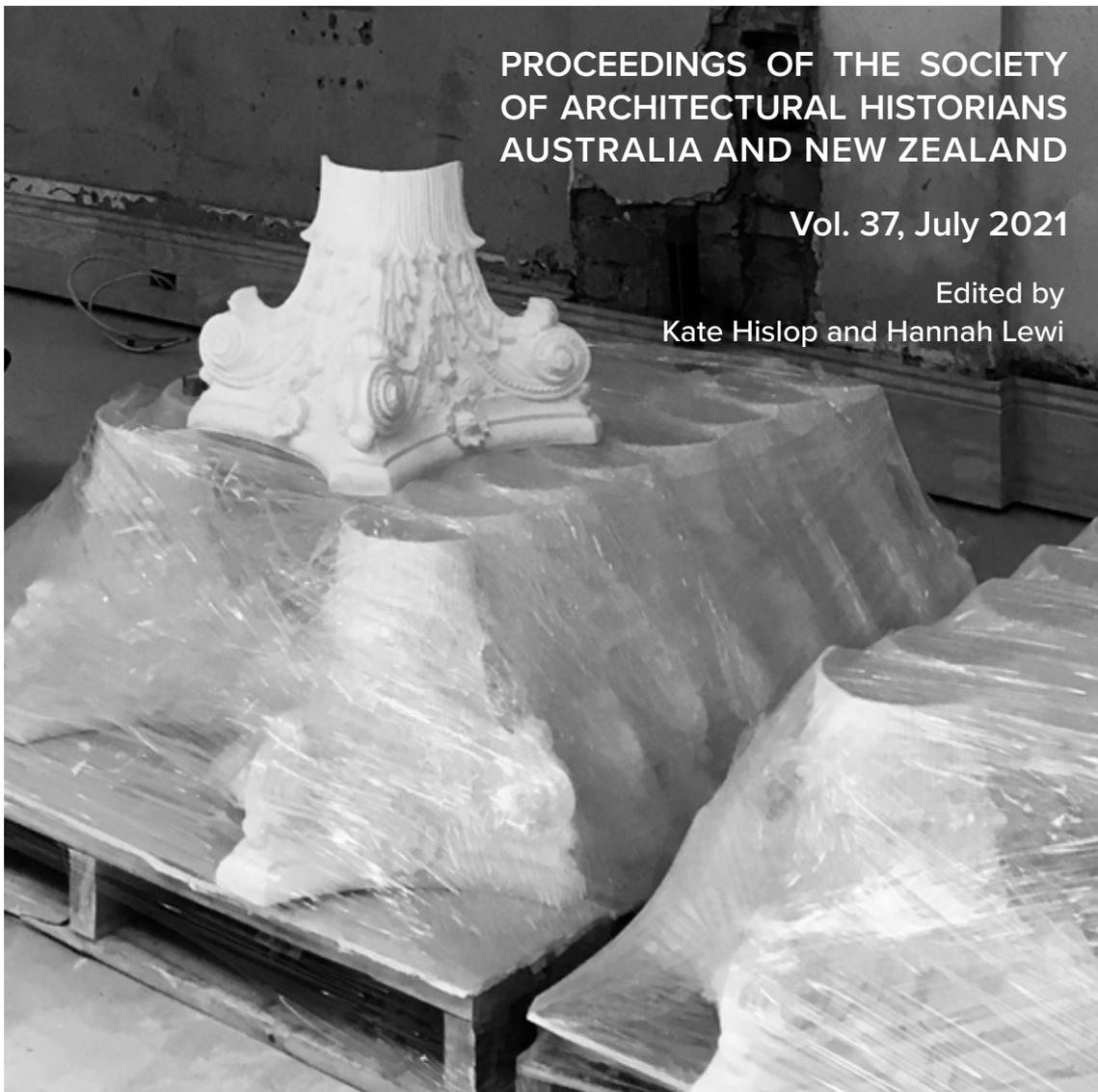


WHAT IF? WHAT NEXT?

