

An aerial photograph of a large, multi-sided coastal fortification, possibly a star fort, situated on a rocky peninsula. The fort's walls are made of stone and are partially covered with green vegetation. In the center of the fort, there is a large, open area with a dirt road and several yellow and blue containers. A yellow crane is visible on the left side of the fort. The fort is surrounded by the sea, with waves crashing against the rocks. The sky is blue with some white clouds.

Defence systems in Europe

Examples of re-use

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Picture on front page: Suomenlinna

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Introduction

Everywhere in Europe the relics of the rich military history is visible. At some places more evident than at others. To maintain and to develop the cultural heritage of these abandoned military structures, it is important to give these military sites a place in peaceful Europe and a changing landscape.

Everywhere in Europe, many foundations, volunteers, associations and (local) governments are working to protect the military heritage. The government body of the New Dutch Waterline ('Nieuwe Hollandse Waterlinie') is willing to learn from these European examples, to exchange ideas, and to join forces in PR and information. Therefore, the governing body of the New Dutch Waterline is looking for partners.

The New Dutch Waterline is looking for other European organizations that are dealing with military heritage. It is interesting to learn from their ideas about the re-use of the heritage: what is the effect of the military heritage on the (urban or rural) immediate surroundings. How are the objects situated in the landscape? How is it visible and in what way is it used? What circumstances create successful projects? And what are the experiences with fund raising and the involvement of citizens.

The objective of this document is to compare the different experiences all over Europe, which will result in a clear overview, of existing military heritage around Europe. The exchange of knowledge can help all joined partners in making better projects.

This study will not pretend to be exhaustively: it will give some examples about the re-use of military heritage in Europe. The selection of the examples is done by some criteria:

- The site must be comparable with the New Dutch Waterline;
- Because of their unacquaintedness the selected sites are situated in the eastern part of Europe;
- The sites must have a form of re-use.

We selected 14 military sites, which could be divided into 2 groups:

- 1 advanced forms of re-use (p. 8);
- 2 non-advanced forms of re-use (p. 9).



Military sites with advanced forms of re-use. The heritage is part of a formal organization:

1. The New Dutch Waterline (the Netherlands)
2. Suomenlinna (Finland)
3. Salpa line (Finland)
4. Komárom (Hungary)
5. Srebrna Góra (Poland)
6. Kraków (Poland)
7. Gdansk (Poland)
8. Przemyśl (Poland)



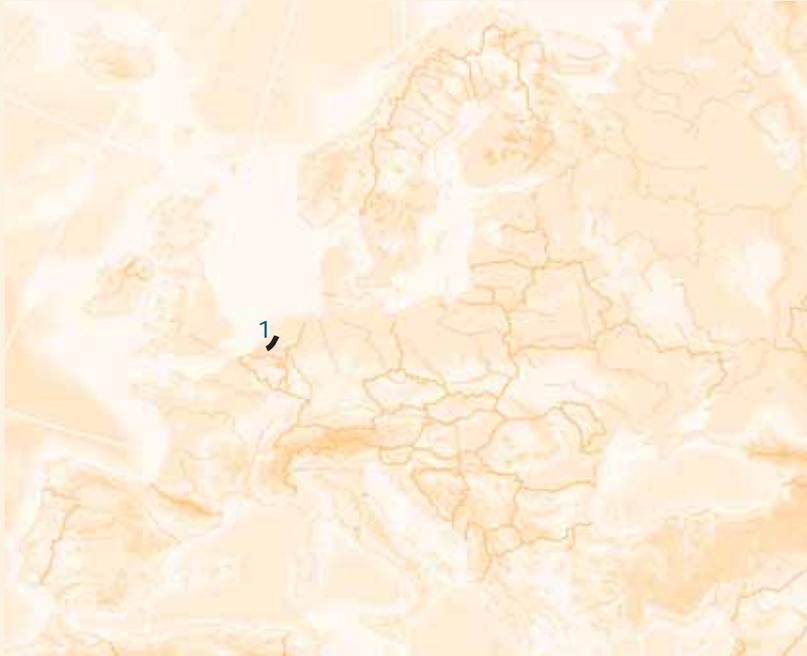
Military sites with non-advanced forms of re-use. This group has lot of potency for re-use, but the process of transformation is not that far and/or it is not embedded in a formal organization:

- 9. Rupnik line (Slovenia)*
- 10. Kalemegdan and Petrovaradin (Serbia)
- 11. Czech Maginot line / Bohemian line (Czechoslovakia)
- 12. Oder-Warthe-Bogen (Poland)
- 13. Stalin line (Ukraine and other countries)
- 14. Metaxas line (Greece)

* During this project, the Rupik Line is becoming part of a formal organization.

