



HISTORY OF MEDICINE / ИСТОРИЈА МЕДИЦИНЕ

Collaboration of Primarius Dr. Svetozar Živojnović and academician architect Nikola Dobrović in the development of medical infrastructure in Igalo

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SUMMARY

Urban positioning, architectural conceptualization, and construction of health care facilities are parts of a complex process with a number of participants from fields of engineering, but also political and management structures on whose decisions the success of project implementation depends. In general, throughout history, the involvement of representatives of the medical profession in such endeavors has proven to be fruitful because in such a way they directly participate in the functional and formal design of their own work environment. In that sense, it can be stated that the collaboration of engineers, specifically architects, with medical doctors is all the more valuable for scientific research in the field of both the history of medicine and the history of architecture. This text deals with the implications of the collaboration between Primarius Dr. Svetozar Živojnović (1899–1981) and academician architect Nikola Dobrović (1897–1967) on the design and construction of several health care facilities, as well as the planning of urban zones in Igalo during the sixth and seventh decade of the 20th century. The paper emphasizes their respective contributions, which are considered crucial for the socio-economic development that has turned Igalo into a modern international health center, and one of the main centers of health tourism in the Mediterranean region.

Keywords: history of medicine; Svetozar Živojnović; Dr Simo Milošević – Igalo Institute; Nikola Dobrović; medical infrastructure

INTRODUCTION

This paper was written in the context of commemorating the 125th anniversary of the birth of academician Nikola Dobrović at the initiative of the Serbian Academy of Sciences and Arts (SASA), which declared the entire year of 2022 as the Year of Dobrović. The other dedication of the paper refers to the legacy of Dr. Svetozar Živojnović, which his son, Dr. Relja Živojnović (1931), a world-renowned ophthalmologist who spent his career in the Netherlands and Belgium, donated to the SASA Archives (2017), and which has been added to Dobrović's legacy in that institution [1].

The name of Primarius Dr. Živojnović is most often associated with the founding of the Adriatic coastal resort in Igalo, where he served for 13 years as the director (1949–1962). Dr. Živojnović was the first head of this institution, known for the use of medicinal mud and water called "Igalka" for therapeutic purposes. The institution was renamed in 1959 to Dr. Simo Milošević Institute for Physical Medicine and Rehabilitation and today it bears the name Dr. Simo Milošević Institute for Physical Medicine, Rehabilitation and Rheumatology. However, Živojnović's strenuous efforts to transform Igalo, a small coastal settlement in the westernmost part of the Bay of Kotor, where at the beginning of the 20th century there were "only

45 houses and 215 souls" [2], into one of the largest Adriatic centers for multidisciplinary rehabilitation, physical and preventive medicine, thalassotherapy, and spa-climatic treatment, have not been sufficiently explored. Therefore, Živojnović's role and significance in the history of medicine in these regions remain unclear.

Being active in the plans for the construction of Igalo, not only from a medical but also from an architectural-urbanistic aspect, Živojnović anticipated the development of this place into an international health center. Positioning the Institute as the nucleus of social and economic urbanization has created the need for planning the wider area of Igalo with an emphasis on the potentials of health tourism. Thanks to the mediation of Živojnović, the engagement in the preparation of this plan, as well as a series of individual health facilities, fell to his friend and relative with whom he spent his Prague student days, the renowned architect Dobrović.

As testimony to their friendship from that period, there remains Živojnović's portrait, the work of Nikola's brother, painter Petar Dobrović (1927), which is kept in the Živojnović family (Figure 1). As early as 1936, Dobrović and Živojnović jointly stayed in Herceg Novi for the purpose of designing "a hospital in the Bay of Kotor" as stated in the letter that Nikola sent to his brother Petar, and it is assumed that the text of the letter is referring specifically to the Igalo Sanatorium [1, 3].

