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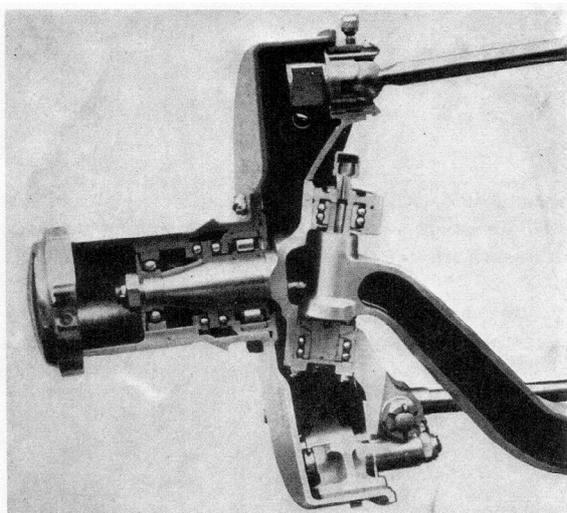
## Le Corbusier and Alfred Chapuis. Writings on watchmaking and mechanics

**Johann Linton**<sup>1</sup>. Some of the first dissertations on Le Corbusier discuss his time in La Chaux-de-Fonds, and pose various questions as to the significance of his education and formative years. A large number of studies made of the period in La Chaux-de-Fonds have since followed<sup>2</sup>. Scientific studies focusing specifically on the influence watchmaking and precision mechanics may have had on his thinking are, however, relatively rare<sup>3</sup>. An early example of how this subject was broached is a text from 1952 by the Swiss author and historian Marius Fallet<sup>4</sup>. The text was published in the journal *La Suisse Horlogère*, in a special issue on the relation between watchmaking, on the one hand, and science and art, on the other<sup>5</sup>. In addition to Le Corbusier, the article also discussed the playwright Pierre-Augustin Caron de Beaumarchais and the businessman and politician Fritz (Frédéric-Alexandre) Courvoisier. Prior to publication, *La Suisse Horlogère* contacted Le Corbusier and, upon his request, sent him the unpublished manuscript<sup>6</sup>. In the manuscript, Fallet claimed that several previous generations of the Le Corbusier family had distinguished themselves as craftsmen in the field of watchmaking, and that Le Corbusier's architectural work had taken inspiration from the standardization of watchmaking. He also claimed that Le Corbusier's rational and methodic disposition should definitely be considered in the light of his descent. Furthermore he added that the work of Le Corbusier, like that of the watchmaker, was characterized by the aspiration to create forms possessing both functional and aesthetic qualities, as well as developing the inherent logic of each object to its highest level of scientific and artistic consistency<sup>7</sup>. In a letter to the journal, Le Corbusier refuted the suggestion that watchmaking in any significant way would have influenced

his work. He maintained that his family never had occupied themselves with anything but clock-faces, and were completely unskilled in mechanics. Furthermore, he commented that the author (Fallet) had failed to take the poetic characteristics of the population of the mountain region of Neuchâtel into account. Le Corbusier claimed that this was one of the population's most appealing qualities, and that he was more profoundly inspired by this poetic trait than by scientific thinking<sup>8</sup>. That same summer (1952), in a draft for a new book series, *Les Cahiers de la recherche patiente*, Le Corbusier defined his newly built vacation hut, Le Cabanon in Cap Martin, as a 'machine à habiter', a machine for living<sup>9</sup>. Le Cabanon is perhaps the smallest and in many ways most primitive of Le Corbusier's realized buildings. He thus used the same term for Le Cabanon that he had devised in the early 1920s, one which at the time had attracted considerable notice, and was associated with new, rational building methods and the use of extensive technology in housing. In his texts from the same early period of his career, he also presented a number of renowned connections between architecture and mechanics. In his piece on cars in the well-known series of articles 'Des yeux qui ne voient pas' he wrote that the Parthenon was perfected beyond the realm of the normal to such a degree that the mere sight of the building at present only could be compared with (what he refers to as an 'unexpected statement') the sensations of a mechanical kind, the kind inspired by machines<sup>10</sup>. The article began with an image of a front-wheel brake for a Delage in section (*fig. 1*), and a caption claiming that Phidias must have felt in this way, since the entablature of the Parthenon is a witness. As evidence suggests in several texts in

—1 I am most grateful to the late Frédy Chapuis in Zurich as well as to the staff of Fondation Le Corbusier, Paris; Bibliothèque de la Ville & Musée international d'horlogerie, La Chaux-de-Fonds; Musée d'horlogerie, Château des Monts, Le Locle, for assisting me in my research. —2 Two early dissertations are Paul Venable Turner, *The Education of Le Corbusier, A study of the development of Le Corbusier's thought, 1900-1920*, Ph. D. diss., Harvard, 1971, published by Garland, 1977, and Mary Patricia May Sekler, *The Early Drawings of Charles-Edouard Jeanneret (Le Corbusier) 1902-1908*, Ph. D. diss., Harvard, 1973, published by Garland, 1977. Two, among many, examples of important works on the period leading up to 1917 are Le Corbusier, *Viaggio in Oriente: gli inediti di Charles Edouard Jeanneret fotografo scrittore*, Giuliano Gresleri ed., Marsilio, Venice 1984, and Allen H Brooks, *Le Corbusier's formative years, Charles-Edouard Jeanneret at la Chaux-de-Fonds*, The University of Chicago Press, Chicago 1997. A recent example is Stanislaus von Moos & Arthur Rüegg, ed., *Le Corbusier before Le Corbusier, applied arts, architecture, painting, photography, 1907-1922*, Yale Univ. Press, London 2002. —3 A well known example is Jacques Gubler, "A l'heure des horlogers jurassiens", *Revue neuchâteloise*, 91 (1980), pp. 7-37, published in at least three languages. A free and speculative interpretation is Michel Gros, *Le Corbusier horloger*, Travail de fin d'études, Ecole d'architecture Languedoc-Roussillon, 1992. The text published here is based on the author's work on Le Corbusier and industrialism, Johan Linton, *Le Corbusiers maskin-industriella spår i ett arkitekturtänkande* [Le Corbusier's Machine - Industrial influence in the thought of architecture], Lic. diss. 1999. 2nd print, Chalmers University of Technology, Göteborg 1999. —4 Marius Fallet (1876-1959) worked with the historian Alfred Chapuis, and the latter had an exchange with Le Corbusier (hereafter LC) supported by documenta-

1 Front-wheel brake for a Delage and caption; from "Des yeux qui ne voient pas..., Les autos" (1921). According to the caption, Phidias must have felt in this way, since the entablature of the Parthenon is a witness



FREIN AVANT DELAGE.

