

DESIGNING FOR HEALTH: ARCHITECTURAL PROGRESS OF LITHUANIAN TUBERCULOSIS SANATORIUMS IN THE 1920S AND 1930S

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Abstract. At the turn of the 19th and 20th centuries, to isolate and treat people suffering from tuberculosis, special sanatorium buildings began to be built in various countries. In the case of Lithuania, more serious care of tuberculosis patients began in the period of independence, during the 1920s and 1930s, when the matter was taken care of by various institutions and voluntary societies operating in the country. As a result, several tuberculosis sanatoriums were established in the country, and a number of design projects of sanatorium buildings were developed. The article aims to present the architectural development of implemented and unimplemented tuberculosis sanatorium buildings and the peculiarities of their designs in Lithuania during the 1920s and 1930s. It is assumed that despite the difficulties in the design and construction of these buildings, in most cases, their architecture was shaped by the pursuit of continuous progress, which was influenced by the latest stylistic trends and the need of functionality to meet the treatment requirements of patients suffering from tuberculosis. **Keywords:** sanatorium architecture; Lithuanian architecture; tuberculosis sanatoriums; interwar architecture

Introduction

Although tuberculosis is known for a long time, the disease's treatment became more active only in the 19th century, when the bacterium that causes it was identified. Thus, "the opinion began to spread among doctors that tuberculosis is a public disease, that isolation and prevention is the only way to reduce the number of patients" [5]. To isolate and treat people suffering from this disease, at the end of the 19th century and especially at the beginning of the 20th century, new special building types – sanatoriums – were started to be built. Such buildings were mainly built in areas with pine forests, and in them the best treatment for tuberculosis patients "centered on bedrest, fresh-air-and-sunlight regimes and controlled diet throughout the first part of the 20th century" [29]. Therefore, in the architecture of tuberculosis sanatoriums, open spaces – balconies, terraces, glazed verandas, which helped to treat patients by means of climatotherapy and heliotherapy, were considered as necessary elements, since it was well-known that the sunlight had antibacterial properties. To ensure that the patients received enough sunlight, their rooms in sanatoriums often faced the south [6]. The disease was also treated with quartz lamps, and more severe forms of tuberculosis were sometimes treated surgically.

The construction of tuberculosis sanatoriums became widespread at the beginning of the 20th century. In an architectural sense, their design coincided with the processes of architectural modernization and the spread of modernism that began at that time. Modernism in sanatorium architecture was not only an aesthetic change. Such programmatic aims of modernism as functionality, sufficient sunlight, fresh air, convenient layout of rooms was applied in the architecture of hospitals and sanatoriums, where these architectural possibilities contributed to the treatment of patients [42]. Thus, "as a building type, the tuberculosis sanatorium became the most convincing public symbol of the new architecture. The actual medical treatment then recommended for tuberculosis <...> coincided exactly with the cultural metaphor of good health so central to the philosophy of modern architecture" [28]. Consequently, the new tuberculosis sanatorium buildings, based on the principles of modern architecture and the tuberculosis treatment requirements were built in most European countries during the early 20th century [7]. In the context of Lithuania, until the beginning of the 20th century, "tuberculosis was ignored and there were no measures to combat it" [25]. The isolation and treatment of tuberculosis patients began in the 1920s and 1930s, i.e. during the period of independence. Tuberculosis was a very common

disease in the young country, from which in the 1920s about 3.5 thousand people died every year. Meanwhile, there were around 40 thousand or more people with this disease, of which the largest part was those with pulmonary tuberculosis [2]. Throughout the 1920s and 1930s, the prevention and treatment of tuberculosis in Lithuania was engaged in by both the state and various voluntary organizations, which, as far as conditions allowed, established tuberculosis sanatoriums and developed their infrastructure.

However, in modern studies of interwar Lithuanian architecture, the healthcare objects, including sanatoriums, are largely overlooked. Thus, only the development of hospital buildings built in the early 1920s in the country was analyzed more widely [30]. In the context of tuberculosis sanatorium architecture, their architecture is more studied only in the general context of interwar Lithuanian resort architecture [27]. While other research regarding tuberculosis sanatorium architecture is fragmentary [16]. In this case, only the development of infrastructure for the prevention of tuberculosis in children, known as summer colonies, is studied a little more [36]. Therefore, the purpose of this article is to reveal and analyze the development of the architecture of tuberculosis infrastructure and sanatoriums built in Lithuania during the 1920s and 1930s.

