



Facing reality.

*Queen Alexandra Sanatorium
as a proto-modernist medical machine.*

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Author:
Marta Drgas

Tutor:
Drs. Ir. Eireen Schreurs

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Abstract

The Queen Alexandra Sanatorium in Davos was initially conceptualised as a medical apparatus: a precisely designed building to facilitate the recovery of tuberculosis patients through controlled exposure to the natural environment. Its original design from 1909 was developed following rigorous typological and hygienic principles. The design prioritised individual patient rooms, each with a private balcony, a south-facing orientation, and a facade that acted as a therapeutic filter rather than a barrier. Each element was meticulously crafted to facilitate one's recovery.

However, as time passed, the clarity of purpose gradually eroded. Successive adaptations, including extensions, interior compromises, and shifts in usage, have challenged the building's original logic. The sanatorium thus became a site of negotiations between ideology and evolving need, thereby exposing the limitations of the machine metaphor in architecture.

The thesis unfolds in three chapters. The first explores the sanatorium as a typological and technological prototype of healing architecture, tracing its alignment with early modernist ideals. The second focuses on the facade, analysing how it acted as both a mediator and a mechanism for healing and how later modifications diluted its therapeutic role. The third focuses on the interior atmosphere, revealing the tensions between medical rationalism and the desire for domestic comfort. All of this represents an unresolved duality within the building's lived experience.

Through examination of original plans, photographic documentation, and literature analysis, this thesis challenges the conventional perception of Queen Alexandra as a static symbol of the modernist idea of a machine while considering it as an evolving structure shaped by use, adaptation, and human presence. In doing so, it calls into question the viability of purely functional architecture and highlights the need to consider buildings as mutable, responsive environments. The Queen Alexandra Sanatorium is both a modernist landmark and a reminder of the fragility of architectural ideals when faced with reality.

Introduction

“With relief, Wojnicz alights the britzka and fills his lungs with a mighty gulp of this new air, which is said to cure the most critical cases. [...] At last it stops outside a sizeable wooden building with a very strange architecture that brings to mind a matchstick house – there are so many verandas, balconies and terraces. A pleasant light glows in the windows.”¹

1. Olga Tokarczuk “The Empusion: A health resort horror story”, 2022, 18-19.

The sanatorium buildings were often detached from cities, floating like ships on the mountainsides. Their facades expressed a reason behind their openness. With a favourable climate, vast amount of sunshine and good air quality, every breath was curative. This openness was rooted in necessity. Organised row upon row, with windows overlooking the outside world, as if it was the building that was observing, not its inhabitants. Given the importance of solar exposure and daylight in the treatment process, it comes as no surprise that *light and hygiene had become the prime motifs of design and had become defining elements of the typology.*²

2. Quintus Miller, “Das Sanatorium Schalzalp: ein Beispiel zwischen Klassizismus und englischer Wohnlichkeit”, 1998

In 1923, Le Corbusier made a practical attempt while stating that the house is a machine for living.³ His pragmatism opened discussion on the ideology pertained to a strictly functional and mechanical way of how buildings were supposed to work. Developed further by Aalto, who saw a building as a tool purposed for improving everyday life⁴, he thought through the practicality of a building up to the utmost detail. As he focused on the role building had to play, when he designed Paimio Sanatorium, with all its details it started to serve as a machine for healing. Together, these perspectives reveal recognition of the modernist idea of a building being a machine, limited to its function, ignoring the emotional, cultural and sensory experiences of its users. Buildings are not machines – they are lived-in spaces that must respond to context, identity and human connection. The modernist notion of a machine neglects lived experience while imagining architecture as a neutral, functional object; meanwhile, it is shaped far beyond mechanical and functional utility limits.

3. Le Corbusier “Towards a new architecture”, 1923, 107.

4. “The main purpose of the building is to function as a medical instrument. One of the basic prerequisites for healing is to provide complete peace.” Alvar Aalto - “Between Humanism and Materialism” 1970, 29.

Sanatoria, as buildings, are machines for a certain purpose – healing. The idea of a healing facility has its roots in the outburst of several diseases that took place at the turn of the 19th and 20th centuries, which contributed to the establishment of the sanatorium per se. These institutions were designed to provide an environment conducive to recovery, particularly for patients suffering from tuberculosis and other respiratory illnesses. With modernism’s introduction of new health and sanitary standards, the visual change followed as an aesthetic response to new development. The sanatorium started to be a testing ground for new material usage and construction techniques therefore, it most often required a strict collaboration between architects, engineers and medical specialists to examine experimental solutions. In principle, sanatoriums started to be recognized for their healthy and healing climate. Its invention brought crucial changes in the way of thinking about health facilities.

The Queen Alexandra Sanatorium in Davos is an exemplary figure of all sanatoriums since it is considered the laboratory of modernist architecture. Although it was constructed two decades before modernist principles emerged, Queen Alexandra can also be seen through a modernist lens, as considerations of light, hygiene guided its design towards a clear functional

5. Licht, Luft, Öffnung (light, air, openness) were already pointed by Giedion on the cover of previously mentioned *Befreites Wohnen* (1929), where he proclaimed: Beautiful is a house that corresponds to our life. This requires light, air, movement and opening.

6. Stewart Brand in his book *How Buildings Learn: What happens after they're built* explores that buildings adapt best when constantly refined and reshaped by their occupants. He claims that buildings improve if they are allowed to.

