comprising analysis, synthesis, recapitulation, and fusion, the relatively short-lived and rather unique Purist movement is no exception. It simply suffers the initial condensation and later elaboration of the School of Paris in a different way. Thus one may settle on the year 1925 as the end of the neoplatonic Machinist phase as far as Purism is concerned, for in that year the final fruit of the theoretical collaboration between Amedée Ozenfant and Charles Jeanneret (Le Corbusier) sees the light of day, namely the publication of their ultimate treatise *La Peinture Moderne*. In this same year, Fernand Léger, who, like Juan Gris, had been situated on the fringe of the Purist enterprise, is brought into the polemical fold, so to speak, with the inclusion of his painting *Le Balustre* in *Le Corbusier’s Pavillon de l’Esprit Nouveau* erected for the *Exposition des Arts Décoratifs*.*

*This conjunction adds weight to the view that it is Léger who eventually causes Le Corbusier to abandon the exquisite but limited poetics of Purism to embrace forms and theses more resonant with the social and sensual tactility of life. A form of “figurative” but transcended “social realism” begins to insinuate itself*

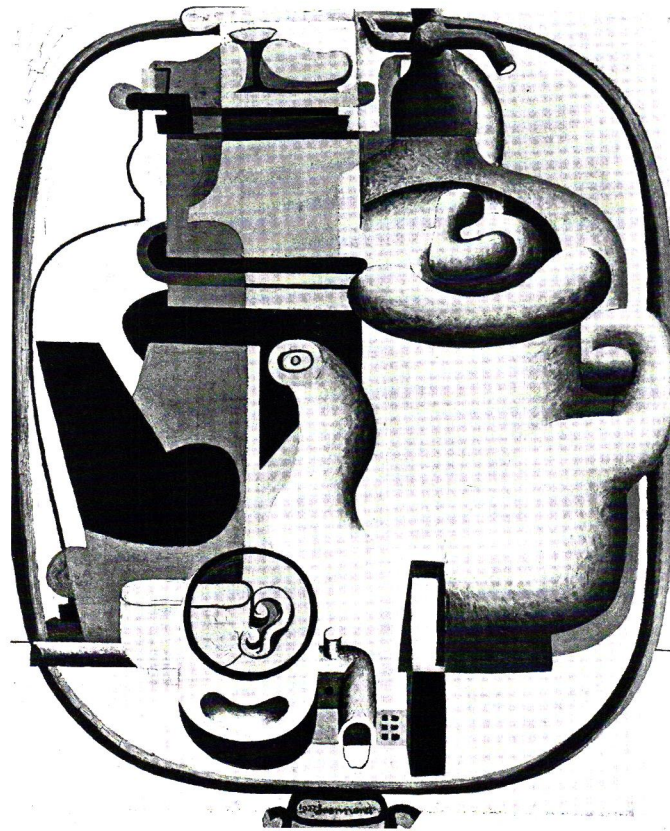
*into Léger’s painting *Le Mécanique* of that year. Meanwhile his preoccupation with the city as an abstract machine—inspired by Robert Delaunay’s Neo-Futurist visions—reaches its apotheosis, at least as far as Léger is concerned, with his film *Le Ballet Mécanique* of 1924.*

*From the mid-twenties on, Léger’s “abstract” canvases are increasingly dominated by the appearance of the human figure in conjunction with a certain range of objects, which (after Léger) Le Corbusier later classifies as *objets évocative d’émotion poétique*: such unmistakably earthy images as cordage, fruit, gloves, and bread. In this context one may effectively have reason to cite Le Corbusier’s *Jongleuse d’accordéon* of 1926, which not only features a Léger-like woman but also a musical instrument of “social realist” connotations. It is obvious that the accordion was a symbolic departure, both formally and culturally, from the neoplatonic, elitist overtones which both Cubism and Purism alike had succeeded in attaching to the image of the guitar.*

*On the other hand, as Katherine Fischer shows, the methods and iconography of Purism were not simply abandoned overnight. The strategy of the *mariage des contours* and the principle of rendering Purist “sculptural” perspective and spatial displacement in terms of relatively undistorted plans and sections were to be adhered to by Le*

*Corbusier until around 1932—the year that he reworked *Jongleuse d’accordéon*. Thereafter the Purist elements would be definitively dismembered if not totally eliminated from the body of his work.*

*Thus Le Corbusier’s *Nature morte*, 1927, may be said to look both ways: backward toward such Purist classics as *Le Corbusier’s Nature morte à la pile d’assiettes et au livre* of 1920 where the objects, apart from their spatial resonance, are both an architecture in miniature and normative utensils for a “classic” civilization; and forward toward such totally figurative works as his *graffiti mural, Sous les Pilotis*, made for the Gray/Badovici house in Cap Martin in 1938. Thus, as Fischer shows, the Purist objects of this *Nature morte* are embodied in a textured, shaded rendering which comes close to that used for Léger’s “tubist” figures and hence permit the Purist “figuration” to read not only as tactile form and as an architecture in miniature but also as a metaphor for the absent human figure.*  
K.F.



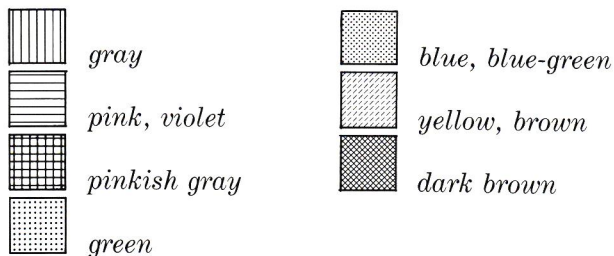
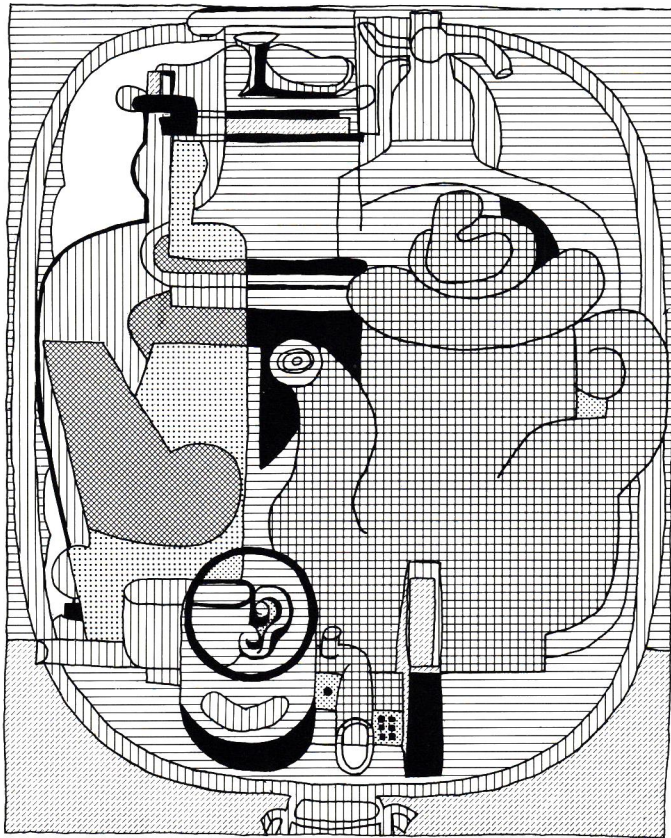
Le Corbusier intended the appreciation of his painting as a meditation, the frame cloistering the eye from the distractions of daily life, the eye directing the mind toward some divination of the picture's internal order and meaning. Often quoted is a passage from *La peinture moderne* of 1925, in which Le Corbusier and Ozenfant justified their choice of still-life objects as being a subject matter so banal that it could not detract from contemplation of the abstract Purist harmony: "[we] prefer to choose among those objects serving the most immediate human needs; those that are like extensions of the human limbs and therefore partake of an extreme intimacy, a banality that minimizes them as subjects of interest in themselves, and hardly suits them to anecdote."<sup>1</sup> Yet in 1948 Le Corbusier decried the "taste for a rarefied kind of painting, very remote, nourished by a hundred forces piled up behind a wall of hermeticism."<sup>2</sup> Surely both attitudes apply to a painting in the collection of the Kunstmuseum in Bern, a *Nature morte* dated 1927 and signed Jeanneret (fig. 1) which might best be characterized as *frondeuse*. Its awakening *objets-types* strain against their Purist boundaries, which were to burst only the following year.<sup>3</sup> Indeed, the adjective *frondeuse* is used by Corbusier himself, with much trepidation, to describe the analogous stirrings of synthetic Cubism in defiance of the abstract austerity of analytic Cubism.<sup>4</sup> But more interesting than the appearance of stylistic and iconographical strife are the underlying systematic organizational principles that hold fast and stress the continuity, rather than the break, in Le Corbusier's stream of painting.

The permutation of a standard Purist device at the lower left of the still-life focuses one's meditations: a small, heavily drawn black circle quarantines the profile of half a cup and handle. The circle is the only pure geometric form in the painting; it rims a glass in the foreground. The cup handle, by contrast, is animated and ear-like, recalling the grotesque modeled faces on ceramic beer steins. The outside half of the cup is gray, while the sequestered half is pink. It is as though the neutral cup of *Nature morte* had been injected with cosmetic paint, brought to life, and isolated beneath a magnifying glass. This prominent motif serves as a legend by which to read the painting.

First, the still-life is bounded by a rectangular black and gray band with rounded corners, drawn slightly inside the edges of a tall, rectangular canvas. Outside this frame, at about one-fifth the height of the canvas, a thin black horizon line divides an upper field of pastel violet paint from a lower field of pastel ochre paint (fig. 2). The line is not maintained within the frame, just as a line continuous on either side of a magnifying glass is displaced within the magnified area. This second and larger space shares the color of the upper field, its "magnifying" frame lifting the still-life off the warm table, in a sense, into the cool, bluish air. In the denial of their environmental context, the objects of the still-life lose their referential scale. Lacking clues to absolute size, they become generalized and monumental, quite beyond the context of the traditional domestic table.

However, the impure shape of this larger frame mediates between the rectangularity of the canvas and the blocky curvature of the objects it encloses. The modulated gray edge of a coffee pot, the brown edge of a siphon bottle, the black and gray bands of the frame, and the border of surrounding canvas are parallel bands of color connecting the inside to the boundary and the exterior. This reading suggests the transparency of a section taken through different types of space, an effect often observed in Le Corbusier's Purist villas. A formal link is established between the art object and/or its interior, and the object's context, even though the outside is a qualitatively different realm—its horizon line signifying the context of nature or of traditional painting.

The relationships among the objects and the space within the Purist frame comprise a more rarefied version of the same theme. The conflicting aims of idealization and individualization of the contents are reconciled by distilling the difference among the objects to a common denominator. In the standard Purist painting, the included objects differ visually only in terms of their common property of plasticity. Their interiors and outer surfaces are formally equated, for the object is characterized in its totality by its silhouette and the system used to project it—a problem reconsidered for each object and therefore not consistent



throughout the canvas. Thus the Purist painter selects the most characteristic aspects of each object—front, profile, top, or base—and combines them with the ingenuity of the ancient Egyptians (whom Le Corbusier revered).

Through this process, each object retains a distinct personality that is not diminished by an overall pictorial synthesis (the undesirable situation against which Le Corbusier and Ozenfant joined forces). Yet personality is predicated on spatial characteristics, for silhouette expresses plasticity: “It is the outline of things which explains their volume. Le Corbusier’s pictures represent objects seen from in front, but their depth is implied in the lines.”<sup>5</sup> This fertile conflation of properties enables him to reassemble the dismembered Cubist subject matter into usually recognizable objects, to preserve their three-dimensionality, and yet to unite them in a two-dimensional plane. The specific personality of the Purist object also occasionally derives from the interchange between the object’s internal space and its spatial context. Each object maintains sovereignty over its own area of the canvas and may be found to alter or influence other objects that enter or obscure its boundaries, as in the case of the transformations of the cup by the glass in the foreground. The painting is in this sense made up of a number of semi-autonomous and different spaces, which are described by silhouettes and which interact in various ways.

Le Corbusier distinguished between the viewing of nature and the viewing of a painting. Nature has a moral existence independent of the eye; indeed it puts the eye at a loss, only revealing itself in fragments. A painting, on the other hand, must cater to the eye for its existence. In Le Corbusier’s thinking, a painterly feature like a silhouette was preserved from such unsightly natural accidents as foreshortening in order to perform two functions: to give information about the form of an object as we know it in its integrity, and to participate in a complete and self-sustained composition. By linking depth to silhouette, Le Corbusier freed form from the conventional accidents of lighting that obscure it by shadow as often as they illuminate it. Chiaroscuro as an indicator of deep space vanishes from his paintings early in his Purist career, and is

replaced by occasional modelings of curved edges that abstractly “create a rhythm whose relationships shall be dictated by the nature of the feeling to be stimulated.”<sup>6</sup> In the classic Purist phase modeling is generally used expediently to accent and distinguish among profiles, and it indicates a quality that may be termed density or gravity.<sup>7</sup>

While the objects of the classic Purist still-life reappear in the 1927 painting, they are in the process of metamorphosis. Their suggestive, allusive capacities have been selectively increased by the addition of another formal property: surface. Normally in Purist painting every outline is understood to denote a complete object, even though such objects are often shown as only partial fields of color. These fields are relatively textureless and become transparent at will; they are another secondary means of differentiating forms. In the 1927 painting, opaque surfaces, distinguished by harsher textural brushwork and by modeling, become sharply contrasted with those areas which are tranquil, passive fields. The problem of pictorial spatial relationships gains its second dimension: to the physical relationship between inside and outside is added the optical relation between transparent and opaque. This realization of the nuances of actual and virtual adds immeasurable complexity to the structure of interlocking silhouettes that unified the earlier still-lives.

The right half of the painting separates from the left along a central vertical divide composed by abutting profiles of very different types. The modeled siphon bottle and coffee pot on the right seem to lie one behind the other in conventional depth. Their opacity is offset on the left by the transparency of the silhouettes of wine bottles, another coffee pot, a flask, and jars. The bottles and coffee pot form a *ménage à trois*, in which the green bottle lends its right side to complete the outline of the gray bottle, but relinquishes its left side in order to assume the left profile of the coffee pot. This *mariage des contours* occurs laterally, but implies contradictory hierarchies in depth. The contradictions are compounded by the fact that the green portion of the coffee pot reads as part of the green-necked bottle that otherwise appears to lie behind it. Behind

them, the jar, lid, and flask interpenetrate in even greater complexity, creating an area of paradoxically transparent depth that defines the opposition between transparency and opacity. Moreover both these regions share a literal compositional density that is opposed to the scarcity of objects in the lower third of the painting.

The upper regions separate from the lower without a distinct boundary. They are stabilized by opposing compositional force rather than by their relative location in the common homogeneous space of the table or ground plane. The two horizontal axes establish this fact. A pipe overlaps the lower field within the frame, its upper edge conducting the exterior horizon line into the still-life. However this line disappears where the pipe turns a right angle near the center of the painting, and instead is seen to pass behind the framed area to reappear on its other side. The apparent continuity between line inside and line outside is only a ploy to stress its change in meaning. The true organizing axis occurs well below, where it cannot be confused with the external horizon. It reads like a street elevation: approaching from the right, one sees an obliquely projected rectangle; a second rectangle in front elevation pierced by six small window-like rectangles; the section of a pipe; and the semi-circular base of a glass, hanging below the horizontal axis while the rectangular forms rise above it. Like row houses, these forms share party walls—a literalization of the *mariage des contours*. Most importantly, the iconography of street facade suggests an inversion of natural scale: large architectural elements are reduced and grouped low in the composition; small kitchen-table objects are enlarged and grouped high. This puzzle-like, non-naturalistic distribution objectifies the space within the frame.

Certainly the framed area has an objectivity apart from its contents, resulting from its heavy outline and irregular shape. Initially one is unsure whether the border is intended as a frame or as the perimeter of a table. In the latter case, one would expect the objects to sit on top of the plane, and indeed lips, necks, and handles protrude slightly beyond the implied perimeter. But again color and silhouette preclude a reading in terms of window



3 Georges Braque, *Le Goblet*, 1918. Philadelphia Museum of Art: A. E. Gallatin Collection.

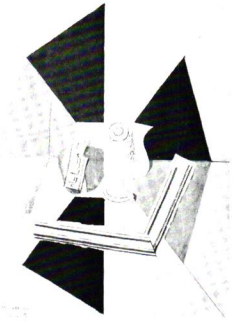
4 Le Corbusier, *Nature morte à la pile d'assiettes*, 1920.

Museum of Modern Art, New York.

5 Le Corbusier, *Nature morte aux nombreux objets*, 1923.

Musée d'Art Moderne, Paris.

6 *Diagram from Modulor 1*. Le Corbusier distinguishes between the objective, i.e., visual, reading of facade shown in the upper sketches as opposed to the subjective, i.e. conceptual, reading of a site layout or composition.



3

160 perspective or even the shallow space of Cubist collage.

The violet atmosphere near the top of the composition, continuous with the violet at the bottom, seems to project in front of the yellow field outside the frame. For this reason, the surface of the “table” seems to tilt back into space, and we obligingly read the low range of small objects projected from above as also receding into depth. But contradicting this impression are the kitchen-table objects, portrayed nearly in elevation in a shallow space that has already been shown to defy precise analysis.

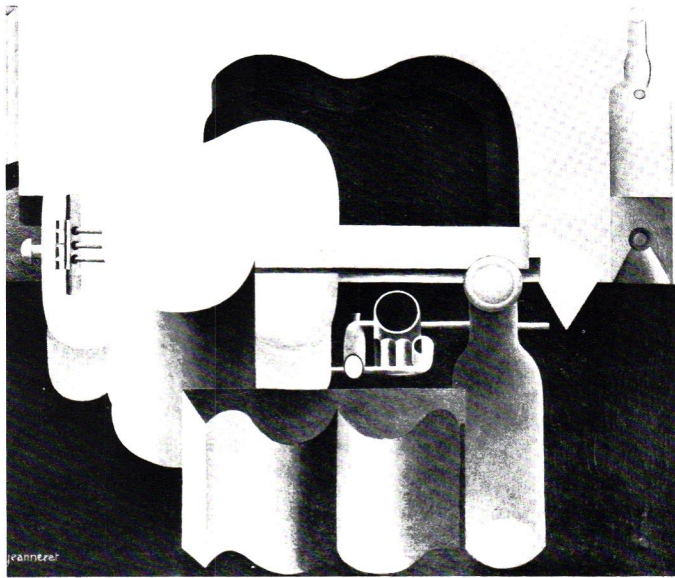
This opposition has several effects. One is to make these larger objects read as though they had been forced into frontality against an inclination to recline into depth; we wonder whether the flask and siphon bottle are bent forward at the neck in order to overlap the frame. Another is to increase their seeming monumentality by our sudden drop in vantage point—a further instance of magnification. A third effect is to create a skew in ostensibly frontal objects, the upper ones tilting forward, the lower ones backward. This skew occurs laterally as well: the white cloud-like element at the left seems to float behind the frame, while the handle of the coffee pot projects in front of it on the right, swiveling the picture plane into depth toward the left. Complementary twists result from the way the dense configuration of objects in the upper left half falls off toward the lower right corner; a reverse vector joins the opposite corners. This virtual skewing helps to heal the breaches between the various parts of the painting which are treated differently, but only by deflating the meaning of those approaches to a common surface plane.

Such emphatic two-dimensionality should be considered in relation to the treatment of space in earlier Purist paintings. Space is the central problem of Purism, whether architectural or pictorial: “We think of the painting not as a surface, but as a space.”<sup>8</sup> The Cubists, Le Corbusier maintained, were enlightened Impressionists. They stressed the “correct” feature, the plasticity of form, but they dissolved its concrete objectivity through a pictorial surface comprised of disconnected edges. To restore that

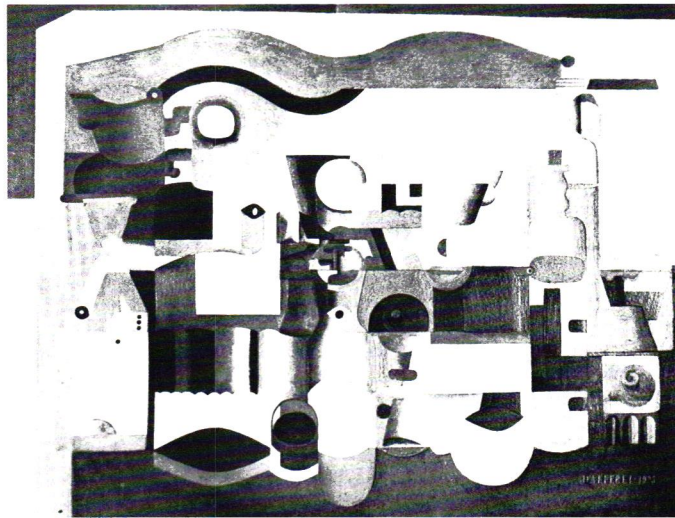
integrity, Le Corbusier resorted first to an illusion of shallow relief in which each object occupied a tangible space but shared its boundaries with its neighbors. These confections occurred first in depth, as Bernhard Hoesli has shown in his diagram of the relationship of the sound hole of the guitar to the uppermost plate in the Museum of Modern Art’s *Nature morte à la pile d'assiettes* of 1920 (fig. 4).<sup>9</sup> Later Le Corbusier developed more ambitious and ambiguous constellations of objects seen frontally, effecting the Cubist collage (fig. 5). With the incongruities in scale and placement of the objects of the 1927 *Nature morte*, Le Corbusier arrived at his own alternative, something apparently similar to the Surrealists’ non-gravitational space, but far more deliberate and two-dimensional: a space with the integrity of an object.<sup>10</sup>

The rhetorical flatness of this 1927 painting is furthered by its ovoid frame, which cannot be mistaken for a window view into depth. The device alludes to Picasso’s and Braque’s painted frames and shaped canvases, which in this way acknowledge their typically centripetal compositions. The use of such a frame is a novelty for Le Corbusier, whose Purist compositions were generally orthogonal, and he adapted it as he adopted it. His frame is oval to the extent that it establishes the reference, yet rectilinear to the extent that it includes empty corners and assimilates to the form of its own contents (as noted above). It is no accident that the Braque composition *Le Goblet* of 1918 (fig. 3), which heads the collection of exemplary plates in *La Peinture moderne*, virtually diagrams the anti-illusionism common to both paintings. Braque’s faceted diamond appears to rise from the flat canvas, but its point is quashed by the overlying planar forms, including a fragment of rectilinear frame that floats like a refugee over the facets as a reminder that this is an easel painting and not a sculpture on a base. Although the troublesome external frame is eliminated, the rectangular canvas remains, the space left between its edges and the oval contents becoming a series of pendentives that rhetorically reconcile spatial architecture to the rectilinear plane.