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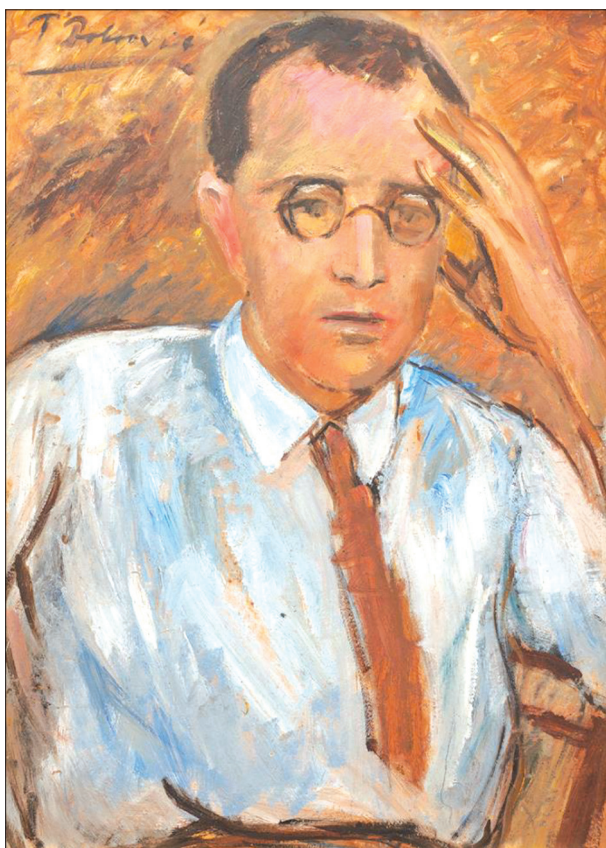


Figure 1. Petar Dobrović, Portrait of Dr. Svetozar Živojnović, oil on canvas (property of Dr. Relja Živojnović) (photography: Miloš Samardžić, 2022)

The intention of the authors of this paper is to present, by showcasing the aforementioned legacy, that it was precisely Dr. Živojnović who proposed to the Committee of Medical Experts – which was formed by the Secretariat for Public Health of the Federal Executive Council in Belgrade and made the decision to create the "Program for the development of a conceptual plan for establishing the Institute for Physiotherapy and Medical Rehabilitation in Igalo" – that the design be entrusted to Dobrović [4]. The paper will point to the importance of cooperation between architectural and medical professions, which has already been recognized in the academic community and represented in scientific research in the field of history of medicine [5]. It will also point to the fact that architect Dobrović, from the period of his student days in Prague, became a follower of a new spirit in health policy, which in his opus is reflected in the field of improving the building fund for the needs of social and medical institutions, as part of public urban equipment and policy [3].

THERAPEUTIC FACTORS AND APPLICATION OF IGALO MUD AND MINERAL WATER

The medicinal effects of Igalo mud and "Igalka" mineral water have been known for centuries through folk experience as well as numerous clinical studies, which have confirmed their benefits for a large number of patients treated at the Institute. The natural bounty of the Bay of Kotor, in

the area between Herceg Novi and Igalo, geological-biological features, and climatic and physico-chemical factors, have been the source of the healing properties of sea mud and mineral springs. Igalo mud is marine silt originating in the coastal area of Topla Bay, whose healing properties are influenced by mild radioactivity, mixing and sedimentation of mineral deposits from the Sutorina River, sea water, and the involvement of specific marine flora and fauna, shallow water, solar radiation, soft soil, geohydrological and climatic factors. Indications for use include the treatment of rheumatic diseases – rheumatoid and psoriatic arthritis, ankylosing spondylitis, degenerative spinal and extremity joint conditions, extra-articular conditions, post-traumatic conditions, diseases and injuries of peripheral nerves, and chronic gynecological conditions such as adnexitis, parametritis, and secondary sterility. Therapeutic effects in clinical practice are prominently hyperemizing, resorptive, and anti-inflammatory, as well as spasmolytic and analgesic effects, and also have a positive impact on osteogenesis in bone fractures and on the regeneration of peripheral nerves after injury [6, 7].

As for the composition of the "Igalka" mineral water, it is primarily made up of sodium chloride (NaCl), hence it is referred to as sodium-chloride, saline, or muriatic water. Igalka is clear in appearance, colorless and odorless, salty in taste, and slightly alkaline, with negligible radioactivity. The water, with a source temperature of 14.8°C, has dilatory, spasmolytic, analgesic, and relaxant effects. It is used for mineral baths or combined with kinesitherapy in a pool or a butterfly-shaped tub (hydrogymnastics), with galvanic current (hydrogalvanotherapy), under air pressure, with mud (mud baths), then under increased pressure (Scottish showers), for underwater massage, with a gradual increase in water temperature, etc. The indicated scope for application includes chronic rheumatic diseases of joints, muscles, and connective tissue, peripheral nervous system diseases, conditions following trauma and surgeries on the locomotor apparatus, chronic gynecological and skin conditions (psoriasis). Internal use is done by drinking, which increases gastric juice secretion and motility of the digestive tract, and by inhalation, which acts secretolytically and is used for diseases of the digestive and respiratory systems. For chronic diseases of female reproductive organs, it is used in the form of vaginal sprays [8].

Mineral springs in Igalo were first mentioned in Austro-Hungarian military documents (1875). The first written document about Igalo mud was created by Dr. Rudolf Levi (1910), the head of the rural hospital in Trebinje, while international confirmation of its healing properties was provided by the laboratory of the renowned French spa Vichy (1930) [9].