The need for tuberculosis sanatoriums and efforts to construct them in the 1920s

Despite its prevalence, the development of tuberculosis treatment infrastructure was not a high priority in the first years of independence of the young Lithuanian state. At the beginning of the 1920s, the country basically had to create a new healthcare infrastructure and the attention was primarily directed to the establishment of public hospitals and the construction of buildings for them. Meanwhile, the lack of infrastructure for the prevention and treatment of tuberculosis led to the fact that in the early 1920s "patients turned to doctors late" which "diagnosed the disease too late" [37]. At that time, the establishment of tuberculosis sanatoriums, which did not exist in the country at that time, was considered the most effective way to treat the disease. In theory, already in the early 1920s, based on the example of foreign countries, the benefits of tuberculosis sanatoriums in the treatment of the disease were known in the country: "The necessary conditions for sanatorium are its seclusion from city noise, a high, clean, dry and quiet place, without dust, dry, fresh air. It is good if there is a forest or a pine forest



Fig. 1. Reconstruction design of the State Lung Hospital building in Jurbarkas (eng. arch. Karolis Reisonas, 1931). [Lithuanian Central State Archive, f. 1622, ap. 4, b. 150, l. 8]

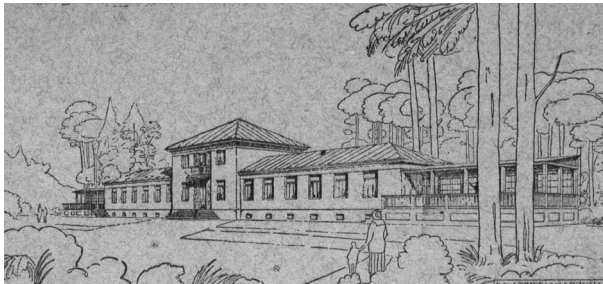


Fig. 2. Design of the Society for the Fight Against Tuberculosis sanatorium in Panemunė (arch. Vladimiras Dubeneckis., civ. eng. Klaudijus Dušauskas–Duž, 1928). [Kova su džiova, 1928, No. 7, p. 35]



Fig. 3. Design of the Lithuanian Red Cross tuberculosis sanatorium in Panemunė (eng. arch. Romanas Steikūnas, 1928). [Lithuanian Central State Archive, f. 1622, ap. 4, b. 1297, l. 7]

nearby, as the clean air there is very useful for the patients. <...> Buildings for sanatoriums are built in a place protected from the wind by forests or mountains, no more than 2–3 floors, <...> with small wards for a maximum of 5–7 patients, facing the sunny south side. <...> The sanatorium must have all the means to diagnose and treat the disease, such as a laboratory, X-ray rooms, a pharmacy, and equipment for artificial light treatment. <...> Patients use fresh air and sunlight very widely. For this purpose, there are verandas in sanatoriums, where patients lie for whole days. <...> General hospitals cannot provide similar conditions to tuberculosis patients" [35].

Although it was ruled that the country needed to establish and build tuberculosis sanatoriums, there was no consensus on where they should be built. There were opinions in favor of their construction near Kaunas, the temporary capital of Lithuania at that time, while other opinions advocated for their concentration in the country's provinces [24]. Therefore, since the early–1920s, efforts began to be made to do it both ways.

To combat the disease, in 1923 a tuberculosis department was established at the State Hospital in Kaunas and later other public hospitals had a part of the wards assigned to patients with this disease. Additionally, in 1924 on the initiative of the country's doctors, the Society for the Fight Against Tuberculosis was established in Kaunas which had

branches in various cities of Lithuania. The Society also established tuberculosis dispensaries for the diagnosis of the disease and for the patient registration. The State also got involved to combat tuberculosis – in 1925 on the initiative of the Department of Health under the Ministry of the Interior, the State Lung Hospital with 50 beds was established in a pine forest near Jurbarkas, and in 1927 the State Tuberculosis Sanatorium also with 50 beds started operating in Varėna [14]. Later, in the early 1930s, a small sanatorium was also established in Varėna by the Kaunas City Health Fund. Since these health institutions began operating in pre-existing former military buildings built during the tsarist period, they were not convenient to use and had shortcomings. For example, the State Lung Hospital in Jurbarkas at first did not have a constant electricity supply, which prevented it from promptly performing X-ray examinations. It also had no water supply and bathrooms, while the interior was damp, requiring major modernization [38]. Thus, in the early 1930s the building was modernized by adding the second floor (Fig. 1).

