

# Chapter 1: Le Corbusier's act of drawing

## The process of crystallization of design ideas

---

This chapter analyses Le Corbusier's understanding of the role of mental images during the process of crystallization of design ideas. It intends to render explicit why he used sketches as dynamic parts of his design process and not simply as a medium for recording complete mental images. The chapter also explores Le Corbusier's conception of the connection between perception, memory and representation, placing particular emphasis on Henri Bergson's approach. At the core of the reflections that are developed here is Le Corbusier's conception of "patient search" ("recherche patiente") and the vital role of the act of drawing for the process of inscribing images in memory. For Le Corbusier, drawing embodied the acts of observing, discovering, inventing and creating. The chapter explains why the concepts of linearity and zigzag in Le Corbusier's thought are pivotal for understanding the relationship between determined and spontaneous gesture in his architectural design approach. Particular emphasis is placed on how Le Corbusier's definition of architecture was reshaped throughout his lifetime, shedding light on the shift from understanding architecture as clear syntax to comprehending architecture as succession of events.

For Le Corbusier, the sentiment of satisfaction and enjoyment that an architectural artefact can provoke is related to a perception of harmony. This chapter analyses the reasons for which Le Corbusier insisted on the necessity to discover or invent "clear syntax" through architectural composition. Le Corbusier believed that the power of architectural artefacts lies in their "clear syntax". Particular emphasis is placed on the relationship of Le Corbusier's theories of space with those of Henri Bergson and the De Stijl movement. At the center of the reflections that are developed here are Le Corbusier's "patient search" ("recherche patiente") and the vital role of the act of drawing for the process of inscribing images in memory. For Le Corbusier, drawing embodied the acts of observing, discovering, inventing and creating. This

chapter also relates Le Corbusier's interest in proportions and his conception of the *Modulor* to post-war Italian neo-humanistic approaches in architecture. It intends to render explicit how Le Corbusier's definition of architecture was reshaped, shedding light on the shift from defining architecture as clear syntax to defining architecture as the succession of events.

*Figure 1.1. Le Corbusier, two pages from the carnet de voyage de Charles-Édouard Jeanneret in Rome in 1911. In these sketched of Le Corbusier, we can see Saint-Pierre et le Belvédère seen from the Villa Médicis.*

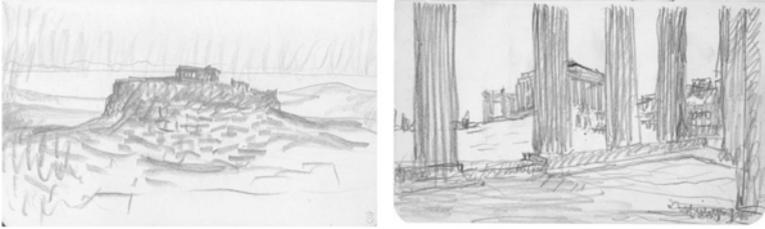


Credits: Fondation Le Corbusier, Paris

Le Corbusier placed particular emphasis on the process of concretization of mental images through hand drawing. This explains why he used sketches as dynamic parts of his design process and not simply as a medium for recording complete mental images<sup>1</sup>. The way in which he used sketches and visual representation at every stage of the design process shows that he conceived mental images as an architectural design tool<sup>2</sup>. Le Corbusier paid special attention to the role of mental images during the process of crystallization of design ideas. This becomes evident when he refers to the “spontaneous birth... of the whole project, all at once and all of sudden”<sup>3</sup>. In the sixteenth century, Vasari, echoing a Vitruvian view of drawing as a vehicle for speculative thought, wrote: “We may conclude that design is not other than the design of a visible expression and declaration of an inner conception”<sup>4</sup>. The activity of translating a spatial idea into reality was also at the core of August Schmarsow’s approach, in “The essence of architectural creation”, where he remarks that the “attempts to translate a spatial idea into reality further demonstrate the organization of the human intellect”<sup>5</sup>.

Horst Bredekamp, in *Image Acts: A Systematic Approach to Visual Agency*, draws an interesting distinction between “the desire to understand architecture in an image and the desire to understand it as an image”<sup>6</sup>. Borrowing this distinction from Bredekamp, we could claim that Le Corbusier, during the process of drawing, understood architecture in an image. Bredekamp underscores that central perspective, because of its attachment to one point of view, does not favor the interplay between architecture and bodily movement. This seems contradictory to the insistence of Le Corbusier on the use of interior perspective views in order to communicate his concept of “architectural promenade” (“promenade architecturale”). Le Corbusier declares, in *Creation is a Patient Search*: “To draw oneself, to trace the lines, handle the volumes, organize the surface... all this means first to look, and then to observe and finally perhaps to discover... and it is then that inspiration may come”<sup>7</sup>. Le Corbusier distinguishes the act of looking and the act of observing. He understands the invention that accompanies the architectural design process as organized according to the following steps: firstly, one looks, then they observe and, finally, they discover. For Le Corbusier, the practice of drawing is the procedure that permits the passage from one step of the process to another. Characteristically, he declared in his *Sketchbooks*: “Don’t take photographs, draw; photography interferes with seeing, drawing etches into the mind”<sup>8</sup> (Figure 1.1, Figure 1.2, Figure 1.3, Figure 1.4, Figure 1.5).

Figure 1.2, Figure 1.3. Charles-Édouard Jeanneret, "Le Parthénon, Athènes", *Carnet du Voyage d'Orient n°3*, 1911.



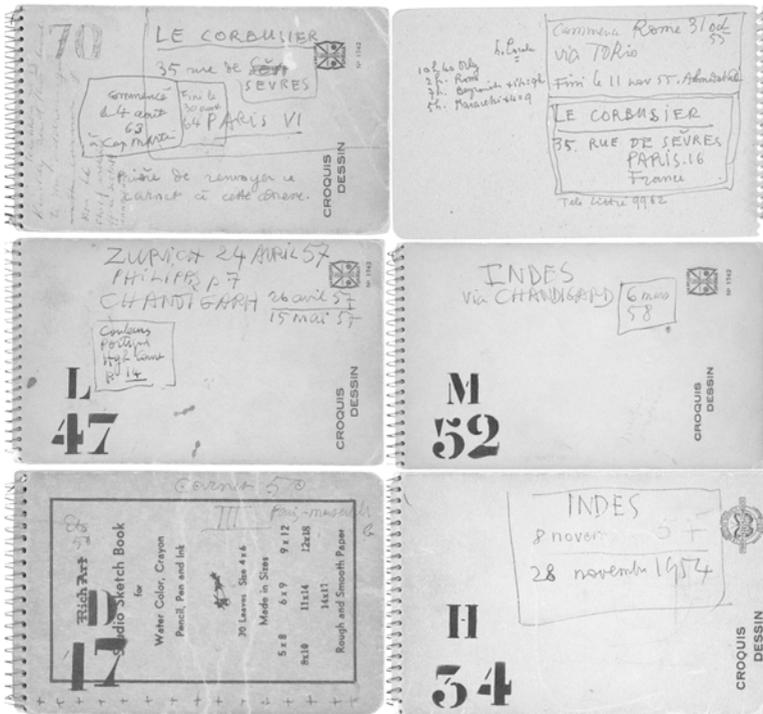
Credit: Fondation Le Corbusier, Paris

Figure 1.4. Le Corbusier, sketch of Dome in Florence, 1911.



Credits: Fondation Le Corbusier, Paris, FLC 2492

Figure 1.5. Carnets de Le Corbusier.



