The Architectural Complex at the Golden Horn a Monument of Cultural Heritage of Bulgaria and Turkey

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***Abstract*— The article discusses the history of construction of the Orthodox Christian architectural complex St Stefan in Istanbul, comprising a church and a convent. The church is a monument of cultural heritage of Bulgaria and Turkey. The study is a result of in situ work and of an analysis of unpublished records kept in the Central State Archives in Sofia. The construction had three stages, each of which used different building materials. The construction started in the late 1840s, continued unsuccessfully in the 1850s, and once again resumed in the 1870s with geological surveying which established that the ground could not withstand the load of a brick church. This stage ended with the consecration of the St Stefan Church in 1898. The paper pays special attention to the third stage: the steel structure of prefabricate elements and the ornamented cast-iron cladding manufactured and fitted by the Vienna-based company Rudolph Philipp Waagner in 1896-1898 on a design of Turkish architect Hovsep Aznavur. Comparisons are made between the St Stefan Church, the steel churches in the other countries as Latvia, the Philippines, Peru, Chile, Mexico, Costa Rica, and Russia that are a product of the industrial development in the 19th century and now are the rare architectural monuments.**

***Index Terms*— cast-iron cladding, church complex in Istanbul, Gustave Eiffel bureau, prefabricated steel elements, Rudolph Philipp Waagner factory, steel structure**

I. INTRODUCTION

The reform era in the Ottoman Empire named the Tanzimât. It started in the in 1839. In that time Christian people were recognized in the Ottoman Empire and were granted religious freedom. In the 19th c. the Bulgarians were part of the Ottoman Empire. These who lived in the capital Constantinople worked as craftsmen. They did not have much money to spare but nevertheless wanted to build a church to practice their religion, similar to all Christian people in the Empire. The church was donated by a well-off Bulgarian Stefan Bogoridi, who held a high position in the Ottoman administration. The idea for constructing a church, a convent, and a school attached to it meant this was going to be an architectural complex housing a spiritual and educational center.

The construction of the church had three periods. The first period started in 1849. In terms of time it coincided with the start of the reforms in the Ottoman Empire known as the Tanzimât reform era. The second period coincided with the mid-19th c. and the aftermath of the Crimean War. This was also the time of the fight for independence of the Bulgarian church which had been destroyed as an independent institution when Bulgaria was conquered by the Ottoman Turks. The third period started in the 1870s and continued until 1898. In 1878 Bulgaria was liberated but became an independent state only in 1908.

The article analyses the stages of construction and the building materials in two separate buildings − the St Stefan church and the convent at the Golden Horn in Istanbul. The two buildings are united by a number of inter-dependent characteristics: territory, religious identity, chronological sequence and stages of construction.

The approach that is used advances a new thesis vis-a-vis the buildings at the location in question, namely, that they constitute an entire architectural complex. The aim of the study is – after clarifying the stages of construction – to make a comparative analysis of the used materials and the shared characteristics of the structures from the third and last stage of construction of the St Stefan steel and iron church, and other similar churches in the world. In this way will be proved the development and adaptation of the design idea to the peculiarities of the terrain and of the environment during the construction of the St Stefan Church.

The specific characteristics are yet another example of resorting to modern European tendencies for fast prefabricated design and use of new materials in the construction of buildings with religious functions at “remote locations” for certain religious and social groups in the 19th c. Special significance is attached to establishing St Stefan Church's place among the few preserved churches in the world built in a similar way, in light of their artistic features. The case with the Bulgarian St Stefan Church in Istanbul is yet another example of the advent of new construction materials such as steel and cast iron and complements the problem about the peculiarities of the use of steel structures in the fast construction of churches.

II. PREVIOUS STUDIES

The studies of the St Stefan Church so far have not explored the question of its construction as part of a bigger architectural complex. The present study is the first one to examine the complex from the point of view of architecture and art. Bulgarian historians earlier contribute for studying of the church.