However, it was understood that to treat the disease more effectively more sanatoriums were needed where treatment could be carried out more efficiently than in general hospitals. Thus, at the end of the 1920s, new tuberculosis sanatoriums began to be established in resorts and resort-type locations around Kaunas. In 1928, two projects of the first sanatorium buildings specially designed for the treatment of tuberculosis began to be implemented. Both were started to be built in the pine forests of Panemunė resort (southeast of Kaunas city), which provided a green environment with fresh air and sunlight for the successful patients' recovery. The first building, the construction of which was initiated by the Kaunas branch of the Society for the Fight Against Tuberculosis, was initially intended only for children, later adults were also treated there. The construction of the second one was started by the Lithuanian Red Cross. Both buildings were masonry and had different planning and volumetric compositions, as the first was two–stories built on an elongated plan, while the second had an impressive four–story volume and L-shaped plan (Figs. 2–3). Since the buildings were large, their constructions lasted until the early–1930s. Wealthier patients were treated at these sanatoriums at their own expense, while the treatment costs for poorer ones were compensated by the municipalities. After the completion, the first building housed around 50–80 patients, while the second one could treat up to 150 patients. Both buildings were modern and well adapted for treatment, as tuberculosis was treated in them not only with sunlight and fresh air, but also medically. For example, the sanatorium of the Lithuanian Red Cross, in which the patients with pulmonary and bone tuberculosis were treated, had "an operating room, an X-ray room, and a laboratory. Modern methods of active treatment were applied in the sanatorium: pneumothorax, thoracoscopy, thoracoplasty. <...> All patient wards were ventilated, equipped with electric light alarm, water supply, central heating, radio network" [22]. Thus, the patients had hygienic and comfortable conditions to recover in balconies and beds. In terms of style, the building's architecture, although rational looking, was "characterized by exceptional representativeness. The stylistics of modernized historicism were interwoven here with features of the national style" [27].

In the 1920s, when the first tuberculosis sanatoriums were established in Lithuania, the rule was adopted that "the country is sufficiently equipped with tuberculosis sanatoriums if they have as many beds as there are annual deaths" [18]. Therefore, the country needed sanatoriums that could treat

about 3 thousand patients in total. Since all sanatoriums founded in the 1920s had only a few hundred beds, it was necessary to expand the existing sanatoriums and build new ones. However, it was thought that it would take up to 25 years to build all the necessary sanatoriums in the country [2].

The concentration of tuberculosis sanatoriums in resorts and resort-type locations around Kaunas during the 1930s

During the early–1930s, tuberculosis sanatoriums began to be established and buildings for them began to be constructed mainly in the vicinity of Kaunas. This was since most doctors were concentrated in the temporary capital at that time, the voluntary healthcare organizations were active there, and there were quite a few suitable places for sanatoriums in the nearby pine forests. For example, in 1931, on a 5–hectare plot in a pre-existing building in the forests of Romainiai (north–west of Kaunas city), the Jewish Tuberculosis Sanatorium Society established a summer sanatorium to combat the disease. In it the patients “lived for several weeks, received good food, <...> and returned home after 6 weeks. There was no question of their complete cure, as the sanatorium only operated during a few summer months each year” [44]. The wooden building was modernized in 1936 by installing central heating, an X–ray room, and a laboratory, and the patients began to be treated there with fresh air, sunlight, and a healthy diet all year round. In 1937, a second two–story masonry building was built for the sanatorium [41]. After the expansion, it had around 80 beds for the patients suffering both from pulmonary and bone tuberculosis. Although the new building’s exterior was modern, it did not stand out more from other analogues in Lithuania, as it was designed without large open spaces (Fig. 4). This was compensated by the fact that most patients were housed in single rooms with wide windows which provided enough sunlight and allowed them to recover in solitude. In 1939, there were plans to further expand the sanatorium by building a wooden building for its medical personnel (Fig. 5).

The concentration of sanatoriums in the vicinity of Kaunas was further expanded in 1933, when a wooden two–story building for the children’s tuberculosis sanatorium was built in Panemunė by a private initiative which by the late–1930s housed around 80 children [19].

In 1936, in the forests of Romainiai the second sanatorium was established by the Kaunas branch of the Society for the Fight Against Tuberculosis and several new buildings were built for it, which had a total of 50 beds [21]. In 1938, it was planned to begin a significant expansion of the sanatorium by constructing a new main building, which could accommodate up to 100 patients [11]. Thus, a young civil engineer Bernardas Žintelis, who in 1936 graduated from the Technical Faculty of Vytautas Magnus University in Kaunas, was commissioned to prepare several design proposals of the building (Figs. 6–7). Based on it, the three–story building was planned to be built on an elongated plan. The building’s modernist–inspired façade, which lacked plastic décor, was to be composed of simple geometrical shapes. The exterior walls were designed with a strong horizontal emphasis achieved by the dense rhythm of wide window openings in imitation of ribbon windows and connected by the narrow strips. The building’s horizontality was to be further emphasized by the south–facing deep recessed terraces and sleek balconies, designed on each floor, which were planned to be used for effective heliotherapy.

