Modern Architecture and Historical Change
The work of Le Corbusier differs from that of the majority of his fellow modern architects in the extent to which it makes reference to the architectural tradition or to examples of existing buildings. Most of the theoretical statements by the modern architects of the 1920s, including those of Le Corbusier himself, stress the need to reject tradition in favor of an architecture derived from a new technology or destined for new functions. Yet in his work Le Corbusier refers constantly to the architectural tradition either by invoking its principles and adapting them to new solutions or by overtly contradicting them in such a way that some knowledge of the tradition is necessary in order to understand his architectural message. The modification or contradiction of traditional works is the constant leitmotiv in his work.

Le Corbusier was the only modern architect to prescribe architectural rules for the new architecture. It was possible for him to do this because he took as his starting point the rule system of the academic tradition (in contrast to the majority of modern architectural theorists who based their arguments on matters of content rather than form, or on physiognomic, expressionist aesthetics). This is demonstrated by the rules which Le Corbusier prescribed in his “Five Points,” each of which takes its departure from an existing practice and proceeds to reverse it. The use of pilotis, for example, is a reversal of the classical podium; it accepts the classical separation of the piano nobile from the ground but interprets this separation in terms of void rather than mass. The fenêtre en longueur is a contradiction of the classical window aedicule. The roof terrace contradicts the pitched roof and replaces the attic story with an open-air room. The free facade replaces the regular arrangement of window openings with a freely composed surface. The free plan contradicts the principle by which distribution was constrained by the need for vertically continuous structural walls and replaces it with a free arrangement of nonstructural partitions determined by functional convenience.

It might be argued that any innovation is bound to contradict previous practice and that therefore it is redundant to include within the concept of innovation the practice which has been replaced. But the fact that each new set of rules in the “Five Points” takes as its basis the traditional articulation of building elements seems to indicate that, in the case of Le Corbusier, the original practice and the new prescription constitute a paradigmatic or metaphoric set, and that the new can only be fully understood with reference to the old, in absentia.

It is therefore legitimate, when discussing Le Corbusier’s creative process, to speak of the “displacement of concepts” and by this to indicate a process of reinterpretation, rather than one of creation in a cultural void. The change in the arrangement and interpretation of existing elements found in Le Corbusier’s work takes several forms, two of which seem to be of particular importance. The first occurs when elements of the “high” tradition are radically transformed under conditions alien to their normal use. The second occurs when elements belonging to a tradition outside that of “high” architecture are assimilated into architecture and given a symbolic significance which they have not hitherto possessed.

I have already mentioned, in connection with the “Five Points,” the reversals involved in the invention of pilotis and the roof garden. Both these transformations belong to a larger problem: the gradation of the multi-story building. In the Pavillon Suisse the pilotis and the roof garden/penthouse are the two
outside elements of a tripartite division, whose middle term (corresponding to the piano nobile in a classical building) consists of all the repeating floors of student rooms (fig. 19). These floors are enveloped by a curtain wall whose purpose is to suppress the succession of individual floors. Le Corbusier's procedure here is identical in overall conception to Louis Sullivan's principle of tripartite division in the skyscraper office block (fig. 20). But Sullivan interprets this tradition more literally. The podium, though pierced with large windows, still provides a massive base for the superstructure, while the superstructure itself is provided with a colossal order of pilasters embracing the repeating floors of offices. Similarly the attic is simply an additional floor pierced by smaller windows and topped by a cornice whose size is adjusted to the great height of the building.

In the case of the Pavillon Suisse, the central section does not have pilasters but is conceived of as a cube which, due to its lack of architectural articulation and its suspension over a void, seems to defy gravity. It is like an element in a painting rather than an element of architecture—a pure form, devoid of weight, and not suggestive of any particular scale. The scale has to be inferred from its relation to the pilotis and the attic floor and from the subdivision of delicate window mullions—the only elements of the facade that relate directly to the scale of the human being. Thus, while Le Corbusier's general scheme is the same as that of Sullivan, the "cues" by which the observer can relate it to his normal architectural experience are fewer and less certain, and to some extent deliberately ambiguous or contradictory.

