

## RESEARCH ARTICLE

# From “prototype” to “model”: Architectural and spatial development of Block A (1924–1945) of Istanbul’s Heybeliada Sanatorium

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**Abstract** This article examines Block A, the first block-style building in Heybeliada Sanatorium in Istanbul. The purpose of this research is to understand its architectural and spatial development and discuss how in fact it was a “prototype” of Turkish sanatoria. Approached with a three-step methodology (documentation/evaluation/results) this research conducts architectural and spatial analysis on Block A. Primary sources like architectural documentation and restitution drawings, the writings of the institution’s head doctor Tevfik İsmail Gökçe, periodicals on tuberculosis (TB), as well as pertinent literature are utilized. The findings demonstrate that Block A’s development (1924–1945) was the result of knowledge transfer that introduced the universal sanatorium design principles, spatial experiments, adaptation to sociocultural norms, and trial-and-error processes. Not only it had a major impact on shaping of the second block-type building in the complex, the “model” Block B, but it also became exemplary of the subsequent Turkish sanatoria. The originality of this article is its exploration of the changing and evolving Block A in its resonance with the cultural tensions of Turkey’s modernization process. This was established via the assessment of budgetary issues, medical developments and climatic experiments, the social issue of scarcity of TB beds in the country, spatial practices to separate the sexes as reflections of local traditions and culture in the shaping of spaces.

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## 1. Introduction

Tuberculosis (TB) treatment relied heavily on the design of sanatoria and the therapeutic use of patients' surroundings prior to the advent of antibiotics in the mid-20th century. The sanatorium movement promoted the idea that patients could recover from the disease by being removed from unsanitary living conditions prevalent in both urban and rural areas, and by being exposed to natural elements such as fresh air and sunlight (Overy, 2007, p. 22). That is, the core treatment in sanatoria was not a medical procedure, but a regimen that incorporated hygiene, rest, a nutritious diet, and the therapeutic benefits of nature. This article examines the development of Block A in Istanbul's Heybeliada Sanatorium complex as a set of prototypes that synthesized such universal principles with regional and local factors in its spatial evolution.

### 1.1. Historical and theoretical background

#### 1.1.1. The historical background of sanatorium architecture

The first sanatorium to offer the "dietetic-hygienic treatment" was established in 1854 by the Silesian physician Dr. Hermann Brehmer in the village of Görbersdorf for its fresh air.<sup>1</sup> Brehmer's methods served as the foundation for the standard treatment of tuberculosis (Eylers, 2014, p. 670). In 1884, Dr. Edward Trudeau introduced this approach to the United States with the establishment of the "cottage-type" Adirondack Sanitarium in Saranac Lake.<sup>2</sup> By the end of the nineteenth century, Davos had become a renowned therapeutic resort, offering sanatoria that combined therapy with the luxurious amenities for affluent clientele; meanwhile in Germany, a "Heilstätten movement" arose to provide sanatoria for the working class (Eylers, 2014). While some sanatorium founders were able to purchase or construct large-scale buildings, many started small and grew gradually. For those who started with just a few beds in a simple structure or even a tent, impressive buildings featuring expansive windows, balconies, and verandas, often followed (Bynum, 2012, p. 130).

Robert Koch's discovery of tuberculin in the late 19th century proved the contagious nature of tuberculosis, thereby increasing social anxieties and stigmas associated with the disease. This altered the motives behind choosing remote locations for sanatoria. Removing the tubercular people from unsanitary urban slums and isolating them in specially designed and equipped facilities became a

preventive measure.<sup>3</sup> Moreover, the image of sanatorium, as once seen as idyllic, romantic, and restorative journeys to scenic destinations had changed to a state of quarantine in the bacteriological era.<sup>4</sup> Another breakthrough was Wilhelm Conrad Roentgen's discovery of X-rays in 1895. Bacteriological and X-ray examinations enabled the diagnosis of TB and its monitoring, and the addition of related laboratories transformed the sanatoria into institutions for experimental disease observation. This was later followed by addition of surgical units.

Many scholars have investigated the true function of sanatoria before the introduction of drug therapy until which, it is now well known that people were not actually "cured" of tuberculosis. If so, why invest in sanatoria for over a hundred years? Katherine Ott (1996, p. 150) notes that it was not the therapeutical aims but the isolation function of the sanatoria that responded to the psychological needs of societies. They also served as pedagogical institutes where those with tuberculosis were disciplined and taught how to live in society without spreading the disease (Snowden, 2019, p. 313).<sup>5</sup> Sanatoria also provided the poor consumptive patients, a location where they might feel safe and have a good meal (Snowden, 2019, p. 312). If not cured, people gained strength to struggle with the disease and be able to work and contribute to the economy.

Architectural historians have built upon these discussions by examining both medical and non-medical factors in sanatorium architecture.<sup>6</sup> In the context of nation-building, the modernizing role of sanatorium architecture was often addressed.<sup>7</sup> As the importance of healthy citizens gained prominence with nationalist discourses, the architecture of sanatoria evolved more into a political medium, forming healthcare networks with dispensaries. Sanatoria were moreover symbolic artifacts of the struggle against tuberculosis. Their construction was a physical manifestation of the battle being fought "through bricks and mortar" (Collins, 2020, p. 165). Though they did not permanently cure the disease, they triumphed in the collaboration of

<sup>3</sup> On the isolation function of sanatoria, see Barnes (1995, p. 106); Bryder (1988, p. 30); Bynum (2012, p. 134); Snowden (2019, p. 324).

<sup>4</sup> Snowden distinguishes romantic and unromantic eras of tuberculosis (Snowden, 2019). Also, for "romanticized" attributions of tuberculosis, see Sontag (1978).

<sup>5</sup> In this sense, as Bashford (2005, p. 125) writes, sanatoria emerged as therapeutic and educational sites and practices of isolation. According to some researchers, notably Linda Bryder, their essential purpose was to treat the social outcomes of TB, as the well-being of the people became a matter of national efficiency (Bryder, 1988, p. 22).

<sup>6</sup> Eva Eylers (2014) analysed the significance of the sanatorium network in Wilhelmine Germany's political stabilization, despite its uncertain success in providing permanent therapy.

<sup>7</sup> For an example from Mexico, see O'Rourke (2012).

<sup>1</sup> Another factor in Brehmer's decision was high altitude, an idea which later lost its popularity (Daniel, 2011).

<sup>2</sup> A 'cottage plan sanatorium' generally consisted of a central administration building surrounded by separate cottages that provided individual patient rooms (Adams and Burke, 2006).

medicine and architecture for reflecting “a valiant faith” in architecture’s ability to cure and contribute to society (Eylers et al., 2016, p. 20).

The health-promoting aspects of sanatoria were championed by the theoretical pioneers of architectural modernism such as Sigfried Giedion,<sup>8</sup> and the impact of tuberculosis on Modern Movement has been particularly discussed. Initially, much has been written about Le Corbusier’s preoccupation with hygiene, and his references to tuberculosis and sanatoria in his writings. Campbell’s research moreover shows that sanatorium buildings influenced signature features of modern architecture such as flat roofs, terraces, balconies, and furniture like chaise-lounges (Campbell, 1999, 2005). Overy (2007) identified the core idea behind sanatoria as “light, air, and openness”, promoting an idealized, therapeutic lifestyle reflected in everyday spaces of the interwar era. The sanatorium, as Beatriz Colomina notes in her seminal work *X-Ray Architecture*, served as “a laboratory for incubating new attitudes toward form, spatial organization, interior design, furniture, fittings, lighting, plumbing, air, equipment, surfaces, colours, materials, and construction methods” (Colomina, 2019, p. 78).<sup>9</sup>

### 1.1.2. Tuberculosis in early republican Turkey and the importance of Heybeliada Sanatorium’s Block A

Among the responses to tuberculosis, a universal disease, Turkey’s case was not merely a product of English, European, or American influences.<sup>10</sup> Despite the shared background, it had distinct and compelling variations shaped by geographical circumstances, the political structure, as well as local actors.<sup>11</sup> The first systematic efforts to fight tuberculosis started in the late Ottoman era.<sup>12</sup> However, in this period, there were only two small-scale children’s institutions.<sup>13</sup> After the establishment of the Republic of

Turkey in 1923, the state prioritized the fight against contagious diseases in its modernization agenda (Doktor Tevfik İsmail, 1926). The struggle with tuberculosis was not a war to be fought on an individual level but required an organized effort with new sanatoria, dispensaries, propaganda, surveillance, and cooperation of both the tuberculous and the healthy, for social harmony. These campaigns transformed the citizens’ bodies from individual to social as it provided a ground for government’s intervention into the everyday lives (İlkan, 2006). TB struggle was represented as a war against “the invisible enemies” which were “killing Turks as many as an army corps each year” (“Veremle Mücadele”, 1929), and a battle linked to “culture and civilization”, of which sanatoria were both “an aspect and instrument” (İlhan, 1947).

The founding president of Turkey, Mustafa Kemal Atatürk, in his opening speech on March 1, 1923 in the Grand National Assembly, pointed out that opening a tuberculosis treatment centre in Istanbul would lay the foundation for fighting the disease. This first step was the establishment of a dispensary in Istanbul on the order of the Ministry of Health and Social Assistance in 1923 (Yıldırım, 2010, p. 101). However, the most significant step taken by the government was the opening of Heybeliada Sanatorium in 1924, which marked a major milestone in the control of tuberculosis in Turkey. This was followed by the establishment of several sanatoria until 1970s.

