

Access to the Survey of Fortifications in Croatia

(Огляд фортифікацій Хорватії)

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Introduction

Centuries of historic events on Croatian territory have left a legacy of distinctive architectural heritage that includes significant and diverse groups of cultural and historic buildings. In this rich oeuvre, specific types of cultural heritage structures include individual and defensive systems from almost all historical periods. Built largely under the influence of foreign models they present achievements in European fortification construction over many centuries. Like everywhere, forms of fortifications, and their meaning and role in the area changed depending on the military doctrines, concepts of warfare, and the nature and destructive power of weapons.

The earliest defensive structures in the territory of present day Croatia are hidden at archaeological sites where it is sometimes possible to find traces or remains of fortifications from prehistoric times including those of the Phoenicians, Greeks, etc. In the multitude of material traces experts recognize entire defence systems, such as for example the system of fortifications created according to the strategy and the needs of the Roman empire to protect its borders and communications (Pannonian limes). The carefully constructed defence system of the Empire that stretched along the Danube border line (via Vienna, Buda and Osijek to Belgrade) consisted of numerous military camps and individual works (defensive towers, watchtowers, etc.) whose locations are sometimes implied only by toponyms (Bulat 1969). In historical chronology, the other important defence system, to the most part also preserved only in the archaeological layer, dates from the Byzantine Empire. It consisted of fortified settlements, forts, watchtowers and other structures of a defensive nature built on islands and the mainland along the eastern Adriatic coast in order to protect the maritime route between Aquileia and Constantinople (Tomičić 1988-1989; Goldstein 1992).

A branched out network of fortified towns, castles and citadels, defensive towers, fortified monasteries and churches both along the Adriatic coast and deep in the hinterland originates from the Middle Ages (Mohorovičić 1997; Sekulić-Gvozdanović 1994). Namely, the area of present day Croatia was often in those times an arena of numerous military campaigns and local, regional or wider international conflicts (Marković 1993; Regan, Kaniški 2003) which is why old systems were modernized by necessity and new ones built. From that time attention should be drawn to medieval cities and autonomous communes in Istria, which present earlier types of fortifications, as well as cities - coastal forts along the Adriatic coast and fortified sites in its hinterland, built mostly under the influence of the Italian fortification schools to protect ports, anchorages and major roads in the interior of the country, which were developed under the rule of Venice (Zadar, Šibenik, Trogir, Klis, Drniš, etc.). These historic towns are also worth mentioning because their defence systems often present various historical periods and influences (Beritić 1962). Namely, the fortifications on some of the locations in the conquered areas of the hinterland were built by Ottomans (for instance Klis, Drniš, etc.). Among the coastal fortified cities special attention should be given to Dubrovnik, whose strong walls even today testify to the former power of the Dubrovnik Republic.

From 16 century, on the eastern borders of the Habsburg Monarchy and Venetian Republic with the Ottoman Empire a unique system of fortifications emerged that was built to defend against the Turks (Kruhek 1992, 1993-1994, 1995; Žmegač 2000, 2009). It stretched from the Adriatic Sea to the eastern Croatian borders, systematically adapting the old medieval feudal fortifications to new wartime needs and building new ones under the influence of the first well known Italian fortification school, and later on other European schools as well (Dutch, French, Austrian). In this system, of particular interest is the Karlovac fortress built in 1579 on the Kupa River inspired by the ideal Renaissance city, and then other bastion-base fortifications, particularly those built in the 18th century according to the designs of the military engineers of Austrian military administration on the Sava River (Kruhek 1984; Krmpotić 1997), the natural border between the Ottoman Empire (Gradiška, Rača, Brod, Osijek).