7. *ibid.*, 178

purpose: healing. Sigfried Giedion who was the first to mention the building in his manifesto on modernist housing *Befreites Wohnen*, emphasised the role facade has as a mediator between exterior and interior, shaping the way the landscape is experienced from within the building. Later on, he also referred to Queen Alexandra in his book *Space, Time and Architecture*, where he acknowledges the building as a precursor of the modernist principles Licht, Luft, Öffnung,⁵ alongside with the architecturally significant use of reinforced concrete. Followed by Richard Döcker's *Terrassen Typ*, the building is studied through its influence on modernist expression. The most recent work on the Queen Alexandra Sanatorium is the book of Daniel Korwan, in which he traces the process behind the design and construction of the building as a collaborative work. Earlier references to Le Corbusier and Aalto reflect on a restricted, idealised concept of architecture as a rational machine. Although all the aforementioned focuses on what a building seen as a machine (or similar) was supposed to be, it should be pointed out that while considering the whole lifespan of a building (and not limiting it to the time being), designing building as any type of a machine lost its validity. Stewart Brand takes issue with the modernist ethos of designing buildings as fixed, rigid objects — efficient machines meant to serve a singular, idealised function. He shows how in real life, buildings never behave that way. They change, they get repurposed, remodelled, patched, and hacked by their occupants.⁶ A building is never finished. All buildings are predictions. All predictions are wrong.⁷ If Queen Alexandra Sanatorium proves anything, is it not that the modernist vision of the building as a perfect, rational machine was a beautiful fiction that faced an uncertain, evolving reality? How does it reveal the shortcomings of this ideal when considered through its consecutive adaptations and long-term adaptability? Finally, how does the architectural evolution of the Queen Alexandra Sanatorium expose the limitations of the modernist ideal of the building as a functional machine?

The questions posed in this manner lead to a fundamental discussion that queries the success of the Queen Alexandra Sanatorium as a medical machine through a considerate study of a building at its different levels and through various layers. Starting with a literature research together with comparative analysis of archival drawings of the building, the investigation on the typological logic behind the functionalism of the design is to be investigated on building's original state from 1909 and 1911 extension, when the building was altered for the first time in its history. Following the structural logic, while referring to Turban's guideline for an ideal sanatorium, this piece examines typological influence on facade as a second layer that played a significant role in the treatment process referencing modernist principles. Several alterations made during the building's life played a crucial role in how it was perceived throughout times, which is to be proven through a comparative analysis of photographs from different periods. The last, supplementary level of the analysis focuses strictly on the interiors of Queen Alexandra, what they represented and the atmosphere that was created within the facility, while recognizing two types of interiors: the public ones and these of an individual patient. According to Stewart Brands, as buildings evolve at different rates and their structures may last, their material and usage concerns are more likely to be redefined, with Queen Alexandra as a precursor of the idea of a building as a machine, its success is to be questioned.

Building as a machine. The typology.

Before Davos had become the world's renowned curation centre, another facility led the acclaimed treatment process from 1855 in Gorbersdorf, now Sokołowsko in Poland. Dr Herman Brehmer opened a tuberculosis sanatorium based on the treatment methods he developed, and later on, he started to expand the existing sanatory complex with architect Edwin Oppler. They both focused on the role the building can have in the curative process and thus developed several architectural typologies around it, based on the open-air cure (Liegekur), meaning exposure to fresh air for hours. Another experimental approach was the design of Liegehutte - a reclining hut that reduced architecture to the most elementary human needs. Followed by the introduction of Kursaal, esplanades and music pavilions combined with rich food, baths and cognac as part of the treatment, it came with no surprise that the cure refined to an extensive lifestyle for high society and was no longer reachable for people with small means seeking treatment. It was dr Karl Turban,⁸ who disciplined the treatment process, ending the prevailing lifestyle while introducing the "closed treatment". He based his method on a strict daily routine in one building. Since then, there has been a strong demand for a new, clearly defined typology that unites all aspects of treatment, refined through the architectural language of a building. Turban's approach ended with the dominance of class stratification and sought a shift in architectural expression to fulfil specific requirements.⁹

8. Turban was a general practitioner with a particular interest in tuberculosis. On recommendation, he was appointed medical doctor of newly planned Davos sanatorium, where he established standards for the construction of sanatoriums for pulmonary patients.

9. Andreas Jüttemann, *History of the Prussian tuberculosis sanatorium movement: 1863-1934*

10. Through this competition buildings were to start implementing scientific and medical achievements, what resulted in introduction of specialists into the design process to assist architects. Thus, Karl Turban formed a team with Jacques Gros (Zurich-based architect) and together submitted an entry titled "open air everywhere".

11. Karl Turban, Entwurf für die Errichtung eines Tuberkulose-Sanatoriums in Englands, 1903, 326.

Dr Karl Turban first clarified his intentions for an ideal sanatorium in a competition project of a sanatorium for patients of small means in England, that took place in 1902,¹⁰ which was later on refined as a result of collaborative work between architects, engineers and medical specialists in the 1903 commission for the design of the Queen Alexandra Sanatorium in Davos. Pflegelhard & Haefeli were chosen to develop the concept together with Robert Maillart, who was significantly involved in the construction development. Although several classicist and conventional proposals emerged, the duo began to pursue liberation from the traditional formal canon, positioning their 1905 proposal as a direct response to Turban's ideal type:

"An ideal sanatorium should fulfil three requirements: the building should allow the method of treatment to be exercised in a simple and complete way from a functional point of view; but it was also to be constructed in a way that would prevent the spread of the disease; finally it had to be readily adaptable so that it would be easily adjusted to the topographical and climatic conditions of the site. Given the importance of solar radiation and daylight, all rooms for patients, both the bedrooms and rooms for daily use, were to face south and to provide unobstructed connection to the landscape. While a true southern orientation was preferable, Turban explicitly promoted an ideal building design consisting of a central portion with two wings at obtuse angles for a site with a significant amount of wind."¹¹

With the recognition of heliography as the primary parameter for tuberculosis treatment, the building was designed to let it catch most of the sun. Therefore, its position started to matter, and the building was to face south. Because the focus was on the individual patient, the sanatorium was defined by a sequence of rooms oriented outward, maximizing sun exposure through private balconies. However, the goal of opening up the facade collided with material constraints. To address this, a new material—reinforced concrete—was introduced. The design of the sanatorium started to be a testing ground for new materials and construction techniques,

setting the project in the means of modernist principles of Licht Luft, Öffnung and stressing the role of a building as a medical machine.