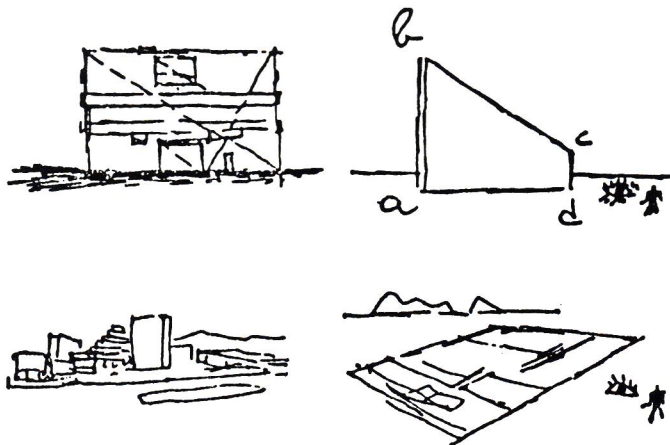
Having infused spatial quality into the painting’s bound-



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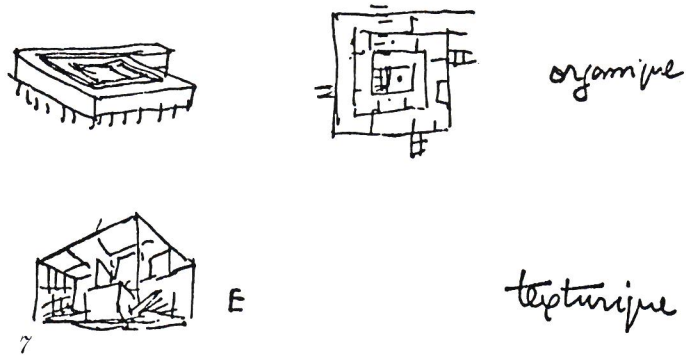
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aries, Le Corbusier is able to realize the flatness of his medium as an asset. He freezes his relationships in a temporary stasis by affixing them to the plane. If one were to walk around these objects (or to diagram them in Hoesli's manner), they would, of course, lose the unique conformations that bind them into a picture. In such an experience—that of urbanism—the effects of parallax might be planned, but the process of perceiving them would be more subjective, depending on the viewer's sensitivity. For this reason, Le Corbusier, normally suspicious of pictorial illusion, regarded the surface of a painting and the facade of a building as being equally 'objective' (figs. 6, 7). Though this sketch is not published until much later, in *Modulor 1* of 1948, its relevance to the present discussion is borne out by the picture's date as well as its form: it was done the year before the painter Jeanneret began to sign his paintings with the pseudonym he had assumed for his architectural work in 1921. The metamorphosis of identity indicates that Le Corbusier had resolved the relation between his two-dimensional and three-dimensional compositions and felt able to record both types of work as efforts of a unified artistic personality.

Yet curiously enough, while the form of the painting is more 'objective', its contents are ever more subjective. The ideal sense in which Le Corbusier conceived of the frame as containing a complete composition which could be grasped by the viewer in a single glance led him to invoke the visual cone as the basis for the painting's shape. Since the eyes are set horizontally, the cone of vision is elliptical; for this reason, Le Corbusier also advocated a horizontally over a vertically oriented picture.<sup>11</sup> But in fact (as in many of Le Corbusier's previous Purist pictures) the orientation of this painting is vertical. In addition, the already noted shift in axial direction from a high vertical to a low horizontal compels one to interpret this structure in the physiological terms Le Corbusier proposed. The horizon is associated with landscape; the vertical format connotes a close-up truncated view, which brings to mind portraiture. The situation of still-life within this schema is ambiguous. The objects are either situated in a panoramic space, where their interrelationship is



162 stressed, or they are brought into near-focus, like a portrait *manqué* of the period that produced them. In the former case, the natural antecedents of the still-life objects are invoked, recalling Le Corbusier's characterization of *objets-types* as "extensions of the human limbs." In the latter case, the structure denotes mechanical purposiveness; the way that the *objets-types* are articulated visually parallels the way they condense natural needs and actions into the streamlined tools of single functions in actuality. It is highly significant that analysis of the structure of the painting and the integral character of its objects should lead continually to iconographic conclusions. Even as a Purist, Le Corbusier chose his objects not so much for their unpretentious and incidental value as for their more literal iconographic meanings.

The double character of still-life as nature and as artifact is explicit in the imagery of the 1927 *Nature morte*. Perhaps its most ubiquitous motif is the faucet, in various forms. Through the siphon and the pipe, for example, Le Corbusier alludes to the machine; he plays more heavily on the ancient analogy between the shapes of vessels and the human figure. The modeled coffee pot, above all, takes on the character of an animated machine. Le Corbusier reinforces the biological metaphor suggested by its pastel color and its self-contained volume through the articulation of its apertures and protrusions for intake and output. The combination of the curved and natural with the rectilinear and machined within a common context entails a further conclusion: architecture, like the body or vessel, is a container, and a qualified environment within a larger, more inchoate context. In this respect, it is significant that these objects, despite their naturalistic allusions, remain artificial tools for structuring a world from nature. The Cubist siphon bottle, for example, should be seen as a mechanical device representing man's action on his world, and this sense infuses its role as a container. The old Cubist objects are here expanded into a class of forms that all share the property of enclosure, involving engulfment or consumption and the alteration of objects from the external world.

Such conclusions, accessible through meditation on this

painting alone, are verified by the fact that certain Purist elements in it have undergone metamorphoses from earlier paintings to become members of this work. The changes are traceable through a long span of work, as Eduard Sekler has demonstrated,<sup>12</sup> and the moment of change itself, where the associations between forms become evident, is in some cases preserved as a theme in a sequence of paintings. The transformation of the cup handle into the ear can be found, for instance, in more emphatic form in a painting from 1940 (fig. 8); the ear itself emerges as a persistent theme in later work, both as a form (in the Ubu series) and as a metaphor (acoustic architecture). The animated coffee pot is also to be found in work from 1930.<sup>13</sup> The rectangle with rectangular windows in the 1927 work is derived from dice; that ancestor, with round markings, is still close at hand in the painting. The geometric pipe, here suggesting a plumber's elbow section, was once the rotund briar pipe that concludes *Vers une architecture*, while the cloudlike white form in the upper left corner, which lends a quality of levitation to its neighbors, comes not from the pipe smoke, but from a stack of mass-produced plates such as the ones in the *Nature morte à la pile d'assiettes*. The frame itself, once a table, is here the Purist looking glass, isolating the objects literally undergoing before the eyes the mutations that the mind was previously intended to imagine.

Similarly the thematic groupings of objects in this painting persist throughout Le Corbusier's career. The juxtaposition of natural forms in the upper part of a painting to machined objects below can be traced back to the *Nature morte à la pile d'assiettes*, whose hill-and-dale backdrop is provided by a guitar. However the inversion of scale in this 1927 *Nature morte* and its juxtaposition of humanoid forms with an architectural foreground attain a certain fulfillment in an odalisque/streetscape composition of 1935 (fig. 9). A comparable metaphor appears in his rendering of architecture where component elements are treated as though they were the contained objects in a still-life. In the plates of *Oeuvre complète V*, the apartment unit is literally scaled to the hand (fig. 12), and Le Corbusier discusses the image as "bottle rack" housing (fig. 11), a frame into which containers are inserted.<sup>14</sup>

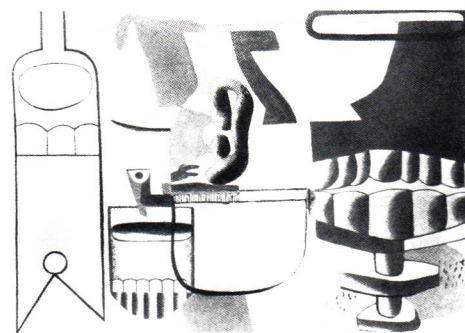
7 Diagram from Modulor 1. Le Corbusier draws parallel distinctions between the textural/objective and the organic/subjective.

8 Le Corbusier, *Le grand verre à côtes et l'écharpe rouge*, 1927–1940.

The process is one of punning, but a punning in which the elements are often related in more than a formal sense.<sup>15</sup> Structural logic underlies the associations; in this case the link is the common issue of containment. Le Corbusier's related verbal puns are equally incisive and polemical. Nature, until 1927 or so, is considered better off as *nature morte*;<sup>16</sup> the city, by virtue of its form, is morally radiant.<sup>17</sup> But most relevant to this painting is Le Corbusier's comment that the *objet-types* belong in the limelight of a white-washed wall<sup>18</sup>—with this the Purist object is clearly not merely banal; rather it is seen as heroic, as its magnified scale in this painting implies.

The change, then, from the Purist to the Surreal, though strained, is hardly abrupt, for a basic shared iconography and set of formal problems can be traced from this work back and forward into both periods. In the articles of *L'Esprit nouveau* the Purist Jeanneret had long been involved with allusion in the place of illusion. Forms for their own abstract sakes he considered vacuous; worse yet were formal fragments disintegrated from the familiar objects for which he professed an Aristotelian affection. Rather, these objects were to be chosen and combined so as to rouse the mind to musings on their meanings and associations, the criteria of choice based on both their familiarity and the richness of their ramifications. Still-life objects were ideally banal in the sense only of avoiding the exotic, that is, in avoiding subjects that would draw an audience regardless of moral or formal worth. A continuum was established in an article in the first number of *L'Esprit nouveau* between primary forms which evoke basic and universal experiences and themes, and the increasingly complex forms of particular objects, whose functions and connotations are correspondingly more cultural or personal.<sup>19</sup> This correlation between the abstract geometric purity of form and the accessibility of its meaning seem un-Platonic, although the priority given geometry can be called Neoplatonic;<sup>20</sup> a Platonist could not subsume the idea of “bottle” or “building” under the class of “cylinders.”

On the other hand, Le Corbusier and Ozenfant suggest that there is an impassable breach between primarily ab-



8

stract forms and the subjectively meaningful objects of daily life when they insist that primary forms without secondary resonance do not make painting. Barred from abstraction, one is led to conclude that the Purist *objets-types* were the closest one could come to bridging the gap. The relative universality of these objects is supposedly reflected in their relatively abstract forms; their moral (and social) purity is manifest in their formal purity. But one feels a Neoplatonist could not concede this primacy to objects of daily life. Moreover these abstracted forms were ultimately justified by their allusion to natural form. In a surrealist picture like *Le déjeuner au phare* of 1928 (fig. 10), essentially Le Corbusier's version of Picasso's still-lives before balconies of the previous decade, the associations between still-life objects depend on the literary associations spelled out in Purist texts and implied in other Purist paintings: the extensions of the human limbs are visually related to the glove, which is set on the table like one more utensil, and which reminds us how knuckle-like are the flutings on the glass, and how finger-like are the modeled tines of the fork. The surrealist imagery only extends the secondary resonance of objects already proposed in *La peinture moderne*.

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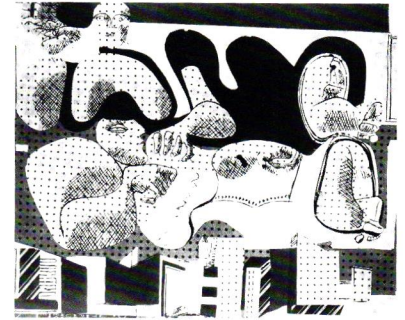
The *objets à réaction poétique* usually taken to be the agent of the change to Surrealism are often characterized as the natural objects that enter the Purist repertoire in this period and that Le Corbusier first dispersed among the furniture of the Pavillon de l'Esprit Nouveau in 1925. But it should be noted that Le Corbusier did not take a strict position on this matter. The Purist *objets-types* were equally intended to evoke a poetic reaction: note for instance the 1925 still-life drawing entitled *La Poésie*.<sup>21</sup> In 1923 and 1924 respectively, he published the same form in both mechanical and natural guises, and he included machined objects among his examples of the *objets à réaction poétique* in a later essay of 1948.<sup>22</sup>

If the issue of iconography is somewhat confusing, indeed if the painting exhibits strain, that perhaps reflects a certain ambivalence on Le Corbusier's part toward the literalization of subject matter. Witness his mixed review of a parallel situation, the introduction of an expanded

9 Le Corbusier, Femmes XX<sup>e</sup> siècle, 1935.

10 Le Corbusier, Le déjeuner au phare, 1928. Fondation Le Corbusier.

11, 12 Sketches and presentation drawing of the "apartment/bottle-rack principle in the Unité d'Habitation, Marseilles, of 1952. Typical of micro/macro scalar shifts in his manner of conceiving architecture.

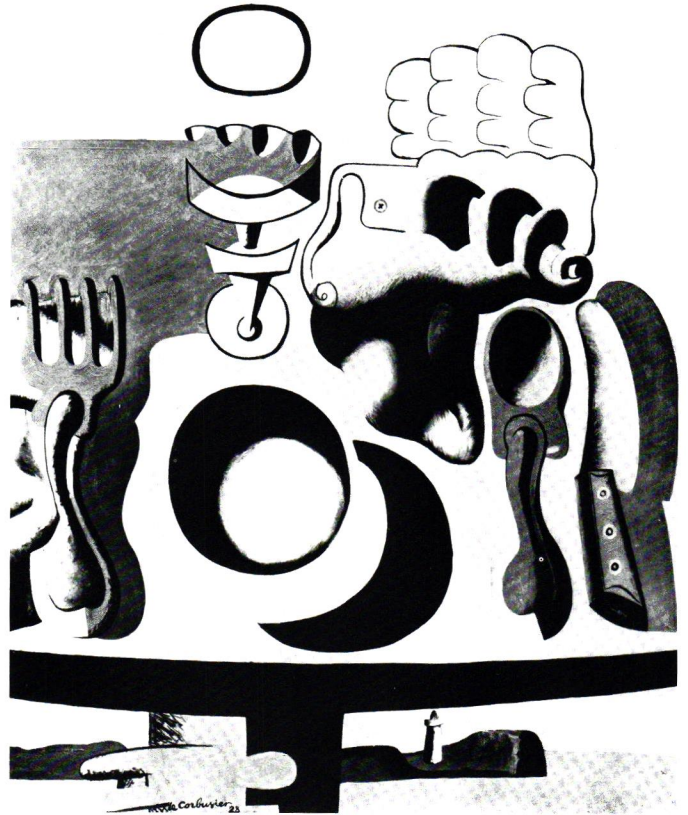


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164 subject matter into Cubism:

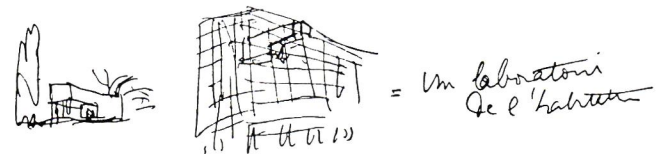
"The first Cubist period (1912) resulted in a quasi-impersonal art, one so removed (with its austere limitation, its ascetic means) that even its own inventors could not maintain it; these painters, seduced by abundance, by the multiformity of individual sentiments, by the need to unbosom confidences, and dispersed by individual tastes and by the attraction to more familiar states, closer to daily life with its intimacy and its emotions, returned to a renewed Impressionism.

"Thus each one prolifically carried out every sort of invention, of uneven value; they venture into all the newly opened directions: freedom of technique, freedom of subject, joyous affluence of themes resurrected by a new *optique*, avid, clairvoyant, enthusiastic, *frondeuse*, paradoxical. . . . Everywhere there was the joy of rediscovery."<sup>23</sup>

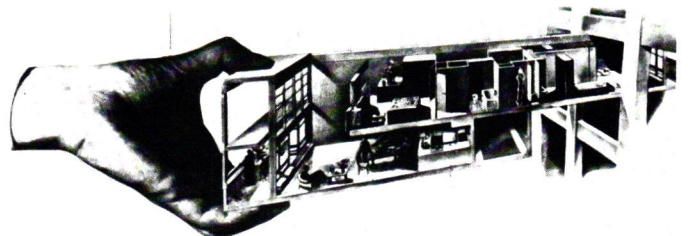


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One concludes that it is this tension among the motives of the painting that necessitates its painted frame. The frame insists that the objects, however diverse, are related, and compels one to meditate on the relationships. The earlier paintings stress the formalistic issues presented here, while the later paintings expand the iconographic ones. In this frame, the two are brought together most didactically. Le Corbusier could not but use his subject matter to describe his major structural concern: the qualification of and yet the continuity between painting tradition and modern painting, and between architectural container and the natural world. In this way we understand all too literally the transformation of the cup when it enters the boundaries of the glass.



11



12

1. Amédée Ozenfant and Charles-Edouard Jeanneret, *La Peinture moderne* (Paris, 1925), p. 167; my translation.
2. Le Corbusier, *New World of Space* (New York, 1948), p. 20.
3. Although the “end” of Le Corbusier’s Purist period is often dated, by himself and others, to 1925, Le Corbusier also equated the period with the signature “Jeanneret,” which he used until 1928. See Le Corbusier, “Le Purisme,” *Art d’Aujourd’hui*, No. 7–8, March 1950, p. 37.
4. *La Peinture moderne*, p. 116; see p. 16 below.
5. Le Corbusier, *Creation is a patient search* (New York, 1960), p. 245.
6. Ozenfant and Jeanneret, “Le Purisme,” *L’Esprit nouveau*, No. 4, p. 382; trans. by Robert Herbert, *Modern Artists on Art: Ten Unabridged Essays* (Englewood Cliffs, New Jersey, 1964). Accidental shadows were also to be excoriated from the early interiors. Consider Le Corbusier’s insistence that the function of a window is to illuminate the walls, and that the *fenêtre en longueur* is vastly preferable to a vertically oriented window of the same square footage because the latter illuminates the back wall, but leaves shadows in the corners, whereas the former makes luminous surfaces of all the walls (see Le Corbusier, “L’architecture d’époque machiniste,” *Journal de Psychologie Normale et Pathologique*, No. 23, 1926). The Purist still-life is portrayed as if it were in the Purist interior, illuminated by the *fenêtre en longueur* or by the diffused artificial lighting that Le Corbusier called for in *Vers une architecture*.
7. Ozenfant and Jeanneret, “Le Purisme;” also Le Corbusier’s aphorism, “Geometry is not in the wrist, it is in the weighing,” quoted by Maurice Besset, *Le Corbusier* (New York, 1976), p. 54.
8. Ozenfant and Jeanneret, “Le Purisme,” p. 379; Herbert’s translation.
9. Colin Rowe, Robert Slutzky, and Bernhard Hoesli, *Transparenz* (Basel, 1968), p. 48.
10. Literal magnification, as explored in this painting, perhaps became Le Corbusier’s means of understanding the magical aspects of Surrealism. Whereas he dismissed the contemporary notion of the fourth dimension in the Purist years as pictorial fantasy, he reconsidered in *New World of Space*, p. 8: “I may say something about the ‘magnification’ of space that some of the artists of my generation attempted around 1910. . . . They spoke of the *fourth dimension* with intuition and clairvoyance . . . a boundless depth opens up, effaces the walls, drives away contingent presences, accomplishes the miracle of ineffable space.” It seems Le Corbusier had discovered that with the tool of the magnifying glass—an *objet-type*—one could create what he called astonishing relationships. He explained in the *Oeuvre plastique* (Paris, 1938): “With his meticulous tools, the painter detects the moment of infinity. Poetry” (my translation).
11. Ozenfant and Jeanneret, “Le Purisme,” p. 379.
12. Eduard F. Sekler, “Le Corbusier’s use of a ‘pictorial word’ in his tapestry *La femme et le moineau*,” in *Vision and Artifact*, M. Henle, ed. (New York, 1976).
13. For reproductions see Jean Petit, *Le Corbusier lui-même* (Geneva, 1970), p. 220.
14. Le Corbusier, *Oeuvre complète 1946–1952*, Vol. V (Zurich, 1953), p. 186. The metaphor recurs in *When the Cathedrals Were*

*White* (1937; New York ed., 1947), p. xiv, applied to skyscrapers, whose tops resemble corks in bottles. In *Modulor II* (1955; Cambridge, Mass. ed., 1968), p. 170, the townscape is linked to still-life: “From town to drinking flask: from drinking flask to town.”

15. There is a hint of criticism of the Cubist visual puns that took the shape of *rapprochements* between normally dissimilar forms, in the Purists’ insistence on characteristic form: “Purism would never permit a triangular bottle, which could eventually be executed by a glassmaker, but remains an exceptional object, a fantasy, like the conception of such an idea.” “Le Purisme,” p. 377.

16. *La Peinture moderne*, p. 65: Dead nature—that is, slaughtered animals and picked produce—is contrasted to the radiant *nature morte* found in the modern city market; “natural” still-life is opposed to the ordered *nature morte* of modern painting.

17. *Creation is a patient search*, p. 50.

18. “Law of enamel paint of whitewash: suppression of the equivocal. The concentration of intention on the proper object. The attention concentrated on the object. . . . We have within us a direct command which is the spirit of truth and which recognizes the true object within the limelight. The true object shines with power . . .” *New World of Space*, p. 37.

19. Ozenfant and Jeanneret, “Sur la plastique,” *L’Esprit nouveau*, pp. 42–44.

20. The contemporary interest in the passage on the absolute beauty of geometric forms in Plato’s *Philebus* has been noted by Reyner Banham, *Theory and Design in the First Machine Age* (New York, 1960), p. 205, and John Golding and Christopher Green, *Léger and Purist Paris* (London, 1971), p. 33.

21. See the exhibition catalogue *Le Corbusier peintre*, Galerie Beyeler (Basel, 1971), no. 11, for reproduction.

22. “In 1925, at the Esprit Nouveau Pavilion, contrary to the rules we avoided decorative works and showed ‘objects evoking poetic reactions’—pebbles picked up along the sea coast, laboratory utensils, airplane models for use in wind tunnels . . .” *New World of Space*, p. 16. Compare the ventilating fan (*Vers une architecture* [Paris, 1923]) to the nautilus (*Urbanisme* [Paris, 1924]).

23. *La Peinture moderne*, pp. 115–116 (my translation).

#### Figure Credits

1, 3–12 © S.P.A.D.E.M., Paris/V.A.G.A., New York, 1980.

1 From exhibition catalogue, Galerie Beyeler, *Le Corbusier peintre* (Basel, 1971), pl. 16.

2 Courtesy the author.

3 Philadelphia Museum of Art: A. E. Gallatin Collection.

4 From *Le Corbusier*, preface Maurice Jardot (Paris: Editions Vincent Fréal et Cie., 1960), p. 57.

5 From *Le Corbusier*, p. 225.

6, 7 From Le Corbusier, *Modulor I* (Cambridge, Mass.: Harvard University Press, 1958).

8, 10 From *Le Corbusier*, pp. 232 and 85.

9 From catalogue, *Le Corbusier peintre*, pl. 44.

11, 12 from *Oeuvre complète 1946–1952*, V, p. 186.