In the case of the fenêtre en longueur, the replacement of the repetitive, vertical window and the elimination of any static element threatened to remove all coherence from the facade. But Le Corbusier, unlike many other architects of the Modern Movement, retained the traditional isolated window, at the same time transforming it from a repetitive to a unique element. The presence of windows (or quasi-windows) in Le Corbusier's facades has the double effect of intensifying the generalized surface created by the fenêtre en longueur or the curtain wall and of referring to especially important episodes in the building. In the Cartesian Skyscraper (fig. 17), a large recessed aedicule is placed at the center; and in the Secretariat at Chandigarh (fig. 18) and the Algerian Skyscraper (fig. 21), this becomes a series of large openings. In all three cases these openings refer to the "brain" of the building—the directors' rooms or the council rooms. In the Cartesian Skyscraper the effect is schematic and surreal because of the lack of support which the element has in the total facade. But in the other two schemes the previous introduction of brise-soleil allowed Le Corbusier to construct the large openings out of the elements forming the general facade system and therefore to give them a more concrete meaning. (A similar organizational feature had already been incorporated by the Veinan brothers in their 1923 competition project for the Palace of Labor (fig. 22), in this case related to the expressed structural frame—for which, in one sense, Le Corbusier's brise-soleil configurations are a substitute.)

In the Villa Stein in Garches there are two "windows"—one placed centrally on the attic floor of the entrance facade, the other placed at one end of the first and second floors of the garden facade. One of the effects which both these openings have to provide the same kind of human referent as is provided by the classical window aedicule. But at the same time, there has been a transformation: each "window" is unique in its own facade, and its function has been altered. In the entrance facade the opening has become
completely detached from any literal denotation; its purpose is simply to bring the facade to rest, to create a focal point, and to indicate the penetrability of the thin surface and its expression as volume rather than mass (fig. 23). In the garden facade its function is that of a loggia, which is both “inside” and “outside” the building, and it serves to link the building and the garden (fig. 24). By being placed asymmetrically, it establishes the “free” and diagonal organization of the internal spaces on the facade. In spite of the new meanings attached to these openings, it is legitimate to speak of them as “windows,” if we extend this term to mean any opening which, by its proportions and position, indicates a volume behind it that is not part of the spatial continuum but is a special point of rest.

An example of a much more literal use of windows, which seems to escape the definition given above, is seen in the corridor facade of the Pavillon Suisse (fig. 27). Here the window has a different function. Its small size and repetition indicates some secondary and anonymous use (in this case “walking down an access corridor”), since the more obvious solution of the continuous strip (as in La Tourette, for example) would be inconsistent with the way in which the curtain wall suppresses the floors on the opposite facade. However, with the exception of these repeating windows, Le Corbusier’s use of the window is usually anthropomorphic. The unique, over-scaled pediment acts as an “eye” and animates the facade by giving it a suggestion of the human face.

The window in Le Corbusier’s ideolect plays a special part in relation to all the other elements in the facade, a part which is different from that played by the traditional window. It therefore constitutes a radical transformation. But a displacement has occurred, which, in order for its full significance to be grasped, depends on the residual semantics of the traditional window.

An aspect of the survival and transformation of tradition in Le Corbusier, which belongs less to the organization of the facade than to the conditions of its existence, is the problem of frontality. Other writers have drawn attention to the fact that Le Corbusier tends to organize his internal and external surfaces so that they form a series of planes (actual or phenomenal) at right angles to the line of movement of the observer (fig. 26). Colin Rowe, Robert Slutzky, and Kenneth Frampton cite the Bauhaus at Dessau (fig. 25) and Hannes Meyer’s project for the League of Nations (fig. 28) as counter-examples in which the buildings, far from being organized frontally, are consciously treated as three-dimensional “machines,” for the understanding of which it is necessary to move around and within the building. This “space-time” aspect was widely taken as one of the primary attributes of modern architecture and was linked by Sigfried Giedion to Albert Einstein’s theory of relativity in order to demonstrate modern architecture’s participation in the Zeitgeist. But there is no connection, in fact, between Einstein’s mathematical model and the phenomenal experience of architecture, whether this is assumed to take place instantaneously or through the passage of time—a fact which was well understood by El Liassizky. The notion of space-time was quite alien to Le Corbusier’s concept of the promenade architecturale, which is the temporal experience within a building that has already imprinted itself on the mind as a conceptual and spatial unity, and which seems to be connected with Le Corbusier’s parallel conception of the dialectical relationship between Platonic form and empirical accident, to which reference will be made later.