Maillart aimed to minimise the usage of concrete wherever it didn't bring architectural or functional values. As a result, he minimised vertical elements that would stress the presence of new construction material within interiors. While following the material's inherent properties to sustain tension, he focused on reinforced concrete slabs, giving them a new performative capacity. He based his approach on Hennebique's Frame to liberate the slab and turn it into an individual structural element, but he treated the reinforcement differently. Hennebique's reinforced concrete structures had beams and columns like timber-framed buildings. His beams ran from wall to wall and from column to column, in the manner of timber construction. Maillart applied the logic in positioning the T-beams that followed the grid of patients' rooms. The beams merged seamlessly while lying on the walls, creating an impression of flat ceilings in the rooms.¹²

12. Sigfried Giedion, *Space, Time & Architecture*, Maillart's structural principles, p 451



fig 2. Queen Alexandra Sanatorium under construction in september 1907, Staatarchiv des Kanton Thurgau

The design process of the building involved many proposals, and the changes to the project were introduced quite frequently, some even at the construction site. With the initial design completed in 1907, the Queen Alexandra faced several development and expansion phases. Initially, each floor of the Queen Alexandra Sanatorium included nine bedrooms in the west wing and five in the western part (which further on became the central part of the building). After completing the extension in 1911, the building gained eight additional rooms per floor. With upper floors defined by the sequence of rooms facing south and bathrooms with nursing rooms from the north side, the ground floor repeated the logic orientating all daily uses such as a library, lounge, living and dining room from the south, while keeping all services at the back. The daily zones were subdivided from service areas with a bent hallway; this break prevented patients from the impression of an endless bleak corridor. Besides additional bedrooms, the 1911 extension offered more supporting medical background for the sanatorium. Further expansion occurred in 1920 when the addition of a solarium on a southwest wing was completed. In the early 1950s, the sanatorium faced yet another extension that would allow the admission of two patients into one room, regardless of the original design that focused on patient

fig 3. Ground floor plan,
 Pflegehard & Haefeli, Queen
 Alexandra Sanatorium, Davos,
 1907 scheme, Staatsarchiv
 Thurgau

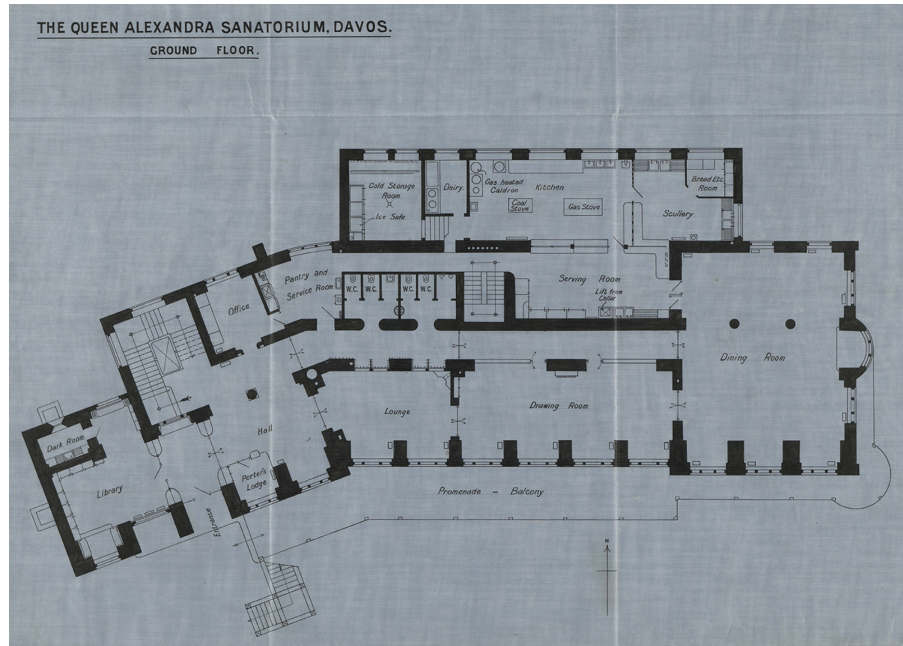


fig 4. Second and third floors
 Pflegehard & Haefeli, Queen
 Alexandra Sanatorium, Davos,
 1907 scheme, Staatsarchiv
 Thurgau

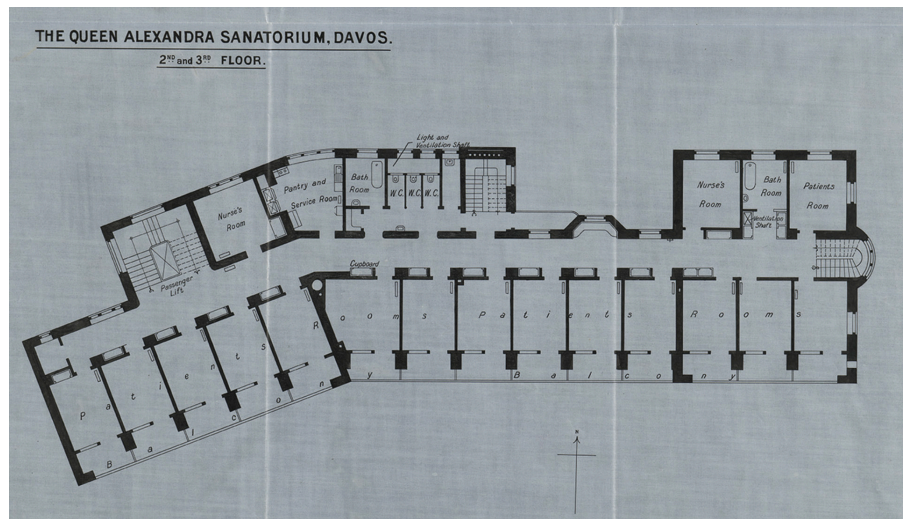
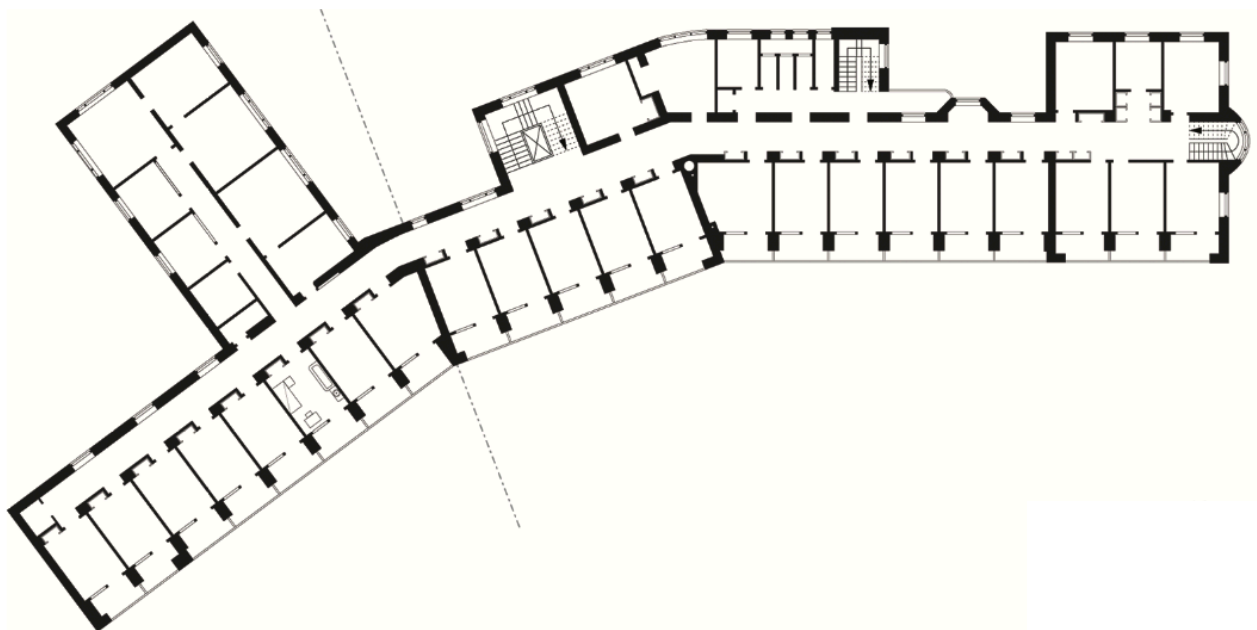