*Historians of the Modern Movement, confused by so many polemical statements against the academic building forms of the nineteenth century, and following the modernists' own desire for a complete rupture with a historicist and eclectic past, have generally overlooked the deep structural relations between the role of architecture in the nineteenth century and as it later emerged in terms of modernist theory and practice. Between the forbidding walls of the asylums, prisons, hospitals, and schools of the nineteenth century and the new open, white, transparent membranes of the Cité Industrielle and the Ville Radieuse, there seemed to be no relation, unless it was one of complete antithesis. The "social condenser" was, after all, the very opposite of the "engine of confinement." Yet the recent research of a number of contemporary historians, notably Michel Foucault, Bruno Fortier, and his colleagues in Paris, has underscored the continuity of "panopticism" throughout the entire modern period, a continuity which corresponds to that of the economic structure of monopoly capitalism from the end of the nineteenth century to post-World War I reconstruction. The growing importance of the "social" question as company paternalism and military repression were supplanted by mass consumerism and "cultural" incentives to social order, only meant that "panopticism"*

*would gradually be hidden beneath the clean white utopia of modernity. The prison and the asylum would give way to the Y.M.C.A. or the Salvation Army hostel.*

*While no "nostalgic" vision of a first age of industrialism is able to uncover the specific contradictions of the second, the ideology of "functional" architecture, forged in the time of Bentham, never lost its original force. Indeed the relationships assumed to exist between institutional effectiveness and architectural form are the direct results of that early functionalism. Whether we look at the Constructivist images of social institutions or the therapeutic cities of Le Corbusier, it is evident that the modernist professional architects hardly rejected their role inherited from the nineteenth century as "agents of social order." The scientific management of industry as advanced by Frederick W. Taylor was seen to have its analogue in the social sector: Taylorization was the "Benthamization" of the modern period, and its tools were those rationalized units of space that constituted and enforced the institutional solutions to political and economic conflict. Here the notion of the "type," regenerated in form from its academic predecessor, became the essential theoretical armature: if Darwinian laws applied to the survival of forms as to the survival of species, then the "family" of institutional forms that served to crystallize mass society*

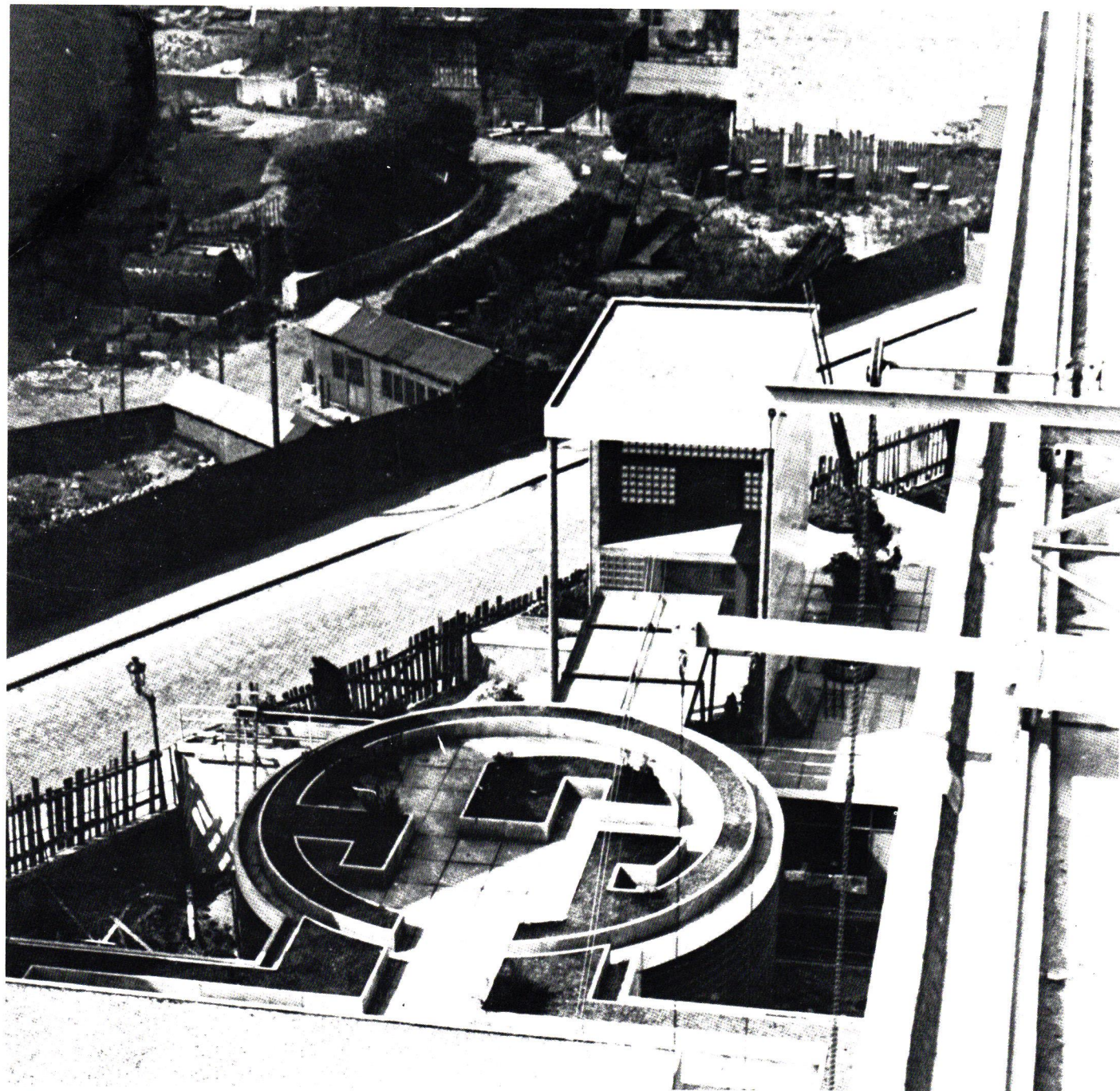
*into manageable units was the special preoccupation of the architect.*

*No attempt to claim an empirical functionalism that "started anew" in front of every programmatically defined problem could hide the continuing propensity of architects to reify their solutions into generalizable, mass-produced elements. The work of Le Corbusier for the Salvation Army in Paris between 1926 and 1933 is paradigmatic; both in his dormitory for the "Palais du Peuple" and in the "machine for cleansing" described by Brian Brace Taylor, he may be seen as conforming to the presuppositions of early nineteenth century hospital or prison design—but with one essential difference: namely, that the polemic of l'esprit nouveau presented such institutionalized reform and control as beneficent, obscuring for a moment the hidden agenda of such institutions.*

A.V.

*1 Cité de Refuge, view from upper level, rue Cantagrel, of the entrance and social services buildings, 1930's.*

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## Technology, Society, and Social Control in Le Corbusier's Cité de Refuge, Paris 1933

Brian Brace Taylor

*The Cité de Refuge is not a fantasy, the Cité de Refuge is a proof.*

*You could tell me that it's a negative proof. To which I would reply with an observation made a thousand times over: it is, that the interested persons [the Salvation Army] make a fuss and discuss in perpetual confusion their psychological and physiological reactions. They don't know at all what they're talking about; they are obsessed by fixed ideas and it is this obsession that is the cause of their protests. We, we have the obligation to ignore this and to pursue positive and scientific research with serenity. . . .*

*Le Corbusier, Letter to Col. Isely of the Salvation Army. 9 November, 1934.*<sup>1</sup>

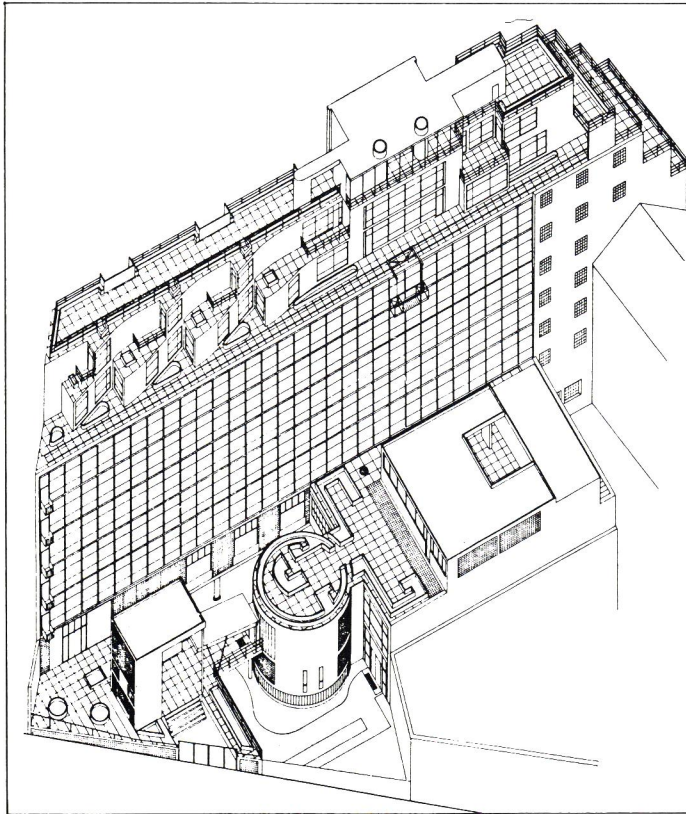
On Inauguration Day, December 7, 1933, when the Salvation Army, client for the Cité de Refuge, took possession of the building, the project was already three years overdue. The effort had involved a greater financial outlay than had been expected and fund raising to pay for the building was continued after its completion. In this regard, Commissioner Peyron was especially gifted in procuring the necessary publicity and monetary aid from the privileged classes of French society. The official opening was honored by the visit of the President of the French Republic,<sup>2</sup> Albert Lebrun, accompanied by his Minister of Public Health, Mr. Israel. Several daily newspapers carried long articles and photographs of the inauguration and one of these which appeared in *Les Temps* merits quoting, not only for the richness of the analogies evoked in connection with the building, but also for the spirit of paternalism conveyed by the writer: "This edifice, whose facade appears first of all like an immense glass window, has the following inscription over the entrance: 'Refuge Singer-Polignac', with which its founders wish to remind us that the Princess de Polignac, profoundly moved one winter night by the distress of the outcasts to whom Salvation Army soldiers were giving help in front of her, has given no less than three million francs to this enterprise. . . . Its architects, Messrs. Le Corbusier and Jeanneret, whose fecund originality we know already, have given the edifice the appearance of a beautiful ship, where everything is clean, comfortable, useful, and gay—the turntable

at the entrance, the long counter where unhappy people will come to deposit their misery like the rich deposit their valuables at the windows in a bank. In small private offices like confessionals, they will confide in officers on duty at all hours, day and night. In this kind of 'central social station' or 'clearinghouse', one will direct them on their way. . . ."<sup>3</sup>

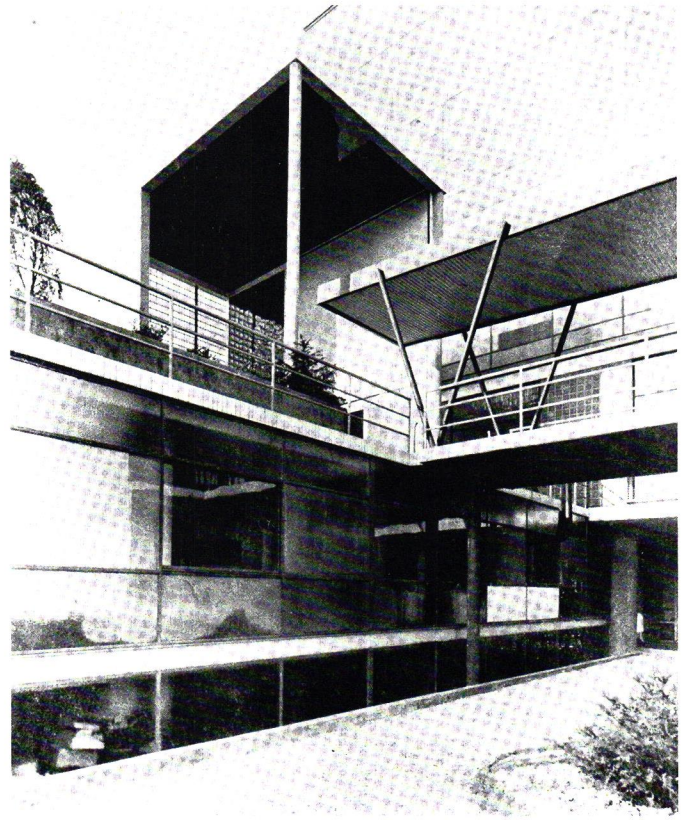
The population for whom the Cité was intended—the tramps and vagabonds (whose romantic existence under the bridges of the Seine had become a well known symbol abroad), the unwed mothers, the former convicts, and the unemployed—transformed the building almost immediately into an operational institution. And, almost as rapidly, there appeared the first difficulties with regard to its proper function. It was not merely a question of adaptation but of serious imperfections in the building's conception and execution. The most critical issue which arose concerned the mechanical services, the heating in winter and the ventilation in summer. Le Corbusier interpreted the dissatisfaction expressed by the Salvation Army and the public authorities they consulted as a threat to his entire theory of architecture and urban planning. He explained the situation in a letter to his patron the Princess de Polignac: "But here we are: the Salvation Army has got it into its head, instigated by certain employees of the Cité de Refuge, to make modifications in the building that will purely and simply destroy the principal qualities we have obtained. I'm speaking of the intention of these Messieurs four or five months ago to open fifty or so gratings in the hermetically sealed facade and to replace the inner circulation of vacuum-cleaned and temperature-controlled air with direct air intakes from outside, by windows. . . . I am finishing at the moment the correction of proofs of my book *The Radiant City*, which is the sum total of fifteen years of research into the question of dwellings and the city. The fundamental chapter in the book, the keystone if you will, is precisely on the question of the lungs in dwelling places; that is to say, the quality of air to be introduced into buildings. And the fundamental hypothesis is the following: if one introduces the methods of controlled air, or lively air, or air-conditioning inside of dwelling places, then a whole series of indispensable re-

2 *Cité de Refuge*, axonometric view.  
Redrawn from original plans and  
verification by H. Lapprand.  
3 Garden on rue Cantagrel, with  
dormitory and refectory for elderly

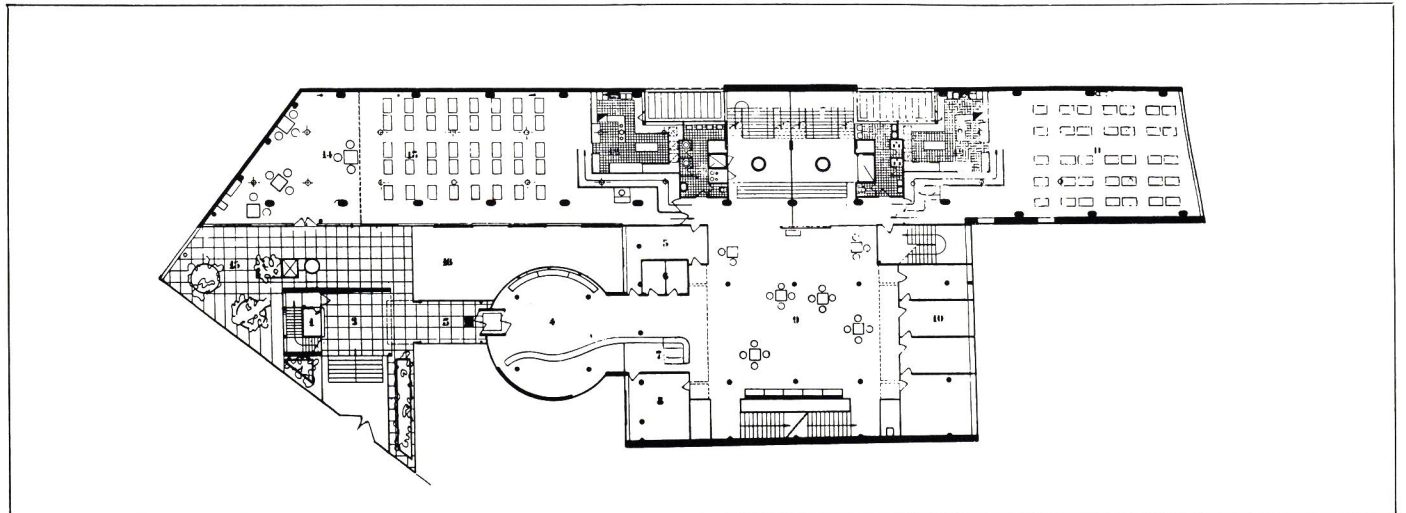
persons, and main entrance  
pavilion and bridge to rotunda  
above.  
4 Ground floor plan, 1931.



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forms could be brought about economically and efficiently. Without this, there is nothing to do [but] maintain the status quo.”<sup>4</sup>

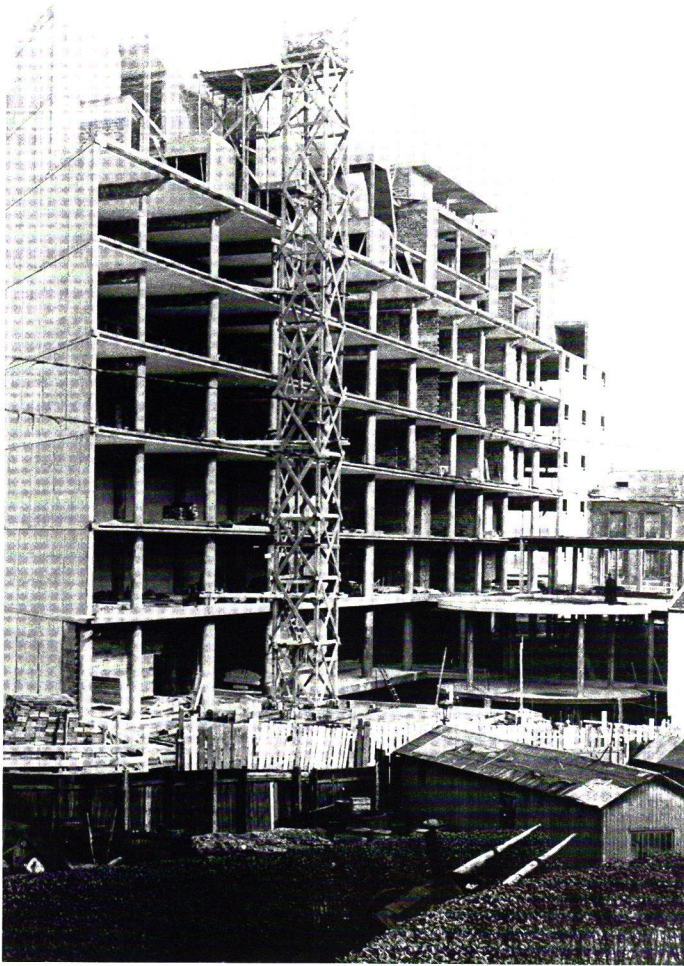
The struggle between Le Corbusier and his presumed adversaries with regard to the “exact respiration” installed in the Cité became public virtually within a week after the building was opened: “At that moment [December 7, 1933] Commissioner Peyron, wishing to exploit the technical resources of the constructed building to a maximum, made a request to the Public Health authorities indicating that he intended to occupy all of the building in the most intense way possible, even though the codes would be violated, and to justify this through the utilization of a system of air-conditioning in the building. On December 15, 1933, Mr. Drouet, architect at the Prefecture of Police, made a first report concerning the above request, a very intelligent report, very favorable to the building, noting that all of the rooms were, in fact, *anti-regulation*, but that under such conditions it seemed to him that the logical consequence would be to change the codes.”<sup>5</sup>

Thus began a debate that was to last eighteen months, with, on the one hand, the Salvation Army seeking to placate residents of the Cité who claimed that they were suffocating at night because they could not open a window when the ventilation was turned off,<sup>6</sup> or the doctor who supervised operation of the child-care center, who claimed that the children were suffering from a lack of oxygen, extremely high interior temperatures (thirty to thirty-three degrees centigrade), and the deprivation of ultraviolet rays from the sun; on the other, Le Corbusier attempting to block efforts to install windows that opened in his curtain wall. The ultimate significance of the debate for the history of modern architecture hinges upon the fact that he had erected a building that did *not* conform to the codes then in force since he believed that they should be modified and updated. The architect’s conscious strategy had been to construct a building that varied from the plans that he himself had previously submitted to the municipality for their approval in September, 1931,<sup>7</sup> with the intention that it become a test case for the authorities.

The system employed by Le Corbusier was already lawful for ventilating such places as the Lido cabaret of the Rex cinema,<sup>8</sup> but was not yet approved by the codes for spaces that could be ventilated directly from outside, particularly dwellings.

Had the architect been supported by the client in question, he might have had a greater chance of convincing the authorities; however, Commissioner Peyron had retired and had been replaced by another officer, Colonel Isely, who was moved neither by Le Corbusier’s economic arguments, nor by the testimony of specialists procured by the architect. Particularly sensitive to the problems raised in the section of the building for mothers with small children (fifty-one roomettes and the nursery), Colonel Isely countered Le Corbusier’s “expert advice” with criticisms of existing conditions made by the doctor in charge of the nursery and also emphasized the necessity for his institution to conform to the legal codes. Citing experts who claimed that lack of air and abnormally high room temperatures of twenty-seven or twenty-eight degrees centigrade had a drastic influence on child mortality, the colonel observed that these had even been surpassed during the summer of 1934. Moreover, the doctor had had tests made of the carbon dioxide content of the air in the children’s dormitory and in one of the roomettes and the results had proved to be too high.<sup>9</sup> When the architect obstinately refused to be impressed by these tests, the Salvation Army arranged to have others made by a specialist of the Technical Services of the Seine Prefecture, which showed that “With the present system, at the end of the day toward four o’clock, when the rooms have been unoccupied since morning, the amount of carbonic acid varies between forty-five and fifty-four liters/one hundred cubic meters, while outside there is only forty liters; and after the space is reoccupied, the amount goes up as high as 272 liters in certain rooms. For the summer season, the system has not been developed to bring cool air into the hermetically sealed and overheated rooms behind the glass facade.”<sup>10</sup>

The architect responded first of all with arguments based upon the poor performance of the mechanical installation,



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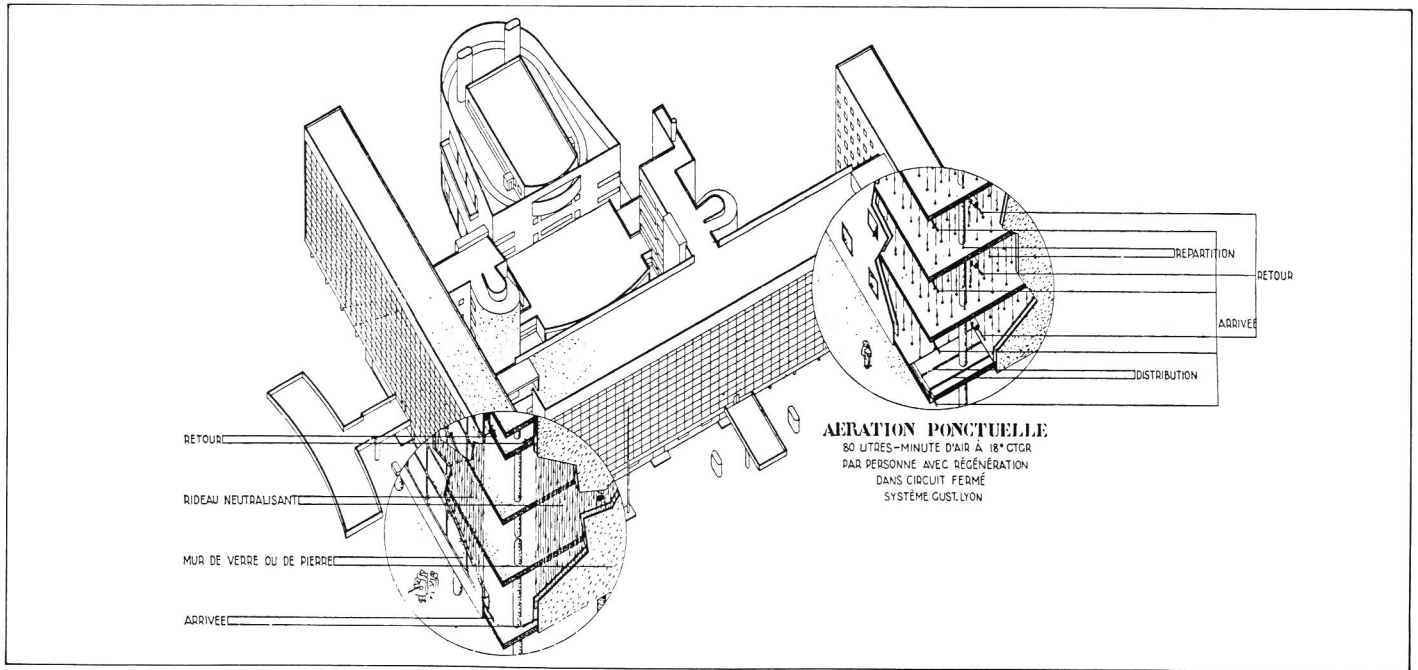
suggesting that the problem was essentially one of insufficient air movement, which could be resolved by speeding up the number of air changes from one to three cubic meters of fresh air per second. He also claimed that it would be erroneous to open windows on the vast glazed facade because the air entering would not only be polluted but, having been attracted to and heated all day long by the glass wall, would also be extremely hot.