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Bulgarian scholars Peter Karapetrov and Hristo Buchevarov did the earliest studies in the history of the building of the church in the late 19th c. and the early 20th c. The studies advanced the idea that Stefan Bogoridi, the Bulgarian who held a high official position in the Ottoman Empire and who donated the house and the courtyard where the church was to be built, pursued his own profit, rather than the Bulgarian national interests. It is for this reason that the names of the two as scholars of the church are not that popular [1]-[4]. Yordan Popgeorgiev made the first scholarly interpretation of the documents about the church kept in the Bulgarian History Archive of the National Library. Popgeorgiev's study championed Stefan Bogoridi's work and belittled the efforts of Alexander Exarch who helped obtain the documents vis-a-vis the status of the church and contributed towards its construction [5].

The earliest description and evaluation of the stylistic characteristics of the iron church was made by Ivan Stoinov in 1923. According to Stoinov, the style of the church is "authentic Bulgarian", the construction "elegant", "light" and "welcoming" [6]. Dimiter Mishev, who in 1925 published documents from the Ottoman Archive in Istanbul, had a big contribution to the studies of the church **[7**]. In the recent decades, historians Zina Markova [8] and Hristo Temelski [9] have studied the problems of the church struggles and the Bulgarian local administration in Constantinople. The Turkish scholars of the Church Hasan Kuruyazici and Mete Tapan [10] studies and published archival documents from Istanbul about the previous stages of the construction of the temple.

None of the discussed studies explores the buildings in question in their conceptual unity, nor has the place of the Bulgarian steel church at the Golden Horn been studied in the context of the industrial development which caused the advent of steel structures.

Among the European scholars German researcher Immo Boyken [11] in an article discussing the use of steel in the construction of religious buildings in the late 19th c. studies the use of steel structures in the construction of the church as an expression of industrialization in architecture. The article analyses the plan, the structural characteristics and the composition of the building on the basis of nothing else but the specialized Austrian periodical press of 1895.

In 1989 the Austrian hydroengineer Gilbert Wiplinger did a research and prepared a project for desining a drainage system for the church and independently the same was done by Prof. Veselin Venkov [10].

III. First Construction Period

The first period of the construction of a Bulgarian church in Constantinople did not entail the construction of a new building. Rather, it constituted the remodelling of a wooden outbuilding in the yard of Prince Stefan Bogoridi located on the shore of the Golden Horn (Figures 1, 2 a, b). A wooden outbuilding remodelling of a wooden church.

In the donation certificate Bogoridi formulated the fundamental arrangements vis-a-vis the ownership and the management of the future church. He stipulated that the church, the buildings and the lot where they were, were to be property and possession of the Bulgarian people who were represented by the Ottoman State. Bogoridi's covenant was for the church to be managed by a board of trustees composed of Bulgarians residents of Constantinople.

Figure 1: A wooden outbuilding remodelling of a wooden church. CSA, F. 3 K, Inventory 1, Archival Unit 78, Sheet 3.

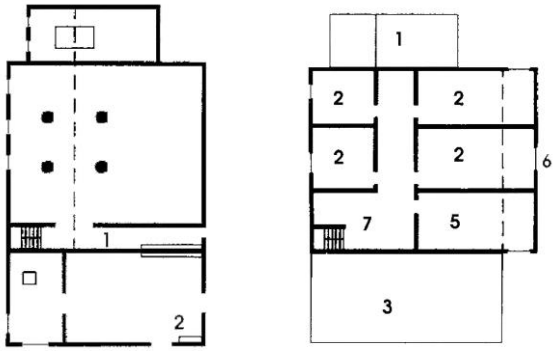

Figure 2 a, b: Reconstruction of 1st and 2nd floor (where was placed the school) of the wooden church.

In July 1849 Stefan Bogoridi invited prominent Constantinople architect Hadji Stefan Kalfa to design the new buildings which were to be erected in his yard. Stefan Kalfa himself had experience in designing the first public buildings of the High Porte. The architect's name is associated with the construction of the building in Istanbul which at that time housed the Council of Ministers, the office of the Vizier, the ministries of foreign affairs and of the interior, whose construction was finished in March 1844. In the course of one month, Kalfa designed a big church, a small church and a convent, i.e., a whole architectural complex [12], [13]. These buildings were projected only, because the finances had been missing. This was the time when Stefan Bogoridi's stone buildings were remodelled into a convent (Figure 3).