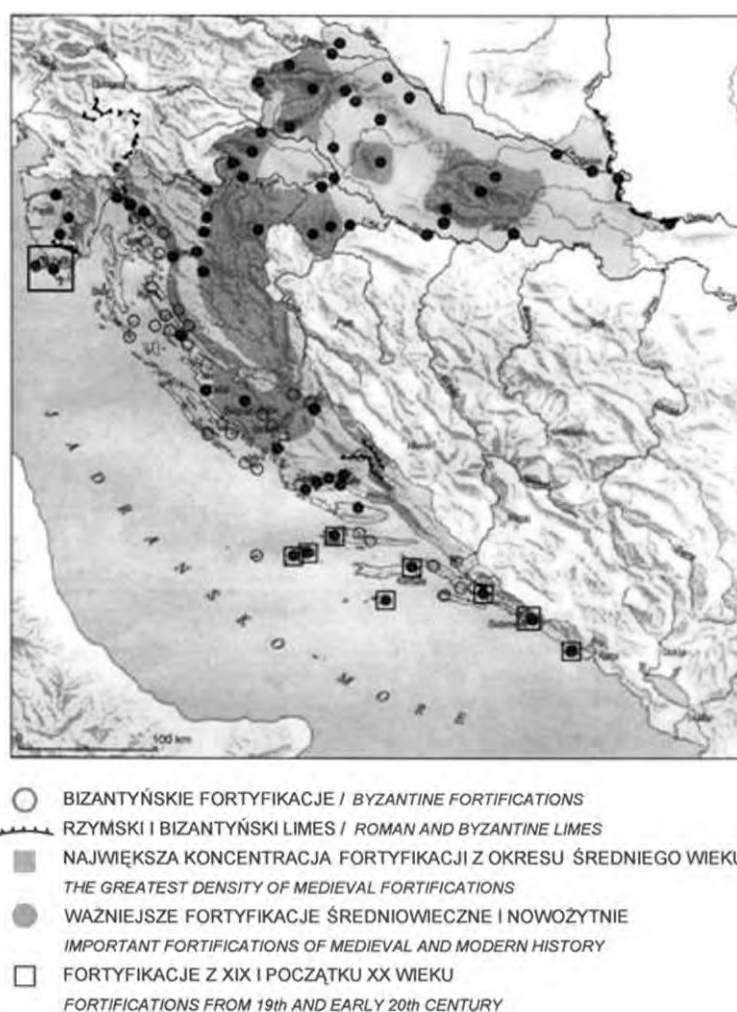


Fig. 1. Major fortifications from various historic eras in the territory of the Republic of Croatia (source: authors prep. by Regan, Kaniški, 2003)

A separate group consists of new types of fortifications built by the French, English and particularly the Austrians during the 19th and early 20 century and up to the First World War in the coastal area of the eastern Adriatic. Among these structures the most magnificent is the Pula fortress belt system built to protect the main Austrian naval base and naval port (Piplović

1988/89; Brzoskwinia, Czech 2001; Krizmanić 2004). After WW I, due to the increasing destructive power of aviation, independent fortresses were replaced by completely new systems of land and underground bunkers, resistance points, shelters, observation posts, command posts and other military facilities, networked by special communications, specially built as part of strategic and operational plans for the protection of significant territories or facilities of economic, political or military significance. Such areas are organized for long-term defence as fortified districts. The geo-strategic position of the Croatian territory in uncertain inter-war and post-war times dictated the improvement of existing and construction and development of new defence systems.

After WW II, and especially today, given the further improvement of conventional weapons and the emergence and development of missile and nuclear weapons, a new perspective of the role and manner of constructing defence systems is emerging.

State of preservation and exploration

With the disappearance of the purpose of their existence, magnificent historic buildings and defence systems are falling to ruin. Due to neglect and a state of dilapidation the majority of the oldest fortifications already vanished in the past centuries. The defensive systems of many historic cities, though powerful and maintained and perfected for centuries, disappeared during the 19th and early of 20th centuries due to the development of these cities. Most exposed to devastation were the bastion systems primarily as a result of regional plans implemented after WW II. From the rich legacy of modern time defensive buildings the systems whose parts were continually put into some function were relatively well preserved, particularly those which were located in military zones. However, to date most of these fortifications have been abandoned while a small number have been adapted for other purposes.

Although fortifications as part of Croatian history vividly represent the development of military technology in the European area, the number of fortifications outside of military areas that are properly presented is negligible (Mavar 2008). Due to the loss of their primary functions this specific historic heritage has faded out of the focus of attention of military didactics, and has been neglected in our scientific research. Its systematic expert registration is largely deficient, especially the records of more recent fortification systems (mainly from the 19th century onwards), which up to ten years ago were, and some are still in special purpose zones.