1

The New Dutch Waterline (the Netherlands)



History

The New Dutch Waterline ('Nieuwe Hollandse Waterlinie') was a military line of defence that extended from the former Zuiderzee near Muiden to the Biesbosch. The waterline was established to protect the Dutch cities of Muiden, Utrecht, Vreeswijk and Gorinchem.

The primary element of defence of the New Dutch Waterline was water. This was thanks to an ingenious water management system comprising sluices, flood canals, existing waterways and dikes. A seemingly shallow layer of water, about 40 cm deep, was enough to make the land treacherous and difficult to pass for soldiers, vehicles and horses. At the same time it was too shallow to navigate by ship. In total, the waterline could be completely inundated within only three weeks. Weak points along the natural defence line were strengthened with forts, bunkers and group shelters. In addition, the line included five fortified cities: Naarden, Weesp, Muiden, Gorinchem en Woudrichem. The use of inundations to protect cities and huge part of the land was something first used against the French in 1672. Between 1815 and 1885 significant improvements were made to the flooding system, giving rise to the name of the New Dutch Waterline.

Although the New Dutch Waterline never had the chance to prove its worth as a line of defence, it has been brought into a state of emergency three times. The first time was in 1870 when the Franco-Prussian War threatened to turn into a European war. The second time was during the First World War and finally in 1939 when the Second World War broke out.

Present situation

Many places and buildings which belonged to the New Dutch Waterline still stand today. Some are obvious and noticeable, such as the forts, while other elements lie hidden such as dikes, bunkers, flood canals and sluices. Today, more and more defence works are receiving a new purpose as, for example, a congress centre or a wine cellar. Many forts offer tours during summertime, May to September. During winter time, most forts are closed as they shelter many species of hibernating bats. Also the different recreational routes offer a lot of activities: cycling, hiking, and water sports. Other re-use activities are: museums (Naarden, Vechten), the antiquities rooms (Vreeswijk, Loevestein, Muiderslot) and the Utrecht University's botanical garden on the grounds of the 'Werk aan de Hoofddijk'.

1

The New Dutch Waterline (the Netherlands)



Organization

In 1999 government leaders from the Dutch Ministries of Culture, Housing & Environment, Agriculture and Transport published the 'Nota Belvedere', a spatial policy document intended to involve cultural history during land use planning in the Netherlands. 'Preservation through development' is the motto of the Belvedere document. To show how the cultural history can be interwoven with spatial design, the government has launched the New Dutch Waterline as a national project. To make this project a success, several committees were installed. They are supported by the 'New Dutch Waterline Project Office'.

Development plans

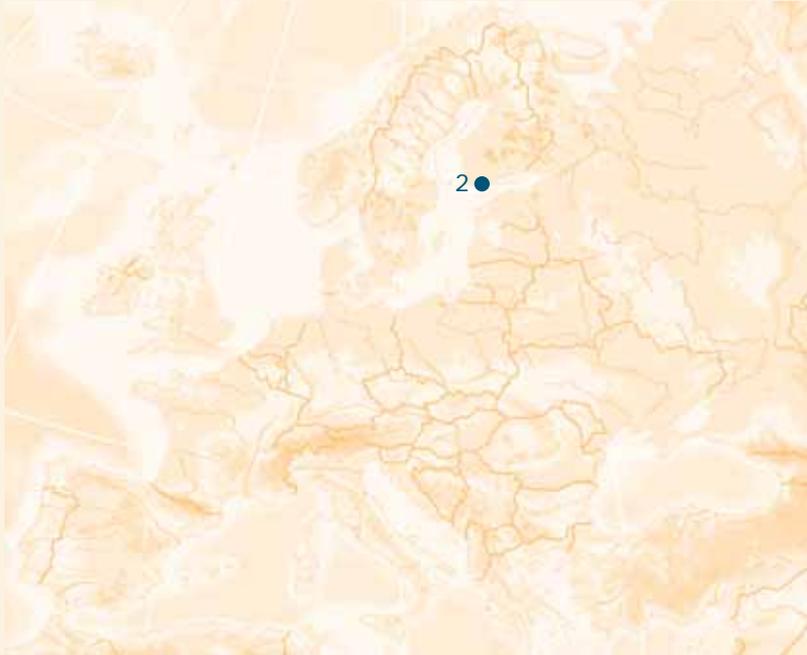
Since 1999, the New Dutch Waterline Project Office has created a spatial plan for the Waterline and consulted with many parties: The Panorama Krayenhoff. In this plan, different development directions for the waterline are mentioned: some parts should develop in a more 'green and rural' way and other parts should be influenced by the dynamics of the cities. This spatial plan is now adapted into the National Spatial superstructure Policy: it is mentioned as one of the 20 national landscapes.