Credits: Fondation Le Corbusier, Paris

## 1.1 Le Corbusier's conception of patient search: Drawing as pushing inside

Le Corbusier's conception of "patient search" ("recherche patiente"), in *Creation is a Patient Search*, is based on the idea that ideas are placed "in the interior of memory"<sup>9</sup>, waiting until their form is concretized. He conceived representation as described in the following metaphoric formulation regarding architecture's poetics: "one draws in order to push inside, in one's own history, the things seen"<sup>10</sup>. This conception of the connection between perception, memory and representation brings to mind Henri Bergson's approach. Bergson, in *An Essay on the Immediate Data of Consciousness*, argues that "art is about in-

scribing feelings in us rather than expressing them". He distinguished different "phases in the progress of an aesthetic feeling"<sup>11</sup> and different degrees of intensity and elevation of the aesthetic emotion<sup>12</sup>. Le Corbusier's sketches can be found in three kinds of sources: his "Cahiers de croquis", the "Albums Nivola" and his "Cahiers de dessins". The way he conceived the process of accumulation of manual and intellectual activities is expressed insightfully in "Albums Nivola":

I live in an archipelago. My sea is thirty years of accumulation, variously related to intellectual and manual activities. On the ground, here and there, are groups of objects, gear, books, texts, drawings, such are my islands!<sup>13</sup>

The metaphors Le Corbusier uses in the aforementioned passage, describing himself as an archipelago and his creations as islands, are indicative of how he conceived the relationship between the manual and intellectual procedures, and the interaction between the different forms of expression. Le Corbusier was particularly interested in the inscription of the products of human activity in consciousness. He paid special attention to the role that time plays in this process of inscription. Bergson's understanding of art's process of its relation to aesthetic emotion is very close to Le Corbusier's concept of "patient search" ("recherche patiente"). In *Creation is a Patient Search*, Le Corbusier refers to the process of learning "to see things come to life"<sup>14</sup>, placing particular emphasis on the metamorphosis during the design process. He wrote: "We learn to see things come to life. We see them develop, undergo metamorphosis, flower, flourish, die, etc."<sup>15</sup> The way Le Corbusier described the relationship between the process of drawing and the process of inscribing images in memory shows how vital the act of drawing was for him. This becomes particularly evident in his following words: "Once things come in through the pencil work, they stay in for life; they are written, they are inscribed"<sup>16</sup>.

Le Corbusier understood the act of drawing as an act of conquest. He believed that "[w]hen one travels and works with visual things—architecture, painting or sculpture—one uses mind's eyes and draws, so as to fix down in one's experience what is seen"<sup>17</sup>. He also claimed that when one draws by hand, the tracing of their lines functions as an active participant, helping them to connect their mental images to their materialization in a more immediate way. According to Le Corbusier, the architect's own line functions as the means of inventing links between mental images and their formal expression. David Rosand, commenting on the use of the draughtsman's own line, notes that the

“line [...] is an active participant in the act of drawing and asserts its own creative independence”<sup>18</sup>. As Elga Freiberga notes, in “Memory and Creativity of Ontopoiesis”, “Bergson never strictly detaches perception from imagination, nor perception from memory”<sup>19</sup>. In Bergson's thought, “[p]erception of images is also imagination of images just like memory is “imaginative” because it is coordination of imagination and memory”<sup>20</sup>.

In *Matter and Memory*, Bergson underscores that “to picture is not to remember”<sup>21</sup>. He is interested in how memory inserts into perception. For Bergson, the difference between perception and memory is of intensity but not of nature. This remark is useful for examining Le Corbusier's conception of the relationship between perception and memory, in *Creation as Patient Research*<sup>22</sup>. For Bergson, there is no distinction between “matter-images”, “perception-images” and “memory-images”. His attempt to define both consciousness and the material world as “images” is related to his intention to deal with the subject/object opposition<sup>23</sup>. Le Corbusier argued that “drawing is a language, a science, a means of expression, a means of transmitting thought”<sup>24</sup>. He believed that “drawing makes it possible to fully transmit the thought without any written or verbal explanations”<sup>25</sup> understanding drawing as the “[i]mpartial witness and engine of the works of the creator”<sup>26</sup>. Le Corbusier conceived drawing as the most efficient way of transmitting one's thought. His understanding of the creative process as a “patient search” (“recherche patiente”) was based on the idea of a process of concretization through the conservation in the interior memory and a patient and progressive development.

The passion of Le Corbusier for manual labor and his “enduring fascination with the hand”<sup>27</sup> are important parameters for understanding his design process. To describe the process of hand drawing, he mentioned that, through drawing, we enter the place of an unknown and we have a valid exchange with plenty of consequences, which is symptomatic of the role he attributed to the act of drawing within the procedure of capturing and concretizing his ideas. For Le Corbusier, drawing embodied the acts of observing, discovering, inventing and creating. In “L'Esprit Nouveau en Architecture”, Le Corbusier refers to the notion of gesture<sup>28</sup>, relating it to Paul Valéry's analysis of the first gesture, in *Eupalinos ou L'architecte*<sup>29</sup>, which was included in Le Corbusier's personal library. Le Corbusier, departing from Valéry's interpretation of the first gesture in architectural composition, tried to explain what it meant for him. The text “L'Esprit Nouveau en Architecture” was presented at a conference that he gave on 12 June 1924 at the Sorbonne in Paris and on 10 November 1924 at the Ordre de l'Étoile d'Orient. He insisted on the fact that in the first gesture, a will is

embodied. He notes: “For me, who is not a philosopher, who is simply an active being, it seems [...] that this first gesture cannot be vague, that at the very birth, at the moment when the eyes open to the light, immediately arises a will”<sup>30</sup>. Le Corbusier paid special attention to the notion of gesture until late in his life, as can be seen in the manuscript of *Latelier de la recherche patiente*, where he employed the metaphor of the “gesture of the acrobat”<sup>31</sup>. Le Corbusier’s interest in the initiative gesture of the design process could be related to Mies’s attraction to form as a starting point and not as a result. In the second issue of *G: Material zur elementaren Gestaltung (G: Material for Elementary Construction)*<sup>32</sup>, published in September 1923, Mies remarks, in “Bauen”:

We refuse to recognize problems of form but only problems of building  
 Form is not the aim of our work, but only the result.  
 Form, by itself, does not exist.  
 Form as an aim is formalism, and that we reject...  
 Essentially our task is to free the practice of building from the control  
 of aesthetic speculators and restore it to what it should exclusively be:  
 Building.<sup>33</sup>

In the aforementioned passage, Mies van der Rohe underscores that “[f]orm is not the aim of our work, but only the result”. For Mies van der Rohe, the most significant phase of the design process was the “starting point of the form-giving process”<sup>34</sup>. Le Corbusier commented on the importance of spontaneous means in June 1951, two months after the 8<sup>th</sup> CIAM held in Hoddesdon. In an article he wrote for Madame Chastanet, he underscored the importance of the “spontaneous means” and its connection to the “right time”. He also drew a distinction between the act of emerging (“surgir”) and the act of counting (“comptabiliser”). More specifically, he stated: “SPONTANEOUS means to emerge and not to count”. The fact that he insisted on the importance of inventing the means that correspond best to the time of acting could be related to his conception of architectural practice as a gesture. If we translate the verb “surgir” in English, the connotation of immediacy is lost. Le Corbusier associated the act of “surgir” with an understanding of knowledge as material inscribed in consciousness. Such a conception of knowledge could be related to a Bergsonian conception of memory and inscription in consciousness. Le Corbusier related the spontaneous act to the depth of knowledge and was interested in the connection of knowledge to consciousness. In 1951, Le Corbusier in a text authored for the eighth CIAM defined consciousness as “a

tremendous concentration of events experienced and recorded in the depths of being<sup>35</sup>.

Le Corbusier's understanding of the concept of gesture could be understood in two ways: on the one hand, his reflection on the initiative gesture of the design procedure, and, on the other hand, his concern about the gestures of the inhabitants of his buildings. According to Vilém Flusser, “[t]he concept of the tool can be defined to include everything that moves in gestures and thus expresses a freedom”<sup>36</sup>. This remark of Flusser could be useful in order to interpret Le Corbusier's choice to use the expression “Une maison-outil” (“A house-tool”) as the title of a chapter in *Almanach d'architecture moderne*<sup>37</sup>. Flusser argues, in *Gesten: Versuch einer Phänomenologie*, that “[t]here is no thinking that would not be articulated by a gesture. Thinking before articulation is only virtual, in other words nothing. It realizes itself through the gesture. Strictly speaking one cannot think before making gestures”<sup>38</sup>. Le Corbusier argued, in “Où en est l'architecture?”, which was included in *L'architecture vivante*, that every gesture is affected by varying degrees of potentials related to art. More specifically, he claimed that every gesture is affected by an art potential<sup>39</sup>. Le Corbusier also sustained that the house is attached to the gestures of its inhabitants. In “Où en est l'architecture?”, he underscored that “it does not exist any gesture that is not affected to varying degrees of an art potential”<sup>40</sup>.