Cette précision, cette netteté d'exécution, ne flattent pas qu'un sentiment nouveau-né de la mécanique. Phidias sentait ainsi; l'entablement du Parthénon en témoigne. De même les Égyptiens lorsqu'ils polissaient les Pyramides. C'était au temps où Euclide et Pythagore dictaient la conduite de leurs contemporains.

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*L'Esprit Nouveau*, Le Corbusier considered the Parthenon temple as an already established standard brought to the highest possible level of perfection<sup>11</sup>. He claimed that the temple plan and its various components were postulated already, and that it was a question of joining them together in a meticulous interplay of mutual relations. His writings suggest that it is the great accu-

racy and precision of the elements themselves and the interplay between them that he had in mind when he used the term mechanics. In the article on the Parthenon in *L'Esprit Nouveau*, he writes in a caption (*fig. 2*): "This mechanics of plasticity is fully realized in marble with the rigor which we have learned to apply in the machine. The impression is like that of bare and burnished steel"<sup>12</sup>. In the same article he uses the phrase "machine à emouvoir" about the Parthenon pediment, and writes that it communicates "the implacability of mechanics"<sup>13</sup>.

It is a well-known fact that similar references to machines and mechanics are also found in earlier texts by Le Corbusier, as in the text on the Parthenon in *Le voyage d'Orient*. Apart from the frequently quoted phrase about the Parthenon as "terrible machine", there is also a reference to mechanics in the description of a column cut with "the rectilinearity of manifest mathematics and the purity which the mechanician strives for in his laborious task"<sup>14</sup>. Another reference occurs in a letter to William Ritter from Le Corbusier written shortly after his journey to the East. Le Corbusier had then recently broken off relations with Charles L'Eplattenier, and in the letter he looks back on a select number of intense experiences in his life. Along with his encounters with the beauty of nature and the Carthusian monastery of Ema (Certosa del Galluzzo) he mentions the moment "under the awe-inspiring mechanics of the Parthenon"<sup>15</sup>. Other examples of connections between mechanics and architecture occur in the analysis of Santa Maria in Cosmedin in Rome, in which he uses the description "the perfect machinery of spiritual mechanics"<sup>16</sup>. One could also mention the article in *L'Esprit Nouveau* about the Greek-born painter El Greco. Le Corbusier appreciated and was well acquainted with El Greco, whom he had already referred to

tion between 1916 and 1933 (see below). I have not been able to find out whether Marius Fallet was a relative of LC's first client Louis Edouard Fallet. -5 Marius Fallet, "De quelques autres horlogers...", *La Suisse horlogère*, Édition internationale, 2 (juillet 1952). -6 *La Suisse Horlogère* to LC, June 4, 1952, Fondation Le Corbusier (hereafter FLC), T1-2-92; LC to *La Suisse Horlogère*, June 5, 1952, FLC T1-2-93; *La Suisse Horlogère* to LC, June 6, 1952, FLC T1-2-94. -7 The two first assertions were excluded in the published article. -8 LC to *La Suisse Horlogère*, June 13, 1952, FLC G2-12-461. -9 FLC F1-8-60 to 64. -10 « [C]onstatation inattendue, les sensations mécaniques », Le Corbusier-Saugnier, "Des yeux qui ne voient pas..., Les autos", *L'Esprit Nouveau*, 10 (1921), p. 1148. All translations of quotations are made by the author unless indicated otherwise. -11 For example Le Corbusier, "Des yeux qui ne voient pas..., Les autos", cit., and Le Corbusier-Saugnier, "Architecture, pure création de l'esprit", *L'Esprit Nouveau*, 16 (1922). -12 « Toute cette mécanique de la plastique est réalisée sur le marbre avec la rigueur que nous avons appris à pratiquer dans la machine. Impression d'acier décollé et poli », Le Corbusier, "Architecture, pure création de l'esprit", cit., p. 1916. -13 « l'implacable de la mécanique », Le Corbusier, "Architecture, pure création", cit., p. 1911. -14 « la rectitude d'une mathématique évidente et la netteté qu'apporte à son labeur, le mécanicien », Le Corbusier, *Le voyage d'Orient*, Jean Petit ed., Les Editions Forces Vives, Paris 1966, pp. 154, 162. -15 « sous l'effroyable mécanique de Parthenon », LC to Ritter, 1912, FLC R3-18-197. -16 « le rouage parfait d'une mécanique spirituelle », Le Corbusier-Saugnier, "Architecture, la leçon de Rome », *L'Esprit Nouveau*, 14 (1922), p. 1599.

2 Photograph of Parthenon and caption; from "Architecture, III pure création de l'esprit" (1922). It is presented as a "machine à émouvoir" showing "the implacability of mechanics".

3 "Au temps de mon grand père". Illustration and caption from Le Corbusier in *Croisade* (1933).



PARTHÉNON. — Voici la machine à émouvoir. Nous entrons dans l'implacable de la mécanique. Il n'est pas de symboles attachés à ces formes; ces formes provoquent des sensations catégoriques; plus besoin d'une clé pour comprendre. Du brutal, de l'intense, du plus doux, du très fin, du très fort. Et qui a trouvé la composition de ces éléments? Un inventeur génial. Ces cailloux étaient inertes dans les carrières du Pentélique, informes. Pour les grouper ainsi, il ne fallait pas être ingénieur; il fallait être un grand sculpteur.