Le Corbusier then felt constrained to ask expert advice of specialists whom he knew shared his own theory, in particular the physicist Gustave Lyon, who had been responsible for the installation of air-conditioning equipment in the Salle Pleyel concert hall.<sup>11</sup> Lyon's report on his visit to the Cité de Refuge was predictably favorable. Second, he consulted Doctor Jules Renault, professor and honorary consultant at the Hospital Saint Louis in Paris who, ten years previously, had created a model child-care center provided with air-conditioning. He too visited the Cité and the child-care center on the fifth floor, where he found that the air change at the rate of three times an hour per cubic meter was sufficient for the spaces to be considered well ventilated. As to the assertion made by the doctor in charge, Kreyts, that the airtight glass facade prevented the ultra-violet rays from reaching the children, Doctor Renault replied that in any case ultra-violet rays from the sun in Paris were a "fantasy" because mists, dust, and pollutants in the atmosphere tended to block these out and not the glass, which permitted any available rays to pass through it.<sup>12</sup> Le Corbusier thus concluded his inquiry, which he then sent to the Salvation Army with the proposal that they employ the money destined for opening windows on the south facade to installing a cooling system in the nursery and the roomettes, something which had initially been deemed too costly.

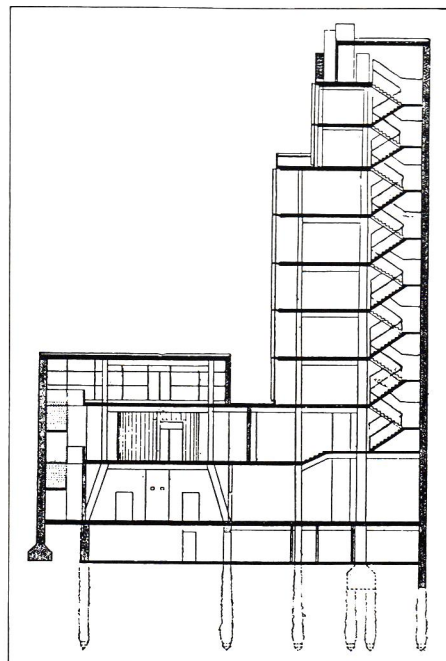
Events reached a turning point in January 1935, when the Seine Prefecture officially condemned the code infractions of the Cité de Refuge and, two months later, a second administrative body (the police) ordered operable windows installed in all parts of the building within forty-five days.<sup>13</sup> Le Corbusier, exasperated and desperate, tried two tactics as a last resort: the first, entirely typical of

5 Cité de Refuge, under construction, 1931.  
 6 Le Palais du Centrosoyus, Moscow. Le Corbusier, 1929.  
 Diagram showing ventilating/heating system.

7 Rotunda roof garden under construction, 1932.  
 8 Section through west wing.



6

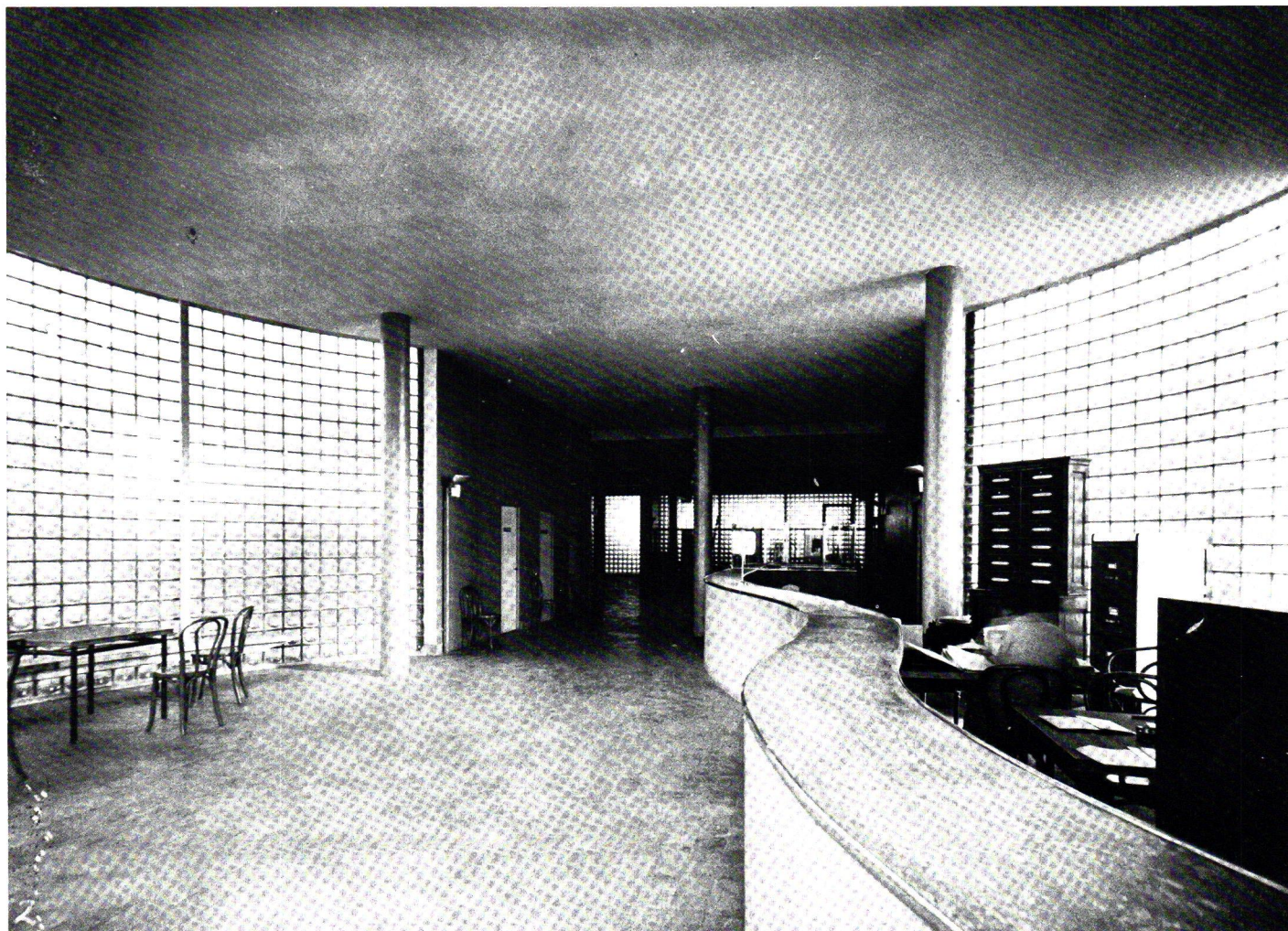


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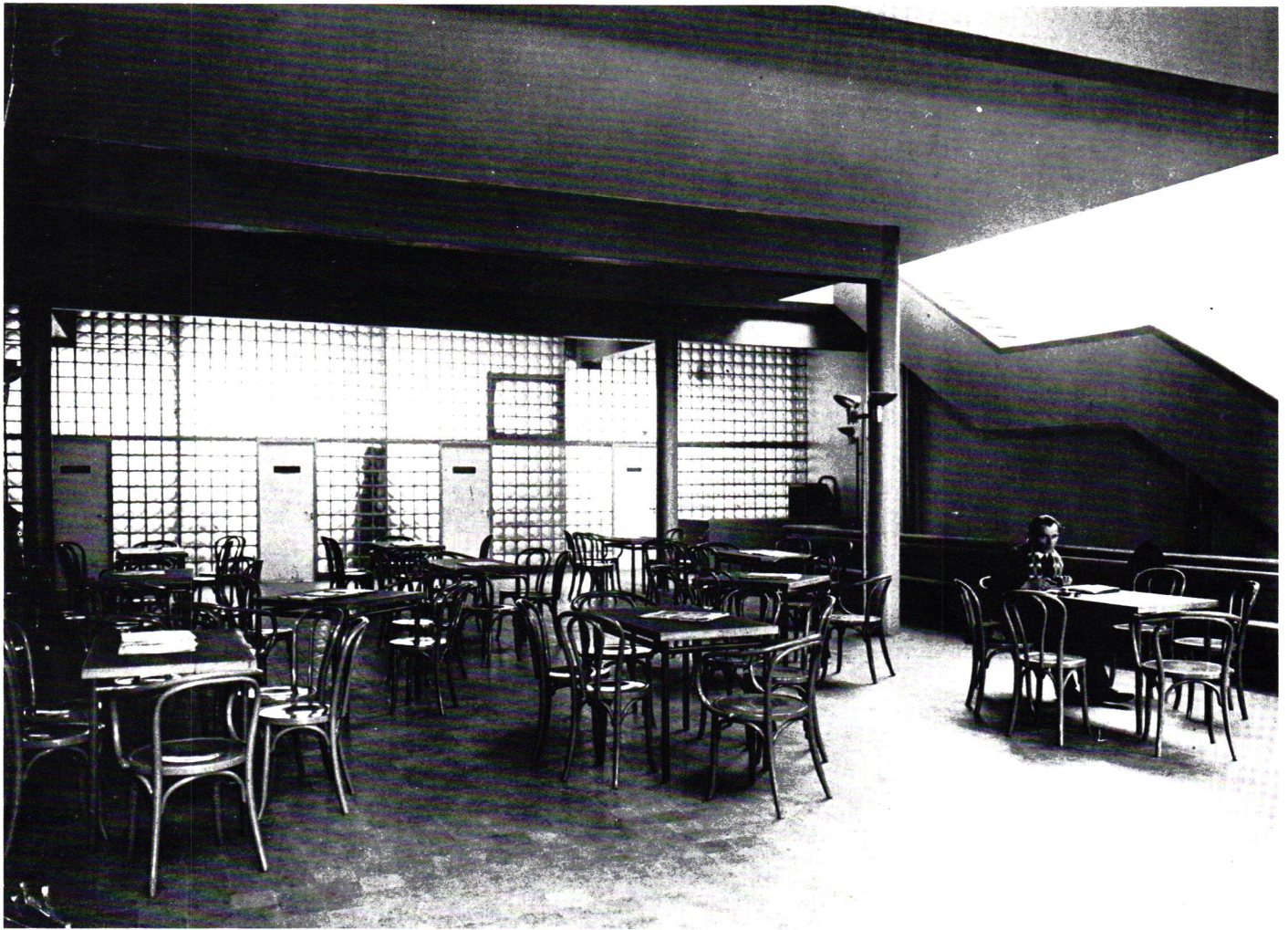
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9 *Cité de Refuge*, rotunda reception counter, 1930's.

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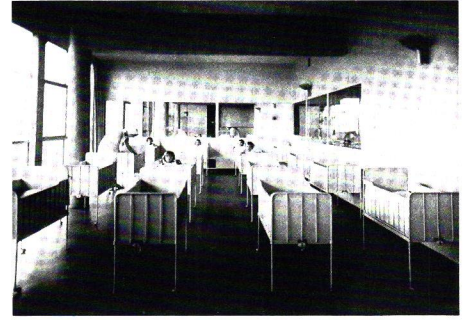
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10 Main entrance hall, offices for social workers and stairs to ladies lounge and rotunda roof terrace.  
 11 Interior of the rotunda entrance; reception counter or so-called "turntable."

*12 Cité de Refuge, nursery and child-care center in use, 1930's.*



12

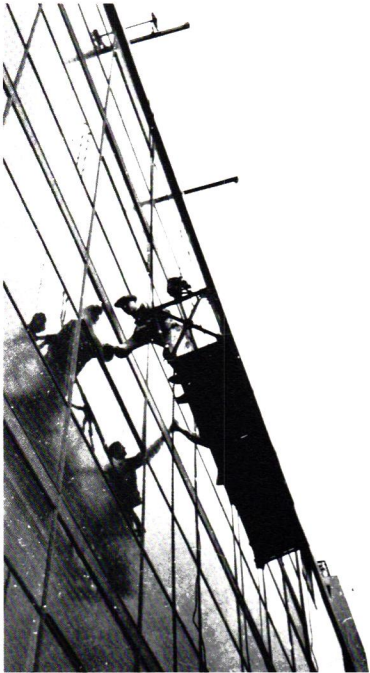
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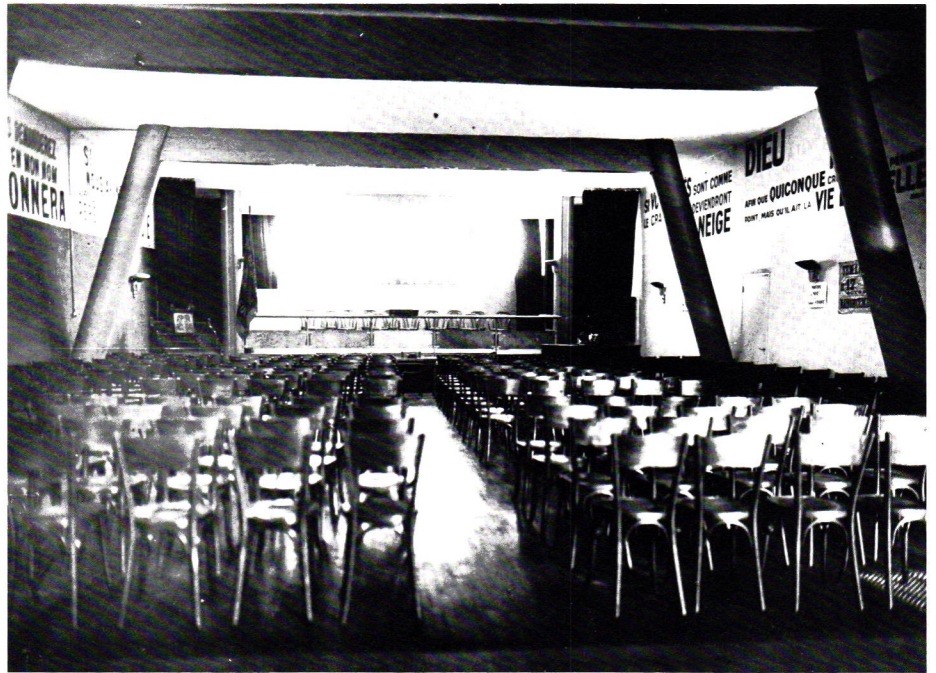
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*13 Main entrance hall and stairs to upper levels.*





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14 Assembly of one thousand square meter glass curtain wall, rue Cantagrel facade (south).

15 Large auditorium at rue Chevaleret level. Note window of glass bricks at eastern end which greatly disturbed audiences in the hall because of light.

16 Entrance hall and stairs, 1977.



17

178 his previous behavior, was to call upon people of political influence to support his cause;<sup>14</sup> the second was to hire a court-accredited expert. As regards the former, he appealed to Senator Justin Godart, former minister and then chairman of the Salvation Army's patronage committee. His letter reveals his extremely defensive frame of mind at the time: "Another facet of the attack against us is the open struggle, at present so violent in France, between building tradition and those who preserve them—architects, contractors, the building trades now in decline—on the one hand, and on the other, those who are trying to evolve the tools necessary for our time amid a thousand difficulties and all sorts of imaginable obstacles. We have already come up against the public authorities with the Cité de Refuge. I do not see, personally, the origin of this converging attack of two prefectures, but it is plausible that it has a very specific origin."<sup>15</sup>

As for the second, a civil engineer who was also accredited to a specialist in a legal court was engaged to produce a report on the ventilation of bedrooms in the Cité. His conclusion was that the rooms were well ventilated in winter since the hot air entering above the doors was drawn toward the cold glass wall which naturally cooled it as it descended toward the floor, after which it was evacuated beneath the door. Part of the used air escaped to the outside, and part was extracted by fans near the thermostat in the hallway to be returned to the basement for purification and reheating. However, in summer, when fresh air was simply pumped into the rooms without first being cooled, it ran up against a large stagnant body of heated air by the window, moved downward and immediately exited under the door. To counteract this situation, he advised piercing a row of approximately sixty openings one centimeter wide and four centimeters high at a level of two-thirds the height of the glass wall. These openings, which could be entirely closed in winter, would permit a through circulation of air in the summer, thereby eliminating the necessity for full-size windows.<sup>16</sup> Both this proposal and an estimate of the cost of installing a cooling system were sent to the Salvation Army and to both Prefectures in June of 1935. These efforts were to no avail. Le Corbusier was required to ask the M.M.M. company,

which had originally installed the glass curtain wall, for a cost estimate to put in forty sliding windows, measuring 0.9 meters in width, in the upper third of each window section.

Aside from chronic difficulties with the interior and exterior plumbing due to defective workmanship at the time of installation, a progressive decay in other physical aspects of the Cité de Refuge also became apparent much sooner than it normally should have. The exterior finishing of ceramic tiles manufactured by the Graiblanco company was innovative, but not so unusual as to excuse a lack of technical expertise in the execution; Henri Sauvage's famous apartment buildings in the rue Vavin and the rue des Amitaux, the Paris Metro, and other constructions had all been previously clad with this kind of material and had not proved defective within a few years after their execution. However, individual tiles began falling off the rotunda of the Cité de Refuge as early as 1936. The Salvation Army reported to the architects in June 1937 that the director of the nursery felt that the children whom he brought down from the fifth floor to the garden for air and sunshine (rather than taking them to the roof terrace!) were in serious danger of being hit by falling tiles from the rotunda.<sup>17</sup> They insisted that Le Corbusier, as well as the contractors, take the necessary measures to repair this defect, and they refused all legal responsibility for any eventual accident.

Since both the building contractor, Quillery, and the manufacturer/subcontractor, Graiblanco, considered themselves blameless in the affair, the architects were compelled to call in an arbitrator, in the form of legal experts called Bureau Securitas. The Securitas report, which could have been introduced as evidence in court, reiterated for the benefit of the parties involved the clause of the Civil Code stating, "If an edifice of a given price perishes partly or completely, either through faulty construction or soil conditions, the architect and the contractor are responsible for a period of ten years."<sup>18</sup> Nevertheless, it was also their opinion that in a court of justice, the problem would not be considered sufficiently extensive to invoke the above-mentioned clause, and that it was the

Salvation Army's responsibility to maintain this part of the building at their own cost. The architects and contractors were encouraged to offer to pay fifty percent of the repairs as a goodwill gesture in the hope of avoiding litigation, and the matter was in fact settled this way.

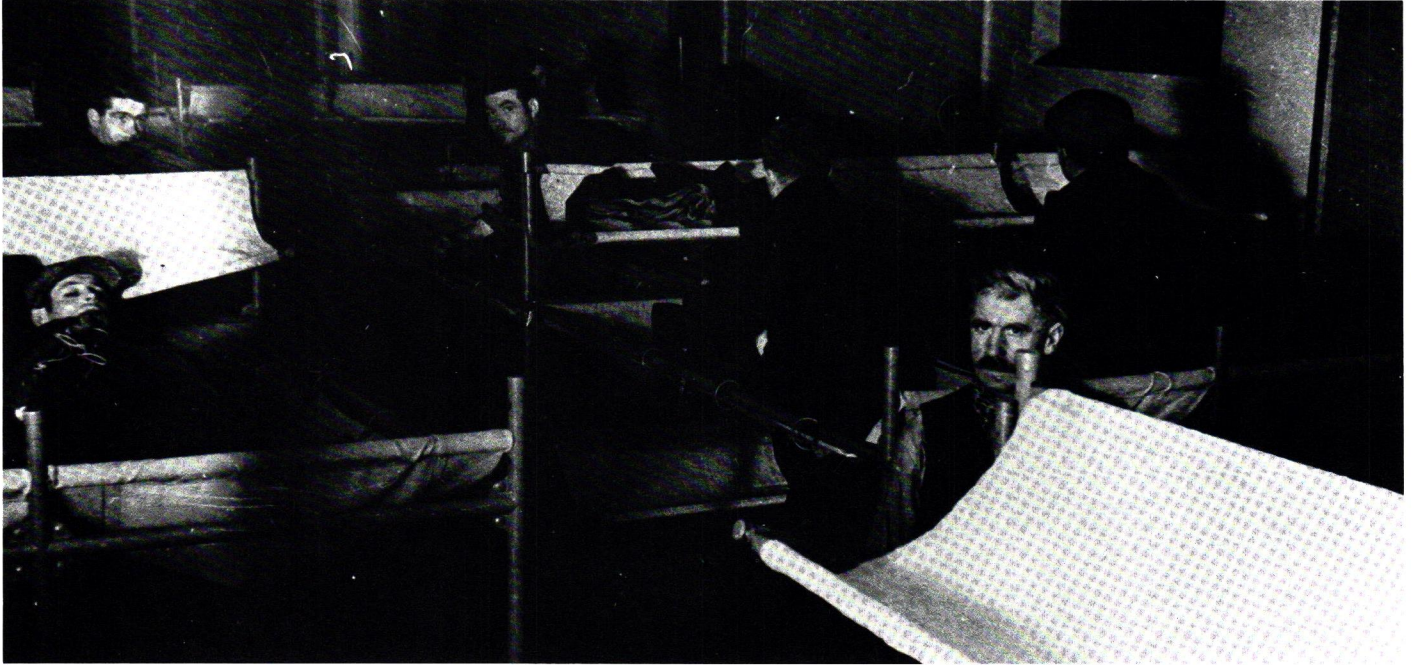
Poor quality workmanship, in fact, was a reality of the day. As far as the concrete work was concerned, Le Corbusier submitted his plans to a contractor who applied methods of scientific rationalization to his labor force, and finished the structural frame in less time than had been foreseen. However, at the time this was only possible in certain fields of the building industry, where the scale of the operation was sufficiently great to merit overall planification and where sufficient control could be carefully exercised. For the rest of the industry, the methods of craftsmen still prevailed, and concepts of Taylorism or Fordism—so admired by economic theorists and politicians of the period—were hardly known or applied at all.<sup>19</sup>

Once the structure was advancing, the bidding for contracts to execute the rest of the Cité followed the traditional pattern. Typical of this was the heating and ventilating contract for which numerous bids were solicited early in the construction phase, but most were eventually deemed to be too expensive for various reasons. Only in the last stages of finishing was a contract awarded to a company with a relatively low estimate. Whether it was true in this instance or not,<sup>20</sup> it was not unusual for contractors to submit a low bid just to obtain a portion of the market (especially in times of economic crisis), knowing full well they were incapable of delivering the quality of performance originally demanded. The risk of poor quality workmanship was even higher when it was a matter of materials or equipment that were still in an experimental stage of development. A 'sound' and prudent contractor inevitably raised his estimates as a measure of protection whenever the requirements of a job deviated at all from traditional materials and normal routines. Such were the hard competitive practices accounting for the disparity between the architect's ideal product, or prototype, and the finished product which the client received.