## 1.2 The notion of transmissibility in Le Corbusier's thought

“Viewer”, “spectator”, “observer” and “perceiver” constitute different terms that could be employed—each one with its own connotations—to refer to the subject that observes, interprets and decodes architectural drawings<sup>41</sup>. Amédée Ozenfant—the co-director of *L'Esprit Nouveau* along with Le Corbusier—in a text entitled “Sur les écoles cubistes et post-cubistes”, originally published in 1926, analyzes the transformation that the inventions of the Cubists and post-Cubists provoked regarding the attitude of the spectators. Ozenfant maintained that the exigency of a sensitivity that is related to vision was one of the new demands of the Cubists and post-Cubists: “the painting of the above schools requires of its spectator the culture of optical sensitivity”. The culture of visual sensitivity was predominant in Le Corbusier's intellectual strategies as well. In the same text, Ozenfant notes: “one must avoid looking for what the painting ‘represents’, since it represents nothing”<sup>42</sup>. A question

that emerges reading this statement of Ozenfant is whether this endorsement of non-representative art is also reflected in Le Corbusier's approach.

Amédée Ozenfant, in the aforementioned article, refers to a “notion of beauty without sign”<sup>43</sup>. According to him, the artist, in order to succeed in reinventing the relationship of the work of art with its spectators, should have the capability to “measure’ the intensity of their excitations in front of the spectacles of art”<sup>44</sup>. In other words, Ozenfant believed in the capacity of works of art to provoke “an eminently intensive state for all”<sup>45</sup>. The notion of transmissibility is at the heart of the philosophy of Purism. An interesting definition of Purism can be found in *The Isms of Art, 1914–1924 (Kunstismus, 1914–1924)*, published by El Lissitzky and Hans Arp in 1925: “The picture is a machine for the transmission of sentiments. Science offers us a kind of physiological language that enables us to produce precise physiological sensations in the spectator”<sup>46</sup>. In 1938, Le Corbusier wrote, in *CŒuvre plastique. Peintures et Dessins Architecture*: “The work of art is” a game “whose author—the painter—has created the rule of his game and the rule must be able to appear to those who seek to play”<sup>47</sup>. We could claim that this remark of Le Corbusier regarding the painter as an author of rules to be perceived by the viewer is also valuable for architectural drawings.

The fact that transmissibility was a central issue for Le Corbusier's architectural approach is apparent from what he wrote, in *New World of Space*, published in 1948, addressed to architects: “You are ‘social beings’ rather than artists—you are leaders, followed by millions of individuals who are ready to follow you if you seize the exact moment when ‘illumination’ exists between you and them”<sup>48</sup>. Reading these words of Le Corbusier, one understands that his vision about architecture was characterized by an insistence on the importance of the social role of the architect. The task of the architect, for Le Corbusier, consisted in convincing, in an efficient way, depending on the conquest of the exact moment of illumination, users to endorse the experience of the space conceived by the architect.

In *New World of Space*, Le Corbusier refers to a “transition from an age of subjection to an age of creation”<sup>49</sup>. Two questions that emerge concern (a) when the aforementioned shift took place, and (b) its impact on Le Corbusier's architectural expression. The reinvention of the way one views space is related to the transformation of how one experiences space. According to Carl Einstein, to “transform space [...] one must throw into question the view itself”<sup>50</sup>. Einstein's text entitled “Cubic Intuition of Space” (“Kubische Raumschauung”),

included in *Negerplastik*<sup>51</sup>, is of pivotal importance for understanding the reinvention of how one views space.

### 1.3 Around the capacity of architectural forms to provoke sensations

Le Corbusier in “L’Esprit Nouveau en Architecture”, published in 1925 in *Almanach d’Architecture Moderne*, included four photographs of the Maison La Roche-Jeanneret<sup>52</sup>. These photographs are useful for understanding how he related the quality of architectural forms to their capacity to provoke sensations. It would be thought-provoking to relate Le Corbusier’s conception of the relationship between forms and the provocation of intense emotions to Henri Bergson’s approach. More specifically, Le Corbusier’s understanding of how architecture can provoke intense emotions brings to mind Bergson’s endeavor to relate “aesthetic emotions” to “degrees of intensity” and “degrees of elevation”. Bergson, in *Time and Free Will: An Essay on the Immediate Data of Consciousness*, examines “aesthetic emotions”, placing particular emphasis on the fact that they are characterized by different “degrees of intensity” and different “degrees of elevation”<sup>53</sup>. Bergson also argues, in the aforementioned book, that “the merit of a work of art is not measured so much by the power with which the suggested feeling takes hold of us as by the richness of this feeling itself”<sup>54</sup>. It would be insightful to relate this thesis of Bergson to Le Corbusier’s interest relating architectural components to their capacity to provoke intense emotions.

Bergson, trying to relate the way a work of art is perceived and the intensity of emotions it provokes, remarked that “besides degrees of intensity we instinctively distinguish degrees of depth or elevation”. He claimed that “the feelings and thoughts which the artist suggests to us express and sum up a more or less considerable part of his history”<sup>55</sup>. Departing from the aforementioned claim of Bergson, we could hypothesize that Le Corbusier shared the conviction that the feelings and thoughts expressed through the creation of an architectural artefact transmit to the inhabitant a part of the architect’s own history. According to Bergson, the sensations provoked due to the encounter with a work of art push the spectators to “re-live the life of the subject who [created the work of art in order to] [...] grasp it in its original complexity”<sup>56</sup>.

Le Corbusier intended to provoke in the perception of the viewers and inhabitants of his architectural artefacts the curiosity search to live their life in its

complexity. Bergson believed that artists intend to give the spectators or their artworks “a share in this emotion, so rich, so personal, so novel, and at enabling us to experience what he cannot make us understand”<sup>57</sup>. We could relate this point of view of Bergson regarding the capacity of art to transmit the content of the creator’s emotions, which cannot be grasped otherwise, to the spectators, to the notion of the “ineffable space” (“espace indicible”) in Le Corbusier’s thought, which is analyzed in the next chapter of the book entitled “Le Corbusier’s space beyond words: From assemblages of components to succession of events”.

#### 1.4 Le Corbusier vis-à-vis the postwar Italian Neo-Humanistic discourse: The debates around proportions

The fact that Le Corbusier abandoned the Congrès Internationaux d’Architecture Moderne (CIAM) in 1955 should be interpreted in relation to the development of post-war Italian humanistic discourse. During the 1950s, he participated as a keynote lecturer at the CIAM summer schools, which ran from 1949 to 1956. Le Corbusier gave a lecture at the CIAM summer school held at the Università Iuav di Venezia in 1953 (Figure 8), while he refused the invitation to give a lecture at the CIAM summer school in Venice in 1957<sup>22</sup>. During the same period, Le Corbusier was involved in the design of the hospital in Venice that remained unrealized. An aspect that is of great importance for understanding the impact of the post-war Italian humanistic context on Le Corbusier’s thought is his participation in the “First International Conference on Proportion in the Arts” (“II primo Convegno Internazionale sulle proporzioni nelle arti”) in the framework of the ninth Triennale di Milano between 26 and 29 September 1951<sup>58</sup>. Le Corbusier, in the talk he gave on 28 September 1951, presented his theory around the *Modulor*<sup>59</sup>. Rudolf Wittkower was a plenary speaker in this conference, and Sigfried Giedion, Matila Ghyka, Pier Luigi Nervi, Andreas Speiser and Bruno Zevi were among the participants. Giulio Carlo Argan refused the invitation. Zevi delivered a lecture entitled “La quatrième dimension et les problèmes de la proportion”<sup>60</sup>, while Ghyka’s talk was devoted to “Symétrie pentagonale et Section Dorée dans la Morphologie des organismes vivants”<sup>61</sup>. Zevi sent a letter to Le Corbusier on 7 August 1952, reminding him that they had met in the framework of this conference<sup>62</sup>.