The notion of frontality is at the root of the concept of the facade. The non-
frontalized building was for other exponents of the Modern Movement a logical extension of the fact that modern buildings should not have facades—the surface being merely the edge condition of an internally generated organization. In Le Corbusier the facade of a building is the critical boundary which one has to cross in order to pass between two types of space which are phenomenologically distinct. The fact that he created ambiguous spaces of which it is impossible to say whether they are “inside” or “outside,” far from contradicting this basic difference, depends on it, since before an ambiguity can be set up, it is necessary to establish the two terms in relation to which the ambiguity is being created.

Both the organization of the facade (including the “window”) and the frontalized composition are elements in which we see the “high” tradition of architecture being transformed by Le Corbusier—the displacement of concepts already in existence—and which therefore constitute part of the meaning of his buildings.

The second kind of displacement which I wish to discuss in Le Corbusier consists not of transformations of the themes of “high” architecture but of the assimilation into architecture of elements outside this tradition. Little can be said here about assimilations from vernacular building, which ought to be the subject of a separate study. One might list, among other numerous examples: the Catalan vault (fig. 29); the use of rubble walls (fig. 30) and rough-cut timber (fig. 33); the use of parallel brick walls and short spans (fig. 31); the grouping of houses in sympathy with the configuration of the ground, a notion derived from the vernacular traditions of Greece and Italy (figs. 32, 34)—as in the Cap Martin project of 1949. It is not so much the case that these vernacular elements are added to the “high” tradition, as that the tradition itself is modified to include them. The process is not peculiar to Le Corbusier; it is a general feature of the Modern Movement in its second (1930s) phase, though in Le Corbusier it gave rise to an inventiveness which was only rivaled in the work of Alvar Aalto (figs. 35, 37). We can see in this an echo of Le Corbusier’s own “National Romantic” phase and an attempt to reintegrate into modern architecture ideas which stem from the Lebensphilosophie of the late nineteenth century.

One should also mention in this context Le Corbusier’s assimilations of monastic architecture, particularly Carthusian, which date from his visit to the Monastery of Ema near Florence. Architecture as the symbol of, and vehicle for, the collective life was a recurrent theme in Le Corbusier, as it was in Aalto. The difference between their two interpretations lies in the fact that whereas Aalto was inspired by its secular forms—especially as found in the late medieval hill towns of Italy—Le Corbusier was more attracted to its religious forms, to organized and hierarchical communities whose regularity and economy implied an ascetic and disciplined life dedicated to a coherent system of beliefs (fig. 39). The monastic organization of the Carthusians, which provided each monk with an apartment set in a walled garden, became the model for the Immeubles Villas (1922) (fig. 38), and later, after considerable modification, for the various Unités d’habitation—though in both of these other typological influences were at work.

Influences on Le Corbusier from outside the mainstream tradition can also be discovered in the urban traditions of Paris. I do not refer to the well-known examples of the small cafe and artist’s studio but to eighteenth-century hôtels
32 Anticoli Corrado village in the Sabine Mountains, Italy.
33 Errazuris House, Chile. Le Corbusier, 1930. Perspective sketch.
38 "Immeubles Villas." Le Corbusier, 1922. Perspective drawing.
particuliers. In the plans of these houses there were specific spaces which were not part of the "architecture" but which were necessary to the practical functioning of the building. This planning by means of poché, which became codified in the teaching of the Beaux-Arts, is noticeable in many eighteenth-century Parisian hôtels where the needs of comfort and privacy demanded a sometimes quite elaborate series of service corridors and stores tucked away behind the main rooms, which are arranged according to the Baroque tradition, en échelon (fig. 39). Whether or not Le Corbusier was consciously influenced by this, the plans for the grand houses designed by him in the 1920s had similarly complex secondary spaces, a characteristic which clearly differentiates his planning from that of other modern architects (fig. 40). But there is a crucial displacement of concepts. According to the theory of the free plan, these spaces are no longer concealed but become an integral part of the architectural experience. Inherent in the idea of the free plan, though never explicitly mentioned by Le Corbusier, is the principle that every kind of space has a right to architectural expression and that no part of the building should be concealed. If a wall creates a convex surface in one space, there must be a corresponding concave curve in the adjacent space; in this way the structure of the space is entirely explained and there is no "space left over."

