Klaus-Peter Gast

Le Corbusier
Paris _______ Chandigarh

With a Foreword
by Arthur Rüegg

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Villa Stein

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Villa Stein/de Monzie
1927  Garches/Vaucreston near Paris
France

The American married couple Michael and Sarah Stein and Gabrielle de Monzie jointly commissioned Le Corbusier to build a lavish villa outside greater Paris. Le Corbusier’s astonishing links with the affluent Parisian classes made it possible to realize this very important design. Michael Stein, brother of the well-known poet and writer Gertrude Stein, was an art collector and his wife a painter; Madame de Monzie was wealthy and lived alone with her daughter. We do not know quite how the two parties lived together in a way that made it possible to finance the villa. We do know that Gabrielle de Monzie bought the plot in Garches and was officially the client as far as Le Corbusier was concerned. But the house was sold as early as 1935.

The building was placed in the middle of a narrow, very long plot. The design went through numerous variants before the final figure was established. This account will be based on the final version.

When looking at the plans of the ground floor as the access level and the first floor as the main living area, the striking feature alongside the extraordinary generosity of the rooms is the handling of their outlines, which is still very unconventional, and was extremely innovative for the time when they were created. This is undoubtedly a luxury villa, with a hall entrance and a piano nobile as the main floor, which becomes distinct from the ground floor in the rear façade, at which point the latter is set back. Given this approach, the Villa Stein is in a series that could be called classical and seems, as von Moos remarks in general, to be trying to bring together a contrast between classicism and modernism. But these characteristics point towards yet another circumstance: it becomes clear that the clients were also very generous in their intellectual attitude and as far as can be seen gave the architect a completely free hand, or indeed, the suggestion is that originality was an actual requirement. For example, the outline of the entrances to the Villa Stein (see fig. 33), with its lines oscillating between calculated geometry and dynamic tension makes this something that had not previously existed in the history of architecture – and whose genesis is central to our approach. Its curved shapes, which react in a sophisticated way to various circulation requirements, are linked by a diagonal wall which transfers the movement to the steps leading to the first floor. A three-dimensional backdrop is created here, carefully staged, responding to the point of view of the person coming in and derived from the simple motif of walls.

Fig. 33
Fig. 34

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running freely within an orthogonal grid of supports in early designs. Almost five years after the comparatively small Besnus House and designs that are important to Le Corbusier's development but outside the scope of this book, the principles of the Dom-i-no, which had matured over a long period, are present to an almost excessive extent in this building. The wall no longer depends on primarily functional conditions. It flows freely, and detaches itself from all requirements to which a medium for forces and statics is exposed. In other words, spatial outlines no longer result from prescribed dimensions and necessities, but develop as a figure in their own right according to an independent design intention. The designer himself appears more powerfully on the scene, and the subjectivity of individual decisions is emphasized. This element of design imbued by subjectivity becomes an essential component of Le Corbusier's architecture from now on: as Husé describes, here the architect, rather than the external requirements, emerges to a particular extent as the creator of the necessity of the ground plan. The images, in other words the plan figures that emerge, do not arise from a prescribed set of needs, but are "invented" by the architect's structuring work. Thus function is derived from form - the opposite of what people like to see as functionalism, often in Le Corbusier's case as well.

The Villa Stein/de Monzie is a type of building in which Le Corbusier takes up the Citrohan principles, but reinterprets them. These are no longer variations on a slender building, almost like an inner-city infill plot, closed on its long sides and with a two-storey living-room. Here it is the short sides that have closed walls, with the long wall with their wide apertures seeming to be "stretched" between them. Two-storey zones are arranged on various levels, so that a diverse vertical penetration of the space results.