Regarding the “First International Conference on Proportion in the Arts”, Fulvio Irace and Anna Chiara Cimoli remark: “In 1951 the conference De Divina

Proportione was proposed as an ecumenical council of men of arts and sciences, convened to determine the rules of the spirit that were to govern the new areas of the reconstruction of democracy<sup>63</sup>. As Simon Richards notes, Le Corbusier's *Modulor* "is primarily an epistemological mechanism, and only incidentally a formal one"<sup>64</sup>. The presentation of the *Modulor* by Le Corbusier at this conference was not its first public presentation given that Le Corbusier had already presented it in New York, on 25 April 1947, during his participation in the committee that was responsible for the design of the United Nations complex.

Philip Johnson invited Le Corbusier to contribute to a symposium entitled "De Divina Proportione" that would be held on 11 March 1952 at the Museum of Modern Art (MoMA) in New York. The speakers that contributed to the discussion around the theories of proportion in art held at the MoMA and led by Josep Lluís Sert were the architects George Howe, Eero Saarinen and Enrico Peressutti and the art professor Dr. W.V. Dinsnoor. In the introduction of the symposium, Howe mentioned that "whether systematic or instinctive, good proportion still remains order made visible"<sup>65</sup>. He also referred to Matila Ghyka's *Esthétique des proportions dans la nature et dans les arts (Aesthetics of Proportion in Nature and in the Arts)*<sup>66</sup>. Philip Johnson had invited Le Corbusier to participate as one can read in their correspondence<sup>67</sup>. Le Corbusier wrote to Johnson that he would participate in the symposium only if his expenses of travel and accommodation were paid. In the end, he did not participate, but he asked for the proceedings<sup>68</sup>. In the letter he addressed to Johnson in June 1952, he asked for the proceedings as president of the "International Committee for the Study and the Application of the Proportions in Contemporary Arts and Industry" ("Comité internationale pour l'étude et l'application des proportions dans les arts et l'industrie contemporaine"/"Comitato internazionale di studio sulle proporzioni nelle arti").

The debate around the concept of proportions was at the center of the epistemological debates in architecture during the post-war era. To better grasp how central the debates around proportions were during the post-war period, we can bring to mind Colin Rowe's "The Mathematics of the Ideal Villa", published in 1947<sup>69</sup>, Le Corbusier's *The Modulor*, published in 1950<sup>70</sup>, and Rudolf Wittkower's *Architectural Principles in the Age of Humanism*, published in 1949<sup>71</sup>. According to Francesco Passanti, Le Corbusier's *The Modulor* "encourages a Platonic understanding of architectural proportions, both because it posits a direct correspondence between the human body and the golden section and because its date of publication suggests comparison with the Platonic argument

of Rudolf Wittkower's *Architectural Principles in the Age of Humanism*<sup>72</sup>. In 1955, Reyner Banham described *The Modulor* as a “blend of residual platonism, actuarial statistics, and plain wishful-thinking.”<sup>73</sup>

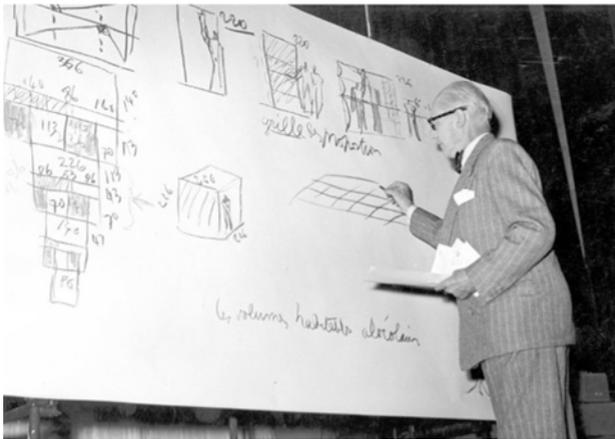
## 1.5 Human scale and universal needs: Towards a universal user or the *Modulor*

The interest of Le Corbusier in human scale is related to the place that body and physiology had in his thought. The complementarity of spirit and body was defining for him, as it becomes evident from what he sustains in *The Modulor*: “Architecture must be a thing of the body, a thing of substance as well as of the spirit and of the brain”<sup>74</sup>. A remark of Nietzsche that could help us better understand Le Corbusier’s concern about human proportions is the claim that “aesthetics is nothing else than applied physiology”<sup>75</sup>. Le Corbusier mentions, in *The Modulor*, that “the desire, the urge, the need to build to the human scale”<sup>76</sup> emerged between 1925 and 1933, when his interest in measurements and requirements for the human body (“resting, sitting, walking”) began<sup>77</sup>. He associated the dependence of his design processes on human proportions to the idea that there are human needs that are universal and do not differ from one culture to the other. Heraclitus’ thesis that “Man is the measure of all truth”<sup>78</sup> seems to be close to Le Corbusier’s understanding of the relationship between human proportions and truth.

Le Corbusier’s interest in human proportions is not related to the reduction of architecture to the practicality of satisfying human needs. He believed that architecture is much more than the simple service of human need. This becomes evident from what he notes in *Towards a New Architecture*: “Architecture has another meaning and other ends to pursue than showing construction and responding to needs (and by “needs” I mean utility, comfort and practical arrangement)”<sup>79</sup>. The ambiguity between the insistence on the importance of functionality and the overcoming of the functional aspects of architecture is a non-resolved tension in Le Corbusier’s thought. As Stanislaus von Moos mentions, Le Corbusier’s stance is characterized by a “contradiction between the architect’s constant reference to the machine and his polemical refusal of mere functionalism and utilitarianism”<sup>80</sup>. In *L’art décoratif d’aujourd’hui*, which was originally published in 1925, Le Corbusier writes:

to search for the human scale, for human function, is to define human needs. They are not very numerous; they are very similar for all mankind, since man has been made out of the same mould from the earliest times known to us... the whole machine is there, the structure, the nervous system, the arterial system, and this applies to every single one of us exactly and without exception.<sup>81</sup>

Figure 1.6. Le Corbusier presenting the Modulor at the 1951 Triennale di Milano at the “First International Conference on Proportion in the Arts”.



Credits: Fondation Le Corbusier, Paris

Le Corbusier notes in the letter he addresses to Lehart on 5 June 1950 that the *Modulor* “was invented in 1942 and was developed for eight years”<sup>82</sup>. According to Jean-Louis Cohen, Le Corbusier’s *Modulor* was codified in 1945. As Cohen notes, “the term Modulor was composed by the fusion of the notion of module with the notion of the golden section”<sup>83</sup>. In the fourth volume of Le Corbusier’s *Œuvre Complete*, one can read: “It was in 1945 that Le Corbusier finally closed the researches on proportion that he had conducted for twenty years, and which had won for him, ten years previously, the degree of Dr. h.c. in philosophy and mathematics of the University of Zürich”<sup>84</sup>. Le Corbusier expressed, for the first time, his interest in a system of proportion in 1910, during his stay in