Contact

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2

Suomenlinna (Finland)



History

The construction of Sveaborg, known today as Suomenlinna, could be considered as the swansong of Sweden. After suffering numerous military defeats in the 18th century and with the loss of their eastern fortification, Sweden had no longer supremacy in the Baltic Sea. After the Swedish naval base was moved from Stockholm to a more southern town of Karlskrona, the Russian fleet based in St. Petersburg could readily expand in the Baltic. France, allied with Sweden, was equally concerned by the developments and offered to subsidize the reorganization of the eastern frontier. Covering an area of 80 hectares, the six islands that form the archipelago of Suomenlinna are situated off Helsinki, on the Gulf of Finland, in the Baltic Sea. It is on the same longitude as Tallinn (Estonia) and on the same latitude as St. Petersburg. The extensive building project started in 1748.

Suomenlinna is a bastioned fortress, built on rocks that tower over the sea, and does not have the regular plan which characterizes the fortresses of the plains. On the contrary, the outline of the fortress is very irregular, adapted as it is to the defence of the coastline. It is thus only here and there one

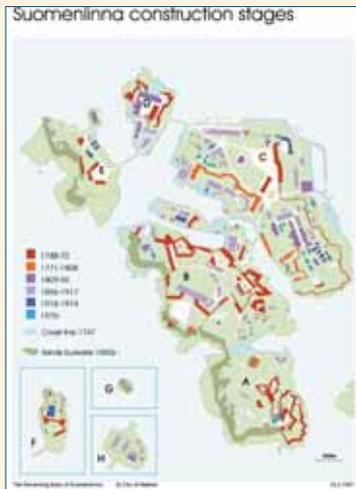
recognizes the classical elements of a fortress with its bastions, curtains, ravelins, ditches, counterscarps and glacis. Of the six fortified islands, four have "closed" fortifications, whereas the two main islands are protected by a double line of bastions. A device of several superimposed firing crests made it possible to watch over the maritime passages of Helsinki and guard the entry to the dock situated in the artillery bay, at the heart of the fortress.

Present situation

Suomenlinna today forms a part of the City of Helsinki. It has a population of about 900. In the mornings, a considerable number of the inhabitants leave for work on the mainland but there are also a few hundred inhabitants of Helsinki who do the opposite, since there are approximately 300 permanent jobs on the island, to which about 200 seasonal workers can be added.

Organization

The State is the owner of almost all the land. The Governing Body of Suomenlinna is an autonomous public body under the Ministry of Education, established in 1973. The Governing



Body is both the owner and the developer. It has four units (administration, planning, construction and maintenance) and it represents a capacity of expertise and initiative, owning, managing, developing, directing, planning, promoting and conserving the monument and its site. The Governing Body of Suomenlinna has an Administrative Board with representatives from four ministries, the municipality, the National Board of Antiquities, the inhabitants and the employees. The fortification of Suomenlinna has been classified as historic monument in 1920's. Since 1991, the whole site belongs to Unesco's world heritage list.

Development plans

For the last 30 years the fortress preservation, maintenance and development of a dynamic urban entity have been our objectives and they still are. The content of cultural activities organized in Suomenlinna has little by little become almost as important as the pure restoration and conservation of its fortified walls.

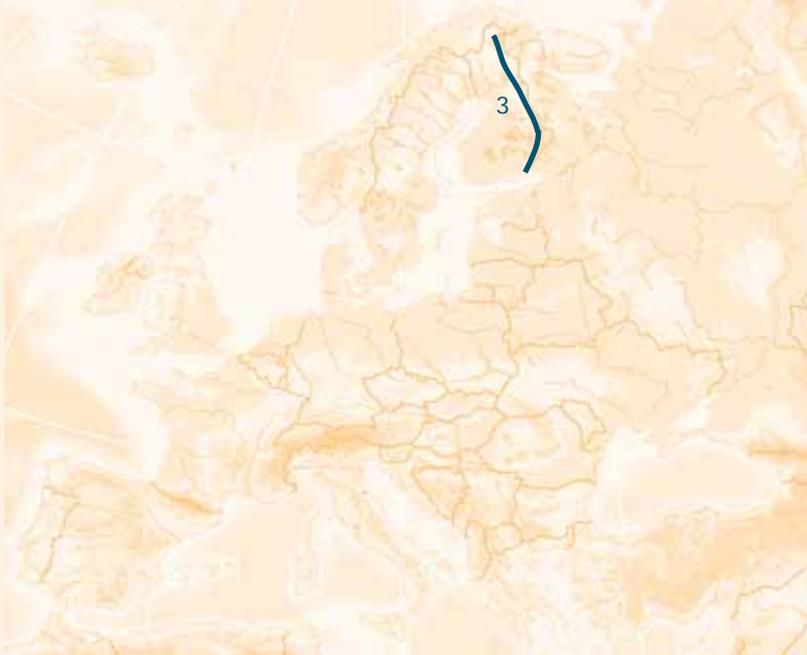
Far from remaining a simple safeguarding exercise with tourist and cultural aims, the preliminary studies insisted on the demographic development of the archipelago through the

provision of restored apartments. One of the initial preoccupations was thus to connect Suomenlinna to the technical infrastructure networks of Helsinki in order to assure a standard of living on the islands comparable to that on the mainland. Next in line were the projects related to professional and artistic activities that were designed to maintain year-round employment on the islands. In the end of 1990's efforts were made to welcome the increasing number of tourists. The development and maintenance of Suomenlinna fit very well in the regional development plan. It is the third visited place in Finland and like a gate to the city.