This principle is closely related to the procedures of Cubism, in which a representation must include all the space within the pictorial volume, and not merely the space between objects (fig. 45). Just as a Cubist painting is a description of the structure of the pictorial space, so Le Corbusier's houses are descriptions of the structure of the architectural space.

Thus Le Corbusier's transformation of poché spatial planning not only facilitates the pragmatics of the free plan and the attribution of equal status to different spaces; it also makes the house a complete representation of its own spatial structure. Nonetheless, this transparent "exhibition" of space retains, while it inverts, the traditional distinction between service areas and living areas, giving to the first positive and to the second negative spatial characteristics.

In certain ways this procedure is similar to that of the De Stijl architects, in their articulation of space by independent planes. But there is an important difference. Even when service spaces are implied by a crowding together of the planes, as in Mies's Brick House project, the spaces differ only in degree (fig. 42). In Le Corbusier the traditional difference between the main and service spaces is maintained, just as the Beaux-Arts principles of distribution are never entirely abandoned. However "free" a plan of Le Corbusier's may be, not only does it consist, in large part, of quite traditional "rooms," but a certain axial magnetism persists which has the effect of emphasizing the process of explosion and distortion to which the plan has been subjected. Such a spatial "discourse" does not exist in De Stijl plans, where the blowing apart of the "box" and the assertion of crystalline structure are never met with any resistance, and where the intensity of the plan regularly diminishes from the center toward the infinity of outside space. With Le Corbusier the semantic connotations of poché planning are maintained, only to be contradicted by the fact that now these spaces are felt to contribute to the total architectural experience, nudging and distorting the major spaces.

This interaction is no more than a special case of the general tendency in Le Corbusier's work toward the setting up and artistic reconciliation of opposites.
The main elements of this opposition are traditional “high” architecture and the characteristic “equipment” of the modern industrial world, the one asserting an idealist epistemology and eternal verities (as enshrined in a particular cultural tradition), the other denying this in favor of a “value-free” scientific empiricism. Throughout his writings, Le Corbusier constantly refers to this dichotomy, without ever attempting to resolve it on a theoretical level. “Reason” and the “heart” are adduced as complementary faculties, but sometimes reason is used to support a positivist position, and sometimes, as in the “satisfaction de l’esprit,” it is associated with experiences of a higher order to which matters both of sentiment and of practical convenience are subjected.

The resolution of this conflict takes place on the plane of the building as a work of art. It can do so because the work of art is not limited a priori to a set of forms but is able (and indeed compelled) to absorb raw elements from the “real” world, although these are apparently in opposition to its idealistic essence. It is in the assimilation of objects of technology in architecture that we can obtain the clearest insight into this process of absorption and reconciliation in the work of Le Corbusier. The presence of elements of technology in his work might be thought to be no more surprising than their presence in the Modern Movement as a whole. Technology provided the means of rescuing architecture from the false rhetoric into which it was thought to have degenerated in the nineteenth century and of reestablishing that identity between technique and representation which existed in the periods still dominated by a craft tradition—an identity by virtue of which the essence of a building consisted of the objectification of the building process. But in Le Corbusier, more than in any other modern architect, technology had a metaphorical role, in which complete machines became paradigms for the new architecture. One of the most important of these paradigms was the ocean liner. Not only was the ocean liner designed according to scientific principles, it provided, for the limited period of its use, all the requisites of communal life. It was a symbol not only of objective design, in which the arbitrary choice of the designer was reduced to the minimum, but also of a human society organized according to rational principles.