# **SPECULATIONS ON HISTORY'S FUTURES**



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OF ARCHITECTURAL HISTORIANS  
AUSTRALIA AND NEW ZEALAND

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Kate Hislop and Hannah Lewi

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## **Proceedings of the Society of Architectural Historians, Australia and New Zealand 37**

### **What If? What Next? Speculations on History's Futures**

Edited by Kate Hislop and Hannah Lewi

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Cover image courtesy Hannah Lewi.

# THE HOUSE AS DOMESTIC CLINIC

Christoph Schnoor | Unitec Institute of Technology

*Infectious diseases have dramatically affected social behaviour in the past, as is happening now, during the current coronavirus pandemic. But infectious diseases have also altered architecture and urban design on the way to modernism. Tuberculosis acted as a major health threat in the late 19th and early 20th century. Although Robert Koch discovered the *Mycobacterium tuberculosis* in 1882, the disease continued to kill many thousands of often young people particularly in crowded cities until finally, in 1944, the discovery of the antibiotic streptomycin made medical treatment possible.*

*In the absence of medication, another 'tool' was employed to improve the health of tuberculosis patients: architecture. First it was the sanatorium, later the modernist dwelling that was designed to be hygienic both in functional and in symbolic terms; and, on a larger scale, modernist urban design – the dispersed modernist slab-city. In his 2007 book *Light, Air and Openness*, Paul Overy has mapped out the contributing factors of this movement which happened in part as an intense collaboration between architects and medical experts: in her 2003 dissertation entitled *Neues Bauen and Hygiene*, Christina Flötotto has demonstrated the close collaboration between physician Friedrich Wolf and architect Richard Döcker in Stuttgart.*

*Will architecture possibly change through the current pandemic, and how? In order to be able to speculate about this question, this paper investigates how modernist architects took cues to turn houses into domestic clinics, appearing as sanatorium buildings for everyone in the heyday of this movement, in the 1920s. The paper studies relevant works of two architects: on the one hand Richard Döcker, who through his publication *Terrassentyp* ('terrace-type building') argued explicitly for the link between the sanatorium and the house, and on the other hand Le Corbusier who argued more broadly, however implements sanatorium-like elements even more strongly, particularly by introducing architectural gardens as part of the house.*

## The Pandemic – Tuberculosis Then and Now COVID-19

With repeated lockdowns and uncertainty about our lives today, we cannot but wonder how much this new virus will continue to affect the way we live in our cities and our houses. For this reason, it seems timely to reflect on a similar (but different) historical situation in which the response to bacteria – the tubercle bacillus – influenced architecture and urban design for decades. Tuberculosis as a disease needed architectural solutions because medical solutions were not ready. Can this be seen as a parallel to the current coronavirus situation?

In his comprehensive book *Light, Air and Openness* of 2007, Paul Overy has outlined how the appearance of modernist architecture was highly influenced by responses to tuberculosis.<sup>1</sup> A few years earlier, Christina Flötotto had already demonstrated the very close connection between medicine and architecture during the early 20<sup>th</sup> century. In her unpublished doctoral thesis of 2003, entitled “*Neues Bauen and Hygiene*”, she investigates the relationship between physician Friedrich Wolf and architect Richard Döcker in Stuttgart as a case study.<sup>2</sup> Margaret Campbell has equally brought medicine and modernism together in her 2005 article “What Tuberculosis did for Modernism”.<sup>3</sup> And more recently, Tania Anne Woloshyn published *Soaking up the Rays*, a book in which she followed visual culture in relation to heliotherapy.<sup>4</sup> Their work highlights the various ways in which medicine inspired architectural moves as much as architecture inspired medical advice in the heyday of modernism.

### Sunlight and Air: Towards The House as Domestic Clinic

While Robert Koch had described the tubercle bacillus (*Mycobacterium tuberculosis*) in 1882, it took sixty more years – until 1943 – for Selman Waksman to discover streptomycin.<sup>5</sup> Until then, there was no medical cure for tuberculosis. Therefore, sanatorium buildings were deemed necessary as active part of tuberculosis treatment. They were developed outside the cities – in places with fresh air and sunshine, and so the Swiss Alps feature prominently in the development of sanatorium architecture from early on. As is well studied, this happened against the background of a wide-ranging life-reform movement, which included the *Wandervogel*, clothing reform and a general scepticism towards culture, as for example the history of the Monte Verità shows.<sup>6</sup> But perhaps without the specific, even peculiar history of Davos in the Swiss Alps, the connection between medicine and modernism would not have become so prominent.