Based on the proposals, the building was planned to house



Fig. 4. Former Jewish sanatorium building in Romainiai in the 1950s (eng. arch. Levas Rabinavičius, 1937) [author’s personal collection]

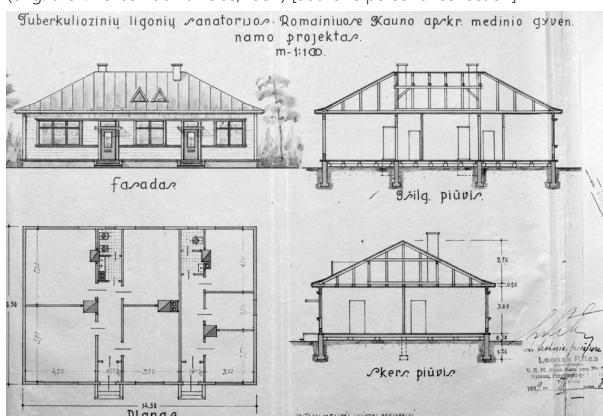


Fig. 5. Design for residential building for the personnel of the Jewish sanatorium in Romainiai (civ. eng. Leonas Ritas, 1939) [Kaunas Regional State Archives, f. 17, ap. 1, b. 72, l. 100]

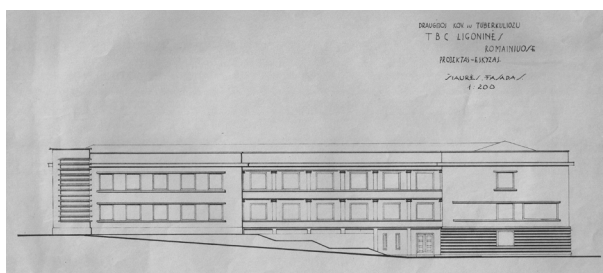


Fig. 6. Design proposal for the Society for the Fight Against Tuberculosis sanatorium in Romainiai (civ. eng. Bernardas Žintelis, 1938) [10]



Fig. 7. Design proposal for the Society for the Fight Against Tuberculosis sanatorium in Romainiai (civ. eng. Bernardas Žintelis, 1938) [10]



Fig. 8. Unimplemented design of the Society for the Fight Against Tuberculosis sanatorium in Romainiai (civ. eng. Bernardas Žintelis, eng. arch. Algirdas Šalkauskis, 1939) [Lithuanian Central State Archives, f. 380, ap. 1, b. 1894, l. 1–2]

up to 84 patients (28 on each floor) in double, triple and five-bed rooms facing the south. It was also planned to be equipped with X-ray rooms, quartz lamps, a laboratory, an operating room, a pharmacy, bathrooms, elevators, and a canteen. All the rooms were planned to be connected by double-sided corridors [10]. Thus, its unified, modernist exterior was to be combined with a functional economy in the planning structure of the inside. If one of the design projects had been implemented, the new building in Romainiai could have been one of the first truly modern sanatoriums in 1930s Lithuania. However, none of the preliminary projects were selected as the final design version.

In 1939, another design was drawn-up for the new sanatorium building in Romainiai which was selected as the final design. Compared to the previous preliminary projects, the building was designed with a less modern and more restrained appearance (Fig. 8). The building's main façade was to be accentuated by the narrow vertical windows rhythmically dividing the exterior's entire length, while the entrance was to be emphasized by the narrow columns. Thus, from the front, it could have resembled a representative-looking administrative building more than a functional sanatorium. The rear part where the patient rooms were to be concentrated, however, was designed with a more modern appearance, since its flat walls were to be divided horizontally in imitation of ribbon windows providing more air and sunlight inside. Although the building's design did not feature terraces and balconies, the treatment therapy of the patients was planned to be carried out in the glazed rounded corner veranda. However, this design was also not implemented, as in 1939 the Department of Health belatedly ruled that Romainiai was not a suitable area for the development of tuberculosis sanatoriums and forbade their further expansion [23].