The building of the convent took place in the first construction period of the complex. The building was designed as a seat of priests and a place for pilgrims headed to the Holy places. Its architectural plan and stylistic features were borrowed from the imposing secular European Renaissance buildings – palazzo, which served as a model for the construction of public buildings in the Balkans. Usually

these were buildings with a design where the distribution of the volumes had a central façade and two parts parallel to one another and perpendicular to the façade. With the convent, however, the longest was the central section while the two lateral ones were much foreshortened so that the idea for the palazzo remained invisible from the central façade and the building looked rectilinear. The characteristic inner court for the palazzo was closed by the two lateral wings and a Byzantine wall on the back. A staircase divided the convent in two parts.

Figure 3: The structure of the Convent ended in 1850. Point of view from the churches' court. CSA, F. 1459 K, Inventory 1, Archival Unit 99.

IV. Second Construction Period

The second construction period began at the start of 1859. The Fossati architect brothers, Gaspare and Giuseppe, were invited to design a three-aisle, domed basilica with three rounded conches of the apse with a semi-cylindrical vault of the central nave. The idea of the Fossati brothers was to build an imposing church with architectural merits as stately as the other Orthodox churches in Constantinople. The measurements marked in the design were: length, 28.5 arşın, width, 20.9 arşın an height of the dome, 21.85 arşın. Having in mind that a building arşın equalled 0.758 m, the sizes were 21.60 x 15.84 x 16.56 m. The church of this design was not built due to absence of sufficient resources, and the construction was abandoned in 1860 (Figure 4, Figure 5).

The Fossati brothers were well known in Russia and Turkey [14]. They were among the artists who created the outlook of 19th-c. Saint Petersburg and Istanbul. The Fossati brothers designed and built the Russian Embassy in Constantinople in 1837 – 1849. The two brothers were born in Ticino, Switzerland, and – like many other architects and mostly builders from these regions, worked in Saint Petersburg. [15]

Style of Classicism was at the root of Fossati's work in Russia and in Constantinople where they designed churches and public buildings. In the design of private residences in Russia Gaspare Fossati experimented with Eclecticism, copied the local architectural tendencies and the Anglo-Saxon traditions of the romantically landscaped parks.

Already in Russia Gaspare Fossati gained a name as a restorer of buildings. In Constantinople, in addition to the renovation of the Hagia Sophia, Gaspare Fossati and his brother Guiseppe also renovated the Saint Mary Draperis Roman Catholic church close to the Russian Embassy [10]. In

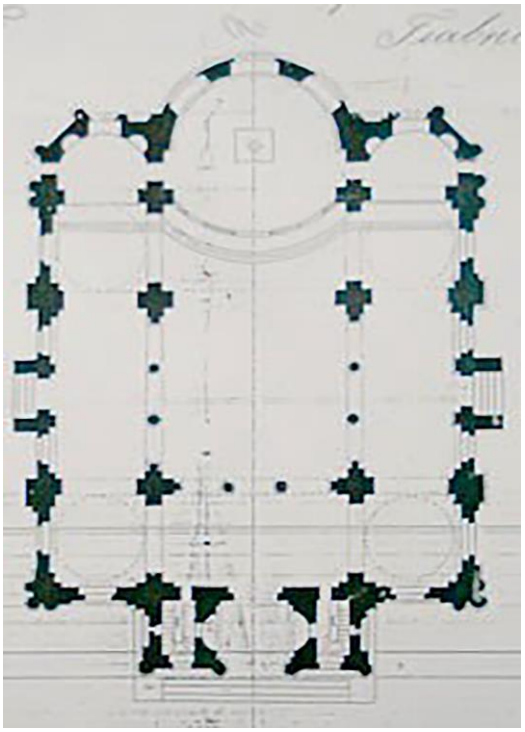

Figure 4: The Plan of three-aisle Fossati brothers domed basilica. CSA, F. 321 K, Inventory 1, Archival Unit 473, sheet 189.