In these years of financial austerity from the 1920s to the 1950s, the formula for locating new sanatoria had two elements: good climate and an existing building. Accordingly, the Ministry of Health chose an abandoned masonry/timber-frame mansion for the first state sanatorium on the Heybeli Island, which had been formerly used as a convalescent home. The improvement of this devastated historic building was a challenge; consequently, the process of enlargement, and spatial development from 1924 well into the 1950s provided worthwhile learning grounds for the new government and healthcare officials on how to build a modern sanatorium.

### 1.2. Aim, scope, and methodology

Until the age of antibiotics, the architecture of the sanatoriums offered tuberculosis treatment, in which “the patient’s immediate environment served explicitly as an active physical agent” (Adams et al., 2008, p. 912). In the case of Heybeliada Sanatorium, one of the pioneer medico-architectural product of Turkey’s modernization agenda, this therapeutic environment surrounding the patients was not static. Instead, it took the form of a constantly changing and evolving laboratory, significantly during the development of Block A between the years 1924–1945. Block A gradually emerged in five main stages.

This article looks at this manifold development process of Block A in the Heybeliada Sanatorium complex during the early Republican era of Turkey.

The methodology employed in this article was formulated based on three main steps (Fig. 1). The first step was the documentation which included literature survey and archival research as well as site survey. The literature

<sup>8</sup> For instance, in his book *Befreites Wohnen* (Liberated Dwelling) subtitled *Licht, Luft, Oeffnung* (Light, Air, Opening), Sigfried Giedion famously combined photographs of sanatoria in Davos, Richard Döcker’s sanatorium in Waiblingen, Bijvoet and Duiker’s Zonnestraal, with images of modernist houses (Colomina, 2019, p. 100; Giedion, 1929).

<sup>9</sup> Colomina argues that the concurrent popularization of the X-ray, and the evolution of modern architecture were not coincidental. The two developments interacted particularly through the concepts of transparency and permeability.

<sup>10</sup> For a detailed analysis of tuberculosis in Turkey, See Yıldırım and Gürkan (2012).

<sup>11</sup> Historians Evered Ö. E. and Evered Kyle T (2020) demonstrate these permutations and unique geographical responses to tuberculosis in the context of dispensaries, homes, and women, based on the writings of prominent physician Dr. Besim Ömer Akalın.

<sup>12</sup> Following Robert Koch’s discovery of tuberculosis bacillus, the Société Imperial de Médecine of the Ottoman Empire was asked by Sultan Abdülhamid II for a detailed report on treatment methods and preventive measures for tuberculosis. In 1895, the Society published reports, and according to medical historian Nuran Yıldırım, it was during these efforts that a physician from the Russian Hospital, Doctor Stchépotiew proposed establishing a sanatorium on one of the Princes’ Islands (Yıldırım, 2010, p. 99).

<sup>13</sup> The first sanatorium in Istanbul was a private and charitable establishment for homeless and orphaned children founded on Burgaz Island in 1902. It was followed by another small-scale children’s sanatorium that opened as part of the Hamidiye Children’s Hospital in Istanbul in 1906 (Yıldırım, 2010, p. 103).

survey was conducted to understand the architectural history of sanatoriums, social history of tuberculosis and the history of tuberculosis treatment in Turkey. For the archival research, a wide range of primary sources were consulted such as the head doctor Tevfik İsmail Gökçe's articles, contemporary newspapers, accounts of the journalists, periodicals and publications by tuberculosis associations in Turkey. The head doctor Tevfik İsmail Gökçe's monograph titled *Heybeliada Sanatoryumu Kuruluş ve Gelişimi (1924–1955)* [The Establishment and Development of the Heybeliada Sanatorium (1924–1955)] observes the role of medical theories and their worldwide implementations in shaping architecture through the lens of a practicing physician. Bringing together the head doctor's accounts with various documentation of the buildings reveals the endeavours of the medical professionals of the young state to establish a modern sanatorium complex. The site survey included documentation which resulted in the measured architectural drawings and restitution drawings of the buildings,<sup>14</sup> as well as photographs taken at the site. This step helped to establish the basis of the architectural and spatial analysis as conducted in the second and following step: evaluation.

Building upon these resources, the architectural and spatial development of Heybeliada Sanatorium's Block A is assessed in two parts. The first part explores the architectural development of Block A (Section 2.1). Due to the budgetary issues and the medical developments, Block A was formed of series of pavilions, with the historic mansion utilized as the first pavilion (A1) and the other four concrete structures (A2–A5) added over time. Here, it is crucial to explain the terminology concerning the buildings: the completed multi-storey block-type buildings within the complex are referred to as "blocks"; whereas the smaller buildings which complete the blocks are defined as "pavilions". The pavilions were designed with features to optimize the healing potential of nature combined with medical technologies. The section continues by highlighting the influence of regional climate on shaping architecture (Section 2.1). The orientation of the pavilions was meticulously calculated by observing wind patterns, ionization levels, and sunlight.

The subsequent section explores the spatial development of Block A and discusses the challenges behind the spatial decisions. These factors, or in other words, challenges, were twofold.

Due to the increasing number of tuberculosis patients in the country, there was bed-scarcity and accordingly a need for rapid growth. Accordingly, the demand for beds far surpassed the physical capacity of the pavilions of Block A (Section 2.2). This shortage of beds was not only a practical problem but also one of the socio-political inputs which ultimately shaped the *spatial expansion*, usage and development of the pavilions of Block A. This social pressure also has a symbolic value as it became part of the nation-

building discourse. Another social dimension was the local translations of sanatorium architecture shaped by local traditions and culture. These practical and socio-(cultural/political) issues revealed that sanatorium architecture is in fact shaped by medico-social necessities/challenges. The following and final discussion thus further delves into the challenges behind spatial development and explores whether the *separation of the sexes* was a medico-social necessity or a reflection of the Turkish tradition and culture (Section 2.2).

As discussed in the third and final step, results of this research demonstrated that Block A (1924–1945) was a product of a changing and evolving laboratory, and it became exemplary of the sanatoria in Turkey (Section 3). Moreover, it had a major impact on shaping Block B (1945–1947) of the Heybeliada Sanatorium complex (Section 3).

## 2. A set of prototypes: Block A (1924–1945)

### 2.1. A set of pavilions: the architectural development of Block A

The construction of Block A was a collaborative effort led by head doctor Tevfik İsmail Gökçe, working first with craftsmen, journeymen, and municipal officers, and later with professional engineers and architects in the final stages (Gökçe, 2021, p. 160). Although Dr. Gökçe went into great detail about the building's architectural design in his accounts, he did not mention any specific architects by name.<sup>15</sup> The impact of tuberculosis spurred architects, engineers and doctors to work closely together in experimenting on sanatorium architecture (Colomina, 2019, p. 74). Dr. Gökçe had a similar architectural authority, in a time when there was no prominent hospital specialist architect in Turkey, but the authority of doctors in changing the built environment was growing.

As the name implies, Block A is a "block" type health-care structure. Although there were variations, the most common typologies for building sanatoria were cottage-plans and pavilion/block types. The multi-story, singular pavilion/block type became the dominant type in the twentieth century, because they costed less than cottage networks, while still providing an outdoor lifestyle (Snowden, 2019, p. 309). The block type moreover proved more efficient as the wards and services were gathered in one area and accordingly the staff and the patients could circulate less (Forty, 2005, p. 45).

#### 2.1.1. From a historic mansion to a concrete block

At first glance, Block A stands as a clean, monolithic white box on a sloping ground, with its balconied facades and horizontal mass (Fig. 2). Yet, on the second look, it is comprehended as a patchwork of adjacent built five pavilions: one historic, timber mansion (Fig. 3) and four concrete structures with large openings, galleries with balconies, but differing from each other in their facade designs (Figs. 2 and 4). Looking at the plan, the block rotated approximately 10° from the point of junction that

<sup>14</sup> These were prepared for the Ministry of Health in 2013–2014. See Hosanli, A. S. & Demir, M., "Heybeli Island Sanatorium Architectural Measurements and Drawings", Architectural Drawing (Istanbul: Ministry of Health, 2014, 2013); Avci-Hosanli, D. & Degirmencioglu, C., "Heybeli Island Sanatorium Restitution Drawings", Architectural Drawing (Istanbul, 2022).

<sup>15</sup> See footnotes 18 and 19.