FIRST CONCEPTS OF A HEALTH CENTER IN IGALO AT THE INITIATIVE OF DR. ŽIVOJNOVIĆ

Dr. Svetozar Živojnović was born on October 20, 1899, in Sombor. After completing secondary school in Novi Sad (1918), he studied medicine in Zagreb (1918–1919),

Prague (1920), Vienna (1920–1923), and Graz (1923–1926), where he graduated and met his future wife Milena Bubalo, who later became an ophthalmology specialist [6]. In 1921, he fell ill with tuberculosis of the retina and was almost blind for nearly a year. His wife greatly helped him so that his disability would not impede his medical career. After an internship in Novi Sad, Živojnović worked as a general practitioner in Vojvodina villages. He was then appointed as the physician for the State Dispensary for Tuberculosis in Herceg Novi (1934), while his wife became an ophthalmologist at the Military Hospital in Meljine [2].

Upon arrival in Herceg Novi, the mud in Igalo became the focus of Živojnović's interests, where he and his wife participated in scientific analyses of its medicinal properties. This research initiative was started by the Consul of the Kingdom of Yugoslavia in Milan, Dr. Dušan Marinković, along with the owner of the Igalo Hotel, Miloš Janković [10], a relative of Živojnović's wife, investors (industrialist Vlado Savčić and banker Dragomir Leko), and professors from the University of Belgrade (Dr. Milan Luković, Dr. Aleksandar J. Ignjatovski, Dr. Aleksandar Ščebakov, and Dr. Dragoljub K. Jovanović, a colleague of Marie Curie). Based on their final analysis in 1938, the Faculty of Medicine in Belgrade issued a certificate of the medicinal properties of Igalo mud [9]. In addition to participating in analyses crucial for forming the idea of an Igalo spa, Živojnović anticipated the realization of Igalo's potential in terms of health tourism. He became the organizational secretary of the 4th Yugoslav Congress against Tuberculosis (Herceg Novi, May 1938), which brought together doctors from all over the country, with a series of accompanying programs, excursions, and entertainment for participants who were accommodated in the city's hospitality facilities [2]. This event represented the beginning of both congress and general health tourism in Herceg Novi, and Živojnović emerged as a key figure in this respect. In summary, it can be said that Živojnović's activities were crucial for achieving two significant visions of Igalo: establishing a new health center and transforming the town into a hub for regional health tourism, which will be discussed further below.

After a lull in activities related to the organization of the spa due to World War II, in 1949, the Minister of Health of Montenegro, Mato Petrović, at the suggestion of Vladimir Marinović (an official from the Protocol of the Ministry of Foreign Affairs of the FPR Yugoslavia and the brother of the aforementioned Dr. Marinović), contacted Živojnović to re-engage in the planning of a health center in Igalo [9, 11]. By a decision of the Government of Montenegro (1949), a balneological and climatic spa was established in Igalo, which was named Adriatic Natural Spa by a decision of the National Assembly of Montenegro [2]. Initially, therapy was performed on the muddy beach near the mouth of the Sutorina River, at a location called Stara Banja (Old Spa) (Figures 2 and 3). There, a peloid facility was built for the manipulation and storage of mud.

In one of the studies, Dr. Živojnović described the circumstances of the spa's founding: "There was only a wonderful southern coastal climate, with lush subtropical

vegetation and fragrant and crystal-clear air, blue and salty sea, with flat sandy shores, through whose transparent water one could see black sediment on its bottom, already known to the people as therapeutic sea mud. Above the mouth of the Sutorina River, in the dense undergrowth of prickly mastic trees, one could hear the deep gurgling of the cold springs of Sutorinska Slatina, whose waters were lost in the nearby riverbed, and the inhabitants of the surrounding villages knew that these waters were medicinal. At the moment of founding, the spa had a small building of weak material, totaling about 40 m², and one entirely dilapidated woodshed. The first outpatient clinic and the spa office were placed in the building, and in the three remaining rooms, improvised "male and female wards" and "rest areas" were set up, each with four beds, where procedures with therapeutic sea mud were performed. The boiler room of this healing center was represented by one large gasoline can, placed on an iron tripod, under the open sky, where the "black medicine," i.e., Igalo mud, was heated. The waiting room for patients was replaced by a nearby mulberry tree, under whose shade, instead of benches, bare planks were placed on piles of stones. Patients would patiently wait there for their turn to be treated, and in the meantime, those who were still physically able would use shovels to collect and extract the therapeutic material from the shallow coastal areas, which was necessary for their own treatment as well as for the treatment of other patients. In that area, at that time, there was only one shallow well, which would dry up during the hot months, so it was necessary to bring water from more distant areas to facilitate washing patients after the mud procedures" [12].