Sanatoria were not just buildings in which patients could restore their health through extensive sun-bathing in the fresh air, while tucked into bed under warming blankets. These buildings also became models in terms of architectural aesthetics. As hospital buildings, they had to be clean and modern, equipped with central heating and electric light and with surfaces that were easily wiped. In addition, and increasingly during the 1920s and ‘30s, they were also built as white buildings, horizontally organised with flat roofs, rational and repetitive with their individual sunrooms, each room getting as much sun as possible through full-height windows. A balcony or terrace accompanied each room, as we can see for example in Duiker’s and Bijvoet’s *Zonnestraal* (1926–28) or Aalto’s *Sanatorium in Paimio* (1929–33).

With the success of the sanatorium movement, it became clear after the First World War that these institutions on their own would not be able to cure all the patients – there were simply too many cases and the treatment was too expensive. It made sense to transfer the achievements of the sanatorium into the single dwelling, into the house or housing block. Both architects and medical experts demanded that the modernist house become a “domestic clinic”. As Flötotto points out, it is no coincidence that architectural interest shifted from the sanatorium to the house as domestic clinic around the end of the First World War: “Not only was it impossible to treat all tuberculosis sufferers in sanatoria, but also the realisation that the return of the successfully treated patient into his unhygienic, daily environment would remove all the successes of the therapy, drew attention to the residential house.”<sup>7</sup> And it is in the residential house of the 1920s where we find all these modernist achievements displayed. The house begins to *act* as a domestic clinic while it also *looks like* a domestic clinic. Practicality and symbolism go hand-in-hand. This

is perhaps the more noteworthy because modernist architects tended to deny the symbolic component of their work.

### The Sanatorium as Hygienic and Aesthetic Model

From the later part of the 19<sup>th</sup> century, from circa 1870 onwards, the architecture of hospital buildings had increasingly focussed on the provision of fresh air. The pavilion style became the fashion of the day for hospital and asylum buildings, with low-rise buildings in park settings.<sup>8</sup> But the architectural language of these buildings was predominantly historicist, covered with hipped roofs. This did not change until into the 20<sup>th</sup> century.

One of the first sanatoria in Switzerland opened in Leysin (in the Canton of Vaud) in 1894. Here, Dr Auguste Rollier introduced light therapy, *héliothérapie* in 1904 for mainly non-pulmonary forms of tuberculosis.<sup>9</sup> This was a method by which – the often very young – patients were exposed to sunlight as much as possible. Once they had sufficiently recovered from the worst symptoms they were directed to doing sports – skiing or gymnastics – in the sunlight, sparsely dressed to expose the skin to the sun. Until 1940, Rollier ran 18 clinics with up to 1500 patients following this method.<sup>10</sup> While these developments were ground-breaking in medical terms, they did not necessarily instigate big changes in the architecture used for these cures. Rollier's sanatorium in Leysin was still characterised by traditionalist Swiss timber balconies, all the while already being constructed with a flat roof.

Any suggestion that early hygiene considerations *automatically* led to the modernist appearance of sanatoria or other hospital buildings, therefore does not necessarily work. The Dresden Hygiene exhibition of 1911 seems to even point into the opposite direction. This exhibition, entirely devoted to questions of hygiene, showed buildings that had nothing to do with our understanding of modernism. Local architects Lossow and Kühne had designed the buildings of the exhibition area in a neoclassical architecture, in the 1890s. The architecture of the 1911 exhibition, while housing material on hygiene in all its aspects, was itself far from aesthetically engaging with the subject of hygiene and cleanliness.<sup>11</sup>

In Davos in Switzerland however, a building was erected in 1907–08 which marked a decisive turn in the way architecture was to be designed in the 20<sup>th</sup> century. The Queen Alexandra Sanatorium by Pflughard and Haefeli can be described as proto-modernist in appearance and may have figured as a model for later architecture. This building showed a flat roof and full wall-size openings rather than punched windows. In various ways it appears to anticipate the white international modernism of the mid- to late 1920s. This is perhaps all the more astonishing because the architecture of Pflughard and Haefeli was otherwise relatively conservative. Otto Pflughard (1869–1958) and Max Haefeli (1869–1941) led their practice in Zurich from 1898 to 1925, and with typologies of their designs ranging from industrial over commercial to residential, their architectural language occupies positions between reduced neo-baroque and -classicism, and a version of *Heimatschutz*, Swiss regionalist architecture.<sup>12</sup>