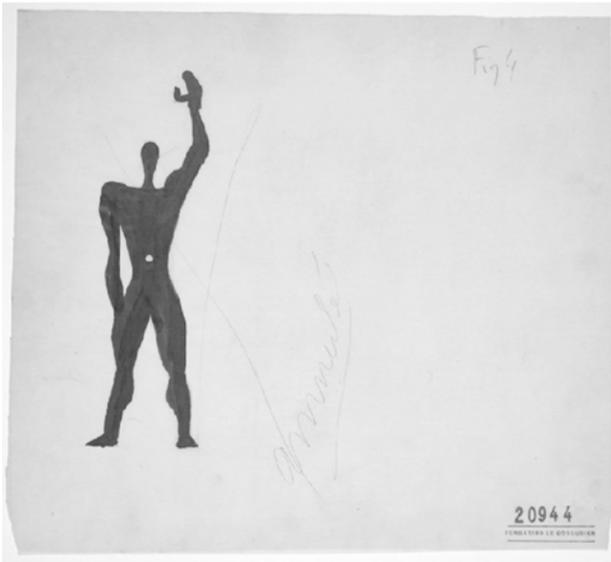
Germany<sup>85</sup>. The connection of Le Corbusier's *Modulor* with Matila C. Ghyka's thought is important for understanding Le Corbusier's *Modulor*<sup>86</sup>. Ghyka's *Le nombre d'or: Tome 1er les rythmes* is part of Le Corbusier's personal library, and he highlighted many of its passages<sup>87</sup>. A letter from Paul Valéry preceded the edition of Ghyka's *Le nombre d'or*, which we can find in Le Corbusier's personal library. Later, Le Corbusier presented the *Modulor* at the 1951 Triennale di Milano in the framework of the "First International Conference on Proportion in the Arts" (Figure 1.6).

Rudolf Arnheim, commenting on Le Corbusier's *Modulor* (Figure 1.7, Figure 1.8), notes that Le Corbusier had chosen to use "(t)he traditional doctrine of proportion [and] related architectural shape to man because his body was an example of perfection, not because he was to live in the building."<sup>88</sup> Arnheim, thus, dissociates Le Corbusier's instrumentalization of human proportions from any preoccupation for the way spaces are inhabited. He also interpreted the utilization of human proportions by Le Corbusier as a way to "overcome the uncertainty of intuitive judgment"<sup>89</sup> and as an antidote against arbitrariness. This becomes evident when he declares it "suited the demand for scientific exactness that arose in the Renaissance [...] It helped to make art respectable by demonstrating that the shape of its products was not arbitrary"<sup>90</sup>. The same year, Reyner Banham describes Le Corbusier's *Modulor* as a "biography of a quest for humane and objective standards, adapted to the present state of mechanized society"<sup>91</sup>. Following Richard Padovan, one could claim that "Le Corbusier's practice, at least until he began to employ the *modulor* in his post-war work, seems to accord with [Oskar] Schlemmer's recommendation that systematic proportions should only function as a regulative, first simply to confirm what instinct has created and then, proceeding from this confirmation, to establish new rules"<sup>92</sup>.

As Alain Pottage notes, in "Architectural Authorship: The Normative Ambitions of Le Corbusier's *Modulor*", "[t]he measures of the *Modulor* were held to be objective because they were discovered, not invented". To better comprehend Le Corbusier's conception of human needs, it is important to examine how he conceived the relationship between norms and architecture<sup>93</sup>. Pottage has analyzed the normative ambitions of Le Corbusier's *Modulor*, underscoring that "Le Corbusier saw Renaissance perspective and proportion as the basis of an architecture of abstract, undisciplined subjectivity". He associated the use of perspective and proportions by Le Corbusier with the establishment of strategies aiming to legitimize an "abstract" conception of the inhabitant. Pottage notes: "Le Corbusier saw Renaissance perspective and proportion as the

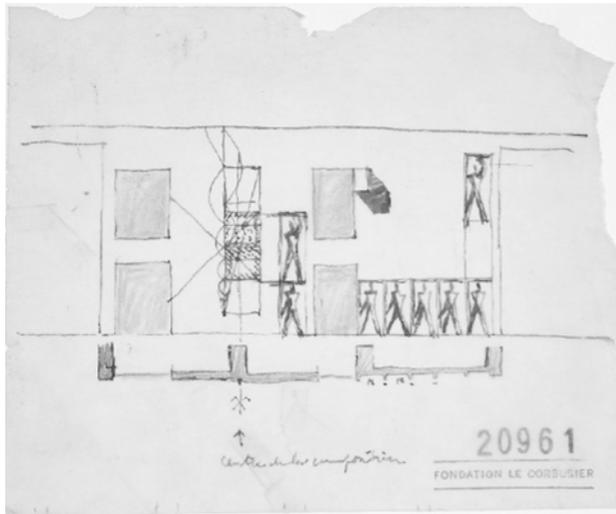
basis of an architecture of abstract, undisciplined subjectivity”<sup>94</sup>. This interpretation of the *Modulor* as a mechanism of legitimization of “abstract, undisciplined subjectivity” could be related to Rudolf Arnheim’s claim that Le Corbusier’s instrumentalization of human proportions should not be related to his understanding of the practices of inhabitation. Understanding the subject corresponding to the *Modulor* as abstractness, as suggested by Pottage, goes hand in hand with understanding it independently from the inhabiting subject, as Arnheim argues<sup>95</sup>.

Figure 1.7. Le Corbusier, *Modulor*.



Credits: Fondation Le Corbusier, Paris, FLC 20944

Figure 1.8. *Le Corbusier, Modulor.*



Credits: Fondation Le Corbusier, Paris, FLC 20961

## 1.6 Towards a conclusion: Architecture beyond the machine

Le Concluded concluded “Où en est l’architecture?” with the following questions: “Where is architecture? It is beyond the machine”<sup>96</sup>. Le Corbusier believed that the components that constitute the house have an effect on the experience of the inhabitants that goes beyond function. To explain this effect, he referred to the following metaphor of the objects that speak to the user as a companion, reflecting their aspirations:

Let me recall to your mind that man of ours seated at his table: he has just got up and walked through his rooms. He listens to the language spoken by the objects around him, his companions, the witnesses to his aspirations. Arranged in his home like a beautiful thought, they speak to him as he moves about. The furniture, the walls, the openings to the outside, this cosy den of his where minutes, hours, days and years of a lifetime unfold, all speak to him.<sup>97</sup>

For Le Corbusier, architecture was beyond the machine. Alan Colquhoun placed particular emphasis on the humanisation of the machine in Le Corbusier's thought, arguing that "[a]ccording 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 humanised and filled with philosophy and art, which are the truly human realms"<sup>98</sup>. In 1921, the same year that "Le purisme" was published in *L'Esprit nouveau*<sup>99</sup>, Le Corbusier used the expression 'machine à habiter' to describe the house. He notes, in *Entretien avec les étudiants des écoles d'architecture*:

When we founded L'Esprit Nouveau [...], I gave to the home its fundamental importance, I called it a "machine for living," thereby demanding from it a complete, flawless answer to a clearly articulated question. This profoundly humanistic program restores man to the central preoccupation of architecture.<sup>100</sup>

In 1925, Le Corbusier used the expression "maison-outil", publishing a text under this title<sup>101</sup>. Le Corbusier himself identifies 1928 as the turning point at which the human Figure became a major theme of his thought. As he notes, in *A New World of Space*, it was in 1928 that "threw open a window on the human figure"<sup>102</sup>. For Le Corbusier, it was very important "to keep contact with living beings"<sup>103</sup>. This necessity to "keep contact with living beings" could be related to his negation to reject the representational for the abstract<sup>104</sup>. The appearance of the expressions 'machine à habiter' and 'maison-outil' in Le Corbusier's conceptual edifice preceded his concern about the human figure. In 1930, two years after the incorporation of the importance of the human Figure in his thought, in "A cell on human scale" ("Une cellule à l'échelle humaine"), published in *Précisions*, Le Corbusier notes: "What I call looking for "a cell on human scale" is to forget any existing house, all existing housing codes, habits or traditions"<sup>105</sup>. Le Corbusier intended to reinvent the conventional codes of inhabitation.