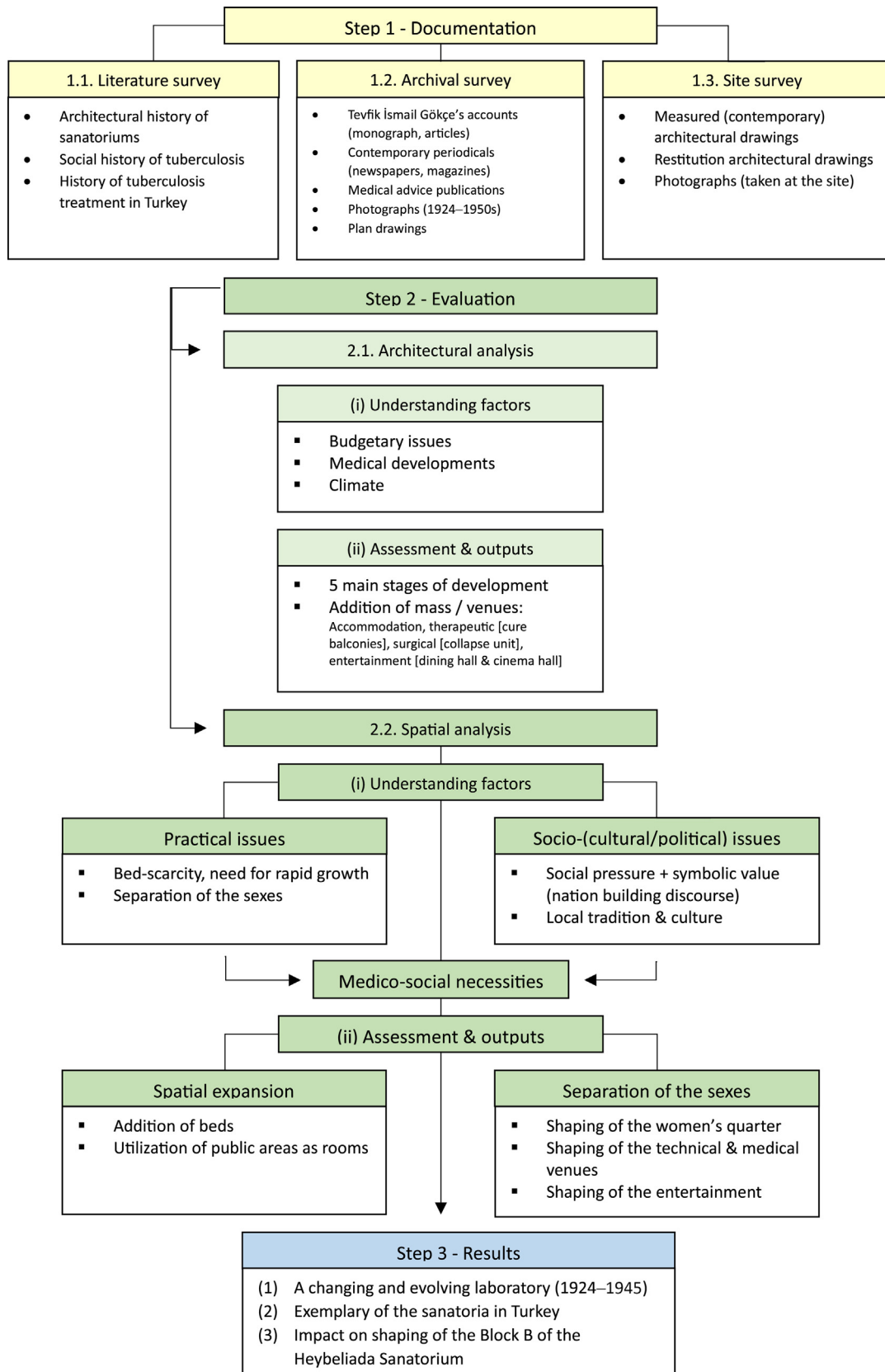


Fig. 1 A flowchart of methodology. Source: The Authors.



**Fig. 2** Front/southern view of the entire Block A of Heybeliada Sanatorium (between 1939 and 1951). Source: The Authors' personal archive.

connects the historic pavilion with the remaining four (Fig. 5).<sup>16</sup> The five pavilions are coded from A1 to A5 chronologically for this study; A1 being the historic pavilion (1924) and the A5 pavilion being the latest building (1938–1939) to connect all the pavilions and create a single block.

Heybeliada Sanatorium came to symbolize the progress of the young state, and the urgency of its construction process was well-documented in newspapers. Throughout the 1930s, tenders for new parts of the pavilions, additional floors, elevators, stairs, and furniture were frequently advertised. Thus, the spatial progress of Block A made its way into the homes of people throughout Turkey, thanks to daily newspaper coverage (Öktem, 1935). The additions of new pavilions were sometimes announced in the newspapers as a “good job” or “something to be admired” (“İyi Bir İş: Yeni Bir Verem Pavyonu İnşasına Başlanıyor”, 1937). The block’s photographs taken from afar in the 1920s–1930s are almost all different from each other: first, a single standing historic mansion, then a complex consisting of two, three and four pavilions, sometimes one of which is covered with scaffolding, and finally a complete block in 1938 (Figs. 2–4,

<sup>16</sup> A similar process of the development can be followed with the Erenköy Sanatorium and Validebağ Preventorium and Sanatorium in Istanbul, the most prevalent cases following the Heybeliada Sanatorium. Although, both institutions initially settled in a historic building, the subsequent expansions of their facilities occurred independently from the historic one, unlike the Heybeliada’s Block A. New block-type buildings were gradually constructed within these facilities in an extended timeline from the 1920s to the 1950s. The settlement in historic mansions continued even in the 1950s. For instance, the construction of the block-type sanatorium of the Süreyyapaşa Sanatorium Complex could be possible after the donation of a mansion and lands by philanthropist Süreyya İlmen. These examples can be multiplied with the Çamlıca and Yakacık sanatoriums and more. For further detail, see Degirmencioglu and Avci-Hosanli (2023), Avci-Hosanli and Degirmencioglu (expected in 2023). For the spatial development and modernization of the interiors of the historic pavilion in Heybeliada sanatorium during the first decade of the republican period in Turkey, see Avci-Hosanli (expected in 2023). For an architectural analysis of the links between Istanbul’s early republican public sanatoria, including Heybeliada, and the sociocultural dimensions of tuberculosis within Turkey, see Degirmencioglu (2022).



**Fig. 3** The historic pavilion of the Heybeliada Sanatorium (between 1924–1929). Source: Sertabip Tevfik İsmail, “Sanatoryumun 1924–1927 Salnamesi.” Sıhhat ve Muavenet-i İçtimaiye Vekaleti, 1927.

Figs. 6–7). It was a process in which medical theories were tested, and architectural ideas were challenged. The pavilions served as prototypes, in a similar way to Overy’s reading of the modernist housing units of Weisenhofsiedlung, “demonstrating the possibilities of healthy and hygienic” living “for the lower-income families who were most at risk from tuberculosis [...] by providing outdoor space and fresh air [...]” (Overy, 2007, p. 38).

In 1930, when only the historic mansion and the second pavilion were in operation with a capacity of 60 beds, head doctor Gökçe and the Minister of Health Refik Saydam developed the full capacity program of the block with 260 beds (Gökçe, 2021, p. 334). In the beginning, the historic pavilion (A1) was appropriated in August 1924 after considerable repairs and started accommodating both male and female patients. It had a hybrid architectural character of vernacular residential and neo-classical architecture of the late nineteenth century (Fig. 3). When the institution was first settled, this picturesque building lacked any characteristics of a healthcare facility. It followed the layout of traditional Turkish/Ottoman houses with a *sofa* space dividing the plan into two, surrounded by rooms (Fig. 8). The *sofa* divided its surrounding spaces in a plan layout type *karniyarık*<sup>17</sup> and served as a gathering and circulation space. Keeping its original multifunctional purpose, the *sofa* of the sanatorium was called the “saloon” or “living room” (Gökçe, 2021, pp. 116–117). It was indeed used as the main “living” area along with additional functions such as entertainment, dining, and as an indoor “cure” area with access to a small balcony facing the coast (Fig. 8).

This first pavilion soon reached its maximum capacity. The new pavilions of Block A were purpose-built following layouts of western sanatoria, contained “institutionalized, increasingly sterile medical and surgical environments” (Adams and Burke, 2006, p. 430). They were not built

<sup>17</sup> A centrally located axial space surrounded by rooms on sides. It acts as the circulation and main living space in Ottoman-Turkish/regional residential architecture (Eldem, 1954, 1984; Kuban, 1995).

adjacently one by one, but with an interesting order (Fig. 5). The reason was, as Dr. Gökçe claimed, the lack of funding to construct an adjacent structure to the historic pavilion at first. It required a detailed work to connect two buildings, and the soil was rocky which required extra excavation work. Instead, the first addition, i.e., the second pavilion (A2) was constructed (1929–1930) approximately 22 m southwest from the first one, as a free-standing two-floor structure. It was cost-effective but up-to-date and marked the beginning of a shift away from decorative surfaces, towards clean and unadorned surfaces that prioritized the contemporary needs for sun, fresh air, and ventilation. The third pavilion (A3), again not adjacently, was planimetrically an expanded version of the second (A2), built 16 m away from A2 in 1931–1932 (Figs. 6 and 7). The A2 and A3 pavilions were built to accommodate patients wards as well as social gathering spaces and medical spaces such as doctors' offices.

The fourth pavilion (A4) filled the gap between A2 and A3. It had a different program, serving as a surgical pavilion, a.k.a., the "collapse unit" (Figs. 9 and 10).<sup>18</sup> A4 was built in 1932 and contained spaces for contemporary medical technologies and surgical procedures used in the treatment of tuberculosis, such as collapse units, operating rooms, and X-Ray sections. Additionally, this pavilion included a brand-new laboratory, dental treatment, ear-nose-throat treatment, and apothecary. The addition of surgical units signalled the shift from the "sanatorium era" to the "hospital era" (Bynum, 2012, p. 157), as there were now surgical alternatives to "building-as-therapy" formula of the sanatorium, hence to the open-air cure (Theodore, 2016, p. 191). With the introduction of procedures like pneumothorax (injection of artificial air in the chest) and thoracoplasty (cutting of the ribs) (Acun, 1937), the sanatorium's spatial development was affected, as these procedures introduced a new type of tuberculosis patient—the surgical inpatient with new requirements (Adams and Schwartzman, 2005; Adams et al., 2008). As a result, the sanatorium transformed into a facility combining diagnostic, therapeutic, and surgical approaches.