So this sanatorium stands out even more. The crucial architectural elements are the flat roof and the south-facing windows which occupy the full width and height of each individual sanatorium room. Balconies in front of each room allow the patient to lie in the sun and fresh air. The walls appear white. And the whole appearance of the building is one of rational cleanliness. It was one of the earliest large-scale reinforced-concrete buildings in Europe.<sup>13</sup> Perhaps it is relevant that the engineer in charge was Robert Maillart (and French firm Hennebique the contractor).<sup>14</sup> Swiss-born engineer Maillart (1872–1940) was one of the leading designer-engineers of early modernism, one who revolutionised the use of reinforced concrete with his aesthetic understanding. One wonders whether it was his influence which allowed Pflughard and Haefeli to break with architectural conventions in their sanatorium.

An interesting coincidence to be noted is the fact that Davos, the famous village in the Canton of Grison in the Swiss Alps, situated at about 1560m above sea level, had for reasons of dealing

with snow loads already become a centre of flat roofs since the middle of the 19<sup>th</sup> century, as art historian Erwin Poeschel described in an essay in 1928.<sup>15</sup>

Therefore, this one sanatorium building, perhaps by sheer coincidence, brought together a number of elements that would become crucial for the aesthetic direction of modernist architecture. And it highlights two aspects that, in their combination, would equally be decisive for modernist architecture: here was a building that functioned hygienically – because this was its main purpose. But it was, at the same time, able to transport the *idea* of a hygienically clean modernism, through its new aesthetic components. And this is important for modernist architecture since so often architects in the 1920s and -30s denied the symbolic element of their architecture while rhetorically focussing on the functional aspects. But the functional cleanness goes hand-in-hand with the symbolic cleanness in so many buildings of this period.

How, if at all, did the transition work from sanatorium to modernist ‘domestic clinics’?

### **Health and Hygiene: Le Corbusier Develops the Idea of a Roof Garden**

In the 1920s, Le Corbusier’s radically modernist architecture displays roof gardens, sunrooms, full-height windows, clean interiors and the like in seemingly endless repetition. But are these architectural devices linked to the idea of the sanatorium?

Le Corbusier – then still Charles-Edouard Jeanneret – was interested in hygiene as a topic from 1910 onwards. Particularly through his visit of the *Allgemeine Städtebau-Ausstellung* in Berlin in June 1910, he became aware of the role that hygiene considerations played for architects and urban planners.<sup>16</sup> During the same period, even before he went on his *Voyage d’Orient* in 1911, he was further fascinated with the notion of the garden as a *built* addition to the house, or one could say: as an integral architectural element of the house.<sup>17</sup> His journey to the East reinforced this interest, with the result that the *Maison Blanche*, the house he designed for his parents in La Chaux-de-Fonds in 1912, demonstrated such a close connection between garden and house. Nevertheless, the garden was still situated *next* to the house.

Jeanneret continued to develop this idea over the following years, as his notebooks of the years 1914 and 1915 show.<sup>18</sup> Thus in 1915 while in Paris, he draws a seven-storey apartment block, and on its roof, he adds his own building complex: a residential building in form of an almost enclosed orthogonal ring, with a garden in its middle. Jeanneret writes, as note to self: “Rent the roof of your house out to me for 50 years. Let me do with it what I want. I would build there a house ... with gardens, trees, pergola [...] It is the garden-city on the roofs.”<sup>19</sup> The garden moves *into* the architecture. What this sketch may demonstrate is that while arguments for health and hygiene in general are part of Le Corbusier’s argumentation for garden-cities from early on – one can see this for example in his 1912 publication on the arts and crafts movement in Germany<sup>20</sup> – he makes no specific mention of the sanatorium. And this is perhaps surprising, given that Le Corbusier grew up in Switzerland, not too far from the many early sanatoria. One wonders why Le Corbusier hardly ever stressed this very link himself, particularly if we consider the impact the tuberculosis cure seems to have had on German architects like Richard Döcker, as we will see further below.