fig 5. Floorplan including the
 extension of 1911,
 Pflegehard & Haefeli, Queen
 Alexandra Sanatorium, Davos,
 Tim Altenhof



as an individual. Therefore, existing balconies needed to be enlarged to make room for two beds. Soon after that, in 1955, the building underwent an extension and renovation of its southern facade. In 1966, the sanatorium started admitting non tubercular patients, strictly separating them from TB ones. With a continuous decline in the number of patients, the sanatorium eventually closed its doors in 2005, leading to its current abandonment. Despite extensions and refurbishments occurring in time, what remained consistent were the subdivisions of balconies, the promenade balcony on the ground floor and Liegehalle on the top floor; thus, their rhythm created the facade.

As the project was centred around an individual patient's room being the core of the design, it shaped both the building's dimensions and overall appearance. The room's dimensions were settled at approximately 3 meters in width, 5 meters in depth and 3.1 meters in height, with additional 2.5 meters of private balcony, where patient wouldn't encounter any other people, having their own buffer zone. The same idea was transferred to the moment of entering one's room, as each patient had own anteroom two wardrobes (one of them had to be sometimes sacrificed for the shaft).

Further expansion occurred in 1920 when the addition of a solarium on a southwest wing was completed. Starting in the early 1950s sanatorium faced yet another extension, that would allow to admit two patients into one room, regardless of original design that focused around patient as an individual. Therefore, existing balconies needed to be enlarged to make room for two beds. Soon after that, in 1955 the building undergone extension and renovation of its southern facade. Since 1966 the sanatorium started admitting non tubercular patients strictly separating them from TB patients. With continuous decline in the number of patients sanatorium closed its doors in 2005, leading to its current abandonment. Despite extensions and refurbishments occurring in time, what remained consistent were the subdivisions of balconies, the promenade balcony on the ground floor and Liegehalle on the top floor, thus their rhythm created the facade.

Facade - the mediator.

Facade is a negotiator between inside and outside. It can be seen as a tool through which the landscape is perceived from within the building. Architecture often serves as a “protective cocoon” against the weather, but as noticed by Colomina: Queen Alexandra inverted this equation, as its structure was built not to protect its occupant from the weather but to expose them to it.¹³ Since the field of architecture started to focus on people and their need for light, air and sun, the facade was to be dissolved, and a usable space on the roof was to be made. Having taken upon that issue, Queen Alexandra can be considered an early manifestation of this concept. Following the paradigm of the open-air cure, each patient room was equipped with a private outdoor space. The facade functioned as a mechanical layer of the building—carefully calibrated to support the healing process through controlled exposure to external conditions—but over time, successive alterations diluted its original therapeutic potential.

Turban’s concept drove the initial idea, which aimed to maximise the intake of sun and air into the building—something that loggias and verandas could not achieve due to their impracticality. Any enclosed extensions would prevent individual rooms from grasping the most of the much needed sun. Thus, the whole south facade was supposed to be conceived as “a single window.” With increased movability of windows, patients’ rooms would gain the possibility of being turned into loggia and immersed in fresh air flow. This simple gesture also reflected on the idea of loosening the feeling of boundary between inside and outside. Turban’s suggestion was to use French doors with operable transom windows above them (stellbare Klapp-Oberfenster), instead of conventionally used ones. (fig 6)

13, Beatriz Colomina, *X-ray architecture*

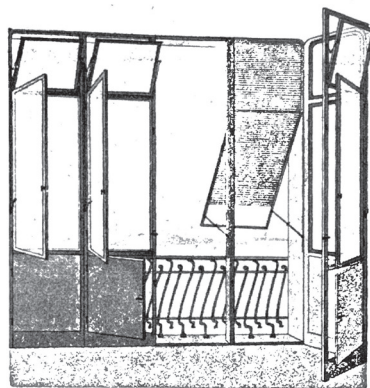


fig 6. (left) Detail of the opening mechanism in Turban's ideal sanatorium; Turban 1909

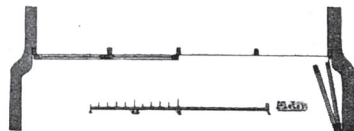


fig 7. (right) Detail of the window element designed in the patient room.

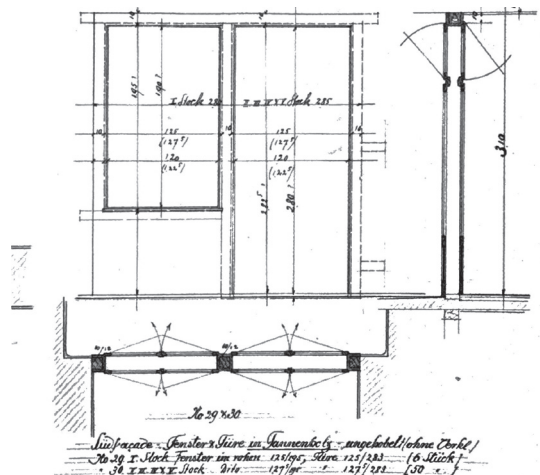


Fig. 1 Südwand der Schlafzimmer.