Le Corbusier's understanding of architectural function goes beyond satisfaction of basic activities. Le Corbusier paid much attention to the spirit of calm and mediation and related these two notions to the beauty of the house's space. He distinguished two 'raisons d'être' of the house: on the one hand, the house should be a persevering machine, which aimed to satisfy body's needs in an exact and efficient way, and, on the other hand, the house should serve as the place par excellence for meditation, contributing to mind's calmness. His anthropocentric should be interpreted in relation to the idea that during architectural composition process everything should "come down to man". For

him, “the house is attached to our gestures: it is the shell of the snail. It must be made to our measure.”<sup>106</sup>

Le Corbusier’s classification of human needs into two categories is pivotal for understanding how he conceived the inhabitation of space and the role of furniture for it. In *L’art décoratif d’aujourd’hui*, the way he describes the role of furniture is revelatory of his anthropocentric understanding of housing design<sup>107</sup>. He classifies human functions into “type-needs” and “type-functions”. For Le Corbusier, objects are destined to serve human needs, while furniture is destined to serve human functions. He defines “human-limb objects” as docile servants and works of arts as “beautiful tools”, relating the taste that is expressed through the choice of furniture and works of art to the appreciation of qualities, such as proportion and harmony.

## Notes

- 1 Marianna Charitonidou, *The Relationship between Interpretation and Elaboration of Architectural Form: Investigating the Mutations of Architecture’s Scope*, Ph.D. thesis (Athens: National Technical University of Athens, 2018), doi: <https://doi.org/10.12681/eadd/44354>
- 2 Charitonidou, “Le Corbusier’s Ineffable Space and Synchronism: From Architecture as Clear Syntax to Architecture as Succession of Events”, *Arts*, 11(2) (2022), doi: <https://doi.org/10.3390/arts11020048>
- 3 Le Corbusier, *L’atelier de la recherche patiente* (Paris : Vincent & Fréal, 1960); Le Corbusier, *Creation Is a Patient Search*, trans. James Palmes, introduction by Maurice Jardot (New York : Praeger, 1960); Le Corbusier, *L’atelier de la recherche patiente*. Introduction by Guillemette Morel (Lyon: Journal Fage Éditions, 2015); Harold Allen Brooks, ed., *Le Corbusier: The Garland Essays* (London; New York: Garland, 1987), 130; Harold Allen Brooks, ed., *Le Corbusier* (Princeton, NJ: Princeton University Press, 1987); Stephen Temple, *Developing Creative Thinking in Beginning Design* (London; New York: Routledge, 2018).
- 4 Giorgio Vasari, “Of Painting. Chapter I. (XV). What Design is, and how, good Pictures are made and known, and concerning the invention of Compositions”, in *Vasari on Technique* (New York: E. P. Dutton & Co.; London: J. M. Dent & Company, 1907).
- 5 August Schmarsow, *Das Wesen der Architektonischen Schoepfung* (Leipzig: Karl W. Hiersemann, 1894); Schmarsow, “The Essence of Architectural

- Creation", in Robert Vischer, Harry Francis Mallgrave, Eleftherios Ikonomou, eds., *Empathy, Form, and Space: Problems in German Aesthetics, 1873–1893* (Santa Monica: Getty Center for the History of Art and the Humanities, 1994), 281–297.
- 6 Horst Bredekamp, *Der Bildakt. Franfurter Adorno-Vorlesungen 2007* (Berlin: Suhrkamp Verlag, 2010); Bredekamp, *Théorie de l'acte d'image. Conférences Adorno, Francfort*, trans. Frédéric Joly (Paris: Découverte, 2015); Bredekamp, *Image Acts: A Systematic Approach to Visual Agency* (Boston; Berlin: De Gruyter, 2017), 238.
  - 7 Le Corbusier, *Creation Is a Patient Search*, trans. James Palmes. Introduction by Maurice Jardot. New York: Praeger, 1960), 37; Le Corbusier, *Precisions on the Present State of Architecture and City Planning. With a New Introduction by Tim Benton, 58 Original Lecture Sketches by Le Corbusier and Explanatory Sketches* (Zurich: Park Books; Paris: Fondation Le Corbusier, 2015).
  - 8 Le Corbusier, *Sketchbooks 2. 1950–1954* (London: Thames & Hudson, 1981), 12; Michael Taussig, *I Swear I Saw This: Drawings in Fieldwork Notebooks, Namely My Own* (Chicago; London: The University of Chicago Press, 2011).
  - 9 Le Corbusier, *Creation Is a Patient Search*; Le Corbusier, *Precisions on the Present State of Architecture and City Planning*; Pérez Gómez, Alberto, Louise Pelletier, *Architectural Representation and the Perspective Hinge* (Cambridge; London: The MIT Press, 1997).
  - 10 Le Corbusier cited in Stanislaus von Moos, *Le Corbusier: Elements of a Synthesis* (Rotterdam: 010 Publishers, 2009), 294.
  - 11 Bergson, *Essai sur les données immédiates de la conscience*; Bergson, *Time and Free Will: An Essay on the Immediate Data of Consciousness*.
  - 12 Charitonidou, "Le Corbusier's Ineffable Space and Synchronism: From Architecture as Clear Syntax to Architecture as Succession of Events".
  - 13 Le Corbusier, "Albums Nivola". Le Corbusier wrote the "Albums Nivola" during his travels in India between 1952 and 1959. Fondation Le Corbusier, Paris, FLC W1-9-93. Translation by the author.
  - 14 Le Corbusier, *Creation Is a Patient Search*; Le Corbusier, *Precisions on the Present State of Architecture and City Planning*; Le Corbusier, *L'atelier de la recherche patiente*.
  - 15 Ibid.
  - 16 Ibid.
  - 17 Le Corbusier, *Precisions on the Present State of Architecture and City Planning*, 37.

- 18 David Rosand, "Time Lines", in Helena De Preester, ed., *Moving Imagination: Explorations of Gesture and Inner Movement* (Amsterdam; Philadelphia: John Benjamins Publishing Company, 2013), 210.
- 19 Elga Freiberga, "Memory and Creativity of Ontopoiesis", in Anna-Teresa Tymieniecka, eds., *Memory in the Ontopoiesis of Life: Book One. Memory in the Generation and Unfolding of Life* (Heidelberg; London; New York: Springer, 2009), 239.
- 20 Ibid.
- 21 Henri Bergson, *Matière et mémoire. Essai sur la relation du corps à l'esprit* (Paris : Quadrige/Presses Universitaires de France, 1939) ; Bergson, *Matter and Memory*, trans. Nancy Margaret Paul and W. Scott Palmer (New York: Dover Publications, 2004).
- 22 Le Corbusier, *Creation Is a Patient Search*; Le Corbusier, *Precisions on the Present State of Architecture and City Planning*; Le Corbusier, *L'atelier de la recherche patiente*.
- 23 Bergson, *Matière et mémoire. Essai sur la relation du corps à l'esprit* ; Bergson, *Matter and Memory*.
- 24 Jean Petit, *Le Corbusier, Suite de Dessins*, (Paris: Forces Vives, Collection Panorama, 1968).
- 25 Le Corbusier cited in Danièle Pauly, *Le Corbusier: Le dessin comme outil* (Nancy: Fage Editions, 2006).
- 26 Ibid.
- 27 Le Corbusier, *Mise au Point*, trans. Ivan Žaknić (New Haven: Yale University Press, 1997), 10.
- 28 Le Corbusier, "L'Esprit Nouveau en Architecture".
- 29 Paul Valéry, *Eupalinos ou l'architecte précédé de l'âme et la danse* (Paris: Éditions de la Nouvelle Revue Française, 1923).
- 30 Le Corbusier, "L'Esprit Nouveau en Architecture", 27.
- 31 Le Corbusier, Manuscript-1ère épreuve (édition 1960) *L'atelier de la recherche patiente*. Fondation Le Corbusier, Paris. Translation by the author.
- 32 Detlef Mertins, Michael William Jennings, eds., *G: An Avant-Garde Journal of Art, Architecture, Design, and Film, 1923–1926* (Los Angeles: Getty Research Institute, 2010); The subtitle of the magazine changed in the third issue from *Material zur elementaren Gestaltung (Material for Elementary Construction)* to *Zeitschrift für elementare Gestaltung (Journal for Elementary Construction)*.
- 33 Mies van der Rohe, "Bauen", *G*, 2: 1.