So, for example in *Vers une architecture*, Le Corbusier only mentions the sanatorium and tuberculosis once each – at the very beginning and the end of his book. He writes: “We are unhappy living in unworthy houses because they ruin our health and our morale. [...] The house eats away at us in our immobility, like consumption. We will soon need too many sanatoria.”<sup>21</sup> He continues with his famous catch-phrase of the happy and virile engineer here. And at the end of the book, he states: “The machine we live in is an old crate of a plane riddled with tuberculosis.”<sup>22</sup> These are mentions in passing and not setting up the tuberculosis cure as a central point of his argument.

In 1922, Le Corbusier drew his famous block of *Immeubles-villas*, stacked villas with their individual double-height gardens: a private dwelling in the city, on the fifth floor, equipped with its own health-providing garden.<sup>23</sup> The *Immeuble-villas*, a stacked version of what he would show as the *Pavillon de l'Esprit Nouveau* in Paris in 1925, cleverly crafted a 'garden of stone', a spacious terrace, next to a double-height living room. Because light needed to be supplied to rooms behind this garden, Le Corbusier added a light well which reinforced the notion of this being a particular spot of refuge. In his description, Le Corbusier adds: "On the roof of the *Immeuble-villas* there will be a 1000m-track where one can run in the open air. Solariums will allow beneficent sunbaths that begin in summer."<sup>24</sup>

In more general terms, with his *cinq points de l'architecture* of 1925 (Five Points of architecture), Le Corbusier set up a building programme that, while partly motivated by structural developments (see his *Maison Dom-ino* with free plan and free façade), for the other part was motivated by the aim of healthier living. In his first volume of the *Oeuvre Complète*, he argues: "The house is in the air, far from the ground; the garden passes underneath the house, the garden is also on the house, on the roof."<sup>25</sup>

Thus, we see Le Corbusier displaying a general interest in the garden in the air, free and open space attached to multi-storey buildings, which while perhaps looking like a domestic clinic, are not apparently (or just not openly?) motivated by the sanatorium.

### **Close Links Between Architecture and Medicine: Richard Döcker and Friedrich Wolf**

So Le Corbusier takes up a multitude of influences in designing the modernist house to healthy, hygienic standards but leaves the question partially open how much he was inspired by the Swiss sanatorium buildings like the Queen Alexandra Sanatorium. The second case study however shows an exemplary close connection between architecture and medicine. The relationship between Richard Döcker and Friedrich Wolf demonstrates that not only were architects designing according to the newest medical findings, but physicians were influenced in their own thinking by modernist architecture.

### **Waiblingen Hospital**

Architect Richard Döcker (1894–1968) lived and worked in Stuttgart. He contributed significantly to the development of modernist architecture. As Dietrich Worbs has shown, even Döcker's very first houses in the early 1920s which, from the outside, may appear conventional or traditional, are already conceived with stepped terraces (a feature that is characteristic for Döcker's design), opening themselves up to the sunlight.<sup>26</sup> For the 1927 Weissenhof exhibition, Döcker designed two houses (nos. 21 and 22), but more importantly, he was the overall architect-in-charge on the building site.

One year earlier, in 1926, Döcker had won the competition for a new hospital in Waiblingen, a small town near Stuttgart. He was able to realise the building, unaltered, in 1928. This hospital building was radically new in its layout. The patients' wing was built in the form of stepped terraces over three stories, with full-height windows that could be fully opened to allow to move the patients' beds out onto the terrace.<sup>27</sup> Döcker followed the idea of the mountain sanatorium but in order to give patients even more sunlight, he extended the building into its form with stepped terraces.