To recapitulate the astonishing richness of this building as a crucible of multiple intentions and conflicting values, one might first consider Le Corbusier's attitude toward the finished product and its utility. For him, the Cité de Refuge, as built, as the proof of the hypothesis that the physiological well-being of city dwellers could be guaranteed by means of enlightened architectural conceptions which incorporated mechanically controlled interior environment (i.e., high-rise glass-enclosed edifices plus air-conditioning). He considered that as an architect he, in collaboration with other specialists, should pursue scientific research that would lead to improvement of the physiological conditions for human habitation, and that spiritual or psychological well-being would follow [maybe even reluctantly], adapting itself to the 'fruits' of modern technology. He coupled his physiological arguments with others based upon economic utility procured through environmental controls, such as savings in fuel consumption (although he did not go so far as to elaborate a notion of solar heating). On these grounds, he adamantly defended the systems installed in the Cité de Refuge against all attempts by the Salvation Army to modify the conditions of his experiment.

Twenty years later, when Le Corbusier was over sixty years of age and preoccupied with seeing the Cité restored to its original condition, his concerns seem to have been purely aesthetic in nature. Even though his theoretical ideas had evolved in the interim, it nevertheless seems clear that he had less inclination to engage in polemical battles for the sake of a progressive techno-aesthetic ideal. Of greater importance for the by then world-renowned architect was the preservation of a certain image of modern architecture.

A large segment of the active users of the Cité was composed of transient male residents who came to spend a limited number of hours at night on an infrequent basis. Consisting of a vast diversity of society's most marginal elements, these men, who were out of work and suffering from alcoholism or other disturbances of social origin, could not be expected to share in Le Corbusier's technological or aesthetic system of values. Their anarchist ten-



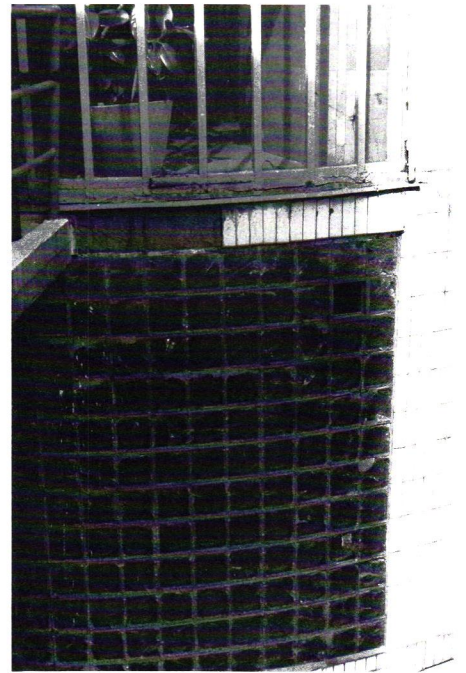
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 18 *Cité de Refuge, men's dormitory with bunk beds of steel and canvas, 1930's.*  
 19 *Men's reception booth.*

20 *Dedication of the Cité de Refuge, December 7, 1933. Visit to a dormitory for men by Commissioner Albin Peyron of the Salvation Army (right), President of France Albert Lebrun (center), and Le Corbusier.*





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181

22

21 Principal dining room.  
22 Detail view, exterior of rotunda, showing deterioration of ceramic tiles, glass bricks, and metal frames (photo taken 1976, since restored).



21

182 dencies, if in the main only passive, were directed against the very capitalist society which continued to exploit them but yet could afford to pay for a shining new refuge. That they occasionally fought with one another in front of the rue Chevaleret entrance, as was reported to Le Corbusier,<sup>21</sup> breaking the plate glass in the doors so that it had to be replaced, is only a minor yet significant indication of their total disregard for a great masterpiece and the society that produced it.

Neither a hotel nor a school, nor a workshop nor a hospital, the Cité de Refuge incorporated, to one degree or another, all of these socially important functions. However, as Michel Foucault aptly points out,<sup>22</sup> shelters like the Cité de Refuge have a close kinship with penal reform institutions, although, to be sure, they constitute a middle ground between incarceration and free movement. The key attribute which such institutions have in common as *hétérotopies* (places set apart from the rest) is their quality of isolation; yet of course in the case of prisons, there is also an emphasis upon *discipline* as the decisive method for reforming the soul and body of those persons considered socially marginal. Discipline, according to Foucault, is exerted upon individuals by penal institutions—and, to varying degrees, by affiliated organizations—according to three general models for manipulation: “The politico-moral schema of individual isolation and of hierarchy; the economic model of force applied to an obligatory task; the technico-medical model of cure and normalization.”<sup>23</sup>

The ‘grand scheme’ of the Salvation Army’s founder, William Booth, and the “colonies” which grew out of that program, correspond in essence to Foucault’s description of the way in which the mechanisms of discipline are utilized by the dominant class in capitalist society.

The brief for the Cité de Refuge arose as part of a coordinated building campaign by the Salvation Army in France during the late 1920’s. This campaign even included a proposal for building a shelter in French Guiana to accommodate recently released convicts from the “Bagne de Cayenne” prison,<sup>24</sup> and Le Corbusier expressed interest in designing that project as well. The

manner in which the dominant class in France, and the government in particular, actively supported the Salvation Army’s programs is evident from the list of members on its patronage committee. Economic and political motivations permeated the Army’s existence from start to finish, as George Bernard Shaw so clearly perceived early in the century. That religion was an essential part of the ideology of the Salvation Army derived from the ethical value that Protestantism attached to a person’s economically useful role in the society.<sup>25</sup> Labor signified submission to a discipline, and the production of wealth was the means by which one could hope to obtain God’s approbation. The Salvation Army, which its roots in Methodism, thus used two interrelated tools to rehabilitate the alienated individual: religious conversion and labor as a daily discipline. While it did not renounce the former in favor of the latter, as did an early nineteenth century prison reformer quoted by Foucault, their economic motives were ultimately similar: “If, in the final analysis,” writes Michel Foucault, “the work of the prison has an economic effect, it is by producing individuals mechanized according to the general norms of society: ‘Work is the providence of the modern peoples [observes the reformer], it replaces morality, fills the gap left by beliefs and is regarded as the principle of all good. Work must be the religion of the prisons. For a machine-society, purely mechanical means of reform are required.’”<sup>26</sup>

While there are hierarchies of authority in the Salvation Army’s organizational structure, their methods do not include the individual isolation or forced labor characteristic of the politico-moral model employed in prisons; nevertheless, what has been described as the technico-medical model for healing and normalization *is* an integral part of their operation. Since there was, as a rule, a limit to the number of paid nights one could stay in the Refuge unless one was part of a “work-aid program,” those who did stay for protracted periods were morally obliged to submit to the rules and requirements of the system.

Any critical evaluation of the building itself has ultimately to be grounded in the very nature of the institution it was intended to serve. Spaces in the Cité were designed to

accommodate the procedures by which an individual entering the premises was progressively taken in charge by the institution's social services—from initial reception at the rue Cantagrel entry to the counseling rooms at the opposite end of the main level thoroughfare. An individual's physical health and his dress were controlled at the infirmary and clothing exchange in the lower levels of the rotunda, while his spiritual state was treated just opposite in the large meeting hall. Activities occurred not only in specific places but also at specific times, and some (such as eating) were regulated by bells which rang throughout the building.<sup>27</sup>

The Salvation Army's imposition of a pervasive collective discipline upon an individual's use of spaces and his social behavior was extended a degree further, to his body's functioning, thanks to the architect's introduction of an artificially controlled environment in which the quality of the air he breathed and the temperatures of the rooms he inhabited were likewise normalized. In this way architectural and mechanical engineering formed the complement to the social engineering of redemption to which the Salvation Army aspired.

The general mystification surrounding Le Corbusier and his *oeuvre* arises from the following paradox: a prolific writer, experienced lecturer, and irrepressible strategist, he extolled the virtues of efficiency and rationality in planning, while continuing to practice his profession as designer in the idiosyncratic ways of a traditional craftsman. The necessity for a *comprehensive plan* (a 'grand scheme' in General Booth's terminology) to resolve the pressing problems of economical construction and structured urban development was something Le Corbusier preached but did not believe in sufficiently to apply in terms of his office's production. In the final analysis, his ideological justifications for what he built rarely had much to do with the aesthetic power of a work or the way he went about accomplishing it.

As an architect operating on the level of daily realities, Le Corbusier had little immediate impact upon customary practices in the building industry. Like many other proj-

ects, plans for the Cité de Refuge left the office at the last possible moment, and those destined for contractors carried the usual notation, "Dimensions to be verified on the site by the contractor." This being the usual disclaimer of the period, the architects played a relatively minor role in the actual development of new constructional techniques. The techniques for installing the one thousand square meters of plate glass on the facade, for instance, or the glass bricks were left entirely to the initiative of the industry. A man of large ideas, Le Corbusier was prone to leave the details, particularly of execution, to his collaborator cousin, Pierre Jeanneret, and it is to him we owe the very existence of many buildings of this period. Le Corbusier lacked the capacity, or perhaps the interest, to develop the crucial knowledge that a closer relationship with the builders would have brought him—as it did in Alvar Aalto's case for example—thereby permitting the architect to gear progress at a conceptual level to that which the productive forces were capable of performing.<sup>28</sup>

Instead, Le Corbusier's convictions concerning scientific rationalization of production remained on an intellectual and political level. He aligned his thinking to that of one Ernest Mercier and an association known as the "Redressement Français," occasionally giving lectures for them,<sup>29</sup> precisely at the moment he was designing the Cité de Refuge. His active affiliation with this group at a time when he was also flirting with the Soviets accounts for the latter's fundamental criticism of his position: namely that Le Corbusier was not in favor of a revolution in social relationships as an indispensable prerequisite to advances in material culture. Instead, like the Redressement Français, he advocated the formation of a managerial elite of economic experts within capitalist society and above party politics, who would plan and direct a peaceful social revolution. Impressed by the administrative techniques of Taylorism, found to be effective in ordering industrial production and labor relations, the participants in Redressement Français felt that class conflicts could be avoided and economic progress attained through social engineering; it was only a matter of making the workers understand and accept certain necessities. They believed that laborers needed self-discipline, or discipline imposed

184 upon them from above, in order to adapt themselves to the ultimately desirable results of engineering.

Le Corbusier found common ground for cooperating with, and serving the needs of the Salvation Army precisely because he shared their attitudes toward the economic necessities of social engineering. Reform of society, as of individuals, whether psychologically or in terms of economic utility, would be best accomplished according to technico-medical methods of control. Where the client and the architect found they differed, was over the persuasiveness of *mechanical* means, namely an airtight building with malfunctioning machines for heating and ventilating. Le Corbusier's reaction to the protests of the women who objected to being unable to open their windows in the Cité ("We have a moral right to ignore them and to continue scientific research!") put him at odds with the Salvation Army; but it also raised the fundamental issue of technocracy, of the political principles that would eventually govern the relationships between men and machines.

*This article is an edited version of an excerpt from Brian Brace Taylor's book La Cité de Refuge di Le Corbusier 1929–1933 published in Italian by Officina Edizione, Rome, 1979. The book is devoted to the building's design, construction, and utilization. The author wishes to thank the Fondation Le Corbusier and the Salvation Army, Paris, for their helpful cooperation.*

1. Archives FLC, box 7/3, item 160.
2. The principal function of presidents of France during this period of history was essentially symbolic. This was particularly the case with the presidency of Lebrun—who spent much of his time at dedication ceremonies while the real power remained in the hands of the president of the Conseil d'Etat. His principal role was humoristically regarded as being one of officiating at "inaugurations of chrysanthemums."
3. Unsigned article, *Les Temps*, 8 December 1933.
4. Letter, Le Corbusier to the Princess de Polignac, 4 December 1934. Archives FLC.
5. Note concerning the visit of Le Corbusier to the Services d'Hygiène des Garnis (to Mr. Ragonet, editor at the Prefecture of Police), 16 April 1935, Archives, FLC.
6. Letter, Salvation Army to Le Corbusier, 27 December 1933. Archives FLC, box 17, item 118.
7. Note (handwritten) by Pierre Jeanneret on the contracts with the architectural services of the city concerning the mechanical ventilation system, no date. Archives FLC, item 127. "The first authorization to build was given on December 24, 1930. It concerned the first three stories only. The plans submitted to the city included indications for window frames that opened. Mechanical ventilation created a situation that went beyond the scope of the codes, which the city architect could not resolve alone. We had to follow the normal channels to obtain a building permit and then defend the mechanical system for ventilation ourselves if the Department of Hygiene raised the issue. The permit for the whole building was given to us on September 30, 1931. . . ." See also the letter from the Director of the Plan de Paris, Prefecture of the Seine, to the Salvation Army, 11 May 1935. Archives FLC, box 7/3, item 170.
8. Letter, Director of the Plan de Paris, Prefecture of the Seine, Bureau d'Alignements, to Mr. Huismans, Director General of the Beaux Arts at the Ministry of National Education, 11 July 1935. Archives FLC, item 91. Mr. Huismans, Director of Fine Arts and an admirer of Le Corbusier, had written to the authorities in Le Corbusier's favor asking that they consider the case of the Cité de Refuge with a benevolent eye.
9. Letter, Salvation Army (Colonel Isely) to Le Corbusier, 12 January 1935. Archives FLC.
10. Letter (copy), Director of the Plan de Paris, Prefecture of the Seine to the Salvation Army, 11 May 1935. Archives FLC, box 7/3, item 170.
11. Letter, Le Corbusier to Gustave Lyon, acoustical and ventilating engineer, 20 September 1934. Archives FLC, item 97. "Dear Friend, . . . I don't know whether you have had the opportunity to see this building [Cité de Refuge] which has gotten a lot of publicity and is visited by people from all over. Here is the reason that I am writing: we have fifty-one rooms for mothers with babies, each room has one glass wall and the ventilation is by means of forced air. Because the old ladies who



are inside can't stick their noses out of the window (i.e., open the window), they pretend they are suffocating. We are nonetheless pumping thirty-three cubic meters of fresh air an hour in the winter and eighty cubic meters of fresh air in summer into each room. These figures seem high to me and they ought to insure a perfectly hygienic situation. In spite of this, these ladies raise hell. As a result, the Salvation Army wanted to play a dirty trick on me and put in some fifty windows on my facade, opening onto the outside. . . ."

12. Letter, Le Corbusier to Salvation Army (Colonel Isely), 9 November 1934. Archives FLC, box 7/3, item 160.

13. Letter, Salvation Army to Le Corbusier, 4 May 1935. Archives, FLC.

14. The case of the fifty dwellings built at Pessac which remained unoccupied for many months because of a conflict between the municipality on one side and the developer and Le Corbusier on the other is one such example. Le Corbusier intervened through his acquaintances Anatole De Monzie and Louis Loucheur, ministers in the government.

15. Letter, Le Corbusier to Senator Justin Godart (former minister), 20 May 1935. Archives FLC, box 7/3, item 82.

16. Letter, J.S. Lavergne, civil engineer, to Le Corbusier, 17 May 1935. Archives FLC, box 7/3, items 201–202.

17. Letter, Salvation Army to Le Corbusier, 22 June 1937. Archives FLC.

18. Letter, Bureau Securitas to Le Corbusier, 7 July 1937. Archives FLC, items 28–29.

19. See Charles S. Maier, "Between Taylorism and Technocracy: European Ideologies and the Vision of Industrial Productivity in the 1920's," *Contemporary History*, 5th year.

20. The correspondence between the architect and his client strongly suggests that this was the case for the Castiaux company, responsible for all of the plumbing and sanitary installations in the Cité de Refuge.

21. Letter, Salvation Army (Mr. Vanderkam) to Le Corbusier, 24 February 1935. Archives FLC, box 17, item 187. "Some drunkards fighting in the street fell into our glass doors and broke the glass. Would you please look into the matter of replacing the glass once and for all with sheet metal?"

22. Michel Foucault, *Surveiller et punir: Naissance de la prison* (Paris: Gallimard, 1975), p. 304–5; English version *Discipline and Punish: The Birth of the Prison* (New York: Pantheon, 1977).

23. *Ibid.*, p. 251.

24. Letter, Le Corbusier to Albin Peyron. Archives FLC. Le Corbusier received a typed duplicate of a long report by a Salvation Army representative concerning the situation and needs of ex-convicts in the colony. However, no drawings have been found to indicate that Le Corbusier actually made any concrete proposals.

25. Max Weber, *The Protestant Ethic and the Spirit of Capitalism* (London: Allen & Unwin Ltd., 1930), pp. 80, 179–81.

26. Foucault, *Discipline and Punish*, p. 242. Foucault is quoting from L. Faucher's *De la Reforme des Prisons* (1883), p. 64.

27. It is interesting and suggestive to compare Foucault's discussion of Jeremy Bentham and the importance of *visibility* (of seeing and being seen) in late nineteenth century doctrines of

moral reform with Le Corbusier's design of an immense, transparent curtain wall for the Cité, behind which one might perceive, night and day, the movement of persons in their tiny cubicles or in the dormitories. See M. Foucault, "L'oeil du pouvoir" (conversation), *Le Panoptique*, 1977, p. 18.

28. Alvar Aalto's collaboration, beginning in the early 1930's, with the wood industry in Finland afforded him opportunities to study the potential for prefabrication of building elements in relation to traditional methods of woodworking. With an associate, H. Bernoulli, he produced extremely detailed studies for joinery in the Villa Mairea for the Gullichsen family, while also working on the factory buildings for the Ahlstrom paper company.

29. See letters concerning lectures to be given in Bordeaux in 1929 to help the sales of his low-cost housing in Pessac. E.g., Le Corbusier to Monsieur Denis, Bordeaux, 29 April 1929. Archives FLC.

#### Figure Credits

1, 3, 5, 9–15, 17–22 Courtesy the author.

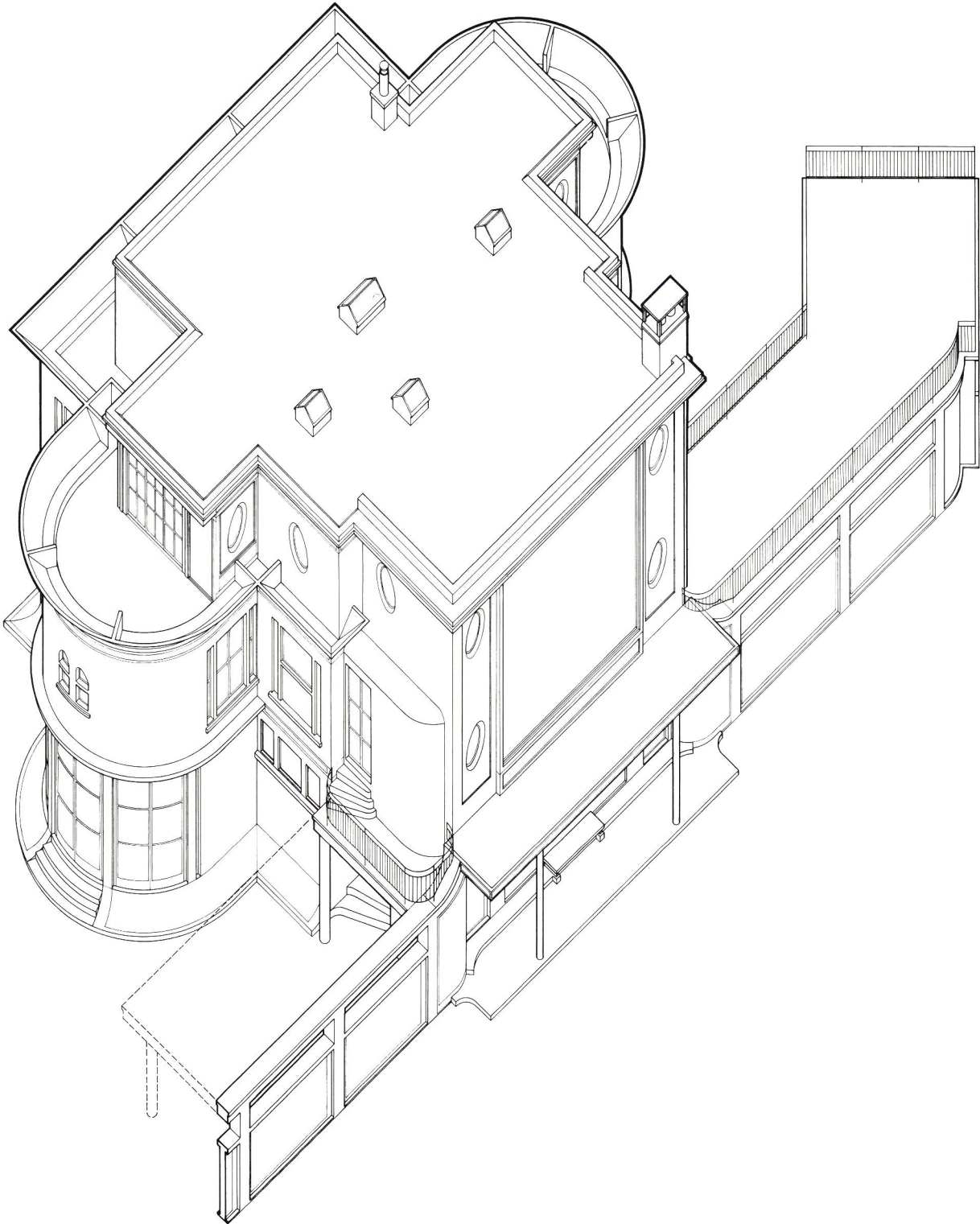
4, 6, 8, © S.P.A.D.E.M., Paris/V.A.G.A., New York, 1980.

2 Drawing by H. Lapprand.

4, 8 From *L'Architecture Vivante*, Spring/Summer 1931 (New York: Da Capo Press, Inc., 1975).

6 From *L'Architecture Vivante*, Spring/Summer 1930 (New York: Da Capo Press, Ltd., 1975).

16 Photograph by Brian Brace Taylor.



## A Villa of Le Corbusier, 1916

Julien Caron

Translation by Joan Ockman

In his remarkable articles in *L'Esprit Nouveau*, Le Corbusier-Saugnier, architect, has modestly occupied himself with nothing but the relations between the engineer and modern construction in order to demonstrate the primordial conditions of architecture: the play of forms in space, their conditioning according to processes of construction. He has shown what calculation can introduce into a great architecture, how the present means of construction (financial and technical) offer resources more vast than those of past epochs.