Figure 5: The façade of Fossati brothers basilica. Ecclesiastical Institute for History and Archeaelogy, Sofia, Inventory 9103.

1841 Gaspare Fossati became one of the architects of the SS Peter and Paul Church in the city [16]. The renovation of the Hagia Sophia in Constantinople in 1846 under the supervision of the Fossati brothers constitutes the biggest contribution of the two in the world's architecture. The brothers restored the structural parts of the church. They straightened the columns of the gallery, consolidated the dome and vaults, uncovered

mosaics, listed and restored them, covered with plaster and painted ornamental inscriptions, added Gothic-style gypsum rosettes on the exterior. After the renovation of the Fossati brothers the church acquired an outlook to the taste of the West European imperial courts and the Sultan's court. [17]

V. Third Construction Period

The year 1876 marked the start of the third period of construction of the Bulgarian church in Istanbul. The period was characterized by the use of materials that were new for the

end of the late 19th c., such as steel, cast iron and zinc. It was thanks to the use of such materials and also due to the main distinctive feature of the structure for which high-quality alloy steel was used, and also due to the decoration of the church with iron and zinc castings, that the designation "the Iron Church" came to be used (Figure 6) .

Figure 6: South façade of the St Stefan Church.

The suggestion to build the St Stefan Church with steel structures and metal sheeting came from prominent architects in Istanbul. They were among the designers of the docks on the Bosphorus, and of state, public and private buildings in the heart of the city. The decision to build the church with materials that were new for the times, e.g. steel and cast iron, was a decision of the Bulgarian state [18]. The use of steel structures was associated with the Europeanization of the architecture in Bulgaria in the 1890s, the stabilization of the country, the inflow of foreign capital, the training of Bulgarian architects abroad and the commissioning of projects to foreign architects in Bulgaria.

A. The Main Peculiarities of the St Stefan Church in Istanbul. Rudolph Philipp Waagner Construction Company

The iron elements of St Stefan were made by the Austrian company Rudolph Philipp Waagner in 1893 [19]. A contract is preserved on commissioning the execution of the design of Architect Hovsep Aznavur, signed unilaterally by the contractor, the Rudolph Philipp Waagner factory. Waagner's signature is followed by a notarial certification made out in an almost illegible Gothic writing: "I hereby certify that Mr. Jacques Ritter von Leon, personally known to me, a shareholder in the Waagner lawfully registered company, did manually affix the official signature of the company in my presence. Vienna, 11 April 1893 Charge/Stamp 1 fl. 50. G. Z. [Geschäftszahl] 1941". ("Ich beglaubige hiemit, dass der mir persönlich bekannte Herr Jacques Ritter von Leon, öffentlicher Gesellschafter der handelsgerichtlich protocollirten Firma "R. Ph. Waagner" in Wien, seine vorstehende Firmenzeichnung heute vor mir eigenhändig beigesetzt hat. - Wien den elften April 1893: Eintausend achthundert neunzig drei. Geb.[Gebühren]/ Stpl.[Stempel] 1 fl. 50 x Carl Fohleutner, k.k. Notar. [Rundsiegel:] Carl Fohleutner, k.k. Notar in Wien, Oesterreich unter der Enns. –Number 1941".)

B. The Architect

The church was designed by Hovsep Aznavur between 1892 and 1894. Aznavur himself explained that the initial outlook of the temple had been done in the lines of the industrial design characteristic of the industrial buildings and borrowed from a Belgian catalogue "of the system of the Le Petit engineer in Belgium" [20]. The project represent a church in the city of Colon Panama.

Aznavur was Armenian. According to A. Kardaşyan [21], the inscription on the Architect's gravestone shows that Aznavur was born in London in 1854. There are different opinions about Aznavur's place of birth. The issue is discussed by Hasan Kuruyazici [21]. According to A. Keçyan [22], Aznavur was born on an British ship sailing from Istanbul to Izmir on 21 May 1854. His father Serovpe Aznavur was a lawyer and one of the founders of a Masonic lodge in Constantinople. A well-off person, he sent his son in the Armenian Catholic School of the Mechitarists on the island of San Lazzaro in Venice. Hovsep Aznavur finished the school and then went on to study in the Academy of Fine Arts in Rome.[23] In Constantinople he built the famous steel passage bearing his name on the İstiklal Avenue. The passage was done in an Art Nouveau style and was probably created after the St Stefan Church (Figure 7).