Efforts to establish and construct new sanatoriums in the Lithuanian provinces during the 1930s

From the 1920s, the tuberculosis infrastructure was mainly developed in the vicinity of Kaunas. Thus, in the late-1930s, five tuberculosis sanatoriums operated there all of which could house about 460 patients [17]. Meanwhile, elsewhere in Lithuania, the network of tuberculosis sanatoriums was poorly developed, as the State Lung Hospital in Jurbarkas and two sanatoriums operated Varėna had a total of 150 beds. In addition, up to 200 patients were housed in the county hospitals [15]. Therefore, until the mid-1930s, not a single new sanatorium building was built in the country's provinces, and the ones that were already operating were often overcrowded and were not fit for their function: "there are tens of thousands of people with tuberculosis, and only a few sanatoriums, and those are often not the best equipped and medically not the best served" [44]. More progress was made in the country's provinces to isolate and treat children prone to tuberculosis, as during the 1930s several children's summer colonies were established (mostly by the initiative of the Society for the Fight Against Tuberculosis) and a few special buildings were built for some of them [36].

However, to effectively combat tuberculosis in the provinces of Lithuania, it was necessary to expand the existing sanatoriums and establish new ones. As a result, outside the vicinity of Kaunas, the development of tuberculosis sanatoriums became more active only in the second half of the 1930s. For example, from the mid-1930s, the State Tuberculosis Sanatorium in Varėna was modernized by the construction of a one-story wooden barrack of a simple appearance, which accommodated 20 patients and a canteen [39].



Fig. 9. Design of a standard 28-bed barrack for the teachers' sanatoriums in Jurbarkas and Varėna (civ. eng. Alfonsas Maculevičius, 1939) [Lithuanian Central State Archives, f. 380, ap. 1, b. 1730, l. 89]

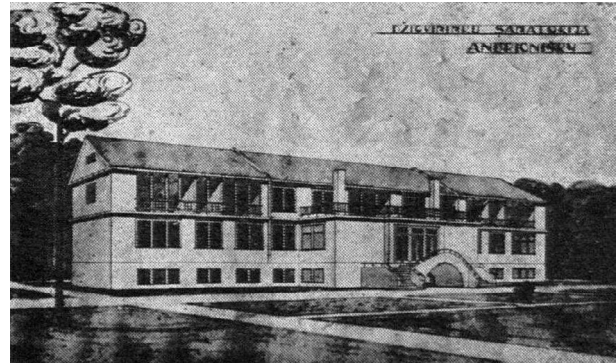


Fig. 10. Unimplemented design of the Society for the Fight Against Tuberculosis sanatorium in Andrioniškis (civ. eng. Kazys Germanas, 1937) [Kova su džiova, 1937, No 11, p. 25]

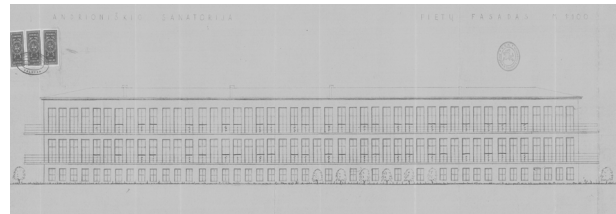


Fig. 11. Unimplemented design of the Society for the Fight Against Tuberculosis sanatorium in Andrioniškis (eng. arch. Algirdas Mošinskis, 1939) [40]

At that time there were also plans by the State to establish new summer sanatoriums in the country's provinces for the teachers. Such a decision was determined by the fact that they had great risks of contracting and transmitting tuberculosis, as a significant number of school children suffered from it. The new teachers' sanatoriums were planned to be established in Jurbarkas and Varėna, next to the already operating tuberculosis treatment facilities. For that a standard design of a one-story wooden barrack of an elongated volume was developed in the late-1930s (Fig. 9). Based on the design, the barrack was intended to house only 28 teachers, all in double rooms, while for their treatment a small, covered terrace was designed in front of the structure. Initially, it was planned to build one barrack in Jurbarkas, and two in Varėna [1].

However, due to the small amount of support by the State and municipalities for the development of tuberculosis infrastructure in the provinces of Lithuania, the Society for the Fight Against Tuberculosis demonstrated the most initiatives for this [13]. In the 1930s, to further expand the network of tuberculosis sanatoriums, it was planned to establish a new 25-bed sanatorium in the country's northeastern region – in the forest near the small town of Andrioniškis [34]. This initiative was taken by the Panevėžys branch of the Society for the Fight against Tuberculosis. In 1936–1937 Kazys Germanas, who was a municipal civil engineer of Panevėžys County, was commissioned to design the new two-story masonry building for Andrioniškis sanatorium. The elongated building was planned to be built with its main façade, where the patient rooms were to be concentrated, facing the south. Its exterior was designed in pursuit of stylistic modernity and was planned to be composed of the plain-looking minimalist