An artist himself, Le Corbusier knew how in his articles to momentarily abstract such qualities of sensibility as allow the artist to extricate, above all, the methods of the engineer, methods that each architect must possess today. Without full possession of the qualities of the engineer, the architect-artist is not able to use his creative imagination fruitfully. The spirit of reason and the spirit of "finesse" ought to be intimately linked in him and to operate not successively as so often is the case, but simultaneously, according to the choice of the particular subject. The artist cannot content himself with being the rectifier of the engineer. The artist and the man of science, as a single man, ought to labor in a single moment; and here lies the immense difficulty of architecture.

Human nature is such that minds of this sort are rare: all reason and the man is an engineer; all sensibility and he risks being only a decorator; neither of these two men is an architect. How many architects are there really?

Architectural conception is of the nature of the conception of all plastic works: that is to say that it necessitates the alliance of reason (order) and a certain lyricism; but in architecture, the extreme presence of multiple necessities prodigiously complicates the problem.

Contemporary architecture is in a period of follies, the fatal consequence of a schism between the particular conditions of architecture which are on the one hand all those which arise from progress—means of construction acquired by the disciplining of materials, absolutely new programs which are the product of the violent evolution

of society, etc.—and on the other hand the great constants of the plastic arts which are eternal because they depend always and exclusively on light (volume) and proportion (mathematics).

A house and a palace are organisms that are no longer fictive like the musical or pictorial work, but real, with practical ends. Who does not comprehend the complexity of the architectural work?

Thus, for example, a window, in order to relate plastically in a facade to some other window and to the ensemble of the facade, must be at certain distances, must possess certain dimensions, must be of a certain proportion, and yet its place cannot be fixed without a direct concordance with conditions of utilitarian order totally alien to the plastic one. It must be placed where it fulfills a determined function.

The facade is only the counterpoint of the interior, which itself is only the expression of the plan, which is governed by the needs and necessities of terrain, of climate, of processes of construction, and especially by the particular goal of the house. Nor can it be of concern in an organic work to create a pleasing facade to the detriment of the purposes of this facade. The functions of this facade (in as much as it is a punctured wall) are to respond in a useful manner to the division of the rooms and their illumination. The plastic qualities of the house are determined by the eurythmy of the volumes; how many times do the windows (punctures) come to destroy their plastic qualities? If one followed the aesthetic views of Guyot, the facade would be as beautiful as it was useful. Yet it ought also to be as beautiful as possible according to plastic conditions only. To make an organism with both excellent practical qualities and excellent plastic qualities—here is a problem which is no longer for the engineer but for the architect. When the architect has determined and then disposed of the different surfaces which respond to utilitarian needs; when, not without difficulty, he has established the utilitarian relationships by taking account of necessities of service, of orientation, of hierarchy; when finally, he has grouped all the elements according to the minimum ex-

188 pense; then at that moment he has determined, by his *plan*, the volumes which will inevitably come to be erected, one above the next, and which together will come to form a mass in the landscape, a mass which will be a house. What will this house be like? It is necessary that it be beautiful; and this is no longer a problem of the engineer; it is a problem of the architect.

A bedroom is a volume, a measurable space which impresses one according to its three dimensions; the succession of the different volumes of different bedrooms registers strongly on the viewer and constitutes one of the main aspects of architectural sensation (let us note in passing that architectural sensations are among the most intensely felt, along with musical sensations, even if they are often involuntary on the part of those who undergo them; architectural works attach themselves more directly to memory and propose themselves with more force than pictorial works; architecture is like music, it acts forcefully and immediately because of the important physical reactions that it provokes). This sensation obtained through the experience of several rooms is of the order of volume before all and above all. Other sensations are added to it: that of the order of light (illumination); of color, which follows; of the order of decoration, which comes last. To arrange the successive volumes being offered to the viewer passing from one room into the next, is to do what a musician does when he orders the successive phrases of a musical composition. By the volume, the architect acts *principally*, whether it be at the Coliseum, Hadrian's Villa, or the "Hangman's House" of Cézanne. The lesson of Pompeii is a lesson of volume. It bears equally on the important question of the opening and the proportion of doors in the wall. The dimension of the doors and the dimension of the rooms; the proportion of the wall and the proportion of the door are, for architecture, similar to the valencies which determine the individuality of the human body.

Certain aestheticians have attributed characteristic subjective significations to the play of diverse ground levels in an architectural ensemble which are perfectly true, controlled, and perceived; one step, three steps play very

different aesthetic roles. The flow of light into a work of architecture is one of the essential factors; a room can be transformed according to whether light penetrates well or poorly. Full clarity of diffused daylight reacts strongly on our sensing system; architecture has its *chiaroscuro*—physical *chiaroscuro* and psychological *chiaroscuro*.

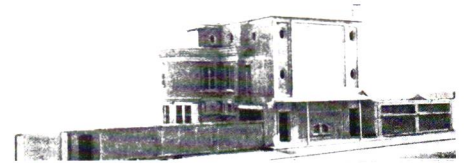
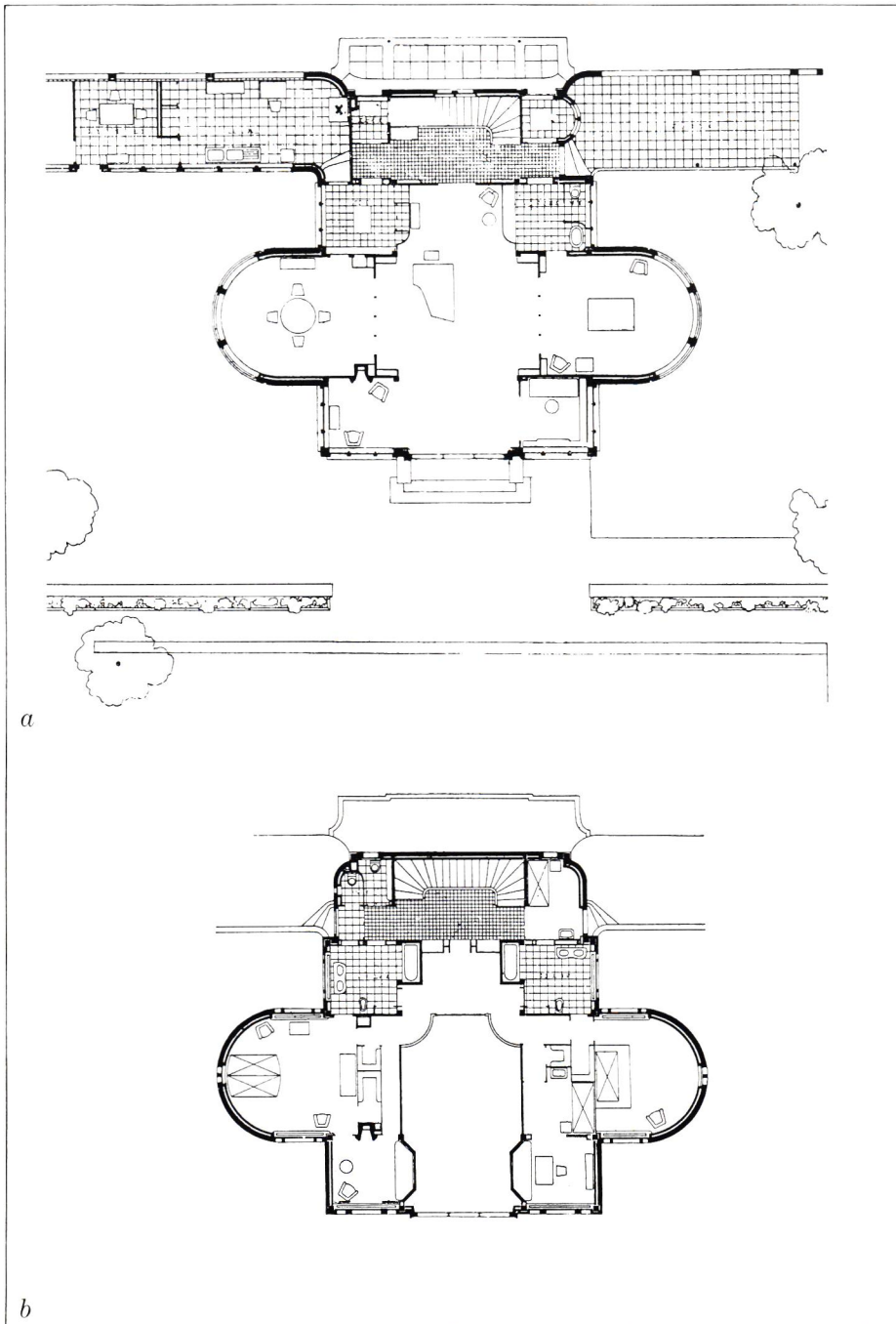
In conclusion, architecture acts by volume, by light, and by the relations of dimensions—foundations of plastic invention which one must reconcile with exigencies of a practical order. One face of the problem addresses itself to the engineer-architect, the other to the architect-artist. The solution cannot be the work of an engineer nor of an artist working independently of the other, or even in successive collaboration. It must be the result of a constant and intimate creation in the same brain, in a single individual possessed of both plastic qualities and complex ingenuity, qualities capable of satisfying our epoch's need of comfort and the demands of a taste more informed than ever.

Architecture actually is the least liberated art. All the epochs of the past weigh upon it. Among those of the profession, when one speaks of taste, one hardly hears oneself anymore; one lives in a confined atmosphere, full of the musty odors of past time. In any other profession, one would go mad! Here one exploits tradition. When one has, at this point, the slavish respect for "the art" and for "the past," one sacrifices through narrow borrowings to the masks, the costumes of this past: to the reign of pilasters, of architraves, of manners of doing, of "styles." Everyone is reassured when a facade is ornamented. Péladan proclaims a law stating, on pain of imprisonment, the employment of the styles. Architecture has displaced its own field of application. It is all in the facade, in the decoration of the facades, and the plan is nothing but the annoying part, the "so much the worse"; the facade is the "so much the better." One sighs, one opens his buttons, and one designs consoles, cast iron objects, handsome Corinthian columns, corbels of roses. When the hour of the facade is sounded, the sculptor with the long white beard and white smock mounts the scaffolding in an evocation of the exquisite hours of the High Renaissance; the

2 Villa Schwob: a) first floor plan as published; b) upper floor plan as published.

3 Title page to original article in L'Esprit Nouveau, no. 6.

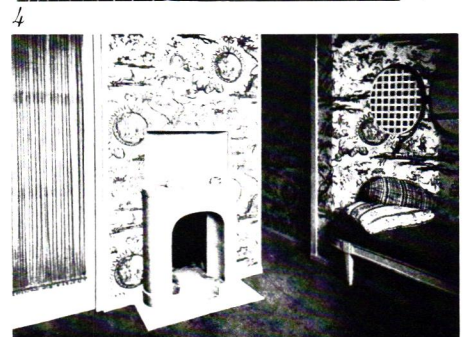
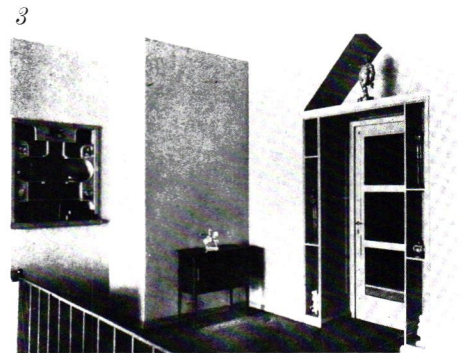
4, 5 Interior views of gallery and boudoir on the first floor level. Despite Le Corbusier's disclaimers in the text, the original interior seems to have been subject to his control. Note the Hoffmannesque detailing and the plan incorporated into the bookcase.



## Une Villa DE LE CORBUSIER 1916

Dans ses articles remarquables de *L'Esprit Nouveau*, Le Corbusier-Saunier, architecte, avec modestie, ne s'est occupé que des rapports de l'ingénieur avec la construction moderne, afin de mettre en évidence les conditions primordiales de l'architecture: le jeu des formes dans l'espace, leur conditionnement par les procédés de construction. Il a montré que le calcul peut introduire à une grande architecture, que les moyens de construire actuels (financiers et techniques) offrent des ressources plus vastes que ceux des époques passées.

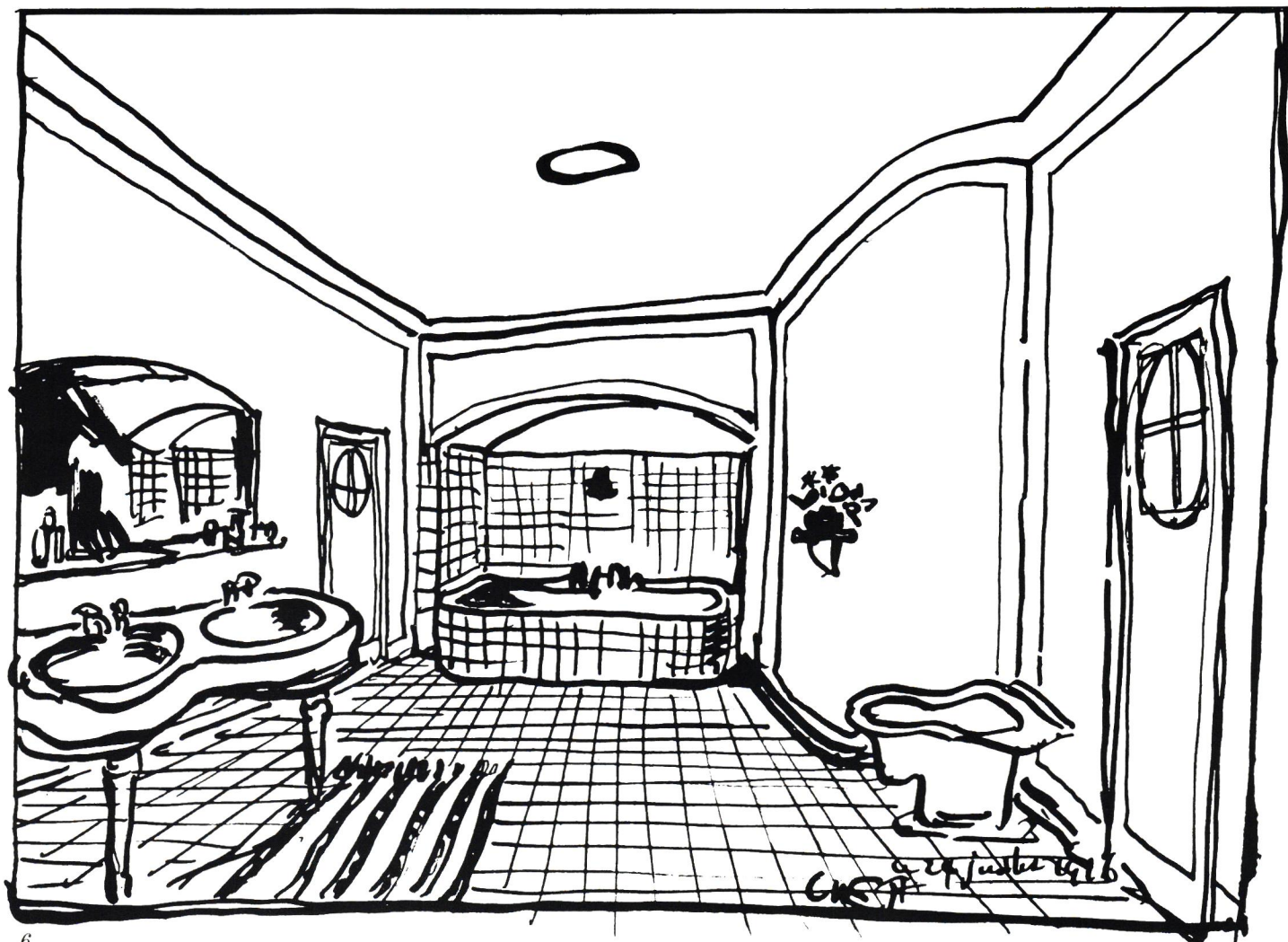
Le Corbusier sut, dans ses articles, lui artiste, faire momentanément abstraction des qualités de sensibilité qui font l'artiste, pour dégager, avant tout, les moyens de l'ingénieur,



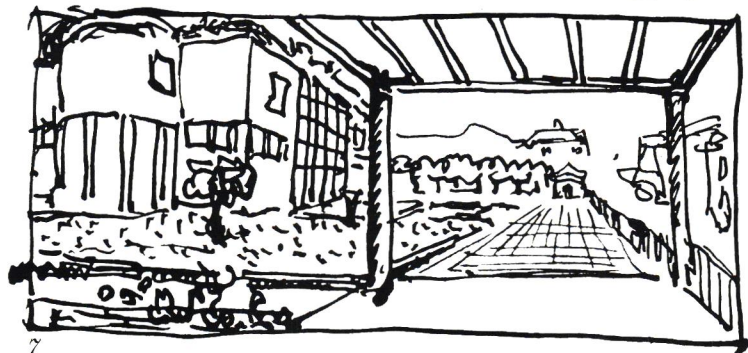
6 Initial sketch of the bathroom in the Villa Schwob, otherwise called "Villa Turque," 1916. Once again the influence of Hoffmann is evident.

7 Perspective sketch of house and garden loggia.

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6



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architect is content to say to himself, "I am an Architect."

And all the same, this man is a criminal.

A house is an important object which holds a space, which everyone is obliged to see, it is expensive, and it can endure for centuries.

This man is a criminal because his work importunes society. The canvas of a bad painter occupies a corner of a private wall, and no one is obligated to read the novel of the worst writer. The architect is one of the moving wheels of society. He participates more than one realizes in the fortune and misfortune of this society. If Paris is such a desirable abode, it is because of its architects—of former times. If Berlin arouses the spleen and pushes its inhabitants to the conquest of the Ile de France, it is because of its architects.

Each new product of reason has always provoked a discord with sensibility, a simple phenomenon of instantaneous liberation on the one hand and of the *retardataire* attachment to familiar habits on the other. Reason liberates itself easily, while feeling is more recalcitrant. One easily admits a mechanical invention, but one shudders before a new painting. Thus, in architecture, reinforced concrete has provoked the most violent reactions, and if its technical development has followed a regular and astonishing course, its plastic expression has not yet been manifested.

Reinforced concrete carries with it great liberties: like all liberties it entails strict rules and demands discipline; if it permits the crossing of great spaces, it imposes the need for precise calculations.

The aesthetic of reinforced concrete is in the period of unconsciousness; on a certain side of the barricade, that is among the engineers, where reason dominates, this aesthetic is being developed with ease (in factories, silos); on the other side, among the architects, where feeling acts, memory and the persistence of tradition befuddle and paralyze.

It remains to confront the bases of architecture—volume, rhythm, and modulation—with rational problem-solving techniques. Only on these bases will one attain an aesthetic.

Le Corbusier, after having solved numerous functional problems, had the occasion, in 1916, to do a work of architecture: a villa for a rich bourgeois client. In itself, the problem was banal; a comfortable apartment with its salon, bathrooms, servants' quarters, etc.

He was not permitted to be innovative in the plan, nor to introduce new arrangements which might be the expression of new needs and desires as well as of a new manner of living and a new philosophy of life. Few people have reflected on this question and conceived of a truly modern house which would adapt its ways to ends which are truly expressive of our life. A large part of the society lives a life which is totally different from that which was possible during past centuries; yet we still live in old places and the problem of the plan remains suspended: it awaits its architect.

Modern life implies a new organization of private life; this organization has not yet been formulated; but all the more has it been vaguely sensed by certain people.

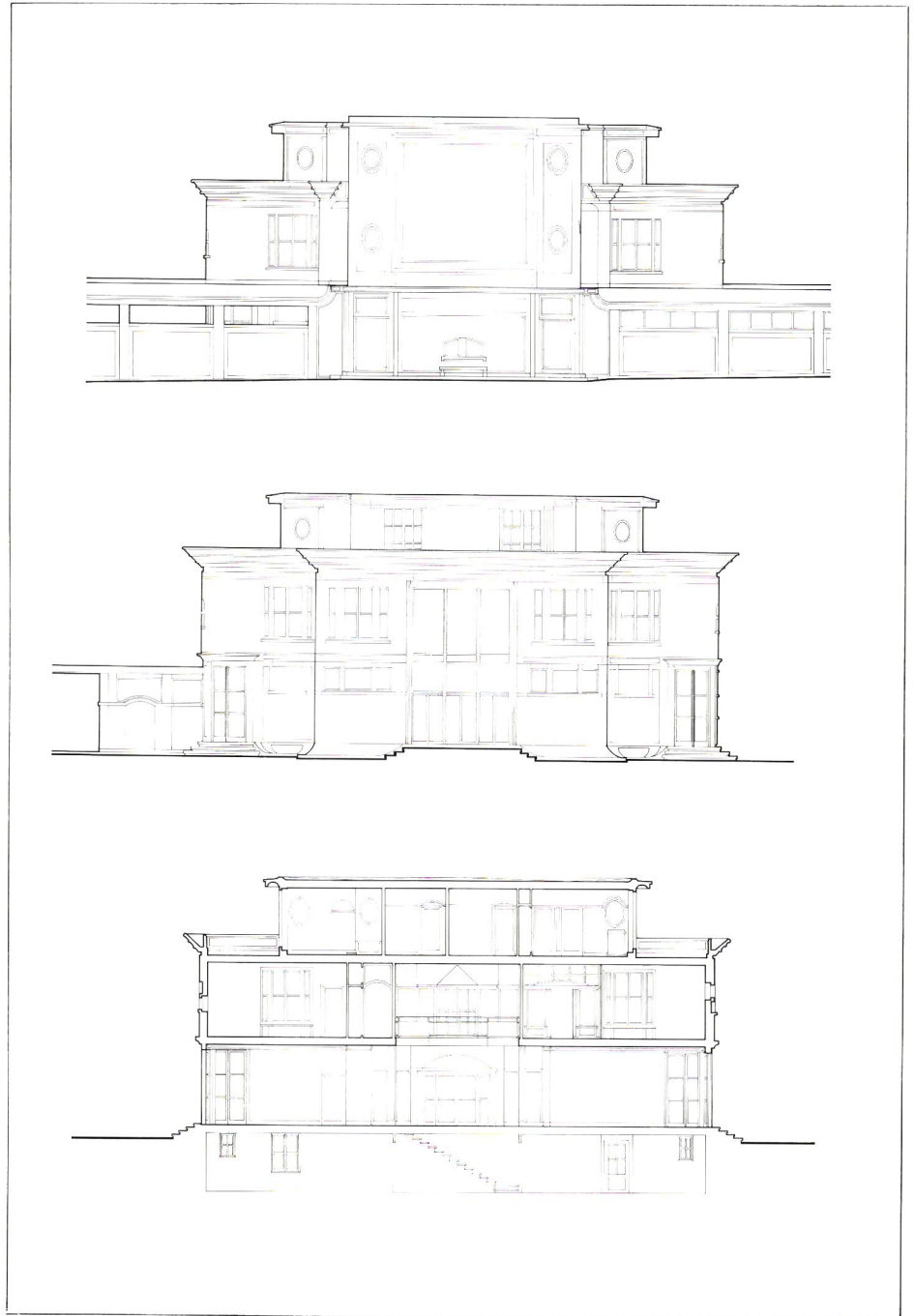
It was not opportune for Le Corbusier to attempt here the solution of this new problem.