The fifth and final pavilion of Block A was designed by a professional architect<sup>19</sup> and constructed without sacrificing any comforts, or technical requirements thanks to the increased budget provided. This pavilion filled the gap between the historic mansion and the remaining part, thus completing the entire Block A as seen in Fig. 11. A structure of five floors over a basement, its construction started on March 1938 and was finished in May 1939. The floors of this pavilion were levelled with the remaining pavilions (which



Fig. 4 Rare views of the pavilions A1, A2 and A3 completed. A4 in construction. Source: "Sıhhiye Mecmuası. Fevkalade Nüshası." Türkiye Cumhuriyeti Sıhhat ve İçtimai Muavenet Vekaleti, 1933, pp.70–71.

were also levelled with each other), except for the historic mansion. Thus, the main horizontal circulation axis of blocks from A3 to A5, i.e., the corridors, were all connected (Fig. 12). This final pavilion included patient rooms, a spacious dining hall and a large cinema/conference hall that provided education and entertainment for all patients in Block A.

The universal requirements to provide care for tuberculosis patients were evident in Heybeliada Sanatorium's architecture: adjacent rooms lined up along the corridor to enable the efficient service and surveillance of the medical staff, long balconies oriented to the sun with direct access from rooms, easy-to-clean forms and surfaces, materials for maximum hygiene and sanitary fixtures, and large glass windows for bright, well-ventilated interiors. In the new pavilions, concrete building systems replaced load-bearing walls with beam and column systems that created a new visual language and provided more volume and light. However, one cannot help but notice the disharmony of the facades, which reflects the process of construction where new considerations came to the fore with each step (Fig. 11). Nonetheless, it functioned as a laboratory for inventing spatial solutions to regional factors, including climatic challenges, social issues, and cultural considerations.

### 2.1.2. The impact of regional climate on architecture

Heybeli Island had been considered suitable for tuberculosis treatment owing to its pine forests and warm, dry, and clean air. In a 1937 interview, Dr. Gökçe explained the twofold essence of the early 20th-century sanatorium. Rather than relying on drug therapies, it was a system that also utilized the healing potentials of nature combined with medical technologies, with the aim of maximizing the amount of clean air in the lungs of the patient (Acun, 1937).

Hence, the sanatoria brought together the long-standing beliefs in natural healing dating back to antiquity and technological practices that required medical knowledge. The modern belief in the curative properties of sunlight and clean air was inspired by early medical theories that saw miasma—bad and stagnant air—as the source of disease (Overy, 2007, p. 98). However, the TB sanatoria witnessed a closer

<sup>18</sup> According to the 1933 issue of the architectural journal *Mimar*, Servet Cemal was credited as the architect involved in the construction of some sections of the Heybeliada Sanatorium (Haberler, 1933, p.330; also cited by İmamoğlu, 2010, p. 222). Given that this magazine article corresponds with the construction timeline of the A3 and A4 pavilions, it is plausible that he worked on these particular buildings.

<sup>19</sup> Gökçe states that an architect designed this pavilion but does not provide a name. There is a possibility that architect Ziya Emre from Turkish Red Crescent worked in this phase of the project before his untimely death in 1939 (Gökçe, 2021, p. 162; Haberler, 1939).

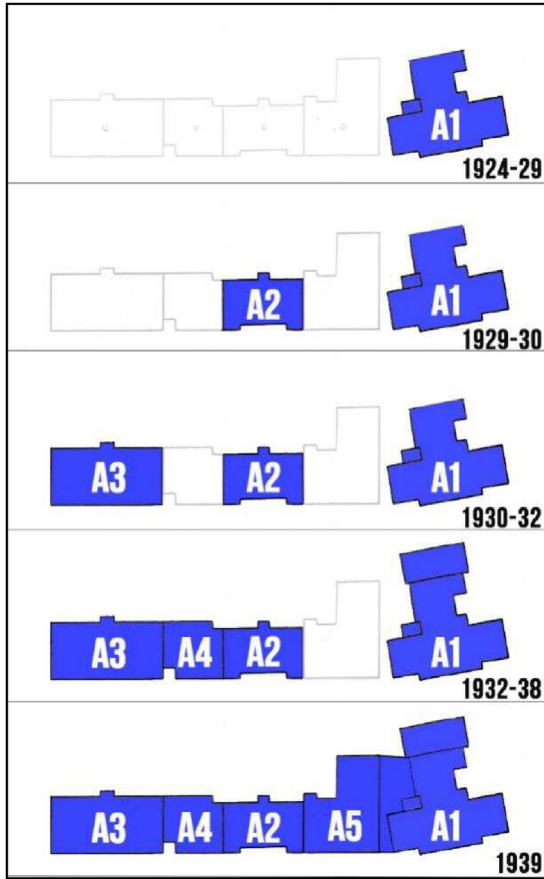


Fig. 5 The development phases and coding of the pavilions. Source: Courtesy of The Authors.

collaboration between climatic factors and architecture than ever before. The resulting typological qualities, such as south orientation, formal characteristics aiming to maximize the sun and air indoors, as well as architectural components like balconies, terraces, porches, and/or continuous exterior corridors became signatures of sanatoria, which distinguished them from modern hospitals and other healthcare facilities (Grandvoinet, 2020, p. 47; O'Rourke, 2012, p. 64).



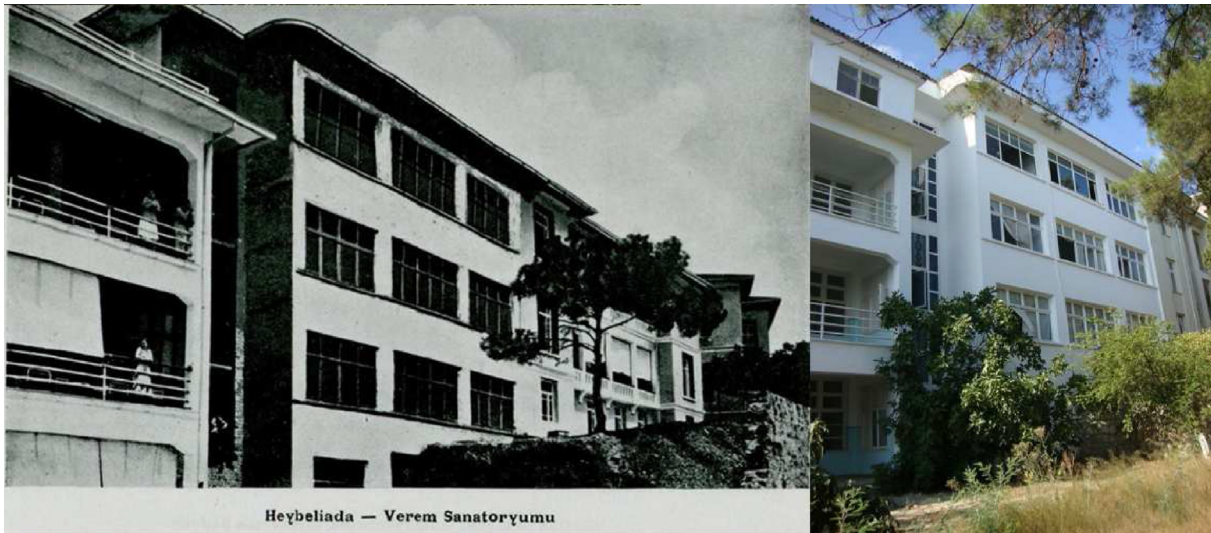
Fig. 8 The multi-purpose use of the sofa space in Pavilion A1. Source: Sertabip Tevfik İsmail, "Sanatoryumun 1924–1927 Salnamesi." Sıhhat ve Muavenet-i İçtimaiye Vekaleti, 1927.

The climatic experiments conducted on the patients of the first building (A1) resulted in a change of orientation. According to Foucault, regulations in France in the late eighteenth century required physicians to review their experiments and records on a regular basis, transforming the hospital into a location for both medical care and knowledge acquisition. Medical knowledge became more active and tangible as it transitioned from written texts to daily experiences in the hospital (Foucault, 2007, p. 151). Similarly, the materiality of Heybeliada Sanatorium incorporated mechanisms of medical knowledge production based on experiments, and architecture was an active ingredient in these processes. The orientation of the mass in the construction of new pavilions did not follow the axis of the historical pavilion and were rotated towards the southeast axis for two reasons. First, the historic mansion faced slightly more to the east, which made it vulnerable to the sunrise. Most European sanatoria faced south to benefit properly from the sun's rays, hence, the new pavilions of Heybeliada were theoretically required to face south. However, direct south-facing was not ideal. In the first years, a medical team conducted experiments and observations on the patient-climate causation, which



Figs. 6 and 7 Pavilions A3 and A4. Source: Left (Fig. 6): A4 in construction. *Hakimiyet-i Milliye*, October 29, 1933, p. 65; Right (Fig. 7): Photograph by The Authors (2014).





**Figs. 9 and 10** Pavilions A3, A4 and A2 from left to right array, respectively. Source: Left (Fig. 9): “Sıhhiye Mecmuası. Fevkalade Nüşhası.” Türkiye Cumhuriyeti Sıhhat ve İçtimai Muavenet Vekaleti, 1933, pp.70–71; Right (Fig. 10): Photograph by The Authors (2014).

revealed the vital effects of winds and ionization levels in addition to temperature, humidity, and atmospheric pressure.

The relationship between ionization and haemoptysis (spitting blood) was examined in the first building. The results showed that southerly winds increased the rate of ionization in the air, which caused an increase in the rate of blood spitting in patients. Thus, these evaluations had a determining impact on the orientation of successive pavilions. This discovery prompted the idea that all sanatoria in Istanbul should face southeast (Gökçe, 2021, pp. 91, 112). This principle was later applied by some institutions where Dr. Gökçe was a consultant in their construction, including the Erenköy Sanatorium of the Istanbul Tuberculosis Society (Gökçe, 2021, p. 400).