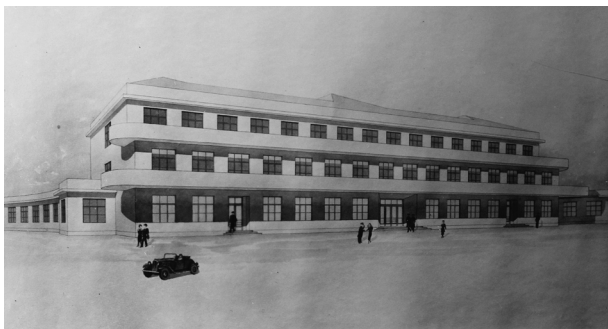


Fig. 12. Diploma project "Tuberculosis sanatorium in Alytus" by Petras Buškevičius of the Vytautas Magnus University's Technical Faculty, 1935 (Lithuanian Central State Archives, f. 631, ap. 19, b. 29, p. 1)

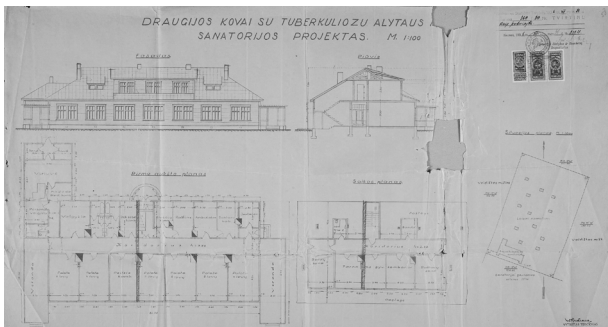


Fig. 13. Design of the Society for the Fight Against Tuberculosis sanatorium in Alytus (tech. Andrius Radvila, 1937) [41]

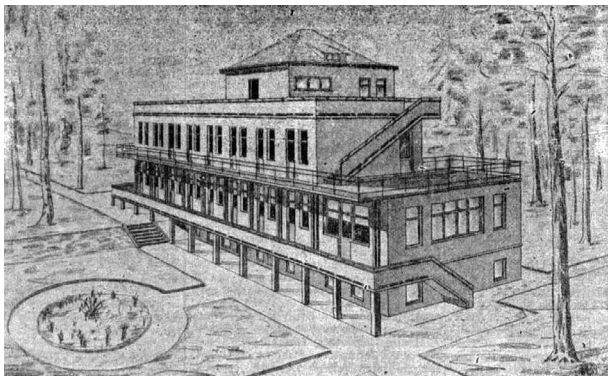


Fig. 14. Design of the Society for the Fight Against Tuberculosis sanatorium in Alytus (civ. tech. Jeronimas Juškėnas, 1939) (Lietuvos žinios, 1939 June 14, p. 8)

cubic forms. The exterior's modernity could also have been emphasized by the simple wide windows, dividing the smooth, undecorated walls, and by the loggias and terraces (Fig. 10). Due to the simple-looking appearance and the flatness of the facades, the building could have resembled early sanatoriums of the 20th century, such as the Purkersdorf sanatorium in Austria by Josef Hoffmann. However, the lack of funds resulted in the project not making it past the design stage.

Despite that, the Panevėžys branch of the Society for the Fight against Tuberculosis did not abandon the idea of establishing a sanatorium near Andrioniškis and another impressive-looking design of a new sanatorium building was developed in 1939 [40]. It was designed by engineer-architect Algirdas Mošinskis of the Lithuanian Red Cross, who in 1928–1935 studied architecture at the Technische Hochschule in Charlottenburg, Berlin [3]. Based on the design, the sanatorium was supposed to be the largest building of such a function in the country, since it could house about 150–200 patients, mostly in triple rooms. The elongated rectangular volume was to be 79 meters long, almost 13 meters wide and was to have two floors above the basement level

(Fig. 11). The building was to have masonry walls with foundations and ceilings made of reinforced concrete. The volume, capped by a low roof, was to be more unified compared to the other buildings of such function in Lithuania. Since it was to be plain windowed, without any superfluous details, and with deep terraces stretching along the entire length of the southern façade. These features could have emphasized the robust form of the volume, whose aesthetic quality had to exude in its simplicity. The building by its longer part was planned to be built along a north–south axis, with the patient wards facing the south. This was dictated by the aim to take advantage of the sun for the treatment of the patients, who were to be treated with heliotherapy while lying on the terraces, accessed directly from their wards. The rooms for the doctors, staff and medical equipment, based on the functional division of the interior spaces, were planned to be in the building's northern side.