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as a progenitor of modernism<sup>17</sup>. In the article, El Greco is compared with Michelangelo and is described as being a "[...] humanist, scientist and author, architect and mechanician"<sup>18</sup>.

Even in pieces written after those of the 1920s Le Corbusier would return to the relation between mechanics and architecture, for instance with reference to a means of transport older than the car, namely the gondola. In a lecture given in Venice in 1934, he claimed that the gondola to a far greater extent than the car is a standard object, and that it had reached a perfection that occasionally is revealed in Greek temples. He described the construction and composition of the gondola and claimed that it is an expression of beauty 'entirely of mechanical origin'. From the point of view of plasticity, he wrote, it is an astonishing invention with qualities only to be found in great art. A 'marvelously balanced device, which in its mechanical realization closely resembles the aeroplane'<sup>19</sup>.

From this perspective, it is possible to relate to Fallet's article and raise the question of what the references to mechanics might have had to do with Le Corbusier's formative years in La Chaux-de-Fonds – a town which then held the position as one of the world's leading centers for watchmaking and precision mechanics. Although Le Corbusier never had any technical or scientific education – and considering that the references to watchmaking in his writings are infrequent, and that the references to mechanics could be interpreted in other ways – one could still consider that his early use of mechanics as a model, metaphor and source of inspiration could be related to his background in La Chaux-de-Fonds to some extent. The mechanical clock has been described as one of the first advanced machines and the development and production of clockworks is closely related to the skills required in mechanics, inventiveness and the meticulous adjustment of the interactive components. In a description of watchmaking published during Le Corbusier's

–17 Le Corbusier, *Le voyage d'Orient*, cit., pp. 45-46. –18 Le Corbusier e/o Amédée Ozenfant [Vauvrecy, pseud.], "Vie de Doménico Théotocopuli El Greco", *L'Esprit Nouveau*, 3 (1920), p. 282. –19 The conference "L'arte e la realtà. L'arte e lo stato. Congresso internazionale patrocinato dalla Società delle Nazioni", in Venice in July 1934; « d'origine toute mécanique », « merveilleux outil d'équilibre, très semblable à un avion dans sa réalité mécanique », Le Corbusier, *Sur les quatre routes*. Gallimard, Paris 1941, pp. 175-177. –20 "Ur" ["Clock"], in *Nordisk familjebok, konversationslexikon och realencyklopedi*, 38 vol. (1904-1926), vol. 20, Stockholm 1914, p. 1302. –21 « J'adore le taillage des pierres de l'église de Villeneuve-sur-Yonne ; j'ai une connaissance manuelle de ces choses-là », Le Corbusier, *Croisade ou le Crépuscule des Académies*, Crès, Paris 1933, p. 22. –22 « [L]a plus prodigieuse industrie de l'époque prémachiniste : l'horlogerie et la pendulerie », « coquilles somptueuses d'organismes aussi vivants que les jours et les saisons », Le Corbusier, *Croisade*, cit., p. 33.



au temps de mon grand-père.

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years in La Chaux-de-Fonds, and concerning the conditions in Switzerland, one could, for example, read: "The components have, since the 1830s, for the most part been obtained from factories, and of the approx. 3,000 operations required to complete a high-quality clock or watch, the major portion of these comprise the processing or adjustment of the plain clockworks"<sup>20</sup>.

It is at the same time noteworthy that Le Corbusier did not mention watchmaking frequently. His comment from 1952 is to some extent accurate. Personally, he only had practical experience of engraving cases for pocket watches; a procedure which certainly requires a high level of accuracy and precision but which does not involve mechanics. When Le Corbusier, in *Croisade*, referred to his engraving studies in relation to architecture it was more a question of the well executed rather than of mechanics. Criticizing the conservative institutions of the

beaux-arts, he pointed out that he too had been a craftsman. He wrote: "I take delight in the craftsmanship of the stone blocks of the church in Villeneuve-sur-Yonne, I have hands-on experience of these things"<sup>21</sup>. In the same book he referred to his background in La Chaux-de-Fonds (*fig. 3*) and claimed that "the most excellent industry of the pre-mechanical era: watchmaking and the construction of pendulum clocks" had been established there. He emphasized their outstanding mechanical and artistic quality and described the watchcases as "magnificent shells for organisms, as animate as the days and the seasons"<sup>22</sup>. In an article on Swiss architecture published at a considerably earlier point in time, he had remarked on the way watchmaking and mechanics sharpen the craftsman's eye and senses<sup>23</sup>.

However, Le Corbusier's notes on his family to Fallet present us with a bit of a predicament. His father was an enameller of clock-faces (a fact which Fallet mentions in his article), and neither his grandfather (who also worked with clock-faces) nor his great-grandfather appear to have worked with mechanics. At the same time, one might note that the Jeanneret family, with origins in the Jura dating back to at least the fifteenth century, was well known for their contribution to watchmaking. In the line of the family to which Le Corbusier belonged - Jeanneret-Gris - there were at least two "maître horloger". Firstly, Le Corbusier's ancestor from seven previous generations, Pierre Jeanneret-Gris. Secondly, Jean-Jacques Jeanneret-Gris, grandson of the latter and nephew of Daniel Jeanneret-Gris, Le Corbusier's ancestor from six previous generations<sup>24</sup>. Jean-Jacques Jeanneret-Gris was renowned for having invented (or built) an assortment of the machines for mass production that enabled Frédéric Japy to initiate an industrial serial production of clockwork components in the late eighteenth century which would radically change watchmaking conditions in the Jura<sup>25</sup>.