- 34 Ibid.; Charitonidou, "Mies van der Rohe's Zeitwille: Baukunst between Universality and Individuality", *Architecture and Culture*, 10(2) (2022): 243–271, doi: <https://doi.org/10.1080/20507828.2021.1945371>
- 35 Le Corbusier, typescript of his chapter for the book for the eighth CIAM held in Hoddesdon in April 1951. Fondation Le Corbusier, Paris, FLC U3-7-163; Le Corbusier, "The Core as a Meeting Place of the Arts", in Jacqueline Tyrwhitt, José Luis Sert, Ernesto N. Rogers, eds., *The Heart of the City: Towards the Humanization of Urban Life* (London: Lund Humphries, 1952), 41–52.
- 36 Vilém Flusser, *Gesten: Versuch einer Phänomenologie* (Dusseldorf: Bollmann, 1991), 122; Flusser, *Gestures* (Minneapolis: University of Minnesota Press, 2014); Flusser cited in Christian Gänschirt, *Tools for Ideas: Introduction to Architectural Design. Expanded and updated edition* (Basel; Boston; Berlin: Birkhäuser, 2020), 139; Charitonidou, "Frank Gehry's non-trivial drawings as gestures: Drawdlings and a kinaesthetic approach to architecture", *Journal of Visual Art Practice*, 21(2) (2002): 147–174, doi: <https://doi.org/10.1080/14702029.2021.2022292>; Charitonidou, "Frank Gehry's Self-Twisting Uninterrupted Line: Gesture-Drawings as Indexes", *Arts*, 10(1) (2021), doi: <https://doi.org/10.3390/arts10010016>
- 37 Le Corbusier, "Une maison-outil", in *Almanach d'architecture moderne*. (Paris: Éditions Crès, Collection de "L'Esprit Nouveau", 1925), 138.
- 38 Flusser, *Gesten: Versuch einer Phänomenologie*, 38; Flusser, *Gestures*; Flusser cited in Gänschirt, *Tools for Ideas : Introduction to Architectural Design. Expanded and updated edition*, 140; Charitonidou, "Frank Gehry's non-trivial drawings as gestures: Drawdlings and a kinaesthetic approach to architecture".
- 39 Le Corbusier, typescript of his text entitled "Ou ~~en~~ est l'architecture?", Fondation Le Corbusier, Paris, FLC U3-5-158; Le Corbusier, "Où en est l'architecture?", in Jean Badovici, ed., *L'architecture vivante* (Paris : Editions Albert Morancé, 1927), 7–11; Le Corbusier, "L'esprit de vérité", in Badovici, ed., *L'architecture vivante*, 5–6. Translation by the author.
- 40 Ibid.
- 41 Charitonidou, *The Relationship between Interpretation and Elaboration of Architectural Form: Investigating the Mutations of Architecture's Scope*.
- 42 Amédée Ozenfant, "Sur les écoles cubistes et post-cubistes", *Journal de Psychologie normale et pathologique*, 23(1-3) (1926): 290–302.
- 43 Ibid.
- 44 Ibid.

- 45 Ibid.
- 46 El Lissitzky, Hans Arp, eds., *Kunstismus, 1914–1924* (Zurich; Munich; Leipzig : Eugen Rentsch, 1925), x; El Lissitzky, Hans Arp, eds., *The Isms of Art, 1914–1924* (Baden : Verlag Lars Muller, 1990).
- 47 Le Corbusier, *Œuvre plastique. Peintures et Dessins Architecture*, introduction by Jean Badovici (Paris : Albert Morancé, 1938); Petit, Le Corbusier, *Suite de Dessins*, 18; Le Corbusier cited in Jaime Coll, “Structure and Play in Le Corbusier’s Art Works”, *AA Files*, 31 (1996), 13 .
- 48 Le Corbusier, *New World of Space* (New York: Reynal & Hitchcock, 1948), 67.
- 49 Ibid.
- 50 Carl Einstein cited in Daniel J. Naegele, “Savoye Space: The Sensation of the Object”, *Harvard Design Magazine*, 15 (2001): 4–13.
- 51 Carl Einstein, *Negerplastik* (Leipzig: Verlag der Weißen Bücher, 1915).
- 52 Le Corbusier, “L’Esprit Nouveau en Architecture”, in *Almanach d’architecture moderne*. (Paris: Éditions Crès, Collection de “L’Esprit Nouveau”, 1925).
- 53 Henri Bergson, *Essai sur les données immédiates de la conscience* (Paris : F. Alcan, 1889); Bergson, *Time and Free Will : An Essay on the Immediate Data of Consciousness*, trans. F. L. Pogson (London: Dover Publications, 2001).
- 54 Ibid.
- 55 Ibid.
- 56 Ibid.
- 57 Ibid.
- 58 Le Corbusier, typescript of “Conférence de Milan”, 1951, Fondation le Corbusier, Paris, FLC, U3-10-282; Fulvio Irace, Anna Chiara Cimoli, *La divina proporzione. Atti del convegno (Milano, 27–29 settembre 1951)* (Milan : Electa, 2007); Marianna Charitonidou, “An Action towards Humanization : Doorn Manifesto in a Transnational Perspective”, in Nuno Correia, Maria Helena Maia, Rute Figueiredo, eds., *Revisiting the Post-CIAM Generation : Debates, Proposals and Intellectual Framework*(Porto : IHA/FCSH-UNL, CEAA/ESAP-CESAP, 2019), 68–86, doi : <https://doi.org/10.3929/ethz-b-000451108>
- 59 Jean-Louis Cohen, “Le Corbusier’s Modulor and the Debate on Proportion in France”, *Architectural Histories*, 2 (2014), doi: <http://doi.org/10.5334/ah>.  
by
- 60 Bruno Zevi, typescript of talk entitled “La quatrième dimension et les problèmes de la proportion”, Fondation le Corbusier, Paris, FLC U3-10-245.

- 61 Matila Ghyka, typescript of talk entitled “Symétrie pentagonale et Section Dorée dans la Morphologie des organismes vivants”, Fondation le Corbusier, Paris, FLC U3-10-208.
- 62 Bruno Zevi, letter sent to Le Corbusier, undated, Fondation le Corbusier, Paris, FLC T1-2-122.
- 63 Irace, Cimoli, *La divina proporzione. Atti del convegno* (Milano, 27–29 settembre 1951), 17.
- 64 Simon Richards, *Le Corbusier and the Concept of Self* (New Haven: Yale University Press, 2003).
- 65 Creta Daniel, Assistant Curator MoMA, letter sent to Le Corbusier, 27 June 1952, Fondation Le Corbusier, Paris, FLC F1-17-80.
- 66 Matila Ghyka, *Esthétique des proportions dans la nature et dans les arts* (Paris : Gallimard, 1927) ; Ghyka, *The Geometry of Art and Life* (Mineola, NY : Dover Publications, 1977) ; Lynn Gamwell, *Mathematics and Art : A Cultural History* (Princeton, NJ : Princeton University Press, 2016).
- 67 Philip Johnson, letter sent to Le Corbusier, 6 December 1951, Fondation Le Corbusier, Paris, FLC C2-7-29-001.
- 68 Le Corbusier, letter sent to Philip Johnson, 11 June 1952, Fondation Le Corbusier, Paris, FLC C2-7-31-001.
- 69 Colin Rowe's Master thesis was written while he was a student of Rudolf Wittkower at the Warburg Institute; Colin Rowe, “The Mathematics of the Ideal Villa, Palladio and Le Corbusier compared”, *Architectural Review*, 101 (1947): 101–204; Rowe, *The Theoretical Drawings of Inigo Jones: Their Source and Scope*, Master's thesis (London: The Warburg Institute, 1947).
- 70 Le Corbusier, *Le Modulor : Essai sur une mesure harmonique à l'échelle humaine applicable universellement à l'architecture et à la mécanique. Collection Ascoral. III Section B : Normalisation et construction v. 4* (Boulogne : Éditions de l'Architecture d'aujourd'hui, 1950) ; Le Corbusier, *Modulor 2, 1955 : (Let the User Speak Next)*, 1st ed., trans. Anna Bostock, Peter de Francia (London: Faber and Faber, 1958).
- 71 Rudolf Wittkower, *Architectural Principles in the Age of Humanism* (London: The Warburg Institute, 1949).
- 72 Ibid.; Francesco Passanti, “Architecture: Proportion, Classicism, and Other Issues”, in Stanislaus von Moos, Arthur Rüegg, eds., *Applied Arts, Architecture, Painting, and Photography, 1907–1922* (New Haven; London: Yale University Press, 2002), 77.
- 73 Reyner Banham, “The Modulor”, *The Burlington Magazine*, 97 (1955), 231.