The defence systems from the Middle Ages and before that the forms of bastion fortifications occupy but a few individuals engaged in the humanities mostly from the ranks of historians or art historians, while in regard to systems from later periods there is almost no professional interest of even those from the domain of technical sciences. It is indicative that building methods that brought a number of progressive structural solutions and contributed significantly to the development of construction techniques and materials are neither in the focus of attention of construction engineers nor are they of any interest to architects.



Fig. 2. *San Benedetto Battery, 1898-1903 (Workshop „Barbariga 2005“)*

Plans for registering modern day fortifications elaborated in the Republic Institute for the Protection of Cultural Monuments of the Republic of Croatia and agreed up with military authorities as early as the 1970s have still not been implemented. The first registrations of fortresses from the 19th and early of 20th centuries began as late as the 1980s as part of conservation studies for the physical planning documentation (Mavar 1993).

Great political and economic changes after the 1990s represented not only a threat, but a new opportunity for the revaluation of the historical fortifications in the abandoned military areas, especially in coastal tourist areas. This prompted the experts of the Ministry of Culture Department for the Protection of Cultural Heritage to continue and intensify their records and research. For this purpose, a project of technical and scientific research of the system of fortifications from the time of Austrian and Austro-Hungarian Empire in the Adriatic coast was initiated as well as the consideration of their adequate use. Investigations are focused on the potentially endangered system of the imposing Pula Fortress, the Austrian representative sample of coastal fortifications, which provides an overview of standardized, individually designed defensive structures built from the mid-19th century to the WW I. The selection of a narrow area of research was influenced by the need for the professional treatment of the attractive Brioni system of fortifications built to control the access to the Pula war port and recently abandoned by the army and completely neglected due to the existing plans and programs of new investments which dictate the organization and operation. In addition, a decision was brought that, due to the need for the evaluation of Pula fortress in a broader context, this work should be carried out by initiating an international workshop on fortification architecture.



Fig. 3. *Work on Fort Peneda, 1908 (Workshop „Veliki Brijun 2009“)*

The experience of the international workshop fortification architecture

Field work began in 2001 on the island of Mali Brijun with a group of students of the Faculty of Architecture in Zagreb. Experienced specialists and students of the Faculty of Architecture from the Technical University in Kraków, were invited to cooperation and their selection was not random. The system of fortifications of Kraków, also a former border Austro-Hungarian fortress, has long been thoroughly investigated and treated and the experience of field experts is valuable for us. Program activities were determined according to the condition and needs, supplemented by seminars and lectures where the participants were familiarized with the development of fortification systems, research methods, documentation and analysis for evaluation and development of guidelines for the protection, restoration and renovation. In the following years, we included professionals and students from other domestic and foreign faculties. The profiles of the participants were adjusted to the planned tasks envisaged for the program so that to date in addition to architecture students experts and students from the fields of agronomy and landscape architecture, civil engineering and geography were also invited (from Zagreb, Venice, Wrocław, Sarajevo).

Under the guidance of experienced professionals the work was organized into smaller groups that perform different tasks: recording and inventorying, architectural surveying, research and analysis of the forts and fortification landscape, evaluation, and recommendation of new purposes for the buildings and development of the area. Their activities are monitored and invited experts on military architecture from different foreign scientific institutions and associations that contribute to the success of their experience of work (Bulletin of the Workshop 2001 - 2004).

Based on past experience it is possible to conclude that the workshop accelerated the recording and establishment of the statuses of the fortifications, resulting in excellent technical documentation and interesting proposals for design and planning, and contributed to the study of development of the distinctive features of the fortifications from the time of Austrian and Austro-Hungarian Empire and finding solutions for their most suitable uses.



Fig. 4. *Analysis of materials (cabinet work), Fort Verudela, Pula, 1881-1886 (Workshop „Verudela 2008“)*

The Workshop brought the students face to face with the specific architecture and concrete problems that occur on the spot, and, through practical work, introduced them to the tasks typical for their future professions (planners, designers, builders, conservators, etc.) In addition, the workshop drew public attention to the need to preserve our heritage that has not been evaluated yet, and contributed to the development of broader, transnational cooperation in sharing experience regarding treatment and physical protection of fortification systems.

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