It is also worth mentioning that Le Corbusier had close con-

-23 Le Corbusier (Ch.-E. Jeanneret), "La maison suisse", *Les Etrennes Helvétiques* (1914). -24 Pierre Arnold Borel, « Famille Jeanneret-Gris, communière du Locle ; bourgeoise de Valangin Branche de Le Corbusier », *Familienforschung Schweiz, Généalogie Suisse* [SGFF-Mitteilungen], 52 (1996), pp. 30-36, and Pierre Arnold Borel, « Famille Jeanneret-Gris, communière du Locle et de La Chaux-du-Milieu ; bourgeoise de Valangin ; branche des créateur d'outils d'horlogers », *Familienforschung Schweiz, Généalogie Suisse* [SGFF-Mitteilungen], 52 (1996), pp. 37-41. See also Roger Jeanneret-Gris, *Les Jeanneret-Gris du Locle et de La Chaux-du-Milieu, bourgeois de Valangin*, Les Ponts-de-Martel 1990. -25 David S. Landes, *Revolution in time - Clocks and the making of the modern world*, Harvard University Press, Cambridge, Mass., 1983, pp. 261-262. Both Jean-Jacques Jeanneret-Gris and Frédéric Japy are in fact mentioned in Le Corbusier, *Le Corbusier, textes et planches*, Vincent Fréal, Paris 1960, p. 19.

tact with leading representatives for the watchmaking industry during his time in La Chaux-de-Fonds. We may note that some of these individuals were internationally distinguished in the fields of mechanical production and mechanical precision. Georges Favre-Jacot was something of a pioneer in the mechanization of watchmaking, whereas Paul Ditisheim was a leading force in the field of precision clocks<sup>26</sup>. In a letter to August Perret written in June 1914, it is evident that Le Corbusier was not insensitive to this fact. Perret had asked for Le Corbusier's help in acquiring a watch of good quality for his own personal use. Le Corbusier then recommended the watches made by Ditisheim, a recommendation that Perret followed<sup>27</sup>. In a letter written in October 1914, Le Corbusier expressed his hopes that the commissioned watch, its delivery having been delayed by the outbreak of war, had arrived. Earlier that autumn he had visited the national exhibition in Bern where Ditisheim had presented an acclaimed collection of watches and clockworks<sup>28</sup>. In the letter, Le Corbusier referred to a showcase with four pocket watches by Ditisheim he had seen at the exhibition. The watches were presented in a brief summary explaining how they had obtained the best measuring values ever recorded at the observatories in Kiev, London and Neuchâtel. Le Corbusier noted that these watches, despite their diminutive size, "gave the impression of a certain grandeur". When he thereafter enumerated the artistic and industrial work at the exhibition that had made an impression on him, he mentioned the mechanical industry first, before machines and engineering<sup>29</sup>. Among the clients with

direct association to mechanics, one might also mention Albert Stotzer, who taught mechanics at the watchmaking institute in La Chaux-de-Fonds<sup>30</sup>.

When it comes to watchmaking and mechanics it is also relevant to mention Le Corbusier's connection to the Swiss historian Alfred Chapuis. He was born, seven years earlier than Le Corbusier, in Neuchâtel, and was educated in his hometown and at the University of Berlin. After concluding his studies, he held positions teaching economical geography, literature, and history in Neuchâtel. At the beginning of the twentieth century he became interested in watchmaking, and in 1917 he published his first comprehensive work *Histoire de la pendulerie neuchâteloise*. He maintained his interest in the history of watchmaking and came to be recognized as one of the most acclaimed specialists in this field. Until his death in 1958, he published a variety of books and articles on this and closely related topics<sup>31</sup>. He was also interested in mechanical machines and automata in a more general sense. The book *Le monde des automates* (1928), which he wrote along with the French watchmaker and collector Edouard Gélis, received an award by *l'Académie des sciences* in Paris the same year it was published<sup>32</sup>. Chapuis also wrote fiction and published a novel, several short stories, plays, songs, and poetry.

As far as I have been able to determine, Chapuis was first mentioned by Le Corbusier in a letter to William Ritter in January 1916. Le Corbusier mentioned that he had "frightened a professor at the university who last week received my article on

–26 Gubler, "A l'heure des horlogers jurassiens", cit., or Landes, *Revolution in time*, cit. p. 299. –27 LC to Perret, June 3, 1914, FLC E1-11-100. –28 Eugène Jaquet & Alfred Chapuis, *Histoire et technique de la montre suisse de ses origines à nos jours*, Urs Graf, Bâle 1945, p. 182. –29 « l'impression d'une certaine grandeur », LC to Perret, Oct. 10, 1914, FLC E1-11-122. –30 Brooks, *Le Corbusier's Formative Years*, cit., p. 126, and Gubler, "A l'heure des horlogers jurassiens", cit. –31 Regarding Chapuis I refer to Fonds Alfred Chapuis, Musée d'horlogerie du Locle, and especially to Caroline Calame, "Les archives d'Alfred Chapuis", typescript, n. d., and Caroline Calame, "Alfred Chapuis, historien, poète et romancier", typescript, n. d. When, in 1998, I contacted Musée d'Horlogerie in Le Locle (where Fonds Alfred Chapuis are kept), I was told by the librarian, Caroline Calame, that she was not aware of the exchange between LC and Chapuis. She did not know whether Chapuis' descendants, a son and a daughter, were still alive, and she thought that they eventually went to reside in the US. The archive she had catalogued as late as 1996 basically did not contain any material regarding the private life of Chapuis. The archive was deposited after Chapuis' death and then in complete disorder. Through Nestlé, where Chapuis' son had been working as personnel manager, I came into contact with Dr. Frédy Chapuis, living in Zurich. He was born Feb. 2, 1913 and had never lived outside Switzerland. His older sister, born in 1907, had worked for the Foreign Office and was living in the US. None of the two descendants had any children. A third sibling, a brother, died early. Frédy Chapuis was not aware of the exchange between his father and LC either, and had never noticed that the latter was mentioned as a contributor in his father's book *Histoire de la pendulerie neuchâteloise* (1917). He could not recall having heard his father mention LC, or having seen any documents in his father's possession containing references to LC. However, his father had left a number of copies of the review *L'Esprit Nouveau* that Frédy Chapuis some years earlier had given to Heidi Weber (whom he was not personally acquainted with). As Frédy Chapuis told me, he believes his mother destroyed all material pertaining to his father's private life after his death. I interviewed Frédy Chapuis for a couple of hours on different occasions in January and August 1999. He died on Oct. 28, 1999. His wife was 2003 still living in Zurich. Caroline Calame to the author, Sept. 22, 1998, and Frédy Chapuis to the author, Nov. 24, 1998, (author's archive). –32 Alfred Chapuis & Edouard