Proof of this claim are the distinct stylistic features of the building in terms of the aesthetics of historicism along with the combination into one whole of various architectural styles and artistic trends. In the outline of the building Aznavur followed the principles of Baroque. The windows were done in the spirit of Neo-Byzantinism. In respect of the artistic details on the façades, Aznavur adhered to the trends of Neoclassicism and was a follower of the famous French architect Charles Garnier [24].

Figure 7: The façade of Aznavur passage in Istanbul.

C. Architectural and Artistic Peculiarities, Materials, and Problems of the Terrain of St Stefan church

In terms of its plan with a Latin cross and its stylistic features, the church followed the traditions of the West-European church architecture. The façade was lavishly decorated with cast-iron ornamentations (Figure 8, Figure 9).

Figure 8: Cast-iron decoration

Figure 9: Cast-iron decoration of the dome

Stained glass windows were planned to be used for the decoration of the church and for its interior illumination, which, however, were not made due to the huge costs (Figure 10).

Figure 10: Detail from the south façade of the transept and Symbols on the transept walls

The problems related to the survey of the landslide on which the church was to be built, the transformation of the ideas from building a brick church to a church with steel structures and steel cladding were a complex and responsible decision. The decision was suggested by the prominent Istanbul architects after detailed geological surveying performed on the terrain [25] and was made in Bulgaria. The site was studied many times between the 1870s and 1890s by Italian engineers. Deep foundation with hanging pilots was undertaken. The money for the construction was made available from a special fund of the National Bank in Sofia. The fund handling the construction spent nearly 1 million French francs, a huge amount for the time.

The materials for the structure of the church were tested in the Imperial Royal Service for Materials testing in Vienna ("Royal Impérial Musée Technologique des Metiers") in 1894 and the document states that they are of highest quality [26]. 3D models were made for the cast-iron moulds for the rich ornamentation of the exterior and the interior.

The St Stefan Church was built on top of a landslide, as was the entire terrain of the shore of the Golden Horn. This was why the church was designed in steel − to make it lighter. The problematic terrain had been reinforced many times by the best Istanbul engineers and architects who also designed the modern European part of the city, a number of public buildings, among them the Museum of Archaeology and the port facilities at the Bosphorus. Among them were Italians, French people, and Greeks such as George D. Stampa, Antoine N. Perpignani, Alphonse Cingria, Fangoulis E. Mavrogordato, Ailerli, Gabriel Tedeschie, as well as Bulgarian architects who had recently studied in Belgium and Austria-Hungary [27]. The manufacturing of the steel elements for St Stefan by the famous Vienna-based company

Rudolph Philipp Waagner in the 1890s coincided with the first steps in the development of steel architecture in Europe. The church was on the borderline between historicism and the innovative trends of the new form-formation and the ensuing new uses of metal. From this standpoint, the study explores the place of the church at the background of the development of architectural structures and form-formation in architecture. From a structural and artistic point of view, the St Stefan Church united into one whole the achievements of the European architecture since the first use of cast iron structures in the 18th c. until the shift on to the aesthetic properties of the material. In the case in hand steel was highlighted as a material but was used as a traditional one, the same as stone, gypsum, marble and wood.[1] [28] This was as a result of the hiding of the structure behind the metal walls which were done in the spirit of historicism and decorated in the spirit of Classicism.

The iconostasis was commissioned in Russia. It was designed by Hovsep Aznavur. The iconostasis was made from wood by the Russian iconostasis master Akhapkin in 1897. Another iconostasis master Kondratiev who was in Istanbul during that time, too offered opinions vis-a-vis the composition of the work. The form-formation was related to the architecture of Neoclassicism. The icons were made by a Russian artists from Moscow, known as A. Lebedev, who has not yet been identified. (Figure 11)

Figure 11: The Iconostasis of St Stefan church, 1897.