After a discouraging start, a crucial step in the rise of the Adriatic coastal resort was the allocation of the nationalized Igalo Hotel to the healing center, whose pre-war owner was the aforementioned Miloš Janković – one of the initiators of establishing a new health center in Igalo. The spatial capacities of the hotel allowed for an expansion of 50 beds in a newly arranged stationary facility built on the site of today's main building, erected in the first phase of the Institute's construction. Then, new premises were built based on mud therapy and mineral water, and in 1955, the existing stationary facility of the former Igalo Hotel was expanded, increasing the number of patient beds to 105 [11]. The water shortage was solved by tapping four "Igalo" springs and drinking water from the source in Mojdež, through which water with a volumetric flow rate of 20 L/s reaches the healing center [8]. With the construction of a transformer station, a meteorological station, and an administrative building, the communal infrastructure for the functioning of the healing center was created. This translation aims to capture the essence and details of the original text as closely as possible. The presented data show the thorny path of the Adriatic natural healing center, initially a conventional spa using locally available natural remedies for treatment, and later a respectable medical institution that puts therapeutic natural goods under medical and scientific control, and employs them according to defined indication areas and appropriate physiotherapeutic methodology.



Figure 2. Igalo, Old Spa (source: SASA Archives, Historical Collection 14878/II, photo-documentation, Legacy of Dr. Svetozar Živojnović, a gift from his son Dr. Relja Živojnović to SASA Archives)

FOLLOWING DOBROVIĆ'S PROFESSIONAL INTEREST IN HEALTH FACILITIES

For Živojnović's vision, which involved developing Igalo into an international health center, an initial need was for a regulatory urban plan for both the immediate and wider area of the Health Center, to study the settlement's issues and its future purpose as a health center. The task of creating the plans fell to the architect Nikola Dobrović, whose biography we outline briefly due to space limitations [13], but we emphasize his rich experience in designing medical programs, which was one of the arguments for his engagement in Igalo.

Born in Pécs (1897), Dobrović began his architectural studies in Budapest (1915) and then, after an interruption due to World War I, continued at the Czech Technical University in Prague, where he graduated (1923). After his first job in Prague (1928–1929), he continued his career in the Mediterranean region on the island of Lopud, near Dubrovnik (1929–1941). After World War II, he became the Director of the Urban Institute of the People's Republic of Serbia (1945), Director of the Urban Institute of Belgrade (1946), a regular professor at the Faculty of Architecture in Belgrade (1947), and a regular member of the Serbian Academy of Sciences and Arts (1965).

From his student days in Prague (1919–1923), Dobrović turned to the topic of medical facilities, among which the most prominent are the student work Museum of Medicine (1920) and the graduation work Home for the Care of the Blind (1923). Also, Dobrović's first realized objects in the Prague period were the result of cooperation with healthcare workers (Villa Dr. Bulirzha and the building with the pharmacy of Mr. Jindrak). His most significant Prague endeavor was participation in creating the social institutions complex "Masaryk's Homes," which included nursing homes, shelters for children and adults suffering from incurable diseases, recuperation facilities for "weak" children, and recreation centers (1926–1928). In this work, Dobrović designed children's departments and the park environment of the complex [3]. The tradition of cooperation with doctors, Dobrović continued in Dubrovnik, designing the summer residences of Dr. Ivan Račić (1937), Dr. Marko



Figure 3. The first building of the Institute – Old Spa (source: SASA Archives, Historical Collection 14878/II, photo-documentation, Legacy of Dr. Svetozar Živojnović, a gift from his son Dr. Relja Živojnović to SASA Archives)

Mladinov (1937), Dr. Vojislav Mitrović (1939), and Dr. Edgar Wolf Vuković (1939). It is assumed that Dr. Vuković and Dr. Račić, both otolaryngologists, contributed to the creation of Dobrović's project for the Ear, Nose and Throat Department of the new Banovina Hospital in Dubrovnik (1939). In this context, it is worth mentioning the project for Dubrovnik's Kursalon (1930), as well as participation in competitions for health facilities such as the Regional Hospital (Sarajevo, 1928), Banovina Hospital (Split, 1930), Zakladna, and Jewish Hospital (Zagreb, 1931) [3].