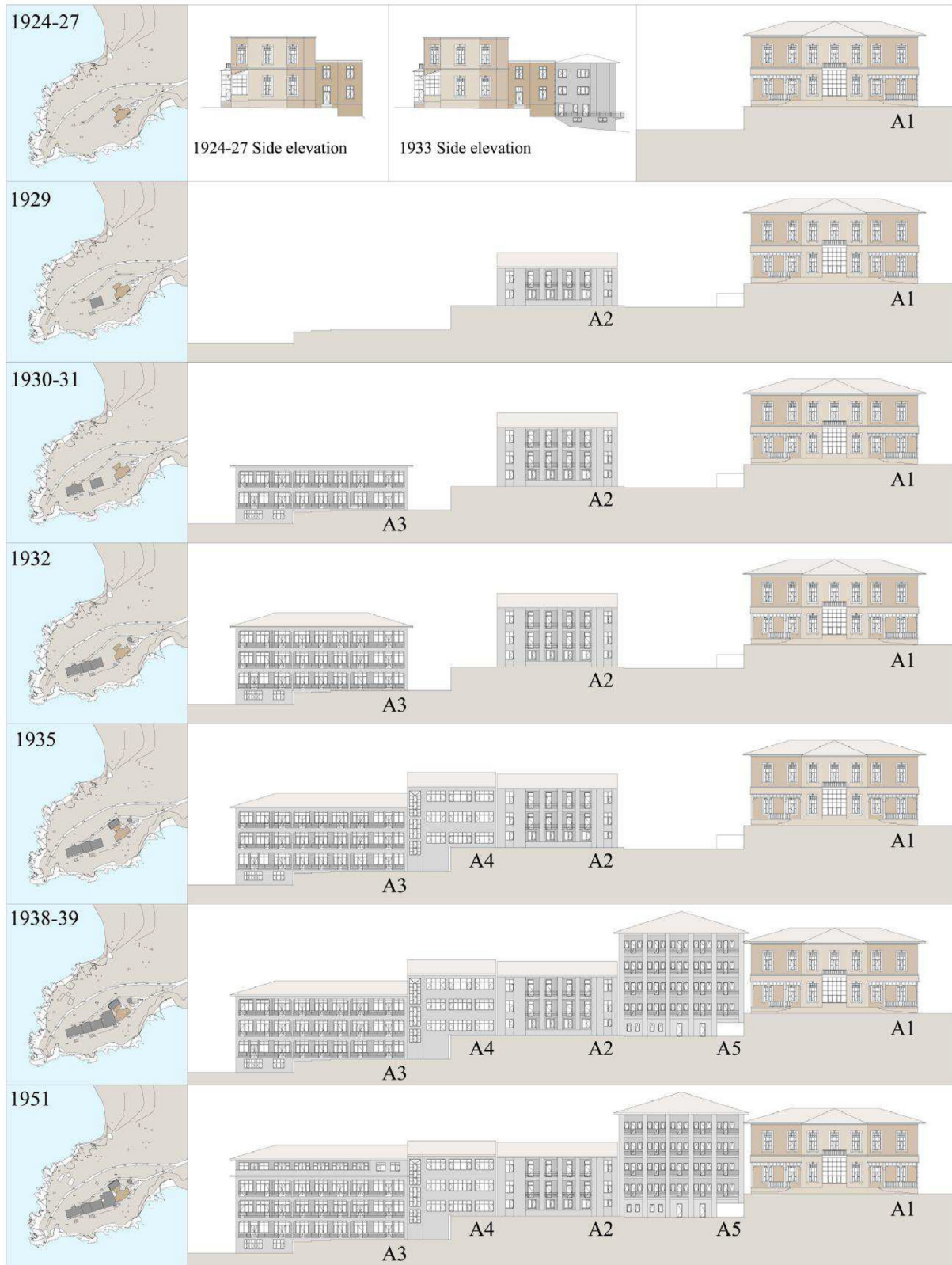
Sunlight was another key factor. Accompanied by the frequently used Turkish proverb *güneş girmeyen yere doktor girer* (sun keeps the doctor away), therapeutic usages of sunlight and sunbathing were promoted in both the popular press and medical advice literature. However, the use of sunlight required a balanced approach for the pulmonary cases of TB,<sup>20</sup> as such was paid attention to at the Heybeliada Sanatorium. The first cure balcony was added to the front facade of the historic pavilion in 1926 (Figs. 13 and 14). This addition was a timber structure with a timber canopy, accessible only through the main door and not by the rooms. In 1927, a 30-m-long terrace was installed on the rock slope below, facing the coast (Fig. 15). It was a crude structure with a timber deck and sheets cantilevered on timber posts. Starting with the first purpose-built

pavilion, A2, the patient rooms had direct access to continuous balconies facing the sea.

Both the balconies and the patients resting on loungers visually became emblematic of media representations of the sanatorium. For instance, a photograph of the third pavilion (A3) from a magazine article in *Yedigün* featured these balconies with the caption, “the cure spaces washed by ultraviolet lights” (Niyazi Ahmet, 1939, p. 16) (Fig. 16). This narrative, praising the “sun-washed” balconies and scenic views of sanatoria was very common of its time. This setting was believed to have a positive effect not only on the lungs but also on the mind. The pleasant scenery visible from the balconies created a tranquil environment that was considered essential for therapy (Fig. 17). The horizontality of the view had a visually and mentally calming effect (Colomina, 2019, p. 67), while the landscape provided additional therapeutic benefits (McBride, 1998).

The architectural principles of opening up to fresh air through balconies, and uninterrupted access to the panoramic view of the Marmara Sea through the pine forests simulated a middle-class lifestyle that was typically unaffordable for the average tuberculosis patient in a state sanatorium. Firstly, balconies, terraces, and flat roofs of sanatoria had inspired similar features in modern apartment blocks or villas that the “aesthetically aware middle-class” customarily built to live in (Campbell, 2005, p. 488). These residential units and the hygienic lifestyle they symbolized became a predominant theme in the popular media of the time, often associating this architecture with luxury living. Secondly, the view of the sea from one’s living space implied an upper-middle-class status, particularly for Istanbulites. Homes that could offer an endless view of the Marmara Sea or the Bosphorus were usually luxury apartment blocks, modern villas, or Ottoman *yalı’s* (a type of waterfront mansion) inhabited by the wealthy. The upper-class feeling of the balconies and views contributed to the psychological aspect of the treatment.

<sup>20</sup> Architecturally, it can be challenging to distinguish between heliotherapy clinics for surgical tuberculosis and open-air sanatoria for pulmonary tuberculosis. In the latter, sunlight was intended to kill bacteria and stop cross- or re-infection, however, its abandonment was due to potential risks, including haemoptysis and haemorrhage. In the facilities for surgical tuberculosis heliotherapy, sunlight could be used medically to aid in the cure (Hobday, 1997).



**Fig. 11** The development of Block A of the Heybeliada Sanatorium throughout the years: Front/southern elevations. Source: Courtesy of The Authors.



**Fig. 12** The levelled corridors from Pavilion A4 towards Pavilion A3. Source: Photograph by The Authors (2014).

However, the climate was not deemed suitable for all cases of TB. Dr. Gökçe defined two proper climate types for tuberculosis patients: “stimulus” and “sedative” (Gökçe, 1948, p. 4). High mountains and islands were of the stimulus type and were suitable for less severe cases. The stimulus climate was not convenient for those with high fever, or throat and gut-infections, and they should not have been relocated in that condition. Even if they had managed to reach the institution, the stimulating environment would have harmful effects. Dr. Gökçe noted incidents where such patients insisted on staying but ended up in a worse condition or even dying. He stressed that patients with advanced TB needed to search for urban facilities. This unique climate of the island thus served as a filter to maintain the increasing demands of beds from the sanatorium.

## 2.2. A set of challenges: the spatial development of Block A

In addition to the climatic factor, there were practical factors as well as a social filter for admitting the patients to the sanatorium. Patients who had the potential to regain their strength, i.e., only those who would potentially be useful to society were admitted (Barnes, 1995, p. 105). This explains why Dr. Gökçe included patients' occupation in his statistics and testifies to the social dimension of tuberculosis. He saw the patients not only as medical bodies, but also as individuals with a position and role in society.<sup>21</sup>

### 2.2.1. The problem of bed scarcity

The capacity to treat tubercular citizens gradually increased over time, with the opening of additional sanatoria by the

<sup>21</sup> Dr Gökçe placed emphasis on the sanatorium's appeal to the patients through the picturesque landscape, colourful walls, and personalized rooms. This was crucial to ensure that patients internalized the treatment and did not prematurely self-discharged. This approach is informative on the nuances of the disciplinary character of sanatoria as institutions of “voluntary” isolation.