[1] Wooden, steel and massive structures are equally vulnerable in different atmospheric conditions. The computer analysis of the structures of the steel temples is extremely complex, but necessary, like the analysis of the wooden constructions of 19th-century masonic churches.

D. Ideas about Additional Buildings in the Complex and Their Stylistic Peculiarities

The steel church was planned as part of a larger complex also including a presbytery and a school, which was meant to become a spiritual and educational center for the Bulgarians living in the capital of the Ottoman Empire. The Presbytery was too designed by Hovsep Aznavur, in the late 19th c., with Neoclassical style (Figure 12).

The problem with the terrain which stands right next to the waters of the Golden Horn remains the most complex one even to this day. It is further aggravated by other problems that appeared with time. When related to the factor weather, metal and water are in a direct clash and this circumstance causes the problems with the state of the church. The water next to which the church is situated, the intensive evaporation, the high humidity, the coating of the metal body with airborne dirt all contribute towards corrosion [29], [30] (Figure 13).

Figure 12: The project of the Presbytery, c. 1891, façade.

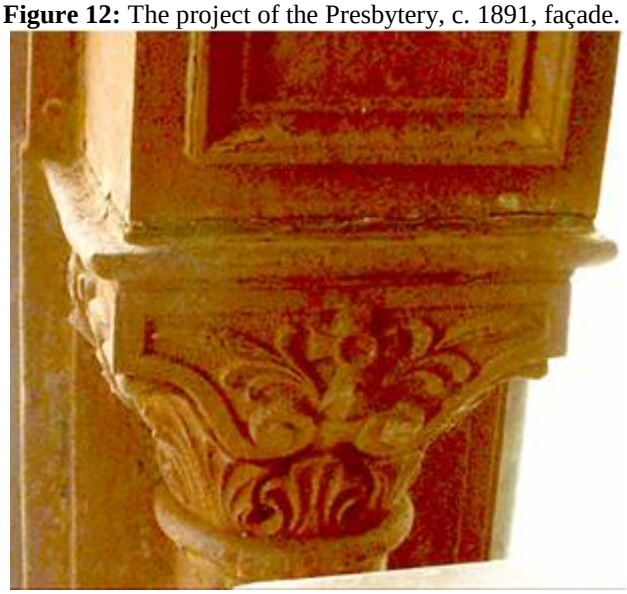

Figure 13: Example of the corrosion from the interior of the church, 2010

The weight of the church is greater than the other churches that were mentioned. The bearing structure and exterior cladding weigh 360 t, and the interior cladding, 140 t. Today, Waagner-Biro does architectural designs and is a leading company in modern technologies. The Bulgarian temple on the Golden Horn is not featured among the

company's steel projects because they are so many. Nevertheless, St Stefan is only church made by the Waagner-Biro. The company's records do not keep documents about it construction.

VI. Similar Churches. Similarities and Differences with the Bulgarian Church.

A. General Characteristics

Similar churches are preserved to the present day in Australia (a church constructed in 1854 in Bristol, Britain); in Latvia, between Daugavpils and Novoye Stroyenie (made in 1866 in Saint Petersburg), in Manilla, the Philippines, in Tacna in Peru and Arica in Chile (all three were designed by the bureau of Gustave Eiffel circa 1875). Iron churches in the 19th century were many so that the emergence of the St Stefan was not a unique case in the development of either architecture or industry. However, this was the only iron church on the Balkans and Southeastern Europe [31].

The churches made of cast iron and steel were an outcome of the technological development and the mastering of new industrial technologies. Such churches were erected in places where the footing did not allow the construction of heavy-weight buildings or when opportunities for development were absent and the circumstances were such that only the functional side of architecture was paramount, e.g., military garrisons, development of ore mines, development of new technologies in distant places, re-settlements of large Christian communities or missionary activity. In this sense the aesthetics of the industrial architecture and the latest developments in the field determined the simple design of the church buildings, among other things.