14. Daniel Korwan,
*Discovering Early Modernism in
Switzerland*, 53

15. *ibid.*

The south facade was meant to enable patients to blend with the exterior space as much as possible and as often as needed. With the shift in understanding the values that were supposed to lead the design, the barrier between inside and outside was no longer conceived as a solid component with subsequently inserted windows, but rather as a flexible element, which enabled opening up the interior almost entirely. In the original design (1909) the facade was characterised by a contrast of massive vertical elements and rather thin horizontal counterparts,¹⁴ which organised the main frame of the facade. Behind that was a secondary level of this outer skin that consisted of singular units visible through the skeleton. Together, they gave the idea of the building's inner organisation as a regular grid.¹⁵

As typological qualities were based on the singular room, the unit strongly rendered the expression of the whole building. Divided approximately every 3 meters, extending 1.5 meters from the facade, the rooms purely dictated the facade's articulation and thus in its verticality, expressed each volume of an individual room. Following the construction principles of individual room described in the previous chapter, there was neither a lintel nor a threshold, which enabled flexible definition of boundaries and wall started to function as a window giving freedom in designing its opening mechanism. Windows were designed as wooden-framed elements stretched from the floor to the ceiling, consisting of casement window, wooden sill and a double-leaf glass door to the balcony. (*fig 7*)

As present in the early sketches from the first design phase from 1905 (*fig 8, 9*), the prospective expansion of the building had already been taken into account and was an integral component of the genetic code of the original design anticipating further need to expand the facility. The topic of the enlargement appeared soon after initial completion and proceeded to realisation. It was made clear that expansions should be done all at once rather than gradually to minimise any possible impact on patients. As mentioned previously, the 1911 extension specifically developed a new medical area, and its role was to emancipate from function as a determining element of architecture. That move helped to functionally organize building through individual volumes. Originally, the building consisted of fourteen bays in its facade, which was further extended to twenty in total. In the 1920s, additional columns were added¹⁶ that still carry the large terrace, what was followed by yet another addition of a west wing solarium on the rooftop. Just after that, the ground floor terrace was converted into a two-storey solarium, what deprived it of its "flying" character. In 1958, the building underwent a major transformation, which aimed to accommodate two people in each room instead of one. The consequences followed, to remain the same standard additional spaces on balconies were required to make space for another person. Enlargement of balconies was executed brutally, attached to the original building they entirely concealed the original concept. Through that decision, the revolutionary idea of spatial subtraction was abandoned as these additions shaped the outside space. All the consecutive changes contributed to loosening the identity of a building. Just as the building was subject to constant changes, its perception also evolved, and thus, so did the way it was captured. When the building was finished in 1909, it was immediately seen as anachronistic, not yet belonging in its place, overlooking the valley of Davos (*fig 10*). The typical building framing from that time was characterised by an oblique perspective from above the building. Because the building was asymmetrical back then, it was never positioned in the centre of the frame. That changed in 1911 with the first extension of the building. When it gained a second wing and became almost symmetrical, it immediately started to be centrally located from a vantage point that would allow the building to imitate the surrounding mountains (*fig 11*) Due to changes applied, there is no such thing as *the* photograph of this building.

16. Judging by the ground floor and typical floor plans (see figure 3, 4, 5), this addition was not structurally required, but supposedly to provide patients with a sense of security they were added to give an impression of a lasting support

THE QUEEN ALEXANDRA
SANATORIUM.
DAVOS-GRÜNI
PFLEGHARD, HAEFELI ARCHITECTEN ZÜRICH

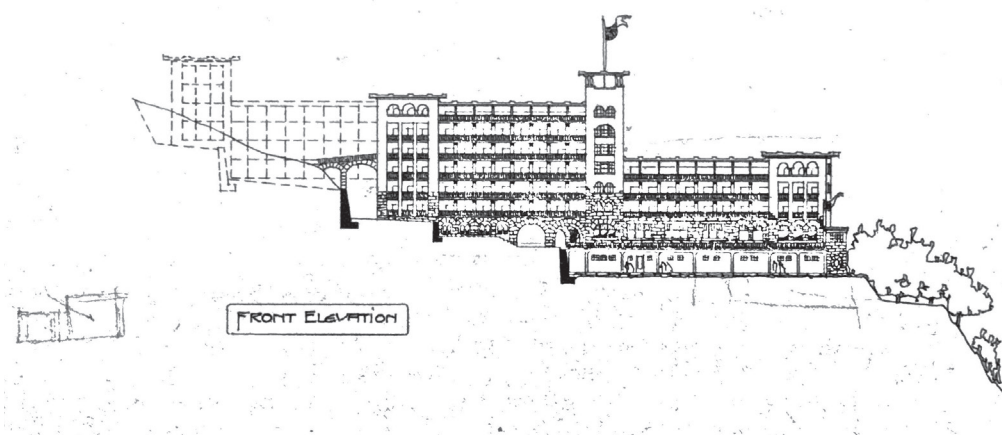


fig 8. Southern elevation of the 1905 proposal; gta Archiv / ETH Zurich, Pflegehard & Haefeli,