What is interesting in the work of Le Corbusier is, on the one hand, the search for an architectural aesthetic of reinforced concrete, and on the other hand, the search for proportions, the application of canons, in a word the search for a true architecture.

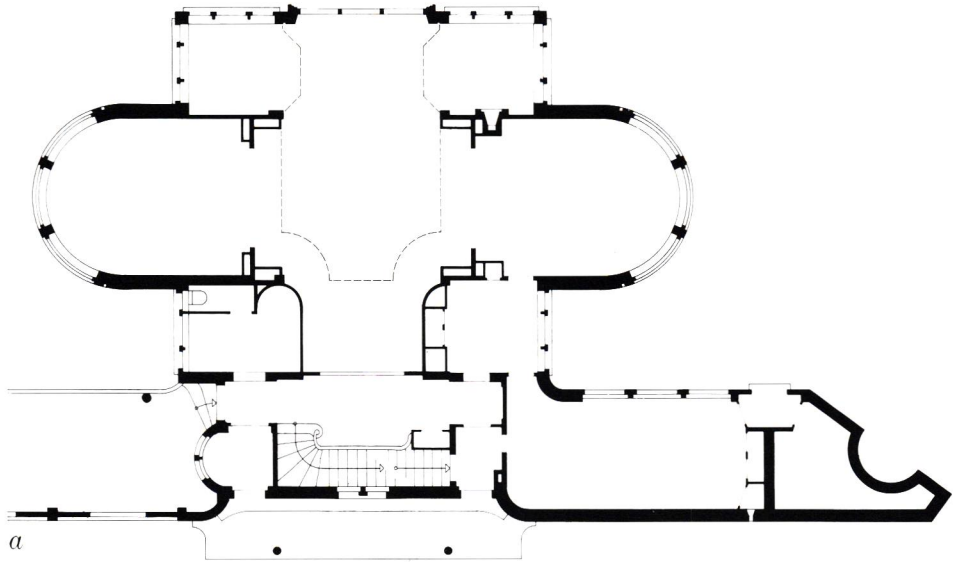
Nevertheless, the conditions of pragmatic and functional order of which I have spoken above had to intervene in an important way since this villa contains all the comforts that one can decently demand when one restricts oneself to a normal budget.

In commissioning him at the end of August Le Corbusier's

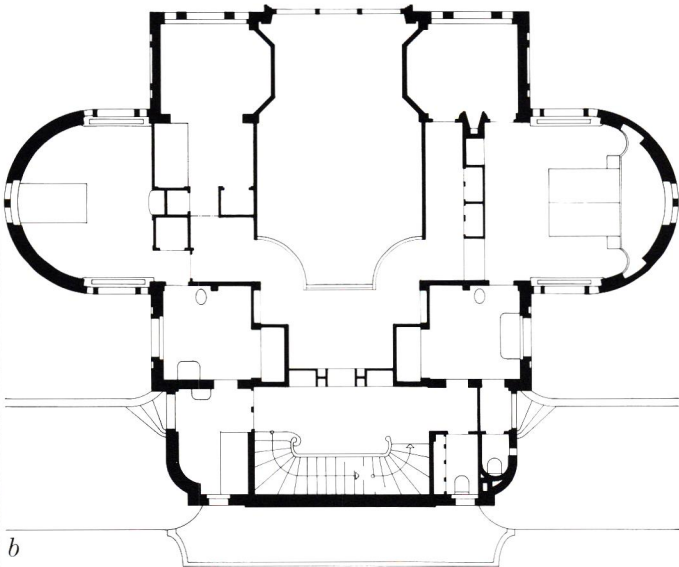
192 8 Villa Schwob, 1916. Elevations and section. The upper and lower elevations are for the street and garden respectively. 9 Plans: a) first floor, b) second floor, and c) third floor. Note that these drawings vary somewhat from the original. They correspond closely to the modifications made by Mangiarotti in the early sixties.



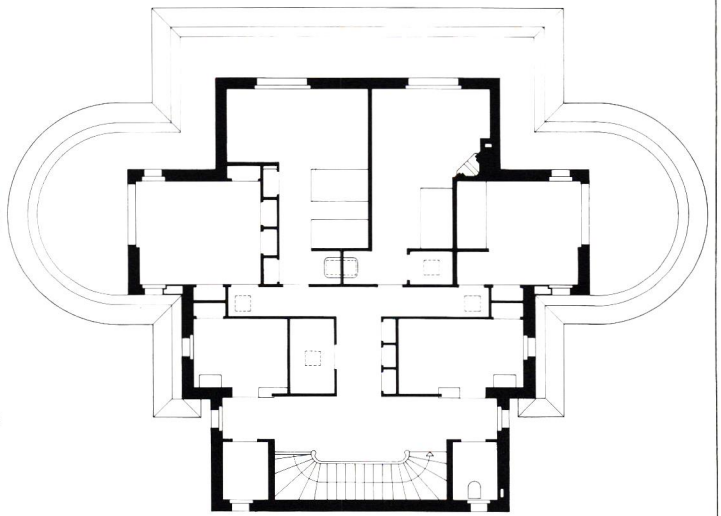




*a*



*b*

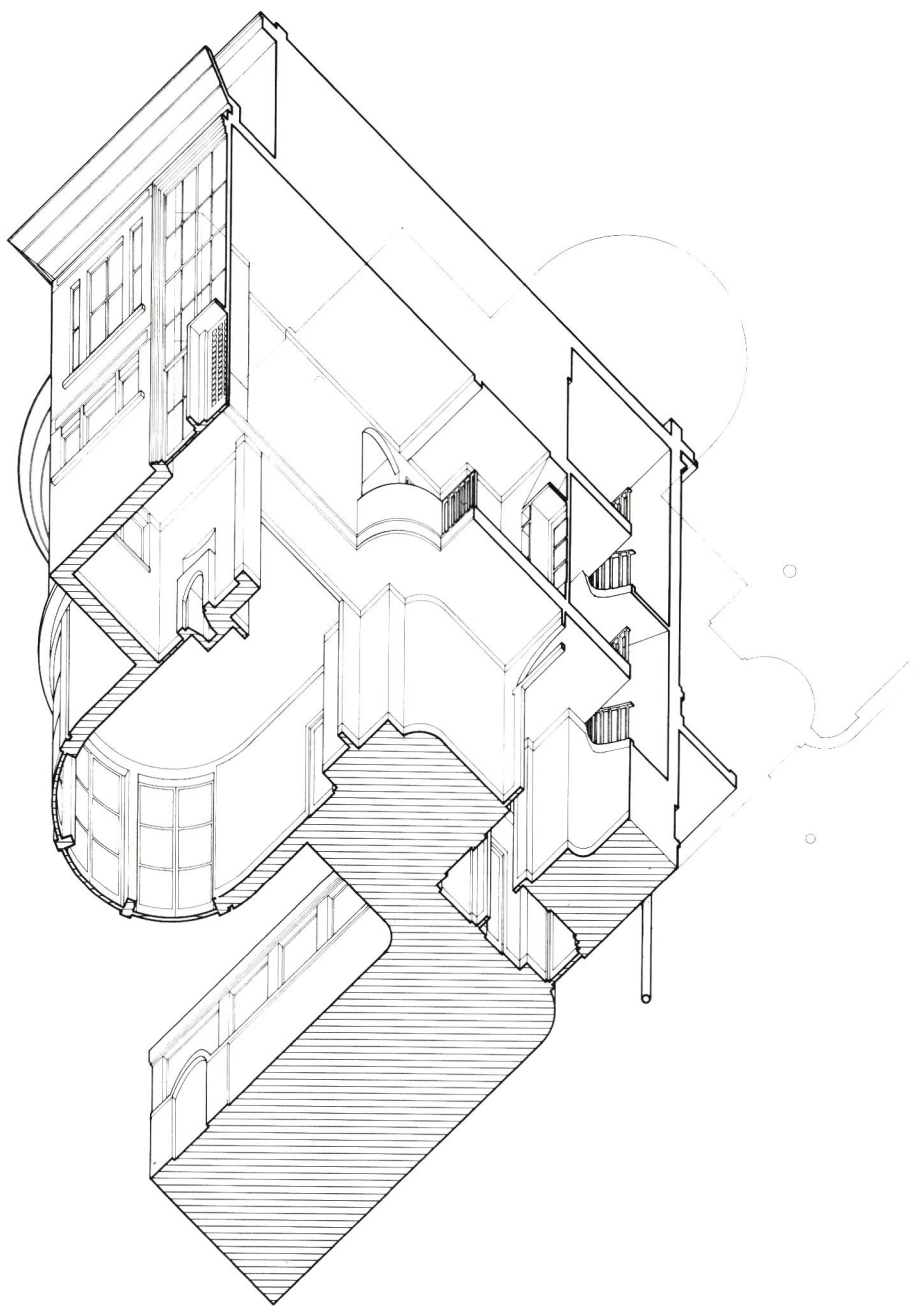


*c*

10 Cut-away axonometric showing  
volume of double height living  
space, etc.

11 Villa Schwob, 1916. End  
elevation.

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client demanded that the roof be up before winter. Reinforced concrete alone provided the solution, Le Corbusier erected groups of four columns of twenty centimeters on a side to carry the floor slabs and in this way within several weeks reached the roof, which was completed with its covering before winter arrived (a winter in the mountains with a meter and a half of snow and temperatures of minus twenty degrees centigrade). The masons, in the middle of hailstorms, had only to fill in the bricks in the intervals between the columns and the slabs, bricks that were thawed on braziers and laid with mortar to which anti-freeze substances had been added.

The whole house is carried on four interior columns, and the partitions are no more than membranes utilizing the insulating properties of the steel which constitutes them.

Such progress has singular consequences: the central heating which sends a continuous and intense warmth into the roof no longer tolerates the old pitched roof which drained water to the outside; in winter this water, produced by the snow melting because of the interior heat, would become cold and freeze in the gutters, provoking disorders which architects generally did not dare to remedy in a definitive way. Central heating no longer demands roof-timbers but a copper roof from which water flows to the interior of the building where there are drain-pipes that are maintained at an elevated temperature. *An important aesthetic consequence!*

Furthermore, liberation and gain; gain of money for one; also gain of one of the best usable surfaces (the terrace so much envied of Mediterranean countries); and aesthetic gain—the cube replaces the hesitant pyramid of the roof and suppresses the vexing lack of homogeneity between the roof surface and the wall.

Le Corbusier-engineer, by discovering this solution, aids Le Corbusier-artist.

Judging rightly that light is one of the joys of existence, Le Corbusier addresses the difficulty of creating a large window, even one that is double-hung, in a cold place. very



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A room can be overheated; a large piece of glass will transmit heat in spite of all the continuous waves of cooled air in the center of the room, rendering it uninhabitable (like the halls of palaces). Le Corbusier-engineer furnished the solution himself at Sulzer; he placed heating pipes between the two panes of the double glazing; of one of the cooled surfaces, he made a neutral surface. Light could be admitted from then on as an aesthetic element.

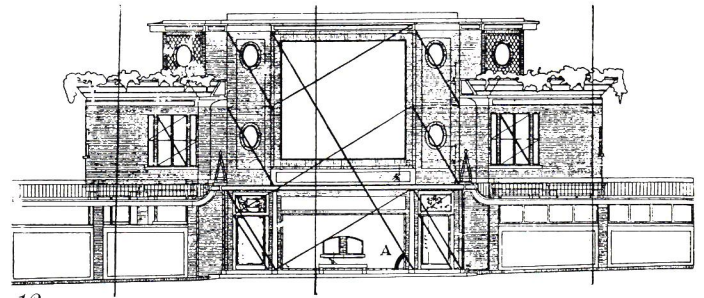
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It was necessary to bring to each corner of the house hot water, cold water, heat, electricity, ventilation; to remove plumbing water, roof water. The thin double-hung windows made of steel filling the space between the reinforced concrete columns accommodated these innumerable pipes, the veritable viscera of the modern house.

One can measure by this, once again, the necessity for the control of the engineer by the artist, and vice-versa, and their intimate collaboration; is it possible to believe that two specialists, an engineer and an architect, could solve such complex problems so well alone?

Reinforced concrete has found a certain plastic expression in large industrial construction. It has up to now always been considered by architects as a poor and ungracious material, and it has only been tolerated in order to permit certain liberties which other means of construction do not allow. In architectural circles it is permissible to use reinforced concrete when one no longer knows which saint to address one's prayers to for a solution to a structural question. Truth to tell, it is made to do unlikely things, and the engineer is called to the rescue like the doctor in a grave situation.

Certain architects have always, in an effort that was too precipitous, sought aesthetic solutions in reinforced concrete, and fragile theories have been applied. Thus we have seen houses covered in ceramic "scales" that resemble lizards. Thus, as part of an entirely different aesthetic order, we have seen houses with viscous forms, under the pretext that since concrete is a plastic material, since it is fluid, one should make the house resemble something which has been cast, and houses should have the appear-



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196 ance of immense tortured candelabra, desperately sad in their gray epidermises and especially desperately inauthentic, unharmonious, crying out their error and destroying yet again the fragile means which created them.

Reinforced concrete is a liberating process in that it takes considerable loads, and suppresses the need for bearing walls, thus aerating the structure. Moreover, reinforced concrete, contrary to what was just claimed above, proceeds above all from the right angle, from the horizontal which here takes a decisive importance. Arches and vaults, save in certain very specific capacities, no longer have anything to do with reinforced concrete.

In affirming that reinforced concrete is liberating, we do not deceive ourselves, for one must remember that vaults, arches, and so on in the history of construction have been constraints imposed by imperial necessities, entailing unpleasant efforts and expenses. But today, among architects, arches and vaults have become the most spontaneous elements, without any memory of the reason for their evolution—selection and economy.

Reinforced concrete, aside from a number of other aesthetic consequences, maintains this fundamental condition of the right angle, which is a condition worthy of this time and worthy of satisfying the people of our time. But, it is precisely this innovation which is still displeasing to architects; even nationalism has become mixed up with it and certain fine spirits have decreed that the straight line is German (witness the Parthenon, the Egyptian temples, and palaces of Gabriel). The straight line is one of the rights of man.

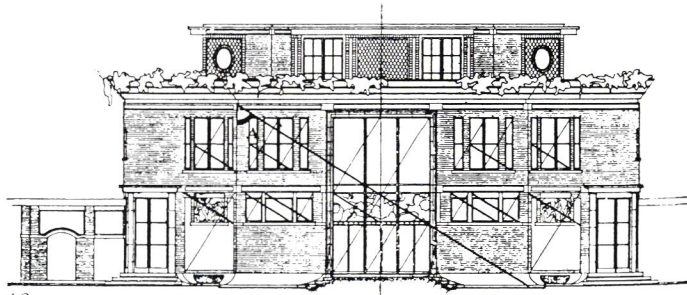
In his villa, Le Corbusier has adopted an extremely daring plan, since the whole house rests on only four small interior columns of twenty centimeters. The walls of former days, thick and cumbrous, have been replaced by insulating membranes with cushions of air that are thin as a shell. Large air conditioners with double partitions of eleven centimeters and an air space between these partitions have been constructed; and this light, economical, and useful system Le Corbusier has applied to his villa.

Outside of this structural application, Le Corbusier has resolved a delicate problem; having been given the task of creating a work of pure architecture, he has made a plan whose volumes are of a primary geometry: the square and the circle. This stratagem has rarely been tried in the construction of residential buildings, except in the Renaissance. But then again, the use of large simple prisms, of cubes, of cylinders, and so forth entails as a consequence certain constraints whose result has been a compromising of the comforts of living. Here the difficulty has been to compress into a framework as formal as the plan the complicated organs with complex connections that are necessary to the dwelling of a rich bourgeois.

On the exterior, Le Corbusier has manifested his aesthetic concept of reinforced concrete. Neither impoverished nor bursting with gleaming scales, the concrete appears as a skeleton, as is most useful, as a firm armature, without any more pretension than in the human body where the bones give to the posture and the spirit the satisfactions of security and beauty. The interior of Le Corbusier's villa is a knowing arrangement of volumes engendered by an intelligent and clear hierarchy, in accord with the resources of the light which is distributed through the rooms and determines the character of each one. No decoration intervenes to differentiate the rooms from one another. The form (the volume) suffices here, as does the light streaming through the windows positioned and proportioned according to their function. What is striking in this house is the smallness of the dimensions and the impression of architectural grandeur which is developed in all its parts, as much in the interior as on the exterior.

My role is not to praise in words the work of Le Corbusier; the photographs illustrating this article will permit one to appreciate the sureness of the taste, the fecundity of imagination of the author, the discipline which reigns everywhere; but as much as photographs are already misleading when they reproduce surfaces, they are all the more so when they pretend to reproduce volumes.

I have visited this villa. There is an ease, a cohesiveness to the volumes, to the surfaces, and also a science of the



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detail, infinitely rare in our day, of that which most people call the “details,” the moldings in particular. It is perhaps in the moldings that one recognizes the limits of an architecture: they are almost the signature of an architect. The architect who is capable of making a good plan is led in a certain measure by this plan when he creates the volumes. But when it comes to the moldings, nothing any longer guides him but his imagination, the sureness of his taste, and his own aesthetic; and it is necessary to underscore this point. The moldings are so precise in this house, so perfectly adapted to its ends, so much in accord with all the rest, that during its construction the error of a plasterer (an error of eleven millimeters in a profile) completely destroyed the harmony of the living room; it was necessary to do it over again. One should not think we are exaggerating: it is a precise fact that true sculptors will understand, but which will astonish most architects, who are not able to appreciate that architectural proportions are measured to the millimeter. We believe that Ictinos was very much of this opinion. To be an architect is to be able to comprehend this and to be able to accomplish it.

The reader might fruitfully refer to the substantial articles of Le Corbusier in *L'Esprit Nouveau* numbers 1, 2, and 4. We reprint here two plates which appeared in “Tracés régulateurs” (*L'Esprit Nouveau*, number 5) and which allow one to appreciate the modular methods which Le Corbusier has recaptured from so many past masters, in spite of the paradoxical and blind opposition of our contemporaries.

The house constructed by Le Corbusier is a reasonable house, but it is also certainly one of the first realizations of the specifically modern problem of reinforced concrete. This is worth pointing out because it constitutes a beacon for the architectural aesthetic of our time.

For the first time, perhaps, there is no affectation arising from the technique used; pragmatic solutions are achieved with ease and in complete accord with the plastic conditions; there is a remarkable accord of practical, structural, and artistic necessities.

The villa of Le Corbusier is more than a house. It is an architecture. 197

#### Notes

*Source note: This article was originally published in French as “Une villa de Le Corbusier 1916,” in Esprit Nouveau, No. 6, (n.d.), pp. 679–704. This original publication included a large number of photographs of which we have selected six: Nos. 2–5, 12, and 13.—Ed.*

1. The wallpaper, the pictures on the walls, the little pieces of furniture with their knick-knacks are the brutal ransom exacted by the taste of the client. When the architect gives back the keys of the finished house he has a shrinking of the heart; he knows that the proprietor, whom he considers a vandal if he so much as lightly touches a picture, will not hesitate to paint the walls with tempestuous papers that will disturb the spaces, to encumber the rooms with furniture not carefully selected which annihilates the value of the volumes, to hang up pictures and prints which disturb the order desired by the architect. It is for this reason that we are able to reproduce here only the secondary rooms of Le Corbusier's villa, the corridors, the roof, etc. . . .
2. Le Corbusier has asked me to render to Caesar that which is Caesar's. Ten years ago while working in the office of Auguste Perret, for whom he maintains a high esteem, he had the opportunity to design on Perret's instructions a project for a villa, which was born of the ingenious initiatives of that fine architect, but which sacrificed itself to the “expressiveness of construction” which was the style of the day. In 1916 a client of Le Corbusier, leafing through a portfolio in his atelier, fell upon the drawing reproduced above [not reprinted here] and said: “Make me something similar.” Le Corbusier is very happy to mix in his work the memory of his old master Auguste Perret.

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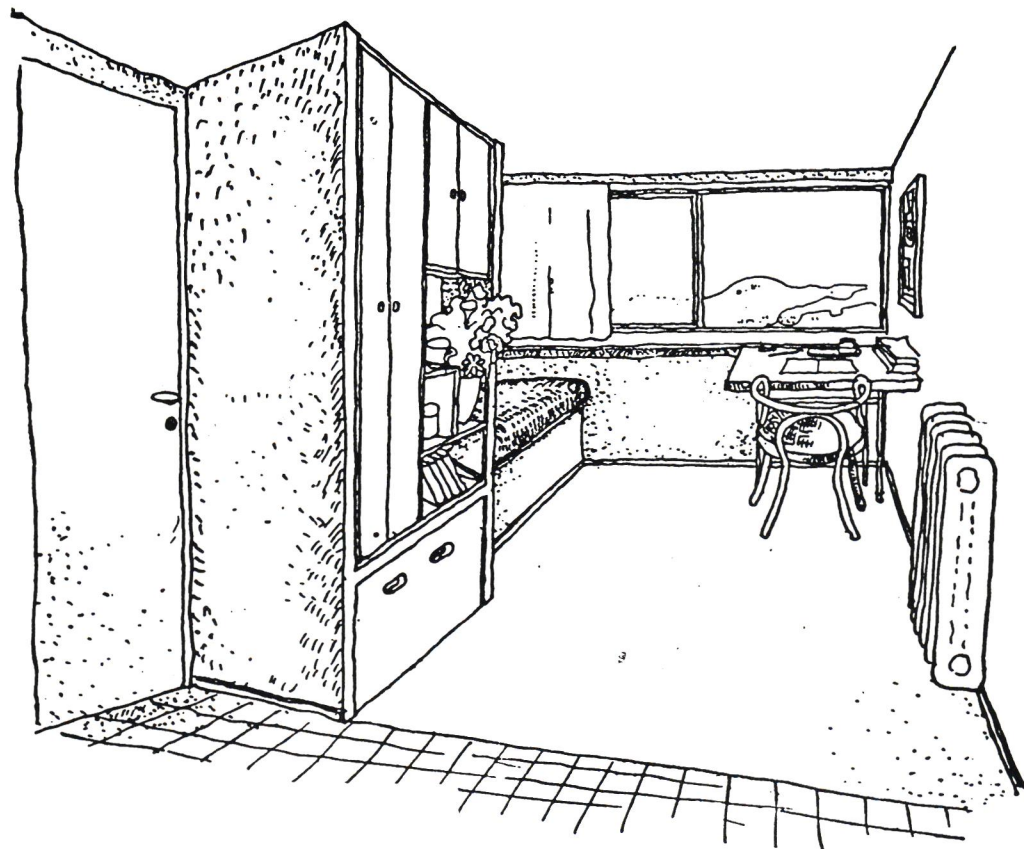
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1, 8–11 Drawings by Val Warke.

2–5, 12, 13 From *L'Esprit Nouveau*, No. 6.

6, 7 From Jean Petit, *Le Corbusier lui-même* (Geneva: Editions Rousseau, 1970).