**Fig. 13** The cure balcony of Pavilion A1. Source: Photograph by The Authors (2014).

state, private enterprises, or voluntary organizations, as well as the addition of dedicated wards in hospitals. However, for many years, this increase in capacity was not enough to meet the national demand. In the press, the problem of tuberculosis was often emphasized alongside the need for new sanatoria and more beds in existing ones. For instance, during the ongoing reconstruction and urban planning works in Istanbul, Dr. İhsan Rifat Sabar proposed an ambitious idea to include a sanatorium zone, similar to Davos, in these plans (Sabar, 1944).<sup>22</sup>

Moreover, the ability of a sanatorium to contribute to society's betterment was often measured by its “bed capacity”. The news about each expansion stage of Heybeliada Sanatorium always highlighted the number of beds to be added, not the floors, rooms, or any other units (“Heybeli Sanatoryomunda 250 Yataklı Yeni Bir Pavyon Açıldı”, 1947) (Figs. 18 and 19). As the socio-political significance of Heybeliada Sanatorium grew, so did the pressure to expand and increase its bed capacity (Çelebi, 1947). People had to wait for months to be admitted.<sup>23</sup> The main reason for the increased demand was not the rise in the number of tuberculosis cases but rather the result of various factors such as health propaganda, modern diagnostic methods, the introduction of new sanctions for those with tuberculosis (prohibition of certain professions, marriage ban, etc.), the increase in social anxieties and stigma surrounding the disease, the media attention on the sanatorium, and positive feedback from its former patients.

However, the tone in the newspapers regarding the capacity was not always optimistic. For example, a 1932 article announced the addition of a 25-bed pavilion (A3) as an attempt which “will not be enough” (“Verem Hastanesi”, 1932). In 1935, the caption on the cover of the newspaper *Akşam*, which featured a photo of the

<sup>22</sup> Sabar was the head doctor of the private Yakacık Sanatorium.

<sup>23</sup> In many parts of the world, sanatoria had waiting lists. Bynum asserts that only 4 percent of the diagnosed tuberculosis patients was able to receive sanatorium treatment in Britain in 1913 (Bynum, 2012, p. 145).



**Figs. 14 and 15** Crude cure balcony & terrace of Pavilion A1 (Left: Fig. 14; Right: Fig. 15). Source: Tevfik İsmail Gökçe, *Heybeliada Sanatoriyumu Kuruluş ve Gelişimi* (1924–1955). First edition 1957. İstanbul: İstanbul Tüberkuloz Vakfı, 2021.



**Fig. 16** “The cure spaces washed by ultraviolet lights”, Pavilion A3. Source: Niyazi Ahmet, “Heybeliada Sanatoriyumunda.” *Yedigün*, 1939, p.16.

sanatorium with three of the five pavilions built intermittently, read: “İstanbul alone needs 10,500 tuberculosis beds, whereas there are 150 beds in the sanatorium of entire Turkey ...” (“*Hastane Kapılarında..*”, 1935) (Fig. 18). Reportedly, the number of TB beds needed in a country should have been equal to the number of deaths from TB per year, and the annual death rate was around 1500 in İstanbul alone.<sup>24</sup>

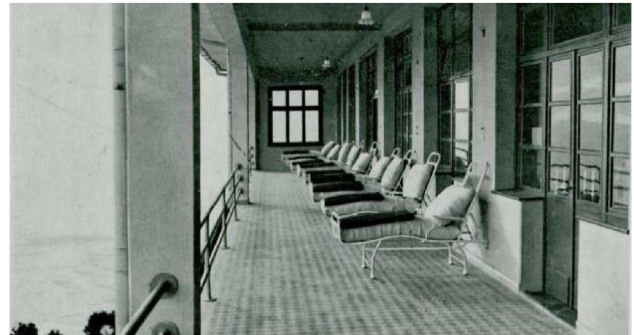
The first pavilions were erected expeditiously to meet the urgent demand, albeit with financial constraints. During the construction of A2, the first additional pavilion, the goal

<sup>24</sup> Two years later, a photograph of then the four-pavilion sanatorium was featured, accompanied by a commentary on the “true” function of sanatoria: “An hour in the Heybeli sanatorium: The remedy for tuberculosis is to return to nature. The patient who comes here stays for [only] 4 months, but during this time they learn selfcare. [...] A month later, the construction of the 50-bed pavilion [A5] begins” (Acun, 1937). Indeed, the primary function was education. Four months was a short period to recover, but sufficient to learn how to live with TB consciously.

was to host “maximum patients with a minimum budget”, resulting in a “maximum sacrifice from size, comfort, etc.” (Gökçe, 2021, p. 121). It was built in two stages. Even during the construction of its third floor, the patients on the floor below continued to receive treatment despite the dust and noise (Gökçe, 2021, p. 124).

During the next stages of expansion, the sanatorium continued to admit patients near construction sites. The demand for additional beds continued to grow, and by 1943, even the *sofa* space in the first pavilion (A1) was partitioned with walls to create new patient rooms, squeezing in 4–5 beds. As the number of beds per room increased, A1 itself eventually housed 60 beds, while the entire Block A reached a total capacity of 260.

Due to political pressure, the social responsibilities of architecture took precedence in the spatial formation over other concerns. The Heybeliada Sanatorium, like all other sanatoria, functioned as a social mechanism. For the state, each sickbed added to the sanatorium meant one citizen to be returned to the workforce and nation-building, while for the society, it meant one infectious person removed from the urban space. This was relevant for affirming “the ideological component of the modern cause” (Tostões, 2022, p. 114). Nonetheless, its role as a social instrument eventually put pressure on architecture.



**Fig. 17** The balcony of Pavilion A3. Source: “Sıhhiye Mecmuası. Fevkalade Nüşhası.” *Türkiye Cumhuriyeti Sıhhat ve İçtimai Muavenet Vekaleti*, 1933, pp.70-71.



**Fig. 18** “[Waiting] at hospital gates ... Istanbul alone needs 10,500 tuberculosis beds, whereas there are 150 beds in the sanatorium of entire Turkey ...” Source: “Hastane Kapılarında..”, *Akşam*, August 1, 1935.

### 2.2.2. Separation of sexes: morality and tradition in spatial arrangements

The separation of the sexes in hospitals was a common practice in the nineteenth and early twentieth centuries.<sup>25</sup> This became a principle in many sanatoria to maintain moral discipline among the patients. It might seem like a reflection of the institutional character of sanatoria; however, Snowden argues that such an “extensive authority to govern the activities of the patients was not a means of social control but an issue of life and death” (Snowden, 2019, pp. 313–314). Hence, to avoid both emotional strain and physical overexertion, male and female patients were separated, and any potentially romantic or sexual relationships between them were discouraged (Snowden, 2019, p. 311).

Ethienne Berthet, a tuberculosis specialist from the World Health Organization, working in Turkey in the 1950s, pointed out that although the primary cause of the disease was the TB bacillus, several secondary causes needed to be considered (Berthet, 1950). In addition to the effects of poor life conditions such as malnutrition, poor hygiene, and exhaustion, spiritual factors such as love, pain, and passion could not be denied. Even though the concept of “TB as a romanticized disease” was pre-bacteriological (Sontag, 1978), tuberculous people were still considered melancholic and emotionally weak. As Berthet noted, in the bacteriological era emotional distress was seen as a

<sup>25</sup> Florence Nightingale advocated the cottage plan type in convalescent hospitals since separate building units provided better segregation of the sexes, which she saw morally crucial (Nightingale, 1863, p. 107). Also cited in (McBride, 1998, p. 33).



**Fig. 19** “Heybeli Sanatorium is being expanded. The capacity of beds will be increased to three hundred by the addition of a new pavilion [A5]”. Source: “Heybeli Sanatoryomu Genişletiliyor”. *Akşam*, October 2, 1936.

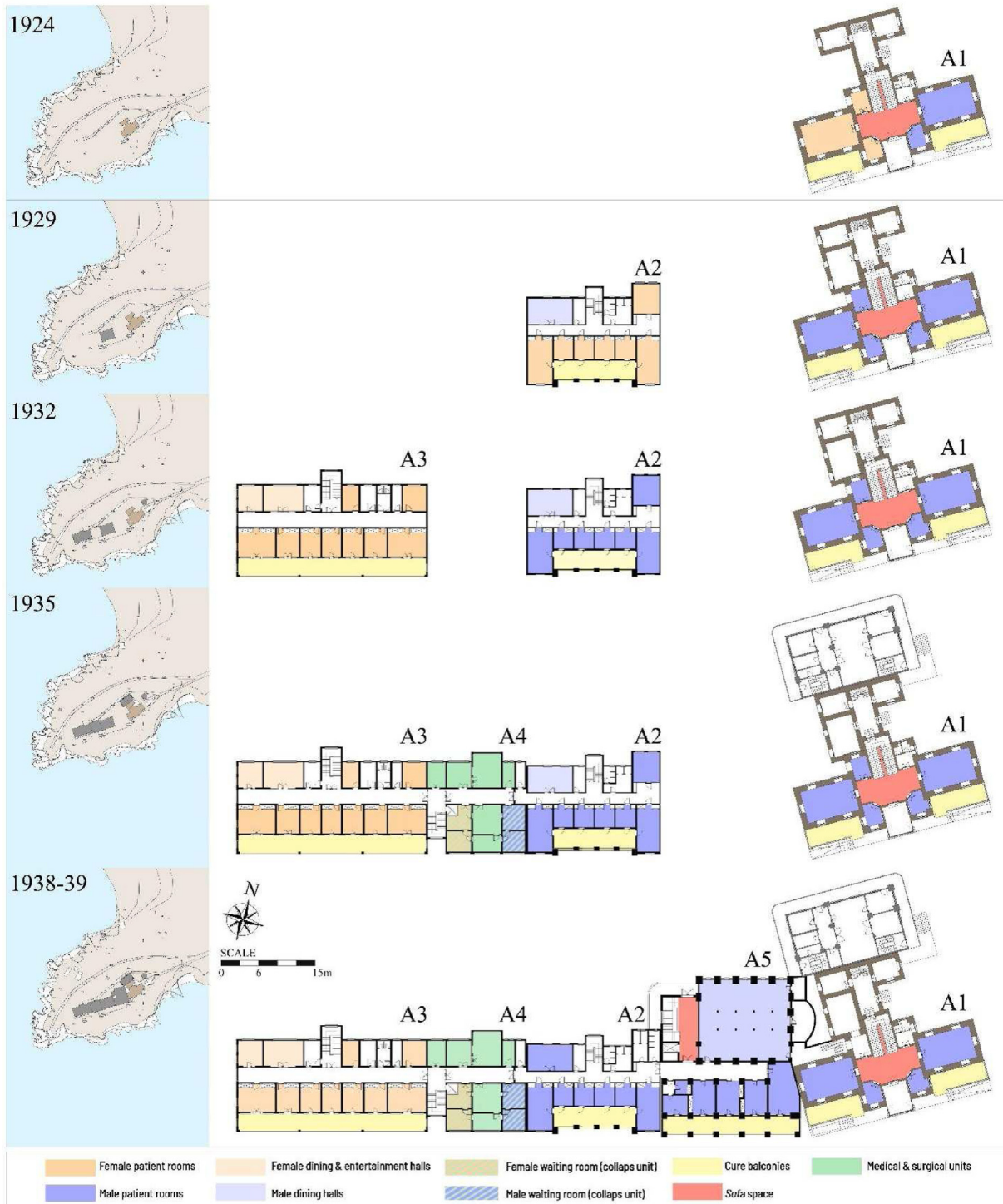
catalyst, not a source, of the disease. Another reason why TB patients were not wanted to make emotional attachments was probably eugenic concerns.<sup>26</sup>