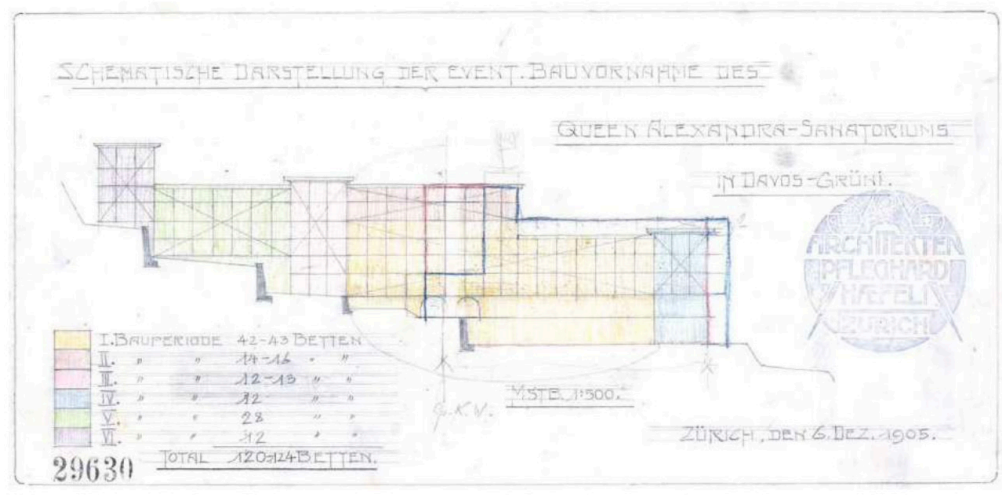


fig 9. Diagram of planned modularity of the design, presents altered southern elevation design from 1905 proposal; gta Archiv / ETH Zurich, Pflegehard & Haefeli,



fig 10. Typical framing of the building before extension (until 1911), Fotokartel / Dokumentationsbibliothek Davos



fig. 11. Typical framing of the building after extension (1911 and later), Staatsarchiv des Kantons Thurgau

With the 1911 extension and further alterations, the building not only faced problems in terms of its typological features (while having to meander within functions to find suitable space for them) but also with inconsistency to the idea of a machine. If a building was supposed to work as a machine, based on particular principles, it shouldn't oppose them. The arisen typological problem had been solved against treatment doctrine that each patient should have their own outdoor space on a balcony while few rooms were moved to part of the building without direct access to it. The same followed in 1958, when, due to the ambition of the administrative organ, balconies had to be extended to host not one but two patients. Since the aim was not to sort patients in any way to avoid class stratification, the building did not foresee a scenario of worsening of the disease. Death had to be hidden, because it could be a spot on sanatoriums reputation. Paimio, which for the same reason did not admit very ill patients, confined the most serious cases - presumably those who got worse while at the sanatorium - to the basement of the building.¹⁷ Even though it is not precisely known how Queen Alexandra dealt with sicker patients, it can be speculated based on the desired equality of everyone (and lack of distinction of a specially dedicated zone for the very ill) that it presumably kept its open-air cure closed for them, hiding these patients from view. Ultimately, such modifications undermined the coherence of the original design, revealing a growing tension between architectural ideals and the evolving realities of care, visibility, and control within the sanatorium.

17. Beatriz Colomina, *X-ray architecture*, 2019, 93. Colomina in her chapter on tuberculosis concludes, that architecture may have been seen as a medical instrument, but the patient was removed from view when the instrument didn't provide the expected results. She then adds, that modern architecture represented cure, but couldn't face failure.

Interior as a factor. Creating atmosphere.

Sanatoria are distinguished by their unique atmospheres. The fundamental objective of these institutions was to facilitate the healing process, and as such, each patient was to be treated individually. The design of the buildings included a private room for each patient, which was connected to a balcony or loggia. However, it should be noted that such institutions were predominantly associated with opulent retreats, a phenomenon that directly reflected class-related dynamics. Therefore, domesticity was desirable “to avoid a palace and to provide a home”.¹⁸ Despite Turban’s ambitions to organise the Queen Alexandra Sanatorium (side comm.), the institution broke with class stratification and focused on equality of all patients. This approach helped structure the sanatorium design, which was based on the repetition of an individual room. Omitting any special rooms dedicated to upper-class patients and allowing the internal building circulation to be greatly simplified, as noticed by Korwan.¹⁹ While addressing the curative needs, the building in essence had to create an atmosphere conducive to healing. Architecture itself was more than just a part of the treatment. It had to host values that enabled patients to recognise a sanatorium as a house of a new kind and it had to address their way of life. Therefore, a certain atmosphere was to be created. Referring to Turban, the exterior of such building should show pleasant forms without luxury, as it is not advisable to design exterior to austere.²⁰ The decision to enter such an institution was already difficult, not to mention the decision to remain in it for a longer period. It was a prerequisite for sanatorium to enable patients to recognise it as a temporary home.

Following the concept of the openness of the building to the outside, Turban suggested that the room itself should be capable of being transformed into a loggia at any time, which was to be perfectly achieved through building’s construction.²¹ Apart from typological objectives, he also stressed the impermeability for all interior surfaces to be followed, suggesting that all of them should be flat and washable. On top of that, edges and corners were to be avoided through the use of fillets,²² which further evolved in many other sanatoria to follow, with Aalto’s Paimio as a leading example. Turban’s explicit ideas were soon materialised into architectural form of Queen Alexandra Sanatorium in Davos.

The works on interiors led by Pflegehard & Haefeli showcased hesitations about the finishing layers. With acceptance of progress through building’s construction, strong attachment to tradition within the inside remained present, thus as building was supposed to focus on patient’s well-being, the architects decided to sustain Turban’s idea of the domestic atmosphere. All parts of the spaces that were to be inhabited by patients, received claddings compromised by wooden elements and washable, ornamental wallpapers, thereby all structural elements at the eye-height level were camouflaged. What remained uncovered were structural parts of massive beams supporting floor slabs, showcasing constructive principles by Maillart. The ceiling was left exposed, highlighting the raw authenticity of its concrete construction. It was covered only in white paint and revealed the loads carried by the massive longitudinal main beam and smaller secondary beams perpendicular to it. The ceiling behind the massive beam at the back of the living room was thought of as a corridor and therefore was treated differently - a suspended ceiling was added to differentiate these two parts of the room. Thereby, it concealed concrete construction and introduced a new rhythm completely detached from the existing structural system, as even its main beams didn’t align with the secondary concrete beams. The presence

18. “The Queen Alexandra Sanatorium, Davos: Annual Report, 1909-1910”, 1919, 25.

19. Daniel Korwan, *Discovering Early Modernism in Switzerland*, 2023, 50. Queen Alexandra Sanatorium opposing Turban’s sanatorium structure, where ideally the building should divide patients accordingly to their gender (female wing, men wing).

20. Daniel Korwan referencing Karl Turban from his 1903 publication: *Entwurf für die Einrichtung eines Tuberkulose-Sanatoriums in England*, in published in *Tuberculosis 2: no. 7*, 324-47.