A first direct link between medical experts and architecture is demonstrated by Dr David Sarason. Sarason, a physician, had shown great interest in architecture, so much so that he developed a forerunner of Döcker's Waiblingen model.<sup>28</sup> In his publication *Das Freilufthaus* (The Open Air House) of 1913, Sarason promoted his 1902 invention of three-to five-storey apartment blocks or hospitals with stepped terraces that were, through an overhang, half terraces, half balconies.<sup>29</sup> His argument was that current hospital architecture was taking care of most medical and hygienic requirements already but not providing the necessary space for *Freiluftkuren* – open air cures.<sup>30</sup>

While this was radically new at the time, the architectural language of these buildings, designed by architect Gustav Bähr, was still conventional: they were conceived as masonry buildings with pitched roofs and with ‘punched’ windows rather than modernist wall-size openings. Sarason’s biggest achievement remains the “terrace balcony”,<sup>31</sup> which was developed further in many places.<sup>32</sup>

Thus, at Waiblingen, Döcker was able to combine the clean horizontality and openness of Pfleghard & Haefeli’s 1908 Queen Alexandra Sanatorium in Davos with Sarason’s principle of a stepped half-terrace, half-balcony design. In his own publication *Terrassentyp* of 1929, Döcker developed Sarason’s ideas further and promoted the stepped terrace as a general system for building with the sun. One aspect that strengthens the link between medicine and the modernist house is the fact that Döcker, different from Pfleghard & Haefeli, also designed houses in this sanatorium-like way – one of which was for another physician, Friedrich Wolf.

### **Döcker’s House for Friedrich Wolf**

Friedrich Wolf (1888–1953) was a “doctor, life reformer, poet, politician”.<sup>33</sup> He published many books and pamphlets, promoting healthy lifestyles. His main work, *Die Natur als Arzt und Helfer* (“Nature as physician and helper”), appeared in 1928. Being a left-wing activist, of Jewish heritage, and a communist, he became a welcome foe for the Nazis in the 1930s. Despite this, the book kept being printed long after 1933.<sup>34</sup> Wolf’s publication demonstrates the link back from the medical experts to architecture: in it, Wolf promotes modernist architecture as an element of an overall healthy lifestyle. He argued “that tuberculosis and rickets be ‘combated at the root’ with ‘healthy, airy, light and roomy living quarters!’”<sup>35</sup>

It appears that Friedrich Wolf attempted to move into one of Döcker’s houses at the Weissenhof, as he was fascinated by them.<sup>36</sup> These houses no. 21 and 22 on the Weissenhof were directly advertising their healthy architectural components through large windows and wide open terrace for gymnastic activities. On the roof terrace of house 22 there were wall bars for gymnastic exercises, protective curtains and a shower with cold and warm water. The bathroom was generously sized so that it could function as a room for gymnastics at the same time.<sup>37</sup>

What made Wolf aware of Döcker? This is unclear, but perhaps the fact that the Waiblingen hospital was under construction would have added to his interest. However, his application was not successful so that Wolf commissioned Döcker to design a house for him, in Zeppelinstrasse in Stuttgart, a few kilometres away from the Weissenhof. This house was built in 1928.<sup>38</sup> It was a cubic house of three stories, with a large terrace on the first and a smaller terrace on the second floor and a flat roof. It appears less avant-garde than Döcker’s houses at the Weissenhof, since it was built with surprisingly conventional (punched-hole) windows instead of full-height glass openings. (This may well have been an economic restraint of the client). But this did not deter Wolf from using the terraces of his house for almost ritualistic morning showers with cold water, as contemporary illustrations show.<sup>39</sup> The architecture of this new house became part of his promotion of a healthier lifestyle.

### **Attempts at an Interpretation**

This paper has attempted to show that early 20<sup>th</sup> century sanatorium buildings provided many of the cues that, in turn, architects took up in designing modernist houses (particularly exemplified by the experimental houses at the Weissenhof in 1927). But while this is so, it seems equally important to show how an architect as Le Corbusier arrived at the same kind of architecture but coming from a slightly different direction: inspired by a combination perhaps of structural thinking, enthusiasm for Mediterranean living and the role of the garden for the house, he ends up designing houses that are closely related to the houses of a Richard Döcker and others, without referencing the sanatorium.

There were more avenues to the image of the house as a domestic clinic than the seductive link with the Queen Alexandra Sanatorium wants to make us think. But there is equally ample evidence on how much hygiene, medicine, health and modern architecture were intertwined, particularly during the first two decades of the 20<sup>th</sup> century.