Four piers are an assertive presence after one has come into the entrance hall. They are oriented axially to the entrance, and establish a scale of their own in terms of the distance between them. It becomes clear from the ground plan that this dimension fixes the layout of the house as a whole, creating a changing rhythm. The piers define a kind of circulation track, once at the main en-

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**Fig. 33** Ground floor plan for the Villa Stein (redrawn after Le Corbusier by Klaus-Peter Geist, 1999)

**Fig. 34** First floor plan for the Villa Stein (redrawn after Le Corbusier by Klaus-Peter Geist, 1999)

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trance and then at the so-called servants’ entrance on
the left, features that also stand out in the entrance façade. Thus the ground plan is broken down into five zones, three broad and two narrow fields. The side rooms are placed on the grid pattern behind the hall, the garage is on the left, and an open staircase sculpture in the hall leads to the main living area upstairs (see fig. 34). There one is confronted with an extremely sur-
prising spatial sequence: this is again, or indeed still, a
kind of entrance, nowhere making it possible to gain a
cler impression of the spatial connections lying ahead.
On the left is a “non-space”, a narrow promenade along
the outer wall, which opens evenly along its horizontal
length. On its inside this promenade is bounded by the
piers of the supporting structure and a shelf sculpture,
as a parapet to screen the drop to the hall below. A
space without a function, it would appear; and yet this
promenade does have an unambiguous “function”: it is

The allocation of functional areas within this ground plan is equally surprising (see ill. p. 57). In the interme-
diate area between two zones that are clearly bounded
at right angles, a very generously endowed kitchen on
the left, and an outside terrace of extraordinarily large
dimensions, boundaries “oscillate” almost freely. The two
kitchen and terrace spaces, however contrasting their
content might be, jointly represent “fixed” areas within
the layout of the ground plan, between which the rest
of the component figures “move”. The oscillating ele-
ments, i.e. connecting or indeed dividing elements that
move suggestively, function as guides along the way.
A contrasting pair emerges, representing rigidity and
movement, fixing and ceasing, in which the curved fig-
ures, like suspended ribbons, seem just to have detached
themselves and the areas attached to them from the
outside walls. On the rear of the building as well there
is a free, narrow interior zone directly accompanying the
façade. This leads to the observation that the exter-

Entrance side with servants’ entrance on the left

...
Strip windows running round the corners on the entrance side.

Window detail on the entrance side.
along the outer wall. What remains to be established is that this spatial track on the outer wall performs yet another “function”, that of celebrating a continuous window following the whole of the outer wall. The long strip window, one of the sanctified principles of Le Corbusier’s work at this time, actually needs an equivalent continuous space, which is now introduced at this point. It is hard to avoid the impression that Le Corbusier used a trick to harmonize the continuum of windows and space, which was possible only by detaching this continuum from the support system. However, the area that is actually allotted to the continuous windows, which is divided into two different zones, contrasts with the form of the horizontal continuous windows in both the rear and entrance façades, because it develops in depth and not in length. Thus form and function contradict each other in a certain sense. In his well-known essay with the questionably critical and ironic title “The Mathematics of the Ideal Villa”, Rowe addresses the rhythm of the support system and the consequent division of the ground plan into what Le Corbusier called the A-B-A-B-A (2 : 1 : 2 : 1 : 2) system, and compares it with Palladio’s rhythms. It remains to be seen how much this comparison provides meaningful insights, but it is clear that the system for arranging the supports was used to establish the fundamental structure of the design for the Villa Stein that was finally realized (though Benton lists numerous variants in which other concepts dominate). Here we will concentrate on the definitive design. Our examination of the genesis of the structure described using plan analysis is also centred on the support system. We have already mentioned that the support system creates axes that are reflected in the façades. The assertion that often occurs — as in Rowe — that historical references, indeed concrete models are revealed by symmetries and axes, for example, is certainly correct. But the hypothesis to be examined here is that it will not be possible to capture an all-embracing mind like that of Le Corbusier on the plane of interpretation of historical quotation and the world of phenomena. It is certain that he was able to draw on certain other criteria from a reservoir, a wide-ranging stock of ideas.