Neuchâtelian clocks – an article written at his request<sup>33</sup>. Six months later, in a letter to August Perret, he mentioned Chapuis whose letters were full of personal ideas and postscripts<sup>34</sup>. The above-mentioned article is thus an early example of a text by Le Corbusier about the watchmaking industry in his home town. I have found no trace of the article in its entirety, but what must be fragments of it are published in Chapuis' 1917 book on clocks in which Le Corbusier is mentioned as the writer of a short passage. However, it is clear in various ways that the exchange concerning the article was more extensive than these brief remarks might lead us to believe. Several people are acknowledged in the foreword of Chapuis' book, among others "Ch.-Edouard Jeanneret, La Chaux-de-Fonds; Maurice Picard, Paris; and César Montandon, Fleurier, who all have shown the greatest interest in helping me"<sup>35</sup>. In a letter to Chapuis in 1919, Le Corbusier mentioned that they had had a continual interchange concerning the book, and he indicated that he had helped Chapuis edit one of the chapters<sup>36</sup>. This would most probably be the last chapter; "The Renewal of Neuchâtelian Clock Manufacturing, its Present State and Future Possibilities", in which Le Corbusier's text is included. The chapter mainly deals with issues regarding education and design, i.e. fields in which Le Corbusier had personal experience<sup>37</sup>. The passage written by Le Corbusier includes the following statement: "When one builds soundly, when one has come to see the new way of living in a home that is designed in ways which are completely unknown to us today, and adapted to those social functions to

which we have been subjected for a century, the question of furniture will be so secondary that it will be resolved by itself. It will without a doubt suffice with a simple disc to show the time"<sup>38</sup>. Apart from this, the chapter also contains another extract written by Le Corbusier, one where he is not mentioned by name. It concerns a short quotation from the report on the exhibition in Bern 1914, "Rapport de la sous-commission de l'enseignement de l'Œuvre", which was later to be published in the French journal *Les arts français*<sup>39</sup>. This could possibly verify Le Corbusier's statement that he had contributed more extensively to the editing of one of the chapters in the book. In connection to Le Corbusier's texts on the watchmaking industry in his hometown, it is also relevant to mention the fairly unknown article "Une industrie d'art au canton de Neuchâtel, la médaille et le décor de la montre", which is most certainly written after the report to Chapuis<sup>40</sup>. From a considerably more ironic point of view, Le Corbusier there dealt with the manner in which the resources within the industry were used to meet the public demand of decorated watchcases and medals.

Concerning the question of precisely how Le Corbusier and Alfred Chapuis came in contact with each other I have found no reliable information. One plausible possibility would be that they were introduced to each other by a mutual acquaintance. Chapuis worked closely with, and received financial support from, several of the industrial directors who employed Le Corbusier. Chapuis later mentioned that they met during the period when Le Corbusier was a member of *Les Ateliers d'art*

Gélis, *Le monde des automates*, 2 vol., Paris 1928. Alfred Chapuis & Edmond Droz, *Les automates, figures artificielles d'hommes et d'animaux, histoire et technique*, Griffon, Neuchâtel 1949, p. 11. Regarding Chapuis' writings on machines and automates one could also mention *Automates, machines automatiques et machinisme*, Publications techniques, Genève 1928, and *Des causes et des conséquences du machinisme* (1932), Neuchâtel. –**33** « J'ai dû effarer un docteur professeur d'Université, qui, la semaine dernière recevait mon rapport sur les pendules neuchâtelaise – rapport fait à sa demande », LC to Ritter, Jan. 19, 1916, FLC R3-19, 3 and 4. –**34** LC to Perret, July 21, 1916, FLC E1-11-213. None of the references to Chapuis in the letters contain his name. –**35** « MM. Ch.-Edouard Jeanneret, à La Chaux-de-Fonds, Maurice Picard, à Paris, et César Montandon, à Fleurier, qui tous trois ont déployé le plus grand zèle à m'être agréables », Alfred Chapuis, *Histoire de la pendulerie neuchâtelaise*, Attinger, Neuchâtel 1917, p. X. –**36** LC to Chapuis, Nov. 19, 1919, FLC E1-15-7. –**37** "Le renouveau de la pendulerie neuchâtelaise, Conditions et possibilités actuelles", Chapuis, *Histoire de la pendulerie*, cit., pp. 436-448. During his studies at L'Ecole d'Art LC designed a mantelpiece clock. Brooks, *Le Corbusier's Formative Years*, 1997, p. 32. –**38** « Quand on bâtit sainement, quand on aura perçu la nouvelle manière de vivre dans un logement, avec une disposition totalement inconnue de nos jours, avec une adaptation aux fonctions sociales subies depuis cent ans, la question mobilier sera si secondaire qu'elle se solutionnera d'elle-même. La beauté sera dans le rythme, non dans la surcharge. Un simple disque suffira sans doute à montrer l'heure », Chapuis, *Histoire de la pendulerie*, cit., p. 440. Some years later LC would mention that there was a search for a new standard of form in watchmaking. Le Corbusier, "Des yeux qui ne voient pas..., Les autos", cit., p. 1146. –**39** Chapuis, *Histoire de la pendulerie*, cit., p. 440. Le Corbusier, "Rapport de la sous-commission de l'enseignement de l'Œuvre" [1-4], *Les arts français*, 24 (1918), 25 (1919), 26 (1919), 27 (1919). –**40** Le Corbusier [Ch.-E. Jeanneret], "Une industrie d'art au canton de Neuchâtel, la médaille et le décor de la montre", *Pages d'art*, 3 (1917), pp. 124-130.