Dobrović relies on the climatic potential of locations in his design work, emphasizing the inseparable connection between the Mediterranean regions and the search for health. He addresses the movement of people from large cities seeking rejuvenation through the southern sun, clean sea air, and iodine-, chlorine-, and bromine-rich seawater, all of which contribute to their health and energy for further work and life struggle [14]. Dobrović was perhaps directed towards the typology of healthcare facilities not so much by the stylistic architectural current of modernism as by the social context of post-war modernist-progressive affirmation of healthcare architecture and the democratization of the right to healthcare.

PROJECT ACTIVITY AND CONSULTANT ROLE OF DOBROVIĆ IN RESOLVING ALL IMPORTANT URBAN DEVELOPMENT ISSUES OF HERCEG NOVI

Upon arriving in Herceg Novi at the initiative of Dr. Živojnović, Dobrović studied the archival material, technical and photo documentation, and collected topographical-geographical historical maps of the city and its surroundings, on the basis of which he published the book titled "Urbanism Through the Ages I – Yugoslavia" (1950) [15]. In this book, Dobrović highlighted the connections between natural and built dominants and established transit routes, facilitating an understanding of regional urban genesis. Preliminary research led to conclusions about the terrain properties of this part of the Bay of Kotor, which are summarized by factors of proximity (to the water surfaces of Toplanski Bay and Kumbor Canal; elongated stretches of coastal lines;

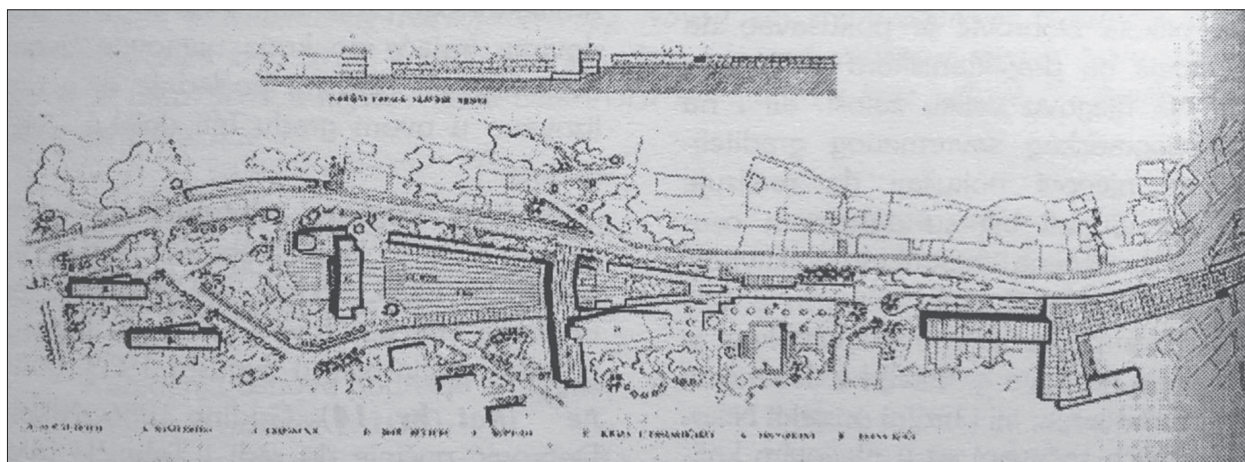


Figure 4. Plan of Herceg Novi center (source: SASA Archives, Historical Collection 14878/II)

flat terrains of the inter-hill regions of Igalo, Meljine, and Zelenika; beaches of Igalo and the terrain of Savina, Meljine, and Zelenika) and factors of distance (surrounding peaks and mountain ranges of distant areas). Favorable views and the inclination of the slopes of Savina justified the placement of hotel resorts, sanatoriums, and housing, while favorable vistas, clean air, and equidistance from all parts of the settlement affirmed the development of educational functions.

Dobrović's concrete work began with the study titled "Basics of the Urban Plan of Igalo" (1951), based on which the Directive Urban Plan for the Arrangement and Construction of Igalo as a Health Center and Tourist Place (1953) was completed [16]. The Directive Plan envisaged a rational zoning of Igalo's territory and a framework for the realization of a new healthcare center. This was an initial planning document with set guidelines for future elaboration. Dobrović then supplemented it with an Elaborate Preliminary Design (1956), which detailed three regions of Herceg Novi (areas of Sutorina and Meljine, Zelenika, and the center of Herceg Novi). The interconnectedness of these entities was achieved by relying on natural factors, bodies of water, and coastal lines, as well as on the structure of roads and the course of the Adriatic tourist road (today's Adriatic Highway), and the direction of the runway which defined the area between the Tivat and Grbalj fields. The conceptual elaboration was based on previously accepted Directive Plans of the mentioned areas. However, the Directorate for Roads of Montenegro subsequently adopted the project of the Adriatic Tourist Road, which conflicted with Dobrović's initial plans, affecting the documentation of the Preliminary Design to be made in two parts.