Thus, it was to be a simple-looking building which was to be more in-line with the modern international tuberculosis sanatorium buildings of the 1930s. For example, its modernist architectural language could have resembled the exteriors of such sanatorium buildings as the one built in Vordingborg, Denmark (by Kay Fisker) or the one in Tervete, Latvia (by Aleksandrs Klinklāvs) [32], [20]. Yet the sanatorium building, the construction of which was planned to be massively supported by the municipalities of the northeastern Lithuanian counties, was fated not to be built. As by the summer of 1940, when the country lost its independence, there were still not enough funds collected for its construction.

By the mid-1930s there were also plans to establish a new sanatorium in southern Lithuania, near the city of Alytus (Fig. 12). Thus, in 1936, on the initiative of the Alytus branch of the Society for the Fight Against Tuberculosis, a new lung and bone tuberculosis sanatorium was founded in sandy pine forests near the city. However, up until the late-1930s the institution was expanded by the construction of the two vernacular-looking one-story wooden buildings, capped by the pitched roofs (Fig. 13). The lack of modernity of their exteriors (the only modern feature being the wide horizontal windows) was probably determined by the aim to make the buildings as simple in appearance and construction as possible due to the limited resources of the Society, which is why from the outside they looked more like barracks than modern sanatorium buildings. Inside, however, both buildings were quite modern and housed several dozens of patients. The patient wards faced the south, and the treatment rooms, facing the north, were equipped with quartz lamps, an X-ray, and an ambulatory. In addition, in the late-1930s, 36 wooden tuberculosis huts were built on the site of Alytus sanatorium for the patients to recover during the summer months [9].

Due to the large number of patients, the wooden buildings were soon overcrowded. Therefore, in 1939 a modern masonry building for 50 patients was built next to them. Its construction was carried out from the donations collected by the Society. The L-shaped building was designed by local civil technician Jeronimas Juškėnas and displayed a progressive architectural language (Fig. 14). It is probable that its architecture, as was in the case of unimplemented designs of sanatorium buildings in Romainiai and Andrioniškis, was inspired by the ideas of western modernism, which were sufficiently well-known in 1930s Lithuania [31]. The new sanatorium was characterized by an ascetic stepped volume of rectangular forms, whose appearance was dominated by the simple looking, yet functional elements. Most of the undecorated exterior walls were rhythmically divided by the composition of narrow vertical windows, while the sides were

emphasized by the wide horizontal windows. The image of modernity and functionality was also given to the building by its wide south-facing terraces. They were designed on the first and second floors, were raised above the ground on pillars and had metallic tubular railings. All the terraces were accessed directly from the patient rooms. Additionally, other terraces were installed on the building's flat roof – a modern feature rarely used in the country's architecture of that time. The application of these elements in the building's design was based on its function – to provide enough sunlight and healthy pine forest's air to the patients' treatment. Thus, the building's design demonstrated architectural ambitions of both the designer and the Society.

Inside the building, the rooms were grouped based on their function. The building's longer part accommodated the patients, all in double rooms, while the perpendicularly placed shorter part housed the personnel and auxiliary rooms. Both parts on the inside were connected by the corner staircase and one-sided corridors [4]. The building's functionality was further emphasized by the heating, electricity, water supply and sewage systems. Thus, the sanatorium both internally and externally demonstrated a close relationship between architecture and medicine, as it was designed for the comfort of the patients. After the completion of the new building, a total of about 150 patients could be treated in the Alytus sanatorium, which became one of the largest tuberculosis treatment facilities in the country in the late-1930s [43].

It is worth emphasizing that this building was perhaps the only object that met the international architectural features of modern sanatoriums, which was built during the period of independent Lithuania. Therefore, due to its modern and functional appearance, it can be named the seminal example of modernism in Lithuanian sanatorium architecture of the 1930s. As the design projects of other sanatoriums with a similar appearance were not implemented, and most of the other previously built sanatorium buildings and barracks had an appearance without prominent modernist features.

The plans to further expand the network of tuberculosis sanatoriums in the country in the late-1930s

Despite the efforts carried out by the various institutions to expand the network of tuberculosis sanatoriums in the country, by the late-1930s it became evident that it was being done without a long-term plan. Also, it became obvious that the network of tuberculosis sanatoriums in the country's provinces was still not sufficiently developed, in contrast to their more-or-less successful establishment and construction in the vicinity of Kaunas. At that time, for example, there were less than ten tuberculosis sanatoriums in the country (the majority, three, of which were established by the Kaunas and Alytus branches of the Society for the Fight against Tuberculosis) [13]. Although in the 1930s the number of deaths from tuberculosis decreased and averaged about 2.5 thousand per year, all the country's tuberculosis sanatoriums had a total of about 1000 beds in a dozen buildings – much less than it was needed for the successful disease's treatment [33].