And indeed, one main element of the Villa Stein façades turns out to be quite unhistorical: the innovative, consistently horizontal layering. The complete denial of constructive, in other words vertical, structures in the image presented by the façade, and the renunciation of constructive order associated with this is utterly “modern”, as it makes the façade into an almost autonomous part of the design that represents only itself. It becomes independent, and this assertive independence is celebrated by the horizontal strip window, if possible running the full length of the building, or even taken round corners, as in this building. The double strip windows with their dark frames in the main façade, which because of their special position are to be seen as two-dimensional, split the volume of the building into three horizontal strips. The bottom one is largely broken up by apertures, so that the dimensions and impression of mass are determined by the two light strips above, of unequal width. At this point it becomes clear why Le Corbusier needed these areas and especially the extremely high wall as an upper conclusion for the building: on the one hand they give the impression of two “heavy”, oppressive volumes that float freely above each other, completely separate from the base, their constructive support, an impression that is almost contradictory, and puzzling. On the other hand they suggest that they are essentially thin-skinned, membrane-like, as the window and wall areas are completely flush with each other. In this way construction is denied on the one hand, but equally emphasized, as the novelty of the puzzling solution also means that innovative constructive methods are being exploited. As in the ground plan, opposed, contradictory elements are used in the façades, in order to create ambiguities in meaning. The balcony incised top centre at first inspires the perception of mass through depth, but soon the perception of stretched walls as partially dissolved membranes pre-

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Garden facade with terrace area on the left

Garden side

Border of the plot at the garden side
vails. Weighing down and floating, solidity and dissolution, heaviness and lightness – exciting opposites are reconciled with each other. Riehl asserts that in Le Corbusier’s work and in the Villa Stein to a particular extent volume is largely created as “surrounding”, in other words by clearly perceptible wall slabs. But the explanations above make it clear that in the reconciled contrasts of the design elements the volume here “wants” to be both wall and body. It is only the contrasting double meaning that produces the oscillating effect of a puzzle picture. Despite the frontal quality in the long approach to the building consciously stages as an apparent two-dimensionality, the perception of corporeal volumes remains intended. Rowe and Slutzky’s analysis “Transparency” is still a model piece of work. They point out how much the internal spatial relationships of layers and wall planes has to be seen as dependent on the façades of this building. The significance of the external layer of space along

Garden side with rooftop structures (“ship’s deck”)

the façades in particular is taken as a basis for a more thorough examination of the way in which various levels that are stacked one behind the other overlap, not just horizontally, but vertically as well. The rear façade, which is more markedly broken up, together with the extremely deep external terrace may have been intended to make these complex layerings visible on the outside. Unfortunately this idea is hampered by an essentially simple point in housing practice: because the sunlight was probably far too strong, the large area of glazing is never shown without curtains except in the photographs published by Le Corbusier himself. The suspicion remains that Le Corbusier possibly put in the strip window for its own sake in the first place, as a formal element. It will always remain a matter of personal judgement to decide how much the rhythmic interruption of the wall by the strip window and the “even” lighting that this provides is beneficial to the residents, rather than alternating zones of light and shade.

The strip windows are intended to suggest the aesthetic of industrial, and thus cheap, production, in the same way as many details like banisters and fittings are based on this standard, concealing the fact that these features were expensively custom-made, and merely pretend to be mass-produced.

Thus the Villa Stein/de Monzie is full of contradictions in both its structure and appearance. It can be assumed that alongside the carefully calculated poles of rationality and irrationality in the design, with all its surprising elements, the formal language, especially in terms of the details, was intended to express contradictions, and thus to disturb. The expensive manufacture of apparently mass-produced goods also leads to the delicate and decadent spectacle of the rich upper-middle classes reveling in the “Arte Povera” of people who are less well off.

As Hilpert points out, the plan and the elevation show the same dimensions and – even more importantly – the same geometrical structure. The most important ordering principles within the two ground plans will now be presented in the context of their genesis, to show that the structural design of the building evolved on the basis of a complex system. Here it is important for the understanding of the plan analysis and also of the architecture itself that the regulating lines (“tracés régulateurs”), as Le Corbusier himself called them, which are always quoted when talking about the Villa Stein, do not represent geometrical relations as such, but the way in which areas and their edges relate to each other. Connecting areas visually, in other words seeing edges together to form areas, was Le Corbusier’s intention, and it is this that makes it possible to perceive proportional figures in plan and elevation.