1 Guest bedroom with pull-out and sofa beds, Weissenhof Garden City, Stuttgart. Le Corbusier and P. Jeanneret, 1927. Drawing by A. Roth.



## The Significance of the Garden-City of Weissenhof, Stuttgart (1928)

Le Corbusier

*Translation by Christian Hubert*

Some more or less interesting controversies have issued from the confusion which the Werkbund exhibition in Stuttgart aroused in the public mind. Architects of some merit worked there with complete disinterest. They satisfied a segment of public opinion and occasionally even created some enthusiasm. On the other hand, they stirred up the considerable mass of spirits and appetites that one can call bourgeois; and here the word bourgeois simply means, "I don't want to change my habits one bit, I want to go on being just like 'Mister Anybody'." There is no doubt that such protestations are absolutely legitimate. We might also admit that we are entirely indifferent to them, for we have never sought to achieve that miracle of provoking the development of the ideas of the great mass. It is much more reasonable to admit that any development affects restricted circles, which widen bit by bit and finally end in the overturning of the general conditions of the social state . . . just like sound waves or stones dropped in water, etc., etc. . . .

Let's talk about Stuttgart: so as not to commit any injustice, we will content ourselves with talking about the two houses which we built: Groups 1 and 2, Le Corbusier and Pierre Jeanneret.

We find from the imposing mass of criticism that many types of families were not accounted for in such constructions, in particular the innumerable German families with four, six, and ten children, etc. Now that this objection has been made, we are in a position to clarify the aim which we pursued.

I will attempt to make clear the reasons for modern architectural evolution.

We should point out right away that as far as the dwelling in particular is concerned, this evolution can only be dictated by one imperative aim: to *attain the affordable*. And here I must loyally declare that the prices of our houses in Stuttgart were extremely high; they were that way because the contractors were so impressed by the large pile of exact plans that they received that they assumed that these houses were complicated to build. They even

admitted to me that they were not used to reinforced concrete, and this admission makes it unnecessary for me to analyze the high price of their contracts, completely out of proportion with those we have in France. . . .

I said that our aim is to attain the affordable. And the affordable can only be attained by standardization, industrialization, and Taylorization.

Standardization means researching and fixing type-elements that conform to and fulfill precise functions, such as, for example, column elements, beam elements, window elements, stair elements, etc. . . .

Industrialization: once constant dimensions have been established, it is possible to equip machines which will reduce hand labor.

Taylorization: this workmanship is specialized in the fabrication of standard elements; the worker always executes the same piece of work and a considerable amount of time is saved; more is produced and of better quality.

This program has been known and discussed for some time; but it is now a matter of leaving the realm of theory and entering that of facts. One must have, above all, an exact conception of the field of activity of this program, and here is the affirmation that I allow myself to submit to your judgment: it is not a matter of standardizing houses, little houses, bigger houses, or very big houses; it is a matter of standardizing a system of structures . . . . I am not saying that one should seek to bring industrial progress to the plans of new houses, *but a new system with a structure rich enough in consequences* to be able to determine an infinite variety of plans, to respond to the multiple modalities of life, to respond to widely differing conceptions of existence, to respond to small programs, medium or large ones. **TO CREATE A SYSTEM OF STRUCTURE!**

All periods of architecture are based on a system of structure that is destined to resolve the most diverse problems of domestic usage, the most numerous adaptations: the

200 Gothic ogive served to construct cathedrals, but chateaux as well, fortresses, warehouses, etc. . . . The construction of a house *in stones*, under the kings Louis XIV, Louis XV, Louis XVI, under the Empire, under Napoléon III, leads us to the very limits of comfort. No new initiative was possible beyond these limits because the technical means were extended to their limits and had furnished their every resource. And here is a recent example of the multiple use of a system of structures: Auguste Perret has created in Casablanca docks of reinforced concrete which exploit the ultimate capabilities of reinforced concrete: columns and abutting flat arches. Now he is asked to do a church; this is no warehouse for barrels or packages of merchandise, but a warehouse for worship (in Raincy). The Casablanca warehouse becomes the house of God, and the church becomes a type for modern religious architecture. And if this warehouse has become a religious monument, it is because the *interior program* enclosed by this structure consists of the furnishings of a church; and so as not to seem totally barbaric to you, I will readily agree as well that Perret has chosen dimensions and proportions, that he has placed the light sources in such a way, that he has directed his work toward a manifestation of dignity appropriate to the house of God.

I was saying that in Stuttgart we wished to show the revolutionary architectural applications resulting from the application of the new structures to the construction of the house; and this standardized structure allowed as well for the standardization, the industrialization, and the Taylorization of the other constituent elements of the house. The standardization applies to the individual elements supporting the house: the columns and beams. I thus claim to be able to achieve a considerable decrease in cost, as we did in Pessac, where the price of the houses had nothing in common with those of Stuttgart. Standardization extends from the stairs to the windows, etc., elements that are generally costly. But this new system of structure is not only studied to attain a low cost of manufacture, but it is also conceived in such a manner as to offer new and characteristic architectural solutions. These characteristic solutions, in the present state of our research, provide the roof garden on top of the house, the *pilotis* beneath

it, the free plan inside, the free facades on the outside, and finally, the maximum illumination through the ribbon windows. This system of structure furnishes an *architectural stock*. I insist upon this word "stock," which signifies that an inventive spirit can apply this stock to the construction of a house as well as a palace. So these houses will be type-houses; but what type will they be?

And it is here that all the controversies concerning our participation at Stuttgart lie. The French language has provided a useful definition, thanks to the double meaning of the word "*type*." A deformation of meaning has led to this equivalence in popular language: a man—a type;<sup>1</sup> and as soon as the type becomes a man, we become aware of a considerable possibility for the extension of the type. For the type-man is a complex of a *single physical type*, to which a sufficient standardization can be applied, and a number of *different moral types*, which are consequently only standardizable by categories.

The physical type (the human body) is unique and standard, varying within sufficiently generalized limits for it to be possible to establish a standardized apparatus, typical and unique, which is perfectly suitable to it (train-car, automobile, bed, chair, armchair, glass, bottle, etc.). According to the same rules, which are sufficiently general, one can establish for this type a standard apparatus for dwelling: doors, windows, staircases, height of rooms, etc.

Here lies one of the essential points of the problem that concerns us: in order to satisfy the physical type, we create elements that constitute the apparatus for the household, standardized type-elements whose standardization will permit the industrialization of construction sites (which is to say the introduction of machines) and Taylorization of the work (that is to say, organization of teams of specialists).

But we must be aware, on the other hand, that the moral type is multiple but not infinite, that it still forms a certain number of categories.

And this plurality of moral types, which manifests itself



in different conceptions of life and its ways, combines with the diverse manners of grouping individuals (as far as the problem of habitation is concerned): bachelors, childless families, families with children (one child, two children of different sexes, three children of which one is a boy and two girls, four children, etc., etc.).

And these different conceptions of living, combined with the different groupings of individuals, *furnish an important number of problems of dwelling, with varying differences among them.*

So I conclude quite simply: it is an error to believe that there is a house-type. There are many different sorts of habitation. But the house has type *elements* (the letters of the alphabet) which lead to constitution of ensembles, houses (the words made with the letters) having an elementary and thorough unity among them, and consequently a common style.

The whole controversy over Stuttgart concerns this: the visitors who came to find something that could not be realized, that is to say, an omnibus-house capable of satisfying everyone, were astounded by our houses and led to exclaim, "My family couldn't live in this house!" My answer to them is simply this: "Were you able to pass through the doors, to see out the windows, to go up the stairs, to spend time on the roof garden, to pass under the *pilotis* of our houses?"

And I add, "You who are planning to buy a house, please fix your program: with the standardized and combinable elements that we have established we can, in accordance with your program, construct a house for a working class family with no children, with one or six children, as well as a house for an intellectual, for an aesthete, etc. . . . And the solution will be in proportion to the size of your budget." A house like an automobile, that's understood; but also tell me whether you are buying a race car or a car for the city, five horsepower or forty horsepower, etc., etc. . . . Please establish the *category*. We have established the *type elements* of a house and will combine them for your own use. . . .

In this manner we built, using the same elements (slabs, columns, windows, staircases, etc.), the houses of the village of Pessac, artists' houses in Paris, and the Palace of the League of Nations in Geneva.

In Stuttgart, after being vexed not to find the house you needed, you left full of blame, without realizing that with the absolutely revolutionary freedom furnished by the new technical means, we built two sorts of houses with completely different uses: one was a sort of sleeping and dining car combined, with equipment for day and for night; the other was a dwelling which derived a certain force and a certain simplification in its manner of living from the primitive hut.

During the day, the sleeping car became a parlor car (Group C2). One of these two houses would include three completely separate bedrooms, attached to each other by normal doors placed between the metal columns and the windows, and attached to the rest of the house through the famous seventy centimeter wide corridor which shocked so many visitors. This hall, of the same width as all the train cars in the world, through which thousands of travelers pass everyday in trains speeding at a hundred kilometers per hour, linked the rooms to the toilets, the lavatory, the bathroom, the kitchen, the roof garden, and the garden itself.

In fact, this "emergency" hallway was rarely used.

And this type of house permitted the extension of the apartment through the attachment of standard pieces 2 m. 50 in width, and the addition of one, two, or three bedrooms, etc. At the back of each of these cells or cabins measuring 2 m. 50 × 4 m. was a special and economical construction of reinforced concrete allowing the bed to be put away, and furnishing for each occupant a closet to hang clothes, shelves for clothing and bed linen, for hats, shoes, etc. . . . in short, a complete set of shelves calculated to replace all the pieces of furniture that usually clutter up a room, those traditional pieces that not only obstruct bedrooms, but oblige architects to build them larger, too large.

202 Upon getting up in the morning, the inhabitants of the house find their breakfast served in the parlor, which is an extension of the stairwell. One could also receive the occasional early visitor here. The maid has her room under the *pilotis* with direct and separate access to the kitchen.

In the evening, when the children are asleep, the father can work in complete tranquility in his study, which connects directly to the roof garden, and I can imagine that in fair weather those would be very pleasant hours for him, up there.

During the day, one can if desired make one big room out of all of these cabins, or out of two of them, which connects directly to the staircase. Our sliding partitions were designed to insure a much greater degree of soundproofing than an ordinary door.

In order to make our intentions comprehensible to the visitors to the exhibit, we wanted to construct a double house, so that one would be equipped for the *day* and the other for the *night*. But when we came to Stuttgart on the twenty-eighth of September, we found, to our regret, that both houses were presented with their *day* equipment, so that our intent remained incomprehensible.

The other house (Group C1) represents a way of living that is perhaps uncommon in Germany, but which offers a number of advantages to the Parisian.

One does not have to be one of those almost immoral "bohemians" to stand to live in such a house for ten days at most, as was pointed out in writing. The first floor, on the roof garden, includes two bedrooms for children with four beds, or one bedroom for children with two beds and a study.

The ground floor is double height, which is to say that it includes a loft 2 m. 20 in height.

The kitchen area, the W.C., and the maid's room are independent and clustered together.

Thus, once the children are in bed, Monsieur and Madame have at their disposal a vast space on the ground floor, a large boudoir, bedrooms, baths, W.C. under the eaves. Vast standardized closets separate these areas from the loft and correspond to precise functions.

I must admit that upon execution an important element was simply forgotten: sliding screens were supposed to be located on the parapet of the boudoir that opened up onto the living room, which would permit one to close off completely the domain of the bedrooms, the baths, the boudoirs. In the Pavillon de l'Esprit Nouveau, in 1925, we had already indicated this type of closure. A look at our plans and the re-establishment of this omitted element will suffice to convince one that it is no small matter.

We received many complaints about the large living room window. I created this type of window more than ten years ago, at one thousand meters altitude where the snow reaches 1 m. 50 in depth, and we also proposed the same system as a solution to the lighting and the heating of the Great Hall of the Assembly in the Palace of the League of Nations. It is in fact not a matter of a *cooling* surface, but on the contrary a *neutral* one. And this is achieved by placing the two windows sixty centimeters apart and passing the heating pipes *between* them. One thus creates a *warm* volume, and the panes of glass become a sort of greenhouse where plants can grow in enough soil and regular temperature; and these plants will make a charming curtain of greenery. This sort of window works equally well in our "Immeubles-Villas" in cutting off the outdoors in terms of the cold and of visibility.

And I claim that in such a house a great number of *normal* families that love comfort, space, and light could find a home endowed with a certain splendor, quite different from the little rooms all the same size that one normally finds in villas of the same importance.

Our participation in Stuttgart should be seen as a demonstration of the freedom brought about by technique. This freedom allows for immense reforms in the conception of the planning of the house. This freedom is revo-

lutionary, for it provides the basis for the creation of houses on entirely new grounds. But it is sad to speak to the visitors to Stuttgart of the new techniques, when the deplorable execution (not of the overall work, but of the details) at every turn of our houses at the exhibition would lead one to think that this new freedom that results from the introduction of new techniques is quite dangerous or hypothetical. And here, although I find it painful to say this, I must affirm that when the suspicions provoked by the imperfect execution of the Stuttgart houses are applied to the architects or to the overall conception they are misdirected. And I invite all those who had doubts or fears to come to Paris to see the conclusive results of our experiences of the last ten years.

I conclude thus: the research into the application of the house to current social and economic conditions should not lead to the chimeric fixation on a *type-plan*, but on to the application of a new structural system conceived of in such a manner as to allow for all the combinations imaginable and thus to respond to the varied needs of numerous categories of individuals.

#### Notes

*Source Note: This article was originally published in French as "La Signification de la cité-jardin du Weissenhof à Stuttgart," L'Architecture Vivante, Spring/Summer 1928, p. 9 (reprinted by the Da Capo Press, New York, 1975).*

1. "Un type" is French slang for "a fellow"—Trans.

#### Figure Credit

1 © S.P.A.D.E.M., Paris/V.A.G.A., New York, 1980.

1 From *L'Architecture Vivante*, Spring/Summer 1928, p. 32 (New York: Da Capo Press, 1975).

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204 **Peter Eisenman**

*Peter Eisenman, AIA, is an architect. He is founder and director of the Institute for Architecture and Urban Studies in New York City. He has designed and built prototypical public housing and urban design projects, as well as a series of innovative private houses. He has been selected to participate in several international competitions for Venice, Berlin, and Minneapolis. In 1976, he was of the eleven architects who represented the United States at the Venice Biennale. His work has been exhibited and is in the collection of many museums, including the Museum of Modern Art, New York City. Mr. Eisenman has been the recipient of a Guggenheim Fellowship. He has taught at the Universities of Cambridge, Princeton, Yale and the Cooper Union, and He received his B. Arch. from Cornell University, his M. Arch. from Columbia University, and has a M.A. and a Ph.D. from the University of Cambridge, England.*

**Katherine Fraser Fischer**

*Katherine Fraser Fischer was born in 1955. She received her B.A. in Art History in 1977 from Barnard College after having studied at Oberlin College and the Institute for Architecture and Urban Studies. She is presently in the Ph.D. program in Art History at Harvard University. Her field is nineteenth century architectural history.*

**Kurt W. Forster**

*Kurt W. Forster was born in Zurich in 1935. He studied in Germany, England, and Italy, and received his Ph.D. in the History of Art and Architecture from Zurich University in 1961. He has taught at Yale University, the University of California at Berkeley, and is now a full professor at Stanford University, specializing in the history of Renaissance art and architecture. He has also served as director of the Swiss Institute in Rome. His publications*

*include many articles on Renaissance art and architecture, Cubism, and methodological issues in L'Arte, the Journal of the Society of Architectural Historians, Architectura, Archithese, New Literary History, Daedalus, Oppositions, and elsewhere. He is now completing a book on the urban architecture of Mantua during the Renaissance, and further articles on Giulio Romano, aspects of architectural practice and vernacular building during the Renaissance, and on Palladio.*

**Kenneth Frampton**

*Kenneth Frampton was born in England in 1930. He is a Fellow of The Institute for Architecture and Urban Studies, New York, and a member of the Faculty at the GSAP, Columbia University, New York. From 1959 to 1965 he was an associate of Douglas Stephen and Partners, London. From 1962 to 1965 he was technical editor of the journal, Architectural Design and from 1966 until 1972 he was a member of the faculty of Princeton University. He has worked as an architect in England, Israel, and the United States. The low-rise housing prototype on which he worked with U.D.C. architects was completed in 1976 as the Marcus Garvey Park Village, Brownsville, Brooklyn, and is now fully occupied. He is the author of A Critical History of Modern Architecture (to be published in June 1980 by the Oxford University Press).*

**Eleanor Gregh**

*Eleanor Gregh was born in England in 1952. She received her B.A. in Modern and Medieval Languages from Cambridge University and her M.A. in the History of European Art and Architecture from London University. She is currently working on her Ph.D. thesis "Le Corbusier and Painting 1918-1930: a study of the relationship between Le Corbusier's painting and architecture" and is teaching at the University of Glasgow, Scotland.*

**Barry S. Maitland**

*Barry Maitland was born in Scotland in 1941, and graduated from the School of Architecture of Cambridge University in 1965. From 1965-1969 he worked on the master plan for Runcorn New Town and was responsible for its Central Area Plan and for the urban renewal project for its old town. From 1969-1974 he worked as Principal Architect with Irvine Development Corporation on the design of a new central area for Irvine New Town and was responsible for its Phase I contract comprising enclosed deck shopping center, office and multi-storey car parking developments. He has taught at Nottingham University (1966) and at Strathclyde University, Glasgow (1973). He is currently writing a book (in collaboration with David Gosling) entitled The Pattern of Shopping.*

**Brian Brace Taylor**

*Brian Brace Taylor was born in New Hampshire in 1943. He obtained his doctorate from Harvard University in 1974. He was a researcher, then curator, at the Fondation Le Corbusier in Paris from 1970 to 1974, during which time he produced the exhibition "Le Corbusier and Pessac, 1914-1928," shown also at the Carpenter Center at Harvard. An editor of Architecture d'Aujourd'hui magazine from 1974 to 1978, he made major contributions to issues on Aalto, Team 10, and New York City. He now writes criticism for the Financial Times of London as well as various professional journals, and has taught at the Ecole des Beaux Arts in France since 1973. He was a visiting professor at the University of Illinois in 1972. His current research includes a book on the architect Herman Hertzberger, studies of colonial urban development, and a study of the restoration problems of modern buildings (with Christian Gimonet).*

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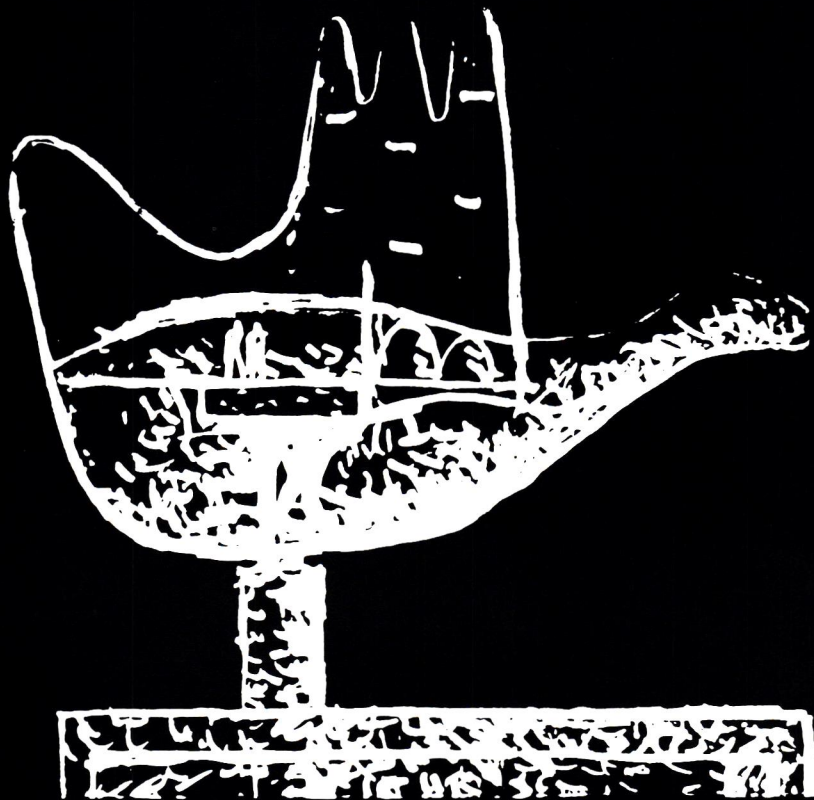
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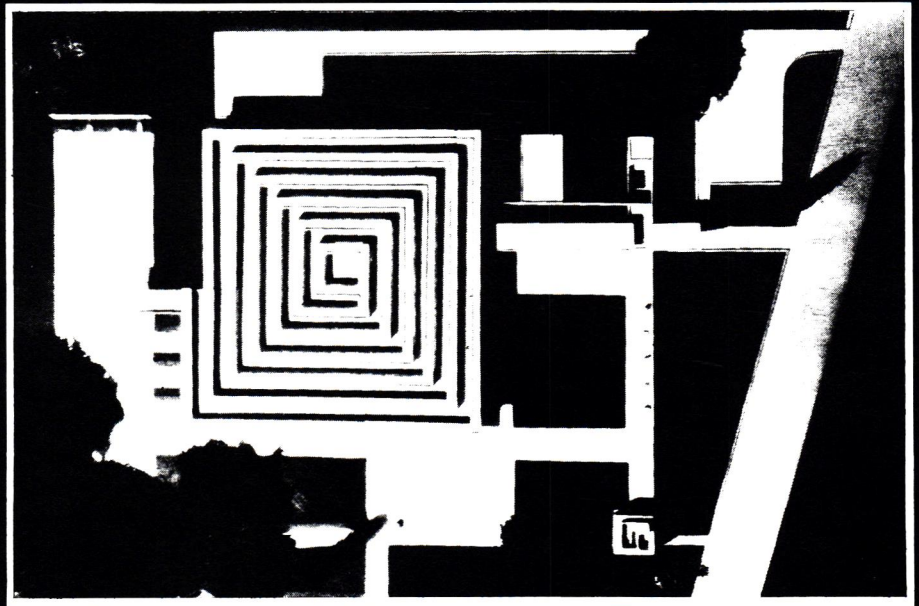
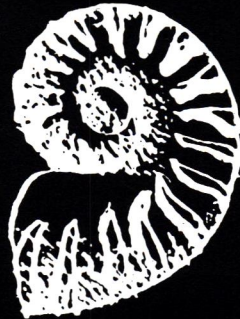
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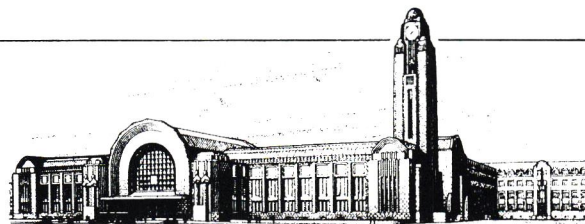
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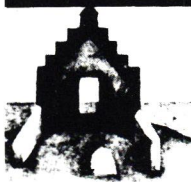
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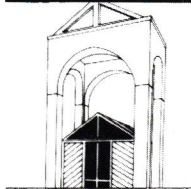
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