Since most of the country's tuberculosis sanatoriums operated near Kaunas, in late-1930s the country's Department of Health recommended "to stop the unplanned establishment of sanatoriums, especially their concentration in the vicinity of Kaunas" by establishing more sanatoriums in the country's provinces [26]. Thus, in 1939–1940 it was planned to develop an ambitious ten-year plan for the construction of tuberculosis sanatoriums in Lithuania. Following the example of foreign countries, in the coming years it was planned to establish large "sanatorium towns" in pine forests near Kaunas and

Varėna, by constructing not only new sanatorium buildings, but also cinemas, churches and other service infrastructure for the patients. There were also plans to build new sanatorium buildings in the country's provinces near largest cities, while a special sanatorium building for the patients suffering from bone tuberculosis was planned to be built on the country's seaside [8]. These constructions were planned to be jointly carried out by the state, municipalities, the Society for the Fight against Tuberculosis, and the Lithuanian Red Cross. Such plans, however, were not implemented, as they were interrupted by the Soviet occupation of the country in June 1940.

Conclusions

Between the wars in Lithuania, tuberculosis was a serious disease that affected tens of thousands of people. Thus, it was necessary to establish and develop an infrastructure for the prevention and treatment of the disease, which was expected to be sufficiently developed only in a few decades. It was chosen to develop this infrastructure by establishing sanatoriums for the treatment of the disease in remote, forested areas of the country. The most important means of combating this disease was the new type of buildings, sanatoriums, the construction of which began in the country in the late-1920s and continued throughout the 1930s. Although the establishment of sanatoriums and the construction of their buildings was carried out by both state, voluntary and private initiatives, the greatest influence on the development of this infrastructure was exerted by the Society for the Fight Against Tuberculosis which, although had limited finances, alone built several new sanatorium buildings. However, since most tuberculosis sanatoriums were designed and built in the vicinity of Kaunas, in country's provinces, due to the limited finances and insufficient initiative, the establishment of sanatoriums and the construction of the buildings for them lagged and began to be developed more only in the late-1930s.

In terms of architecture, up until the late-1930s the several sanatorium buildings and barracks which were built in the country were designed with different planning and architectural compositions. But they all were characterized by the convenient interiors, which housed the patients and the necessary medical equipment to battle the disease. While on the exterior, following the established norms of such building type, they were emphasized by the deep open spaces providing the benefits of clean air and sunlight for the patients. Thus, the buildings' architecture played an important role in having a positive impact on the patients' health and well-being. Despite the early architectural achievements, tuberculosis sanatorium, as a building type, began to be developed the most in Lithuania in the late-1930s, as at that time the most ambitious and progressive-looking design projects of such buildings were drawn-up and were planned to be implemented. The architecture of the late Lithuanian sanatorium designs was characterized more than before by the ascetic modernist-inspired, almost functionalist-looking similar exteriors and elongated volumes, with abundant open spaces, which demonstrated the ambitions of both the architects and engineers, and the institutions that commissioned the projects. Consequently, the late sanatorium designs displayed an architectural language similar to the progressive foreign examples of modernist sanatoriums of the 1930s and emphasized the late evolution of sanatorium as a building type during the independent Lithuania. However, a large part of such sanatorium building projects of the late-1930s, which could have significantly improved the conditions for battling tuberculosis in the

country, did not make it beyond the design stage and were not implemented.

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Kopavilkums

19. un 20. gadsimtu mijā, lai izolētu un ārstētu ar tuberkulozi slimojošus cilvēkus, dažādās valstīs sāka būt īpašas sanatorijas ēkas. Lietuvas gadījumā nopietnāka tuberkulozes slimnieku aprūpe aizsākās brīvvalsts laikā, 20. un 30. gados, kad par šo lietu rūpējās dažādas valsti darbojošās institūcijas un brīvprātīgās biedrības. Rezultātā valstī tika izveidotas vairākas tuberkulozes sanatorijas, izstrādāti vairāki sanatoriju ēku projektēšanas projekti. Raksta mērķis ir iepazīstināt ar realizēto un nerealizēto tuberkulozes sanatorijas ēku arhitektonisko attīstību un to projektēšanas īpatnībām Lietuvā 20. gadsimta 20. un 30. gados. Tiek pieņemts, ka, neraugoties uz grūtībām šo ēku projektēšanā un būvniecībā, vairumā gadījumu to arhitektūru veidoja tiekšanās pēc nepārtraukta progresā, ko ietekmēja jaunākās stilistiskās tendences un nepieciešamība pēc funkcionalitātes, lai atbilstu ēku aprūpes prasībām, priekš pacientiem, kas cieš no tuberkulozes.