46 From today’s point of view the strip window seems to have lost its appeal, particularly in aesthetic terms, because of violent abuse by Le Corbusier’s hordes of imitators.
The predefined outline of the building is determined by the area proportions of the Golden Section. To this end, the diagonal of half a square of a defined size – the latter constituting the short side of the figure as a whole – inscribes an arc of a circle to the "bottom line". The point of intersection there determines the position of the long side of the Golden Section rectangle. The starting figure for the ensuing composition has thus been established. The axis of the square and its inner line form important traces for the individual plan figures. The strongly broken diagonal links the corner points of the Golden Section rectangle. In the following – and as in previous examples – it is the symbol for additional figures on these proportions.
Fig. 36

The outline that has now been fixed acquires a vertical symmetrical axis. The initial square is then reflected over this axis, thus producing symmetrical zones within the overall area with the aid of its own axis and its inner line. The central area where the squares overlap represents the crucial field for the position of the support structure. Here the axis and outline of the initial square are in a double relationship to each other.
The reflected axis of the initial square now forms two secondary axes. Each of them represent the middle of one of the entrance zones. The overlapping lines of the squares are reflected across these axes, thus establishing the narrow zones of the access area and of the columns. Following the geometrical logic, the outer zones of the overall outline – outside the square in each case – also form Golden Section areas (strong broken diagonals). Thus the rhythm of the layout is determined.
The zones ensuing from the geometrical principle applied so far can be divided into the regular vertical strips A-B-A-B-A. Le Corbusier's designation of these zones is thus confirmed geometrically. The columns of a certain dimension are arranged within the narrow B strips, in a way that the outer lines of each of them lies on the trace. The distance between them was not chosen by way of squares, but develops from another relation: Golden Section diagonals starting on the upper side of the broad A strips producing a new horizontal trace. Around their horizontal middle axes they define the length of two distances between columns up to their outer traces. The length X, starting at the middle axis, can be repeated downwards, creating a narrow horizontal leftover zone C. Columns are also positioned on the outside of this.
Walls of a defined size are added on the outside along the short sides. If now the Golden Section line — or also the “frame” — from figure 35 is shifted upwards by the distance C, this produces the same distance C on the upper long side. The line thus created represents the final outline of the building. The Golden Section frame “oscillates” by the distance C, or put in another way, the building expands upwards and downwards.

Here it is now completely clear that Le Corbusier is defining these outer space tracks as “dynamic” zones, distinctly articulated in the architecture as built by the strip windows running round the corners and also by distance from the wall and pier elements in the interior (see figs. 33 and 34). This also makes it possible to understand the teardrop piers on the entrance side, as the “process of distortion” of the outer line of the building that was asserted previously and is now made obvious by the geometrical system is echoed in the dynamic shape of the piers.

The B zones become access areas with the main and side entrances. Dividing walls can now be placed along the columns, creating a rectangular hall area at a certain point. This arises from the point of intersection of a Golden Section diagonal with the left trace of the B zone, a process that can be seen as a reversal from fig. 38, in which the distance between the columns was defined. The horizontal trace of this intersection (broken and dotted line), along which the walls run, also becomes important for a square that meets the axis of one of the B zones there. Its diagonal fixes the spacing of an entrance platform and the canopy over the main entrance at the point of its intersection with the extended outer line at the bottom.
All the structurally significant plan positions on the ground floor have now been defined. Another important ground plan figure develops from the analysis of the first floor: The same square that defined the entrance zones in the outer area can be brought in here to determine the outline of the extended exterior terrace at the back. It cuts the axis of the B zone on the line of the horizontal trace from step 38. If the outer line of the building is extended upwards, the border with the attached flight of steps can be determined geometrically. This places a staircase platform at the end exactly on the trace of the B zone. It becomes clear that the orthogonal figures on the first floor, the kitchen and the outside terrace (cf. fig. 34) are unambiguously defined respectively by the proportion of the Golden Section and by the square.

Like key figures for the mysterious geometrical reading of the plan, the Golden Section and the square are preset figures within the dynamic spatial structure of the living level. Symbolically encoded within them is the contrasting pair, irrationality and rationality, that constantly inform the work of Le Corbusier.