After 10 years of development and adjustment, the plan took its final form as a section of the Main Project for Urban Planning of the Municipality of Herceg Novi (1961) [17]. This Dobrović plan was the first systematic urban planning document in the history of Herceg Novi. It included project solutions for Igalo and the city center within the scope of 10 kilometers of the coast (Figure 4). The significance of the scope Dobrović defined by structuring its unique image as part of a larger system, in the regional framework of the Bay of Kotor and the Dubrovnik Archipelago. The scope of the plan was larger than that of

the Directive Plan, and at a level of detail corresponding to the scale of 1:500, the plan provides for the character and manner of using the basic zones of the Herceg Novi part of the bay, directing the Adriatic Magistrala road, organization and arrangement of the city center towards land and sea, and the zoning arrangement of urban functions, particularly tourism and therapeutic services in Igalo [16]. Dobrović elaborated in detail the arrangement of the central city zone, which he conceived as a linear series of spatial entities and central content, such as local government buildings, the main pedestrian square, the Post Office building (1962, built according to the Dobrović's project), a cultural center, an extension of the building of the NO Municipality of Herceg Novi (1962, realized), public beaches, and the Boka Hotel with its accompanying park [18].

As early as 1959, Dobrović and Živojnović produced a photomontage of the projected facility of the Institute between Đurić's and Čurić's hills, showing the commitment to a sloping building between two neighboring hills, in direct spatial and functional connection with the immediate natural context. As Dobrović himself pointed out, in this way the object synthesizes the advantages of block and pavilion systems of space organization (Figures 5, 6, and 7) [4, 18].

Urbanistic parameters have conditioned the determination of both the narrower and broader locations of the medical circle in Igalo, with designated positions for the Institute and the Children's Department [17]. Both locations were defined according to the proposal of Dr. Živojnović, based on the program for further development of the spa with 520 beds, which was drafted in 1959. Morphological characteristics of the terrain and climatic factors conditioned the scope of the intervention between the hills in the coastal area of Igalo. The spa's needs at the time were organized through zoning differentiation of purposes: accommodation and therapeutic units for patients, open terraces for physical exercise, gatehouses, boiler rooms, summer stages, tennis courts, basketball and gymnastics areas, swimming pools, sunbathing areas, commercial facilities, and traffic areas. The condition for the realization of this segment of the urban plan was the demolition of the old Institute building as an outdated and



Figure 5. Nikola Dobrović, Location and photomontage of the facility of the Institute for Physiotherapy and Medical Rehabilitation in Igalo, black and white photograph (source: Vukotić-Lazar M. Beogradski period arhitekta Nikole Dobrovića. Beograd: Plato; 2002. p. 95)

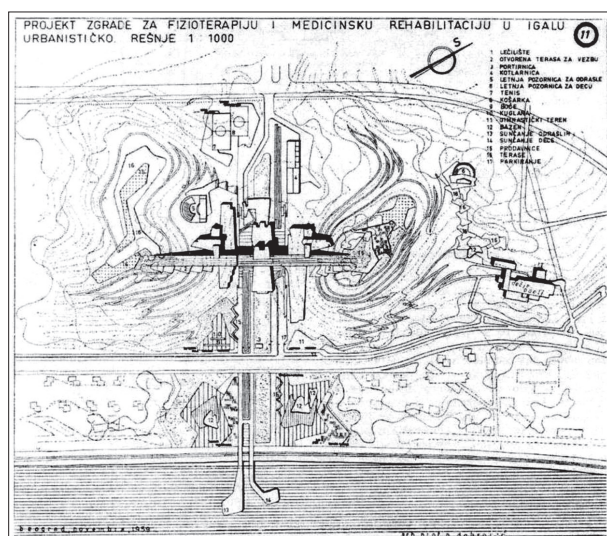


Figure 6. Urbanistic plan of non-built Institute (source: Dobrović, N. Zavod za fizioterapiju i medicinsku rehabilitaciju u Igalo. Zbornik radova Instituta za arhitekturu i urbanizam, 1961; I)

depreciated object (Old Spa). The urban concept of the Institute's prospective construction was considered by the expert commission of the Secretariat for Public Health of the Federal Executive Council and adopted in Belgrade (September 1959). The program concept of the new Institute building was presented to the Institute's management for expertise (December 1959); however, during the realization of the Program and the project of the Institute's Phase II (1982), this proposal was ignored and the Institute building was built on the basis of a different program task [16]. Despite dedication and detailed elaboration, Dobrović's visionary plan did not come to fruition. Namely, the projected scale of investment exceeded the financing possibilities. Not only was the plan not implemented, but it was also rejected as unrealistic. The conservative local community could not face modern urban standards, instead giving priority to economic potentials and problems. As Dobrović's sketches were displayed multiple times over an extended period in Herceg Novi, being the subject of public discussion, changed but never adopted, Dobrović reluctantly withdrew from collaboration with local services and abandoned the vision of Igalo's urbanization.