- 74 Le Corbusier, *The Modulor: A Harmonious Measure to the Human Scale Universally Applicable to Architecture and Mechanics*, 1st ed. (London: Faber and Faber, 1954); Le Corbusier, *The Modulor: A Harmonious Measure to the Human Scale Universally Applicable to Architecture and Mechanics*, trans. Peter de Francia, Anna Bostock (Basel; Boston; Berlin: Birkhäuser, 2000), 61.
- 75 Friedrich Nietzsche, *Nietzsche contre Wagner* (Paris: Flammarion, 1992), 184.
- 76 Le Corbusier, *The Modulor: A Harmonious Measure to the Human Scale Universally Applicable to Architecture and Mechanics*, 32.
- 77 Ibid; Le Corbusier cited in Naegele, "Savoie Space: The Sensation of the Object".
- 78 Heraclitus, *The Fragments of the Work of Heraclitus of Ephesus on Nature*, trans. Ingram Bywater (Baltimore : N. Murray, 1889).
- 79 Le Corbusier, *Vers une architecture*. Collection de "L'Esprit Nouveau" (Paris : Éditions Crès, 1923); Le Corbusier, *Toward an Architecture*, trans. John Goodman, introduction by Jean-Louis Cohen (Los Angeles: Getty Research Institute, 2007).
- 80 Stanislaus von Moos, *Le Corbusier: Elements of a Synthesis* (Rotterdam : 010 Publishers, 2009), 68.
- 81 Le Corbusier, *L'Art décoratif d'aujourd'hui* (Paris : Éditions Crès, 1925), 72.
- 82 Le Corbusier, "MODULOR (inventé en 1942 et mis au point pendant huit années)", letter sent to Lehart on 5 June 1950. Fondation Le Corbusier, Paris, FLC F1 18 182. Translation by the author.
- 83 Cohen, "Le Corbusier's Modulor and the Debate on Proportion in France".
- 84 Willy Boesiger, ed. *Le Corbusier. Œuvre complète, 1938–1946*, vol. 4 (Zurich : Les Éditions d'architecture, 1946), 170.
- 85 Passanti, "Architecture: Proportion, Classicism, and Other Issues".
- 86 Matila C. Ghyka, "Le Corbusier's Modular and the Golden Mean", *The Architectural Review*, 103(2) (1948): 39–42.
- 87 This book was offered to Le Corbusier by Matila C. Ghyka. We can read the following dedication : "À Monsieur Le Corbusier hommage très amical Matila C. Ghyka". Personal library of Le Corbusier, Fondation Le Corbusier, Paris ; Matila C. Ghyka, *Le nombre d'or—Tome 1er: Les rythmes. Précédé d'une lettre de M. Paul Valéry de l'Académie Française* (Paris : Gallimard, 1931).
- 88 Rudolf Arnheim, "A Review of Proportion", *Journal of Aesthetics and Art Criticism*, 14 (1955): 46–49.
- 89 Ibid.
- 90 Ibid.

- 91 Banham, "The Modulor", 231.
- 92 Richard Padovan, "Proportion and Space". Paper presented at the Werkgroep Vrienden in Amsterdam on the occasion of the Van der Laan Stichting's planned visit to Sweden, 25–26 June 2009. URL: [http://www.vanderlaanstichting.nl/pics/pdf/131203-proportion-and-space-Richard\\_Padovan\\_okt-2008.pdf](http://www.vanderlaanstichting.nl/pics/pdf/131203-proportion-and-space-Richard_Padovan_okt-2008.pdf) (accessed on 6 June 2018).
- 93 Michaël Labbé, *Le Corbusier et le problème de la norme*, Ph.D. thesis (Strasbourg: Université de Strasbourg, 2015); Werner Szambien, Bernard Huet, Giulio Lupo, *Jean-Nicolas-Louis Durand (1760–1834): Il metodo e la norma nell'architettura* (Venice: Marsilio Editori, 1986); Leandro Madrazo, "Durand and the Science of Architecture", *Journal of Architectural Education*, 48 (1994): 12–24.
- 94 Alain Pottage, "Architectural Authorship: The Normative Ambitions of Le Corbusier's Modulor", *AA Files*, 31 (1996), 65; Charitonidou, "Music as a Reservoir of Thought's Materialisation Between Metastaseis and Modulor", in Paulo de Assis, Paolo Giudici, eds., *Aberrant Nuptials: Deleuze and Artistic Research 2* (Leuven: Leuven University Press, 2019), 119, doi: <https://doi.org/10.2307/j.ctvmd83nt.10>; Lorens Holm, *Brunelleschi, Lacan, Le Corbusier: Architecture, Space and the Construction of Subjectivity* (London; New York: Routledge, 2020).
- 95 Arnheim, "A Review of Proportion".
- 96 Le Corbusier, typescript of "Ou en est l'architecture?", 1927, 10, Fondation Le Corbusier, Paris, FLC U3-5-158; Le Corbusier, "Où en est l'architecture?", in *L'Architecture vivante, documents sur l'activité constructive dans tous les pays* (Paris : A. Morancé, 1927), 10.
- 97 Le Corbusier, *Le Corbusier Talks with Students*, 54.
- 98 Alan Colquhoun, "Displacement of Concepts in Le Corbusier", *Architectural Design*, 43 (1972): 220–243.
- 99 Le Corbusier, Amédée Ozenfant, "Le purisme", *L'Esprit Nouveau*, 4 (1921): 369–386. In this text, they accused the use of perspective for its accidental character.
- 100 Le Corbusier, *Le Corbusier Talks with Students*, 26.
- 101 Le Corbusier, "Une maison-outil", in *Almanach d'architecture moderne* (Paris : Éditions Grès, 1925), 138.
- 102 Le Corbusier, *New World of Space* (New York: Reynal & Hitchcock, 1948), 16.
- 103 *Ibid.*, 21.
- 104 *Ibid.*; Le Corbusier cited in Sarah Menin, Flora Samuel, *Nature and Space: Aalto and Le Corbusier* (London; New York: Routledge, 2003), 108; Daniel

Naegele, “The image of the body in the oeuvre of Le Corbusier”, in Tim Benton, Peter Carl, Hilde Heynen, Charles Jencks, eds., *Architecture Landscape and Urbanism 9, Le Corbusier and the Architecture of Reinvention* (London: AA Publications, 2003), 16–39; Jean-Lucien Bonillo, Jean-Marc Drut, Arthur Ruegg, Ruggero Tropeano, *La cellule Le Corbusier. L'unité d'habitation de Marseille*, with photographs by Philippe Savoir (Marseille : Éditions Imbernon, 2013).

- 105 Le Corbusier, “Une cellule à échelle humaine”, in *Précisions sur un état présent de l'architecture et de l'urbanisme*, 104; Le Corbusier, *Precisions on the Present State of Architecture and City planning : with an American prologue, a Brazilian corollary followed by the temperature of Paris and the atmosphere of Moscow*.
- 106 Le Corbusier, “L'Esprit Nouveau en Architecture”, 29.
- 107 Le Corbusier, *L'art décoratif d'aujourd'hui* (Paris : Éditions Crès, 1925).