In the Unite d’Habitation not only are the rational principles underlying the ocean liner involved but also the poetry of its forms. The building is poised on its pilotes like a ship afloat; its inhabitants have the same relation to the surrounding countryside as the passengers of a liner have to the sea. It reproduces the liner’s communal promenade decks and its private cabins; its plant is arranged on the roof like the liner’s funnels and superstructure. But this is not just a picturesque evocation. Every visual analogy is tied to a functional correspondence. The liner is not just a romantic image of the modern age; it is an example of its very principles at work and is thus a valid model for architecture (fig. 41).

But the liner is dumb. It is the result of imperative but limited demands. Not until these demands have been deepened to satisfy the needs of a rational society and have become a conscious object of the social will can such a structure achieve the status of architecture. Thus, in Le Corbusier, the reverse process to that proposed by Hannes Meyer takes place. According to Meyer, architecture should become like machinery, unconsciously following the dictates of an implacable economic destiny. According to Le Corbusier machinery has to be raised to a conscious level—in fact, to become architecture—before it can truly serve and represent man; it has to be humanized and
filled with philosophy and art, which are the truly human realms.

The final type of displacement which I will discuss here concerns industrial buildings. In *Vers une architecture* Le Corbusier followed other propagandists of the Modern Movement in giving examples of warehouses, silos, and factories to illustrate the pure formal qualities of industrial buildings. Such buildings not only made use of advanced structural techniques but, because of their economic and utilitarian criteria, they expressed this construction in a way which resulted in a repertoire of basic plastic forms. The relationship of these forms was based on a new, if unconscious, compositional principle, according to which the elements were distributed purely on the basis of practical necessity. This type of building suggested to Le Corbusier a new kind of conscious architecture; it was not, itself, this architecture. It suggested a method which might supersede the “rules of Vignola,” but it remained latent until its pragmatism could be converted into ideal architectural forms.

This conversion involves an apparent contradiction. The organization of the parts, which has merely been suggested by unconscious, naïve design, has to be the result of aesthetic “ordering,” but the very freedom on the basis of which this “ordering” must now take place (without academic rules) is dependent on the laws of practical distribution, and the more stringent they are, the more they deny to the designer any freedom of manipulation. This contradiction can be resolved only if it is assumed that a consciousness of the reasons for practical(106,154),(733,537)


That this is what Le Corbusier achieves in the transformation of industrial buildings into architecture can be seen by comparing his factory at St.-Dié (fig. 43) with a factory illustrated in *Vers une architecture* (fig. 44) and noting the remarkable parallels between them. The fact that this example is a case of transformation from one industrial building to another does not weaken the argument for displacement in the broader sense, since we are less concerned here with displacements between different building types than with those between processes outside and those inside the realm of architecture. Moreover, this example illustrates very clearly the way in which Le Corbusier worked. With him it is not a question of establishing general and abstract principles before becoming involved with a particular design; the concrete vision and the general principles always seem to appear simultaneously.

The architectural solution already exists in embryo in the factory which Le Corbusier uses as a model. The shop floors consist of a repeating grid into which an office with a different scale of window is inserted on the ground floor. On the roof further random elements occur, completing the suggestion of the tripartite division we have seen in the Pavillon Suisse—a ground floor and a roof where the particular incidents can occur, and a middle section which is completely regular.

In the factory of St.-Dié this implied separation of parts is made more distinct. The office is now inserted within the space of the *pilotis*, and the plant on the roof is joined by a range of penthouse offices. The ground floor and the roof are no longer the same tentative and accidental events but precise and important ones, which give life and meaning to the regular middle section.
Nothing could illustrate more clearly the way in which Le Corbusier “architectures” the given elements of a practical building program. The form of the building is not—as with Mies—reduced to an overall simple order in which the random elements of life are invisible. These elements become part of the architectural message and are aesthetically integrated with the building as a whole.

The phenomena analyzed here no doubt represent only one aspect of the work of Le Corbusier. But it is, I believe, an important aspect, and one which has not received sufficient attention. Architectural theory has been dominated for the last decade or so by various forms of determinism or populism, neither of which recognizes architecture as constituting a cultural entity in its own right. But the raw material of architecture is, to a large extent, the architectural culture at any one moment in history. Unless those aspects of architectural creation which have been discussed—aspects which involve the transformation of an existing culture—are understood, we are not going to achieve an architecture by which cultural meanings can be carried.