*réunis*, and while he was working on the Villa Favre-Jacot<sup>41</sup>. It is also worth mentioning that both were active in the society *L'Œuvre*, where they were listed as members in the society's bulletin of 1914<sup>42</sup>. In an issue of the bulletin from 1916, which contained a draft of an annual report, they are mentioned on the same page. Le Corbusier is mentioned as being responsible for the special committee on educational matters, while Chapuis is reported to have briefed the society about his present project, the history of the clock. Chapuis is also mentioned with regard to his intention to organize a competition for modern clock design<sup>43</sup>. Furthermore, it is interesting to note that Chapuis was, at least later on, in contact with Le Corbusier's friend from his formative years, the sculptor Léon Perrin<sup>44</sup>.

The exchange with Chapuis continued even after Le Corbusier moved to Paris. The archives of Fondation Le Corbusier contain portions of their correspondence, beginning with a letter from Le Corbusier to Chapuis in November 1919, and ending with a letter from Chapuis to Le Corbusier in April 1931. In the first letter, Le Corbusier wrote to Chapuis asking for a copy of *Histoire de la pendulerie neuchâteloise*. He wrote that he would like to meet Chapuis during his upcoming visit to Paris, and that he was counting on Chapuis to contact him<sup>45</sup>. In February 1920, he wrote to thank Chapuis for that specific book in addition to a few others, one of which probably was *La montre chinoise*, published in 1919<sup>46</sup>. A short note from Le Corbusier, dated the 22nd of March 1921, mentions an upcoming meeting with Chapuis, and in a letter from November 1925, Chapuis refers to an encounter that had taken place "four and a half

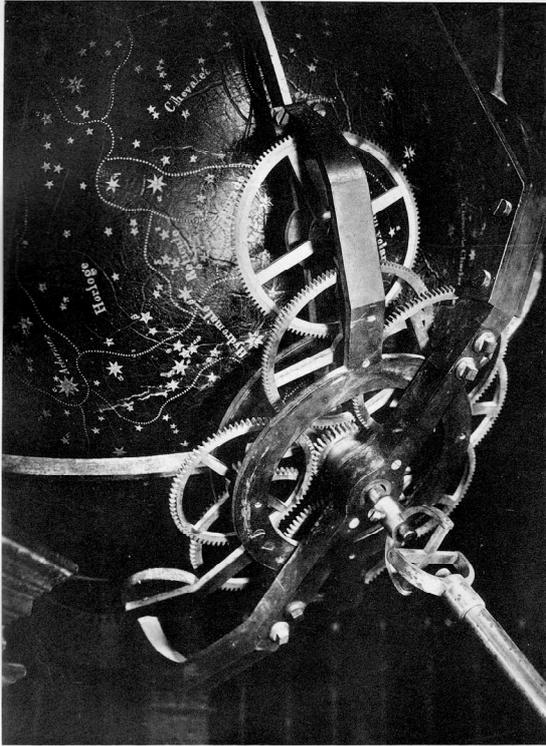
years ago"<sup>47</sup>. They also met again in the early months of 1926<sup>48</sup>. In the fall of 1927, Chapuis wrote five articles on Le Corbusier and his work in *L'Express de Neuchâtel*, which he also sent to Le Corbusier<sup>49</sup>. The last letter I have found in this incomplete correspondence is from Chapuis to Le Corbusier in 1931<sup>50</sup>. There, among other things, he thanks for a copy of *Requête* that Le Corbusier had sent to him<sup>51</sup>. The correspondence between the two seems to have continued for a while after that, as Le Corbusier's library contains Chapuis' text, "Aux portes des océans", published in 1933, with a dedication by the author<sup>52</sup>. In addition to the above-mentioned works, Le Corbusier also possessed other books dedicated by Chapuis<sup>53</sup>.

Le Corbusier's contribution to Chapuis' book seems to have dealt exclusively with design, but one cannot exclude they also discussed issues pertaining to mechanics and machines in general. It is, for example, notable that Chapuis contributed to the same journal where Fallet much later published his article on Le Corbusier and watchmaking. As a matter of fact, Chapuis and Fallet had worked together and they knew each other long before Chapuis published his first book where Fallet was acknowledged ahead of Le Corbusier in the foreword<sup>54</sup>.

In Le Corbusier's copy of *Histoire de la pendulerie neuchâteloise* his own name is marked in the margin and underlined in red<sup>55</sup>. Furthermore, two specific passages have faint pencil markings in the margin. Both passages concern mechanics. One passage claims - with a reference to the prominent La Chaux-de-Fonds watchmakers of the eighteenth century, Pierre and Henri-Louis Jaquet-Droz and their colleague Jean-Frédéric

—41 Alfred Chapuis, "Le Corbusier", *L'Express de Neuchâtel*, Oct. 5, 1927 —42 *L'Œuvre, Bulletin bimensuel*, 2 (1914), pp. 8-9. This happened about the same time as Chapuis began his collaboration with Gélis on the book on automates. Chapuis & Gélis, *Le monde des automates*, T1, 1928, p. IX. —43 *L'Œuvre, Bulletin bimensuel*, 6 (1916), p. 40. —44 This is evident from a letter from Chapuis to LC dated November 2, 1927, FLC C3-5-72. In the workroom of Frédy Chapuis I noticed a painting by Perrin that probably was connected with the relationship between Alfred Chapuis and Perrin. In the correspondence between Chapuis and LC there are incidental references to a drawing that LC had promised Chapuis. Unfortunately I found no traces of such a drawing by LC through the channels of Frédy Chapuis or the Fonds Chapuis at the Musée d'horlogerie du Locle. —45 LC to Chapuis, Nov. 19, 1919, FLC E1-15-7. —46 LC to Chapuis, Feb. 6, 1920, FLC G1-2-19. The other books are not mentioned by title, but in the personal library of LC there is a copy with dedication ("Hommage cordial de l'auteur 1919") of Alfred Chapuis, *La montre "chinoise"*, collab. Gustave Loup, Attinger, Neuchâtel 1919, FLC V-427. —47 LC to Chapuis, March 22, 1921, FLC, G1-3-38; Chapuis to LC, Nov. 20, 1925, FLC E1-15-8. One can note that Chapuis did subscribe to *L'Esprit Nouveau* from April 4, 1921, FLC A2-9-137. —48 Chapuis, "Le Corbusier", *L'Express de Neuchâtel*, 5 Oct. 1927. —49 Chapuis to LC, Nov. 2, 1927, FLC C3-5-72. The articles were: Alfred Chapuis, "Le Corbusier", *L'Express de Neuchâtel*, Oct. 5, 1927; Alfred Chapuis, "Les conceptions picturales d'Ozenfant et de Le Corbusier", *L'Express de Neuchâtel*, Oct. 12, 1927; Alfred Chapuis, "Le Corbusier et l'art décoratif", *L'Express de Neuchâtel*, Oct. 19, 1927; Alfred Chapuis, "Les conceptions architecturales de Le Corbusier", *L'Express de Neuchâtel*, Oct. 26, 1927; Alfred Chapuis, "Le Corbusier et l'urbanisme", *L'Express de Neuchâtel*, Nov. 2, 1927. —50 Chapuis to LC, April 13, 1931, FLC E1-15-10. In the letters I have found in FLC there are references to correspondence that I have not been able to locate. One cannot exclude that there might be more material on Chapuis kept in LFC under categories not associated with his name. —51 Le Corbusier & Pierre Jeanneret, *Requête de MM. Le Corbusier et P. Jeanneret à M. le président du conseil de la société des nations*, 1928. It is not clear whether it refers to the edition from 1928 or the one from 1931.