Another important characteristic of the prefabricated steel architecture was the opportunity to dismantle, carry and re-assemble the building in a new location, according to need. Put in other words, this is an architecture that is not associated with the historical memory of the concrete place. Such architecture has a purely practical application – the elements are prefabricated and can be quickly assembled in situ. Examples of this are the pavilions for the world exhibitions in the late 19th and early 20th c.

With the iron churches, added to the absence of a desire to leave a lasting historical significance was the absence of the aesthetic impact of the current architectural styles and the prevalence of functionality. In the discussed characteristics we see the similarities between the Bulgarian St Stefan Church and the other iron churches.

In addition to easing the load on the site, the decision to design the church following the modern tendencies in the industrial technologies was also related to a discussion of changing its location in case of an increased risk from an environmental impact such as a possible collapse of the terrain. Another common characteristic was the speed of execution of the third stage of the construction, given the objective impossibility to complete the two previous stages of construction of the Bulgarian Church in Constantinople.

B. Chronology of the Construction of Some Other Iron Churches in the World. Analogies

In 1840 in Loch Sunart in Scotland a floating iron church worth 1,400 pounds which held 750 people was anchored onto a wooden platform.

The next example is 1866 a garrison built church for the imperial troops in Russia placed between the towns Dinaburg and Novoye Stroyenie. The church was very small, 13 by 9 m, and was clad in cast and sheet iron. The building was located in a corner of the garrison and was too small to accommodate all worshippers. In 1904 the church was moved in Tsargrad, 50 km from Daugavpils in Latvia, present-day Jersika, and in its place the Ss. Boris and Gleb Cathedral was built in 1905 [32]. The cathedral is now located along the road to the city.

The St John Chrysostom Church was built in Kiev during the same time: 1867 – 1871, in respect of which it is argued that it was the first collapsible iron cult building in the Russian Empire. Separate sections of its construction were made in Saint Petersburg using the technology of Engineer R. Nikels and a design by Architect Nikolay Egorovich Jurgens. In 1934 the church was demolished due to corrosion.

In the 1860s Gustave Eiffel designed churches with metal structures, such as the Church of Notre Dame des Champs, the Church of St Joseph both in Paris, the Church of San Marcos in Arica, Chile, 1875, (Catedral San Marcos) the Cathedral of San Pedro de Tacna, Peru, the Church of Santa Barbara in Santa Rosalia, Mexico, (1884 - 1897), the San Sebastian Church in Manila, Philippines (1891).

Gustave Eiffel's iron structures were meant for Europe, Asia, Africa, Latin America and Oceania. Along with the churches of cast iron and steel, Eiffel's bureau designed synagogues, galleries, markets, customs office buildings, some of which for France. Eiffel also designed the Western railway station in Budapest, Hungary and a station and engine house in France.

The artistic features of the San Sebastian Church in Manila demonstrate how the specific characteristics of the metal were overcome when the material was used. In the church steel was used for the walls and their stone-like decoration, and the combination of metal and marble reinforces this effect. This peculiarity also applies to the Bulgarian church in Istanbul, thus making the two monuments the closest of analogues.

The closest analogue to St Stefan in terms of the history of construction, the significance of ‘the value’ and of the site for construction is the church Iglesia de la Nuestra Señora de las Mercedes in Grecia, Costa Rica. The history of its construction is similar to that of the Bulgarian church. The town was established in 1838 in honour of Greece, and probably involved settlers from the recently liberated Balkan country who earned their living in farming (sugar and coffee beans) and in industry (textiles and metals). In 1844−1847 a small wooden church was built there whose roof was made from interwoven palm fronds. Construction of a new church started in 1868 and continued for 16 years. An earthquake in 1888 toppled the two belfries and inflicted other damage on the entire building. In 1890 a decision was made to build a new church with a steel structure and an earthquake-resistant roof. A contract was signed with a Belgian company in 1891. The church has three naves. The central façade, flanked by two belfries, is adorned by a high Gothic gate. The exterior is clad in sheets bound together with rivets. The flat-plane design dominates while the rhythm is created by the Gothic windows with white ornaments. On the whole, the design is simple, free of the excessive ornamentation of the Gothic style. The interior does not have a specific decoration. It is done in two colours, by means of emphasizing the lines in the columns, the arches of the roof and of the windows.