21. *ibid.*, 326.

22. *ibid.*, 339-340.

23. Which is not to be found on the photograph but in numerous descriptions of the sanatorium it is mentioned to be in the living (drawing) room

of a large fireplace,²³ together with a hygienic radiator²⁴ further expressed the indecisiveness of the architects. This juxtaposition of traditional and modern heating methods represents a compromise between practicality and domestic comfort. The fireplace is reminiscent of the home, while the radiator is a symbol of a new era.

24 Hygienischer Heizkörper - hygienic radiator cover designed by Pfliegerhard & Haefeli for specially for the Queen Alexandra Sanatorium, the cover was supposed to partially conceal the massive radiator with tiles to avoid any sort of edges. Additionally, a basin filled with water set above radiator was supposed to increase the humidity of the interior.



fig 12. Photograph of the drawing room, 1907-9 Pfliegerhard & Haefeli, Queen Alexandra Sanatorium, Davos, (gta Archives, ETH Zurich, Pfliegerhard & Haefeli)

Other publicly accessible spaces on the ground floor followed the logic of described interior - the walls were covered to a certain level with cladding comprised of a combination of wooden elements and ornamental wallpaper. What can be noticed in the photograph of the dining room is that even heating pipes located along columns were camouflaged accordingly. The technicity behind the building was to hide within rooms respectfully hide within rooms.



fig 13. Photograph of the dining room, Staatarchiv des Kantons Thurgau

The entire project was based on the definition of an individual patient's room as the nucleus of the design, which determined the dimensions and appearance of the whole building. The room was positioned between two beams lying on the walls, so no structural elements were visible on the ceiling, giving the impression of it being suspended. Since the shift in construction used, the wall openings no longer had to respect the rules of the latter. Thus the focus was on defining elements of frame, door and window to maximise the potential of opening the room to the outside. The rooms, as visible in the photograph, were furnished modestly but comfortably, allowing patients to encounter the outside world constantly. The applied window system allowed for continuous cross-ventilation. As described in the patient's daily routine:

*Here, one may carry out the fresh-air treatment in summer or in the depth of winter amid surroundings that make the cure a joy and not a hardship. Here are no wind-swept rooms or corridors. The valley of Davos is free from wind. In winter, so brilliant is the sunshine and so warm its rays that one may lie out on the balconies in perfect comfort. Of course, when cold and the freedom from wind prevents us from feeling any discomfort, provided we are well wrapped up. Our doctors do not expect us to live in draughts and icy rooms; each room has its radiator and double windows. We dress and undress in warm, cosy rooms, and once in bed with a hot-water bottle we can enjoy the cold fresh air with our windows open wide.*²⁵

25. H. H. C. "Life in Sanatorium", 18. Referenced from Tim Altenhof's publication: *Inhabitating architecture*.

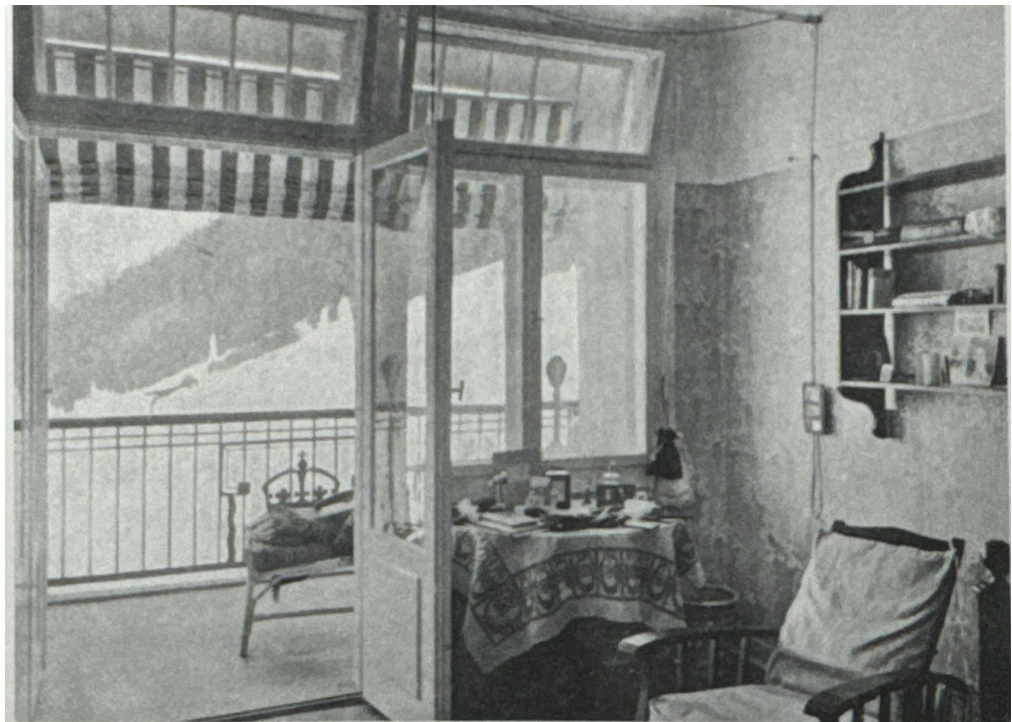


fig 14. Interior of an individual patient room in use, Staatarchiv des Kanton Thurgau

Interiors are an inevitable part of the whole building. Especially in sanatoria, they were thought to be an important part of the treatment and healing process, and thus they were designed with utmost care and precision. Part of the design process was a careful consideration on the atmosphere created by the interior. Even though as time passed and the building environment tried to catch up, the interiors still reflected the 19th century atmosphere of a house. There was an utter misunderstanding of structural architectural expression inside of the building. The architecture was there to stand up to medical practicality and started to be experimental, but the interior couldn't follow. The building became a laboratory of applied solutions, but the atmosphere was staged.

Conclusions

26. Patricia Waddy, *Seventeenth Century Roman Palaces*, 21; quoted by Stewart Brands in *How Buildings Learn: And what happens after they are built*, 210.