Pl. XXXI



LE ROUAGE DE LA PRÉCESSION DES ÉQUINOXES  
(la roue supérieure achève une révolution en 25806 ans).

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4 Photograph from the book *L'Horloge astronomique de la cathédrale de Strasbourg* (1922). The caption reads: "Le rouage de la précession des équinoxes (la roue supérieure achève une révolution en 25.806 ans)". The Photograph was also published in *L'Esprit Nouveau*, 9 (1921) with the caption "Ce cliché (mouvement d'horlogerie de la Cathédrale de Strasbourg) n'a pas de rapport avec aucun article. Il n'est là que pour faire plaisir aux yeux et faire penser"

Leschot – that the brilliant craftsmen and watchmakers of La Chaux-de-Fonds did not come into existence spontaneously but that their skill was the product of the very essence of the racial qualities of the craftsmen in the Jura Mountains<sup>56</sup>. The other passage described these watchmakers as follows: "Watchmakers by profession but mechanics by passion, they guided watchmaking toward a mechanical orientation without, perhaps, concerning themselves with whether this was the correct path or

not. At a certain point in time they engaged themselves in problems of pure mechanics, and it is especially in this respect that their authority is indisputable, as well as being the area in which their skills developed to their full extent"<sup>57</sup>. Another example that could confirm the notion that Le Corbusier's references to mechanics in some way were influenced by watchmaking is the clock of the cathedral of Strasbourg. A photograph showing a detail of the clock (*fig. 4*) can be seen in issue number 9 of *L'Esprit Nouveau*, published in June 1921, shortly after the previously mentioned meeting between Le Corbusier and Chapuis<sup>58</sup>. It is, by the way, in this particular issue that the expression "machine à habiter" occurs for the first time. This is in his renowned article on aeroplanes, where Le Corbusier points out the procedure of aeronautical engineers as a model for architects. Independent of how he meant to implement this practice in architecture, mechanics has a central part in his description of its application with regard to aeroplanes: "Inventing an aeroplane without taking into consideration anything but pure mechanics, that is to search for an aerofoil and a driving force, is to formulate the problem well"<sup>59</sup>. He goes on to say that architects should "formulate the problem in the same way as aeronautical engineers and mass produce 'machines à habiter'". These statements were followed by an article by Albert Jeanneret, and then by the mentioned photograph of the clock.

The clock in Strasbourg has a history dating back to the fourteenth century, and the clockwork presently in use dates back to 1842 when it replaced a device from 1574. The clock is mentioned, and is given a unique significance, in several texts on

–52 Alfred Chapuis, "Aux portes des océans", *Bulletin de la société neuchâteloise de géographie* (1933), Offprint, Neuchâtel 1933. With the dedication « hommage cordial de l'auteur », FLC Z-20. Chapuis also mentioned LC in his book *La Suisse dans le monde*, Payot, Paris 1939, p.221. –53 Frédéric-Samuel Osterwald, *Description des montagnes et des vallées qui font partie de la principauté de Neuchâtel et Valengin* (1766), A.-G. Berthoud ed., Intr. Alfred Chapuis, A.-G. Berthoud, Neuchâtel 1913; with dedication: « A Monsieur Ch. E. Jeanneret / Hommage [...] / Alf. Chapuis »; Bibliothèque de la Ville, La Chaux-de-Fonds, LC 683. Alfred Chapuis, *L'homme dans la lune*, Attinger, Neuchâtel 1929, with dedication « à Le Corbusier hommage cordial », FLC J-153. –54 To the question of Le Corbusier, Chapuis, Fallet, watchmaking and mechanics one can also add that the illustration of a watch for the chapter "Invite à l'action" (earlier published in *Plans*, 1, 1931) in *La ville radieuse* (1935) comes from a publication where both Chapuis and Fallet contributed: *L'horlogerie et la bijouterie suisses*, publ. par le *Journal suisse d'horlogerie et inventions* - revue à l'occasion de la Foire-exposition de Genève, Juillet 1920. –55 With regard to the underlined passages one naturally cannot exclude the possibility that they might be made by someone else. –56 Chapuis, *Histoire de la pendulerie*, cit., p. 109, FLC V-427. –57 « Horlogers par métiers, mais mécaniciens par goût, ils ont entraîné l'horlogerie vers la mécanique sans se soucier peut-être si tel était son vrai chemin. A un moment donné, ils s'adonneront à des problèmes de mécanique pure, et c'est là surtout que leur autorité sera indiscutable et que leur génie se développera dans la plénitude de sa force », Chapuis, *Histoire de la pendulerie*, cit., p. 114, FLC V-427. –58 The date of publication for *L'Esprit Nouveau* is based on the information given in Roberto Gabetti & Carlo Olmo, *Le Corbusier e "L'Esprit Nouveau"*, Einaudi, Torino 1975, pp. 10-11, n. 1. –59 « Inventer une machine à voler sans souvenirs accordés à quoi que ce soit d'étranger à la pure mécanique, c'est-à-dire rechercher un plan sustentateur et une propulsion, c'était bien poser le problème », « poser le problème comme se le sont posé les ingénieurs de l'aviation et construire en série des machines à habiter », Le Corbusier-Saugnier, "Des yeux qui ne voient pas...", *Les avions*, *L'Esprit Nouveau*, 9 (1921), pp. 978, 988.