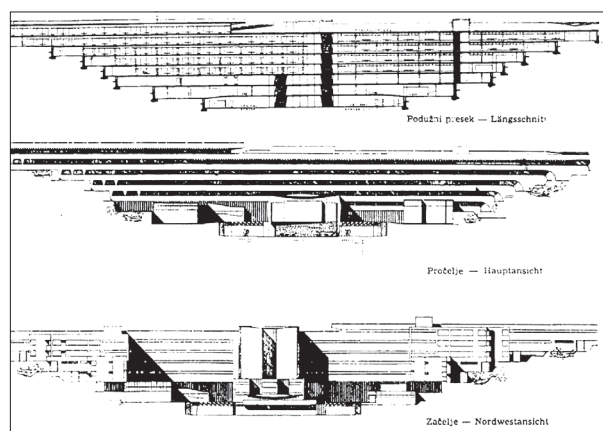


Figure 7. The facades of the non-built Institute (source: Dobrović, N. Zavod za fizioterapiju i medicinsku rehabilitaciju u Igalo. Zbornik radova Instituta za arhitekturu i urbanizam, 1961; I)

The failure and disrespect of the plan, on which he was a direct collaborator, motivated Živojnović to resign and take early retirement (1962), so that the Municipal Assembly of Herceg Novi (1966) proceeded with the preparation of a new and different urban plan covering the area from Igalo to Meljine [2]. Although he had ceased involvement in the development of Igalo after the collapse of Dobrović's plan, Živojnović tried again in 1967 to engage in these activities. In the year when a 'B' category annex with a capacity of 140 beds was built next to an existing hotel in Igalo (unrelated to Dobrović's plans), Živojnović published a documented program study titled "Physiatric Potentials of Igalo and Guidelines for Further Development and Construction of the Institute for Physical Medicine and Rehabilitation." In the study, he expressed disagreement with the construction of a new spa circle at the location of the object built in the first phase of the construction of the Institute, which still exists today [12]. The criticism referred to the new management of the Institute, which decided to build at the location in the center of Igalo, thus preventing the organic connectivity between the interior and exterior of the object. Close contact with the residential zone of Igalo led to the exposure of patients to the routines of everyday life of the surrounding population and modes of using spatial resources that are unrelated to the medical-balneological

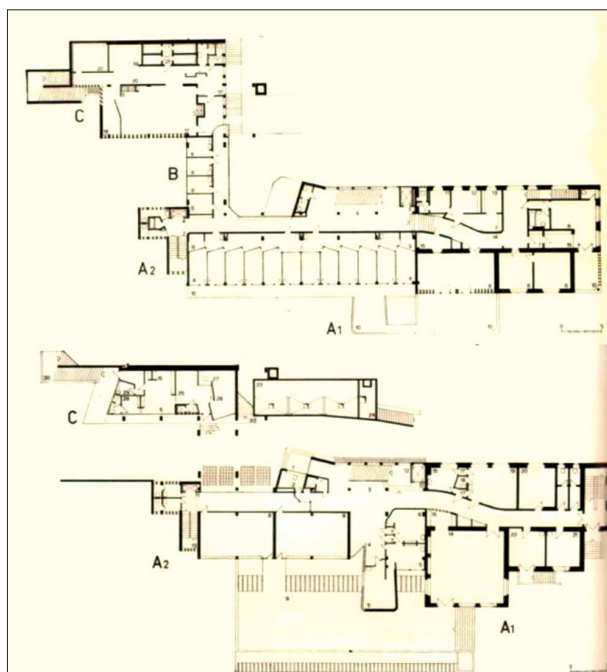


Figure 8. Ground floor and the first floor of the Children's department of the Institute (source: Babić Lj. *Dečje odeljenje za fizikalnu terapiju u Igalo*, *Arhitektura urbanizam*, 1967; 43)

center for rehabilitation. Population density and frequent use of space increased with the subsequent construction of a solitary settlement with a commercial zone, so the aforementioned shortcomings have not been eliminated even today.