It was the duty of the medical professionals to consider both material and moral reasons during the treatment (Berthet, 1950, pp. 149–150). Dr. Gökçe constantly expressed the negative outcomes of accommodating male and female patients together in the first pavilion. His never-ending efforts to segregate the sexes hints the existence of romantic connections between patients in the Heybeliada Sanatorium’s case, which have been a subject of debate in the historiography of sanatoria (Gökçe, 2021, pp. 19, 109, 133).<sup>27</sup>

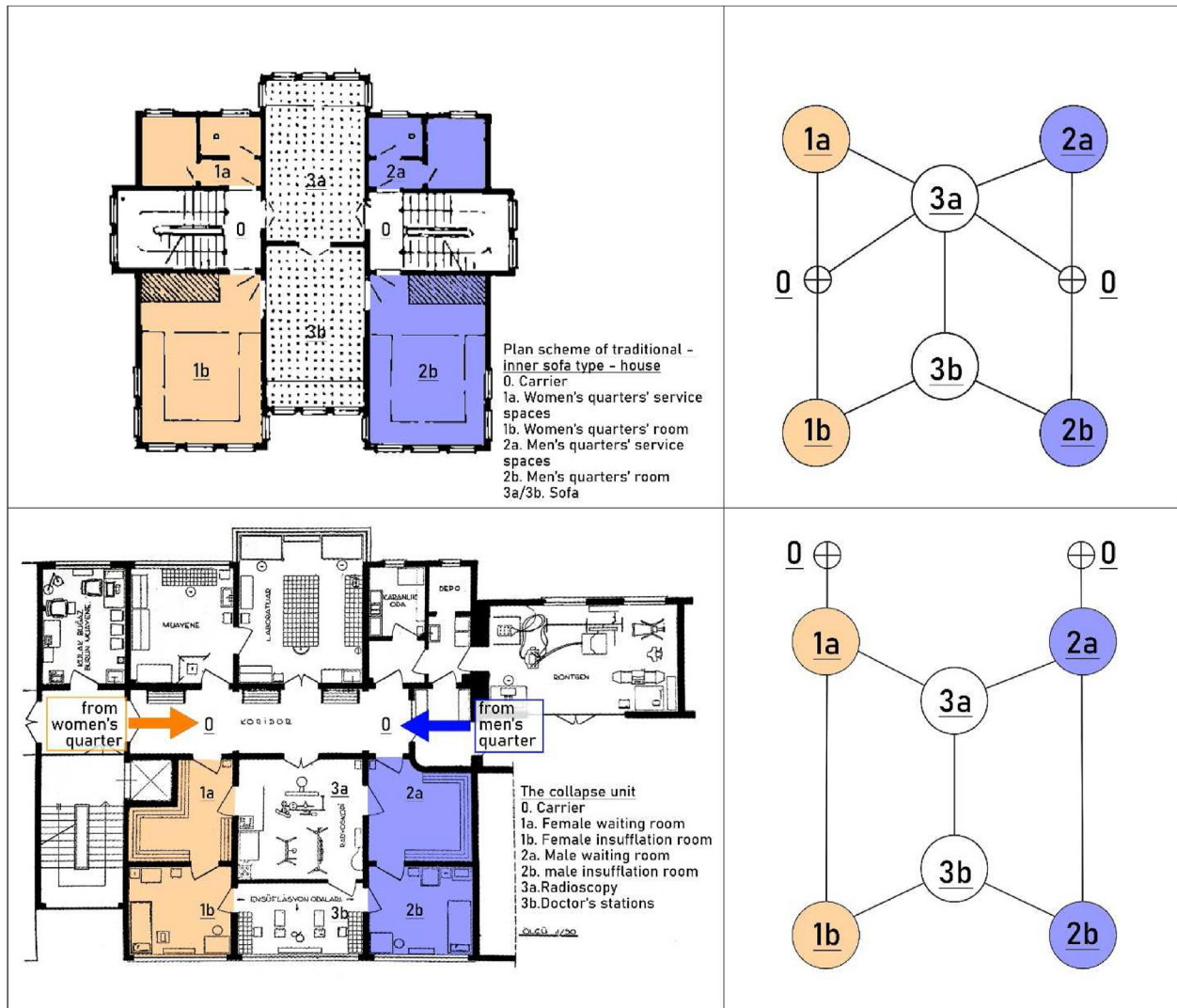
Separating the sexes was a priority as early as 1924, when the wards for female and male patients were separated from each other across the sofa on the upper floor of the first pavilion (Gökçe, 2021, p. 56) (Figs. 8 and 20). Soon, in 1927, when the ground floor of the same pavilion was converted from the administration office into patients’ ward, the men’s quarter was transferred to the ground floor and the upper floor became the women’s quarter (Gökçe, 2021, p. 16). The wards were more clearly separated with the construction of A2, and the women’s quarter was relocated from the first pavilion to the second one, whereas the former pavilion started to accommodate male patients. After the addition of A3, the women’s quarter was once again relocated, while the former two together became the

<sup>26</sup> Although the belief that tuberculosis was hereditary had been refuted by Koch, tuberculosis patients were legally prohibited from marrying. This was due to the fear that the child would likely develop tuberculosis as well by contamination.

<sup>27</sup> Dr. Gökçe did not provide much detail but mentioned “inconveniences”. An allusive account to Flurin Condrau, who argued the scholarly discussions on romance and sexual encounters between patients in sanatoria are mostly based on literary works, not the reality (Condrau, 2010).



**Fig. 20** The development of Block A of the Heybeliada Sanatorium throughout the years: Floor plans. Source: Courtesy of The Authors.



**Fig. 21** A comparison of a Turkish house with “sectional plan type with common inner sofas” with the collapse unit in Pavilion A4, organized to enable concurrent circulation of male and female patients with minimum contact. Source: The Authors. *Lower left* Background source: Tevfik İsmail Gökçe, *Heybeliada Sanatoryumu Kuruluş ve Gelişimi (1924–1955)*. First edition 1957. İstanbul: İstanbul Tüberkuloz Vakfı, 2021. *Upper left* Background source: Eldem, Sedat H. *Türk Evi Plan Tipleri*. İstanbul: Pulhan Matbaası, 1954. Images altered by The Authors.

men’s quarter.<sup>28</sup> It was always women who were relocated farther away with each expansion (Fig. 20).

The fourth pavilion (the surgical unit) contained technical and medical facilities to serve both sexes. Although this pavilion physically connected A2 (male) and A3 (female), it was planned as a buffer area for monitoring the separation of the sexes (Fig. 20). In addition to surgical and medical units, the pavilion also incorporated the lodgings of

nurses, who maintained discipline. With additional spatial arrangements, it was ensured that the treatment of men and women was conducted with minimum encounters. The patients of different sexes circulated without ever seeing each other. Both in the surgery and technical sections, this arrangement proved to be drawn with clear lines. Even though the surgery section located at the top floor of A4 was initially unisex, an alteration soon followed. The top floor was expanded towards the once pedestrian roof terrace of A3, and while the initial part was reserved for men, the new floor addition was designated as a surgical unit for the female patients.

The most unique solution derived in the surgical pavilion was perhaps in the collapse unit. It was planned in a way that female and male patients circulated and used the area almost simultaneously without ever contacting with each other (Gökçe, 2021, pp. 233–234), very much like houses

<sup>28</sup> Although the numbers of tuberculosis cases in Turkey were almost equal for women and men, the application of women was always less than men. Thus, the number of beds offered for women within Block A was fewer. This was due to the cultural structure of the society, where women were more hesitant to leave their houses, children, and domestic duties; whereas men, who had to live by labour, were more encouraged to get better and get back to work (Gökçe, 2021, p. 412).