watchmaking<sup>60</sup>. The entire cathedral is renowned and Le Corbusier praised it in letters to both Perret and Ritter<sup>61</sup>. With regard to the clock as such, I have found no other reference by Le Corbusier than this photograph, but there are signs that suggest that he was fascinated by clocks at other churches<sup>62</sup>. The picture of the clock in *L'Esprit Nouveau* is presented in a rather unusual manner, or as the caption reads: "This plate (the clockwork from the cathedral of Strasbourg) has nothing to do with any of the articles. It is included merely to please the eye and set thoughts in motion"<sup>63</sup>. Furthermore, the photograph is said to come from Société astronomique de France. Perhaps we will never know exactly how the photograph came to be included, but it seems plausible that it, in some way, had been procured by Chapuis. The photograph seems to have been produced for an extensive publication about the Strasbourg clock that was published the following year; Alfred and Théodore Ungerer's book *L'Horloge astronomique de la cathédrale de Strasbourg*<sup>64</sup>. Chapuis was fascinated by the Strasbourg clock<sup>65</sup>. As mentioned earlier, he was also in contact with French watchmaking historians, and it is not altogether surprising that he had a copy of this particular book in his library that had been provided with a dedication from the authors, dated October 1922<sup>66</sup>. Chapuis, a collector of photographs and illustrations of clocks, also had pictures from the book in his archive<sup>67</sup>. Consequently, it doesn't seem entirely implausible that Chapuis could have given Le Corbusier the photograph in some form when they met in Paris shortly before the publication of *L'Esprit Nouveau* in June. If this is the case, it would not be the sole example of a possible exchange on mechanics between

Chapuis and Le Corbusier. One could also present the quotation that Chapuis chose to use at the flyleaf for his book on the history of the clock: "Mechanics is the fundament for all knowledge that honours man and serves to provide him with comfort in life" - a statement by the French watchmaker and writer Ferdinand Berthoud<sup>68</sup>. It seems credible that Le Corbusier - who had been involved with the book and who appears to have underlined his own name in the foreword - was familiar with this quotation. In that case, it is possible to hypothetically propose that he in some way could have related this concept to his work. This idea gains some credibility when one takes into account that the exact same quotation appears in the first biography about Le Corbusier: Maximilien Gauthier's book *Le Corbusier ou L'Architecture au service de l'homme*. The book was published in 1944, and it is clearly and to a great extent supported by information supplied by Le Corbusier himself. The book gives an account of Le Corbusier's life and describes the qualities of his work, but without really maintaining a critical perspective. The historian Carlo Olmo even goes so far as to state that Le Corbusier used Gauthier's book as a vehicle to provide his own interpretation of his life<sup>69</sup>. Berthoud's phrase is quoted in connection with the description of Le Corbusier's background and Ferdinand Berthoud is described as being merely "a Neuchâtelian writer". Gauthier wrote that the quotation gives a telling description of the people of La Chaux-de-Fonds and added rather remarkably: "Le Corbusier could make it his motto"<sup>70</sup>.

–60 Landes, *Revolution in time*, 1983, p. 83. –61 LC to Perret, July 1st, 1914, FLC E1-11-112; LC to Ritter, June 28, 1914, FLC R3-18-344. –62 Then mainly sundials, for example in San Petronio in Bologna and probably in Saint Sulpice in Paris and in the Cathedral of Chartres. Giuliano Gresleri, "Il poema orientale", in *Le Corbusier, il lin - guaggio delle pietre*, Giuliano Gresleri ed., Marsilio Venice 1988, pp. 20-21; Mogens Krustup, "La peinture du silence", Paper presented June 15, 1998 in Pavillon Suisse, Paris, in connection with the 50th year anniversary celebration of LC's mural painting. –63 « Ce cliché (mouvement d'horlogerie de la Cathédrale de Strasbourg) n'a pas de rapport avec aucun article. Il n'est là que pour faire plaisir aux yeux et faire penser », *L'Esprit Nouveau*, 9 (1921), p. 996. –64 Alfred Ungerer & Théodore Ungerer, *L'Horloge astronomique de la Cathédrale de Strasbourg*, Strasbourg 1922. The book contains a couple of similar photographs and was published « [s]ous les auspices de la Société astronomique de France ». One can also mention that a text by Théodore Ungerer on the clock in Strasbourg was recorded in *L'Esprit Nouveau* 14 (1922), p. 1680: "L'Horloge de Strasbourg et les Poètes d'Alsace", *Les nouveaux cahiers alsaciens* (n.d., probably 1922). –65 Chapuis & Droz, *Les automates*, 1949, p. 55. –66 « A Monsieur Alfred Chapuis un affectueux hommage de la part des auteurs. Alfred Ungerer Théodore Ungerer. Strasbourg, octobre 1922. » –67 For example pl. XIX and XXII are to be found in Dossiers 066, Musée d'horlogerie du Locle. The photo published in *L'Esprit Nouveau*, however, could not be located at the Fonds Chapuis. –68 « La Mécanique est la base de toutes les connaissances qui honorent l'homme et qui servent à lui procurer les aisances de la vie », Chapuis, *Histoire de la pendulerie*, 1917, flyleaf. –69 Carlo Olmo, "Revues, la perception de changement", in *Le Corbusier, une encyclopédie*, Jacques Lucan ed., Centre Pompidou, Paris 1987, p. 347. –70 Maximilien Gauthier, *Le Corbusier ou l'architecture au service de l'homme*, Denoël, Paris 1944, pp. 15-16.

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