St Matthew's Church was built in Cape Town, the Republic of South Africa in 1879 – 1883 which was made with checker plates. The church was designed by architect John Norton of London. The cost for the building was 13,000 pounds. The church was dismantled in 1960 due to the expensive upkeep it required. An iron church was built in 1896 in Kalgoorlie, Western Australia, to be replaced with a stone one in 1902.

The reinforcement of the terrain, the design and the construction of the Bulgarian church (1896-1898) cost 1 million French francs. The church has undergone multiple repairs which were always partial. The proximity to water increases the risk of corrosion. The processes accelerated over the past few years and the Greater Istanbul Municipality provided 2.5 million Turkish lira. The money went towards partial replacement of bearing structures and removal of corrosion. The restoration has been finished in January 2018, on account of the complex nature of the work, which includes constructive and individual elements dismantling some of which constitute complex relief decorations.

VII. Specific Characteristics of the Decoration of the St Stefan Church

The comparisons between the discussed churches and the Bulgarian St Stefan Church reveal clear differences. The temples that are products of the European industrial exports to faraway countries have modest interior and exterior decorations. The decoration is determined not only by the available financial resources but also by the modesty of the social or religious circle that the church served. The St Stephan Church impresses with its rich ornamentation which considerably raised its final cost. The intricate cast-iron elements in the style of the late Classicism in the interior are gold-plated. The entire outlook of the church is achieved thanks to the classical details such as garlands, Christian crosses, relief heads of cherubs, acanthus leaves, palmettes, the floral ornaments on the front of the curves of the arches and the circles of the window rosettes. The variety of ornaments creates the impression of opulence, of a distinctive wall design and distinctive silhouette of the entire building.

The details and the ornaments produce the distinctive outlook of the building and make it one of a kind by uniting into one different historical styles. The acanthus leaves dominate the decoration with their rich and heavy shapes which connect with the palmettes, in accord with the classical artistic ideas. They are placed in the friezes and the capitals of the columns whereas the exterior is dominated by intermediate ornaments, something between an acanthus leave and a palmette. The ornaments resembling an acanthus leave are preferred due to their volume and the greater plastic possibilities they offer, thanks to which the design attains the specific characteristic of the developed detail contributing to the overall silhouette of the building.

The fronts of the semicircular arches housing the windows feature plastically rich acanthus leaves and the oak leaves mentioned in the architectural brief. The fronts of the attic are decorated with palmettes with concave volutes in the upper sections with hearts inside them, or the so-called raies de coeur pattern. Acanthus leaves sprout from the upper sections of the hearts between the volutes which connect with the palmettes on the pediments under the domes. The examples show that the peculiarities of the material were no impediment to the plastic expression, its diversity and ideas.

The exterior ornaments betray a desire to emphasize the church's identity as an Eastern Orthodox temple. The reliefs have bishop's miters, staffs and candles. (Figure 13, Figure 14)

IX. Conclusion

From the point of view of the aesthetics and the appearance of the churches, the prefabricated elements used are highlighted in the interior space and have a structural as well an aesthetic role. In the 19th c. the church architecture with prefabricated components was in the mainstream of historicism and did not differ from brick buildings in terms of artistic peculiarities. The steel structures were not totally hidden. Their specific characteristics and main elements were part of the overall artistic appearance of the churches.

The St Stefan church at Istanbul's Golden Horn, which is the last implemented part of the unfinished architectural complex, possesses the richest artistic ornamentation amongst the "generation" of iron churches of the 19th c. It creates the outlook of the entire architectural complex and in the present day distinguishes the old capital of modern Turkey as a place possessing one of the rarest churches in the world.

The interstate status of the monument nowadays commits Bulgaria and Turkey in the care of its preservation, because the church is the only such one in the Balkans and in Southern Europe [33].

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