27. Ideenwettbewerb Entwicklung Areal TSH Davos Platz

28. Hohenklinik - translatable to high altitude clinic.

29. quotation from Jurybericht published in march 2023

*“Buildings have lives in time, and those lives are intimately connected with the lives of the people who use them. Buildings come into being at particular moments and in particular circumstances. They change and perhaps grow as the lives of their users change. Eventually – when, for whatever reason, people no longer find them useful – they die. The artistry of the designers of buildings is exercised in the context of that life, as well as the context of a life that may have.”*²⁶

The story of Queen Alexandra Sanatorium confirms the inevitable. Designed to address necessity, it aimed to conduct the healing process of tuberculosis, which ended with medical improvement and the invention of penicillin. With several attempts to prolong the building’s life in its original purpose, it challenged the modernist assumption of a building being a perfectly functional, self-contained machinic object that could withstand any external conditions: as much the social or economic changes as the literal context. Ultimately, the Sanatorium failed as a medical machine due to consecutive adaptations sought to address issues that were compensating, addressing more culturally determined aspects of architecture. This reflects Frampton’s critique that the essence of architecture lies not in form or function, but in how it mediates between culture and nature. It is with no doubt that the building, as its own type in the history of architecture, remains valid, as through numerous experiments, it has become one of the sources of modernist architecture, representing the memory of the beginning of that architectural era. It also brought potential voice into the discourse of the typology itself setting several principles which can be traced in much later buildings, for example in Zumthor’s Apartments for Senior Citizens in Chur, where the principle was replicated: located on a hill, with a similarly organised functional plan prioritising the exposure of the rooms in relation to the sun and locating all circulation areas on the opposite side; the façade replicating the same logic of openness.

Though, whether Queen Alexandra is capable of withstanding the limits of its own time is a matter of current debate on a recent competition that took place in 2023.²⁷ The competition of closed character had four practices invited to participate: Caruso St John Architects, Marques Architekten AG, Barao Hutter, ARGE Nikisch Walden. With the sanatorium’s potential as a resort site, the subject of the competition was the design of a new Hohenklinik,²⁸ that would expand the current complex while preserving original sanatorium as heritage with admitted conversion or change of its use. The exact operating formula for the new complex was not publicly specified to date (as the project in the development phase), however, a rough overview given by the competition organisers and investors mentions a possible transformation of the Hohenklinik (previously Sanatorium) into a hotel with large spa and wellness section along with shared apartment ownership – a deviation from the original concept of building’s inclusivity.

The proposals presented by the participants differ strikingly. In competition’s Jurybericht it can be found that the winning team – Barao Huttler – proposed “ the most valuable position of the extensions, carried out with great respect for the existing clinic [...] so that the main view with its distant effect remains fully perceptible”.²⁹ But even with the most skilfully positioned building, the contrast between the radical, tectonic Queen Alexandra – its wide open, rigid facade – and a curved, meandering figure of the winning proposal, covered in shingles- somehow mimicking the intention of a structure hidden behind a familiar face

30. As commented in Jurybericht: The project proposal does not use the maximum density and has rather small number of apartments due to large proportion of space occupied by the restaurant, wellness and indoor pool.

31. The drawing was already referred to in second chapter, page 13.

- seems of questionable quality in terms of its probable materialisation and decreased unit standards.³⁰

The remaining proposals are not any better. Caruso St John proposed as much building volume as possible, completely disregarding the valuable surroundings and introduced a strictly urban typology - going against the brief with the entry's only focus being the economic profit of the firm appearance in the competition. Marques Architekten emphasised a newly designed 50-meter high tower that dominates the sanatorium (standing just behind Queen Alexandra). Only Nickish Walder tried to answer a predicted extension by Pflegehard & Haefeli, basing their design on a scheme drawing from 1906.³¹ Despite the intention being clear, the authors failed to consider the current appearance of the sanatorium, which has undergone numerous significant alterations. Consequently, the implementation of the original proposal appears unconvincing, particularly in light of the authors' fascination with oblique forms, which arguably do not suit the dedicated site or the neighbouring Sanatorium. This situation highlights the Queen Alexandra Sanatorium's reached capacity for alterations within its typological units. The lack of a clear and consistent answer for the expansion of the Sanatorium probably finds its source in the building's typology - vital enough by its form to be the only right solution for conditions around, yet so limiting when it comes to any alteration becoming deviant. With the increasing normality of transformations and adaptations in addressing contemporary issues of the built environment, the stagnation of Queen Alexandra Sanatorium, with its doors permanently closed for nearly twenty years, remains salient.

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List of Illustrations

top (t.), center (c), bottom (b), left (l), right (r)

Cover: ETH Bibliothek Zurich, Bildarchiv, unknown author

Building as a machine. The typology.

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17: Interior of an individual patient room in use, Staatarchive des Kanton Thurgau

AI

At first, I tried to use chat gpt as a tool to paraphrase my sentences into academic style but it kept on extending sentences to this point, that they no longer had sense even though the base content was kept the same. All additions of "big" words (that tried to refer to the style I requested) were chaotic and random, what made it even more difficult to read and digest.

The prompt used for this purpose was: *rewrite using academic style*

I quickly gave up with using this as a tool for language purpose and instead switched to deepL AI writing assistant, which is way more intuitive because it suggests different synonyms for words that could be replaced.

Also, I tried to challenge chat gpt while looking for quotes from Brands - knowing what I wanted I asked it to look through "How Buildings Learn: And what happens after they're build" to find a clear position opposing modernist practicality and functionality

The prompt used for this purpose was: *look into Stewart Brand "How Buildings Learn" and find his position opposing functionality of a modernist building being a machine*

As a result it listed few quotes divided into categories, such as: a critique of modernist permanence & precision; on the failure of modernist ideals; on the "machine" metaphor; on adaptability and user control; his concept of "shearing layers"; modernism in a nutshell. It tried to convince me that all of the listed quotes under each category are from particular sources from Brand. So I picked one and challenged it again, asking: *where is this quote from: "Buildings are not machines. They are complex, layered, evolving structures - more like organisms than artifacts."*

The answer that followed my question suggested *"a great catch"* because the aforementioned quote *"is a paraphrase or synthesis of Stewart Brand's central argument in How Buildings Learn, but it's not a direct quote from the book"*. Then, it tried to supply me with actual quotes from the book, but since I had it next to me I could check their accuracy. It was still mistaken and even while referring to sources (chapters from the book), given chapter titles were also wrong.