**Figs. 22 and 23** The cinema hall in Pavilion A5. Source: Left (Fig. 22): Tevfik İsmail Gökçe, *Heybeliada Sanatoryumu Kuruluş ve Gelişimi* (1924–1955). First edition 1957. İstanbul: İstanbul Tüberkuloz Vakfı, 2021; Right (Fig. 23): Photograph by The Authors (2014).

with *harem* (women's section) and *selamlık* (men's section) (Fig. 21). The arrangement of the collapse unit resembled many nineteenth-century İstanbul houses with the symmetrical "sectional plan type with common inner sofas" (Eldem, 1954, p. 159) (Fig. 21). In the collapse unit, female and male patients had separate waiting and preparation rooms, the two-part medical centre constituted the common area, but was used in different time intervals. If not totally blocked (the entrances were on the same corridor) this arrangement minimized unwanted interactions.

Public spaces were no exception. In the fifth pavilion, a two-floor area was planned as the cinema/theatre hall with a balcony accessed from the second floor. In the original plans, the entrance hall to this space was described as the *sofa* space (Fig. 20). Similar to its traditional usage; it was a space for social gathering before entering the hall. The balcony had a separate entrance, another *sofa*, because it was reserved for women, whereas the main hall—parterre—was used by men (Gökçe, 2021, p. 423) (Figs. 22 and 23). This resembles another local scheme, the organization of mosques; where

the main hall on the ground floor was reserved for men, and women were allowed only to the upper galleries named *kadınlar mahfili* (gathering place for women). This allowed men and women to attend same events at the same time, without ever interacting with each other. Through the cinema hall's balcony, similar to mosques, women could see the male audience from above, while it was not so convenient for males to raise their head's and look back. One clear distinction was the absence of *kafes* a type of wooden latticed grills which usually was used to cover the women's galleries in mosques, to completely prevent women from being seen (Figs. 22 and 23). The cinema hall assigned separated spaces for the female and male patients, but the border was otherwise invisible. Ironically though, the conference hall was one of the most "secularizing" spaces in the institution. The patients were being preached at about scientific causes behind their condition, and only possible way to change their fate was to obey the rules of positive sciences.

Another approach of the treatment was to achieve social harmony during mealtimes. In addition to the provision



**Fig. 24** The view from the entrance towards Block A. Source: Photograph by The Authors (2014).



**Fig. 25** The Block B of Heybeliada Sanatorium. Source: Courtesy of Gorbun Family archive.





**Fig. 26** The comparison of the spatial arrangement of Block A (1924–1945) and Block B (1945). Source: Courtesy of The Authors.

of a well-balanced diet to improve the immune systems of the patients, the act of dining had recreational purposes to break the monotony of the day (Adams and Burke, 2006, p. 449) and, encouraged *same-sex-social* mingling to establish a sense of community. From the periodical utilization of the multi-functional *sofa* space of A1 to the purpose-built dining halls in the separated pavilions of men and women, the dining halls' transformation throughout the years is noteworthy (Fig. 20). The final pavilion (1938–1939) came with an upgrade in the dining function. The dining space was spacious compared to the previous ones and gathered all male patients from separate pavilions (from A1, A2 and A5). While this enlarged, brand-new luminous dining hall was reserved for male patients, the women continued to have their meals in their own pavilion (A3) (Fig. 20). This final scheme of dining halls in Block A suggests another traditional approach. While the women's dining remained in small, living room like domestic spaces

within their own pavilions, the dining hall for men was a gathering spot for "the communities" from different pavilions, similar to the contrasts between the seclusion of women in houses and considerably free circulation of men in public sphere in Ottoman/Turkish everyday practices.

Although it was a universal principle to separate the sexes in sanatoria, the solutions in Heybeliada Sanatorium were derived from Islamic-Turkish understandings of everyday spaces. However, the methods followed were not results of religious concerns. They were rather practical, but still contained clues reflecting the cultural structure of the traditions regarding gender norms and women's privacy. What can be learned from here is that architecture acted as a mechanism of knowledge production beyond ideologies. The repetition of the collapse unit's arrangement later in the female-only Block B, to ensure efficient circulation, proves this. For the sanatorium administration, the opening of the new Block B, far from Block A, proved to

be the ultimate “right call” for keeping the female and male patients apart.

### 3. The finalized model: Block B

The process of enlargement, and spatial development from 1924 well into the 1950s provided learning grounds for the new government and healthcare officials on how to build a modern sanatorium (Fig. 24). Due to insufficient financial resources, this considerably slow development became a trial-and-error process, casting Block A as a prototype for experimenting and inventing architectural principles for the succeeding Turkish sanatoria. Heybeliada Sanatorium was a laboratory of not only architectural experiments with new materials and construction techniques; but also, of collaboration between architects and medical experts.

While the findings support the already established scholarship with the claim that sanatoria offered spatial solutions such as isolation, discipline, education, hygiene and therapy, in the case of Heybeliada Sanatorium, it is observed that these solutions also derived from distinctive practices and synthesis of such norms with regional or cultural factors including location, climate, budget, social program of the institution and gender norms of the time. The plan layout and the functional program of the entire Block A stretched beyond the medical domain and was influenced by both medical and non-medical factors, demonstrating that architectural histories of sanatoria are entangled with the histories of people and societies.

The primary product of the architectural and spatial investigations in Block A was the second block-type building, Block B of the Heybeliada Sanatorium complex. On January 3, 1947, Heybeli Island hosted an opening ceremony with four hundred guests to celebrate the addition of this new block for female patients to the sanatorium complex (Fig. 25).<sup>29</sup> The new block-type building displayed contemporary modernist tendencies of architecture. Designed by architect Rebii Gorbon, it was a reinforced concrete rectangular block prism that spread horizontally on a sloping land (Yüzer, 2020). The number of beds doubled with the opening of Block B. As an appreciation of his contributions to the field of public health, the Ministry of Health named this new women’s section, Block B, after Dr. Gökçe. Result of a close collaboration between the architect and the head doctor, the state-of-the-art Block B was to be a model for sanatorium building in Turkey, the end product of years of experience and experiments that formed the first main building, Block A. Dr. Gökçe and his team had tested many ideas on sanatorium architecture during its development. It was a work that progressed from prototype to model, or from “novitiate” to “mastery” in Gökçe’s words (Gökçe, 2021, p. 159). In his notes, Dr. Gökçe praised Rebii Gorbon, the architect of Block B, for successfully realizing the former’s plans and demands (Gökçe, 2021, p. 162).

<sup>29</sup> In 1947, Celile Berk, a female architect from Turkey completed a master’s thesis titled “A Tuberculosis Sanatorium for Istanbul Turkey” at MIT. Supervised by Alvar Aalto, Berk had proposed a sanatorium for the same spot of Heybeliada, interestingly with no mention of the already existing institution (Berk, 1947).

The trial-and-error process of building Block A proved to be a 1:1 scale architectural prototype for the construction of Block B (Fig. 26). Block B can be considered an improved version of Block A in terms of its size (as learned from dealing with the bed scarcity), in terms of its orientation (as learned from climatic experiments), the spatial characteristics of the surgical unit and dining hall (as learned from the spatial separation of sexes). Perhaps, one of the most significant achievements following Block B’s construction was the ultimate separation of the sexes as the Block B, built approximately 287 m away from Block A, became the women’s section, whereas the former became the men’s quarter. Its inauguration was marked as a pivotal event in the nation’s public health arena, and Block B became a tangible symbol of advancements in the nationwide fight against tuberculosis (“Heybeli Sanatoryomunda 250 Yataklı Yeni Bir Pavyon Açıldı”, 1947).

### 4. Conclusion

After World War II, improved standards of living and public healthcare reduced the occurrence of diseases like tuberculosis. Medical practices transformed, reducing nature’s therapeutical properties’ impact on sanatoria design. Eventually, chemical therapy for TB rendered both surgical and architectural treatments obsolete. The emergence of new drugs around 1950, which were effective and accessible, made sanatoria unnecessary. This transition was a “triumph” of medical advancements over modernism in architecture (Theodore, 2016, p. 171). Many sanatoria were abandoned or repurposed during the following decades, while others were converted into new healthcare institutions.

This article revisited the role of sanatorium architecture as an experimental process and as a political medium. Ultimately, findings reveal that sanatorium architecture was not a passive reflection of medical advances but produced medical knowledge, answered social needs, and transferred knowledge for shaping/advancing modern healthcare facilities. Universal standards of sanatorium architecture and the criteria of hygienic design had to be adapted to local factors; for instance, geographical location and climate had major impacts in the formation of the new blocks. Moreover, the designs had to evolve around preliminary calculations and strategies for future additions and alterations due to the lack of capital. However, these forced relapses in the construction paved the way for many spatial experiments. This slow development became a trial-and-error process, casting Block A as a set of prototypes for testing architectural principles for the succeeding Turkish sanatoria.

Dr. Tevfik İsmail Gökçe acted as a determined project manager indeed, but absence of an architectural authority throughout the process resulted in a visually patchwork-like structure in Block A. Thanks to advancing technology, increased funding for architecture, and the inclusion of a professional architect,<sup>30</sup> it was possible to erect the final pavilion of Block A (A5) on the most topographically challenging spot with a maximum bed capacity, a spacious dining hall and a 300-seat movie theatre where the two sexes could simultaneously benefit without even

<sup>30</sup> See footnote 19.

encountering each other. Moreover, it can be argued that the final step of the Block A, A5 is a mature and modernist looking product. In addition to those identified by this article, a closer examination of Block B would reveal more about the architectural decisions that were deemed successful by the designers, users, and administrators of the sanatorium.

In the recent years, the abandoned building faced the risk of either destruction or a controversial repurposing (by being transferred to the Ministry of Religious Affairs), which provoked public opinion and sparked fierce discussions. This time, professionals from architectural and medical domains collaborate to campaign for proper conservation of the sanatorium as a heritage of both domains, and as a commemorative monument to the early Republican reforms.

### Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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