BUILT INDIVIDUAL OBJECTS IN THE MEDICAL ZONE OF IGALO

Apart from the preparation of urban plans, most of which have remained only a testimony to the process of professional educated planning, Dobrović built several individual objects. In the early 1950s, he implemented the Entrance Gatehouse of the Institute, i.e., the “Gatehouse,” which was demolished in the process of subsequent investment phases of construction (1972) [16].

The largest and most significant work of architect Nikola Dobrović in Herceg Novi is the Children's Department for Physical Therapy, created in the period 1959–1962 and located within the system of the then Institute in Igalo [19]. The building represents an extensive expansion and reconstruction of the former cable center. In line with the disposition of functions of the Institute's building that Dobrović planned, a series of design decisions concerning the Children's Department were implemented (Figures 8, 9, and 10).

The ground-level arrangement of the surrounding spaces included elements of the health complex into the natural environment. The position between two adjacent hills inevitably conditioned the spatial-functional connection of the building with the natural context. In this way, climatic, soil, and biotic factors, in agreement with social factors and the functional arrangement of the built environment,



Figure 9. Nikola Dobrović, Children's Department of Physical Therapy (photography: Andrea Raičević, 2022)



Figure 10. Nikola Dobrović, Children's Department of Physical Therapy (photography: Dragan Dragin, 2021)

contributed to the sustainability of the health prospects of the complex [16]. To emphasize the ground surfaces and their connection with the object, direct access to the ground level from all floors has been defined. According to the established model, individual buildings in the garden areas are framed by a network of pedestrian paths, open swimming pools, and rehabilitation devices, accessible from each floor of the building that provides functional connectivity and accessibility of the surrounding land. At the ground level, there are free zones for pedestrian passage with routes of continuous movement. The accommodation block, distributed over five floors, consists of patient rooms that are programatically arranged. Contact with nature is ensured through balconies in all rooms, and physical activities (walks) for patients during bad weather are facilitated by long corridors. Corridor pathways continue onto pedestrian paths for greater comfort when transitioning from the indoor to the outdoor space. The roof plane is adapted for hydrotherapy treatment and activities under the open sky [18].

CONCLUSION

The paper discusses the respective contributions of Dr. Svetozar Živojnović and architect Nikola Dobrović to the development of Igalo's medical infrastructure and the

improvement of this urban area into a center for health tourism in the Adriatic region. Dobrović and Živojnović actively participated in the urban planning of the Herceg Novi municipality and foresaw the detailed development of a larger number of individual healthcare facilities.

Although guidelines for design, in the form of systematized needs for the city's development, were directed to Dobrović by various commission-regulatory bodies of the Public Committee of the Herceg Novi municipality, while professional communication was mediated by the City Council body, the significance of Živojnović's advisory role in these processes was crucial. Dobrović had a mutual relationship of respect and uncompromising trust with Dr. Živojnović. As an architect, he subordinated his personal interest to social responsibility, and in the desire

to support Živojnović's efforts, delivered plans and projects at a minimal fee, sometimes even for free. During their 13 years of active cooperation, Živojnović and Dobrović detailed several projects, many of which remained at the idea level. However, the urban-architectural concepts of these projects were always grounded in progressive efforts for growth and development of this region, in health tourism, as well as in strong encouragement for overall societal progress and modernization.

Ethics: This article was written in accordance with the ethical standards of the institutions and the journal.

Conflict of interest: None declared.

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Сарадња примаријуса др Светозара Живојновића и академика и архитекте Николе Добровића у развоју медицинске инфраструктуре у Игалу

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САЖЕТАК

Урбанистичко позиционирање, архитектонска концепција и изградња здравствених објеката припадају сложеном процесу који укључује низ актера из инжењерске струке, али и политичко-управљачких структура од чијих одлука зависи успешност реализације. Генерално посматрајући кроз историју, инволвирање и представника медицинске струке у овакве подухвате показало се плодносим јер они тиме директно утичу на функционално и обликовно осмишљавање сопственог радног окружења. У том смислу, може се констатовати да су сарадње инжењера, конкретно архитеката, са лекарима утолико вредније за научна истраживања у области како историје медицине, тако и

историје архитектуре. Овај рад се бави импликацијама сарадње примаријуса др Светозара Живојновића (1899–1981) и академика и архитекте Николе Добровића (1897–1967) на изградњи више здравствених објеката и планирању урбанистичких целина у Игалу током шесте и седме деценије XX века. Истичу се њихови респективни доприноси, који се сматрају кључним за друштвено-економски развој који је Игало претворио у модеран здравствени центар међународног карактера и један од главних центара здравственог туризма у медитеранској регији.

Кључне речи: историја медицине; Светозар Живојновић; Завод „Др Симо Милошевић – Игало“; Никола Добровић; медицинска инфраструктура