Tuberculosis treatment changed radically from the 1940s onwards with the introduction of the antibiotic streptomycin. Did this also change architecture once again? One could argue so. Because Döcker's Waiblingen hospital, as much sense as it made for the cure of tuberculosis or the healing of surgery wounds through fresh air and sunlight, was already torn down in 1959.

It appears that "in view of medical progress", Döcker's radical and sensible arrangement with stepped terraces was no longer economically viable.<sup>40</sup> What sounds like an irony of history might also provide us with an argument for the interpretation of today's situation. If such an innovative hospital building seemed to be no longer required only 30 years after it had been completed, this may point at the reduced need of any substantial changes to our building fabric as soon as a vaccine has been introduced against COVID-19. Or does it?

## Endnotes

<sup>1</sup> Paul Overy, *Light, Air and Openness. Modern Architecture between the Wars* (London: Thames & Hudson, 2007).

<sup>2</sup> Christina Flötotto, "Neues Bauen und Hygiene: A mutually profitable relationship investigated in relation to the medical doctor Friedrich Wolf" (PhD, University of Edinburgh, 2003).

<sup>3</sup> Margaret Campbell, "What Tuberculosis did for Modernism: The Influence of a Curative Environment on Modernist Design and Architecture", in *Medical History*, 49 (2005), pp. 463–488.

<sup>4</sup> Tania Anne Woloshyn, *Light therapy and visual culture in Britain, c. 1890– 1940* (Manchester: Manchester University Press, 2017).

<sup>5</sup> Campbell, "What Tuberculosis did for Modernism", p. 465.

<sup>6</sup> <https://www.monteverita.org/en/monte-verita/history>, accessed 5 September, 2020

<sup>7</sup> Flötotto, "Neues Bauen und Hygiene", p. 50.

<sup>8</sup> Philipp Osten, "Architecture for Patients: Medicine and City Planning in Berlin, 1860–1960", in *Images of the Body in Architecture*, eds. Kirsten Wagner and Jasper Cepl (Tübingen/Berlin: Wasmuth, 2014), pp. 319–344. This concept dated back to Jean-Nicolas-Louis Durand who had developed the pavilion type in 1805. See Osten, "Architecture for Patients", p. 326.

<sup>9</sup> Campbell, "What Tuberculosis did for Modernism", p. 469.

<sup>10</sup> <https://www.rts.ch/archives/tv/culture/calendrier-de-l-histoire/5834254-guerir-grace-au-soleil.html>. See also Barbara Brodie, "Children of the Sun: Heliotherapy and Tubercular Children", in *Windows in Time. The Newsletter of the University of Virginia School of Nursing Eleanor Crowder Bjoring Center for Nursing Historical Inquiry*, Vol. 23, No. 2 (October 2015), p. 8–12.

<sup>11</sup> <https://www.dhm.de/lemo/rueckblick/die-internationale-hygiene-ausstellung-1911.html>, accessed 5 September, 2020.

<sup>12</sup> Daniel Walser, "Pfleghard & Haefeli. Bauten für die Gebrüder Bühler in Uzwil. Eine Identität für einen Bauherren" (Thesis ETH Zurich, 1998/2002).

<sup>13</sup> Overy, *Light, Air and Openness*, p. 25.

<sup>14</sup> Overy, *Light, Air and Openness*, p. 25.

<sup>15</sup> Erwin Poeschel, "Das Flache Dach in Davos", *Das Werk* (1928), no. 15, pp. 102–109.

<sup>16</sup> See Christoph Schnoor, *Le Corbusier's Practical Aesthetic of the City* (London: Routledge, 2020). Also see Harold Allen Brooks, *Le Corbusier's Formative Years*, p. 218ff.

<sup>17</sup> Schnoor, *Le Corbusier's Practical Aesthetic of the City*, pp. 154–162.

<sup>18</sup> These notebooks were thought to have been lost and have only recently come to light, thanks to the author's access to a private archive in Switzerland.

- <sup>19</sup> “Louez-moi le toit de votre maison pour 50 ans. Laissez-moi faire ce que je voudrai. J’y construis une maison... [...] avec jardins, arbres, pergola... C’est la cité-jardin sur les toits.” Charles-Edouard Jeanneret. Unpublished notebook, Paris 1915. Private archive, Switzerland.
- <sup>20</sup> Charles-Edouard Jeanneret, *Étude sur le mouvement d’art décoratif en Allemagne* (La Chaux-de-Fonds, 1912; reprint New York: Da Capo, 1968).
- <sup>21</sup> Le Corbusier, *Toward an Architecture*, intr. Jean-Louis Cohen, trans. John Goodman (Los Angeles: Getty, 2007), p. 94.
- <sup>22</sup> “La machine que nous habitons et un vieux coucou plein de tuberculose.” Le Corbusier, *Vers une architecture* (Paris: Crès / new edition Flammarion 1995, 1923), p. 233. / See Le Corbusier, *Toward an Architecture*, p. 297.
- <sup>23</sup> See Christoph Schnoor and Claudia Kromrei, “Immeuble-villas between Le Corbusier and Albert Gessner”, in *Proceedings of the Society of Architectural Historians, Australia and New Zealand: 30, Open*, edited by Alexandra Brown and Andrew Leach (Gold Coast, Qld: SAHANZ, 2013), vol. 2, p. 807–819.
- <sup>24</sup> “Sur le toit de l’Immeuble-villas, existera une piste de 1000 mètres où l’on pourra courir à l’air. Des solariums permettront les bienfaisants bains de soleil commencés en été.” Le Corbusier, *Oeuvre Complète, Vol. 1, 1910 – 1929*, ed. Willy Boesiger and E. Stonorov (Zurich: Girsberger, 1929; reprint Zurich: Artemis, 1991), p. 43. Translation by author.
- <sup>25</sup> “La maison est en l’air, loin du sol; le jardin passe sous la maison, le jardin est aussi sur la maison, sur le toit.” Le Corbusier, *Oeuvre Complète, Vol. 1, 1910 – 1929*, p. 128. Translation by author.
- <sup>26</sup> Dietrich Worbs, “Richard Döckers Architektur in den 20er und 30er Jahren”, in *Richard Döcker. Ein Kolloquium zum 100. Geburtstag*, ed. Dieter Kimpel and Dietrich Worbs (Stuttgart: Universitätsbibliothek, 1996), p. 25. Translation by author.
- <sup>27</sup> Worbs, “Richard Döckers Architektur”, pp. 32–34.
- <sup>28</sup> Christina Flötotto has pointed at the contribution of Dr David Sarason. See Flötotto, “*Neues Bauen und Hygiene*”, p. 52ff.
- <sup>29</sup> David Sarason, *Das Freilufthaus. Ein neues Bausystem für Krankenanstalten und Wohngebäude* (Munich: Lehmann, 1913), p. 18.
- <sup>30</sup> Sarason, *Das Freilufthaus*, p. 10.
- <sup>31</sup> And apparently, Döcker who knew of Sarason’s idea, rejected it as functionally unpractical/unfeasible. Cf. Flötotto, *Neues Bauen und Hygiene*, p. 72.
- <sup>32</sup> Pierre-Louis Laget, “L’invention du système des immeubles à gradins. Sa genèse à visée sanitaire avant sa diffusion mondiale dans la villégiature de montagne et de bord de mer”, in *In Situ. Revue des patrimoines*, no. 24 (2014), <https://doi.org/10.4000/insitu.11102>.
- <sup>33</sup> Flötotto, “*Neues Bauen und Hygiene*”, p. 92.
- <sup>34</sup> Flötotto, “*Neues Bauen und Hygiene*”, p. 107.
- <sup>35</sup> Flötotto, “*Neues Bauen und Hygiene*”, p. 87.
- <sup>36</sup> Flötotto, “*Neues Bauen und Hygiene*”, p. 85.
- <sup>37</sup> These houses were destroyed by bombs in 1944. <https://freunde-weissenhof.de/die-weissenhofsiedlung/>, accessed 5 September, 2020.
- <sup>38</sup> Flötotto, “*Neues Bauen und Hygiene*”, p.85f.
- <sup>39</sup> See the illustration in Flötotto, “*Neues Bauen und Hygiene*”, p. 306.
- <sup>40</sup> Inken Gaukel, “Richard Döcker. Architekt des Neuen Bauens”, in: *Denkmalpflege in Baden-Württemberg* (2020), no. 1, p. 6.