Contact

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3 Salpa line (Finland)



History

The Salpa Line (literally Block Line) is a fortification chain of almost 1000 kilometres situated near the eastern border of Finland. It was mostly built during the Moscow peace 1940-1941 after the Winter War between Finland and the Soviet Union. The fortification project was later continued during the last months of the Continuation War, the summer and the autumn of 1944. The fortifications formed a continuous defence line stretching from the Gulf of Finland to Lake Saimaa, in the district of the great lakes Saimaa and Pielinen the fortification work covered the isthmuses, and in northern Finland only the most important road directions were fortified. The construction work on the Salpa Line includes 380 concrete dugouts with quarters (10-60 men), 260 fire control, anti-tank gun and machine gun dugouts with quarters, 75 fire control, anti-tank gun and machine gun nests, 16 fortified artillery stations and 14 caves (the majority of which unfinished). In addition there are 225 kilometres of granite anti-tank obstacles, approximately 3000 timber reinforced dugouts and pillboxes as well as 350 kilometres of entrenchments.

Present situation

After the wars, Salpa Line was more or less forgotten for several decades. As a secret military construction, it remained relatively unknown. The builders of the fortification were all still bound by the once given vows of silence. The reinforced concrete bunkers, the excavated caves and the granite anti-tank obstacles are mostly still there. Wooden structures have decomposed, trenches have mostly collapsed and the cleared forests have in many places grown so dense that it is difficult to discern the constructions. The timber reinforced fortifications which have been dug deep into the ground were transformed into historical monuments and tourist attractions.

Organization

The new era for Salpa Line begun in between the 70's and 80's, as the veterans and other active volunteers asked the Armed Forces for a permission to renovate certain parts of it to serve as museums or tourist attractions. The restored fortification works and the interconnecting routes between them slowly developed into hectares wide outdoor museum areas. In the beginning, renovation projects and guiding services were mainly arranged by volunteers representing the

local veteran organisations. Military history was seen by the different municipalities as a natural stepping stone in creating local tourist attractions, and thus active museums of military history were established around the fortified sites. Little by little, the area has also innovated Salpa Line related businesses. The planning for Salpa Centre started in 2002 and was established in 2005 in Miehikkälä municipality. The participants were Salpa Line Museum administrated by Miehikkälä municipality, Bunker Museum administrated by Virolahti municipality, Salpa Line Tradition Association and Engineer Museum administrated by the Military Engineers' Union. The project was funded by the Regional Council of Kymenlaakso and Kotka - Hamina Region of Finland Ltd. The pilot project tailored development plans for all its participants, and according to those plans, a joint project, Salpa Centre, was launched.

Development plans

The goal of the national Salpa Centre is to strengthen the national and international visibility of Salpa Line and to create a longer time span for utilizing the older fortifications in tourism and museums. Salpa Centre also paves way for the

advancement of tourism related businesses in its target areas, contributes to the tourism factor of Kaakonkulma and Kymenlaakso, creates sustainable development for war history tourism, and serves its customers as a centre for museums and tourism especially in questions related to Salpa Line. Salpa Centre is being developed through many projects at the moment. The mutual 3-year Salpa Line project of Kaakonkulma is one of the content projects, made up during the planning project, which aims at the founding of Salpa Centre. The aim of the project was to develop mainly nature and culture related activities around Salpa Line to support the businesses in the area and to provide possibilities for starting tourism based secondary industries.

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4 Komárom (Hungary)



History

At the beginning of the 19th century during the Napoleon wars Vienna came under fire and in 1809 the imperial court had to escape, the emperor Ferenc I (Francis I) and the king took refuge in - that time with feverish haste fortified - Komárom. In July of 1809 the Monarch decided to have Komárom built to the greatest fortress system of the area, as big that it is suitable to a secure hold of an army of 200000 persons. The system of historic forts is situated in and around the 'twin towns' of Komárom (Hungary) and Komárno (Slovakia) on opposite banks of the Danube River. Even taken individually the forts on both sides are genuine historic and cultural treasures, representing the highest level of military architecture of their time and having survived unaltered since the beginning of the 20th century. These forts, and their predecessors have been built and rebuilt over the centuries, but their current forms show the most skilled building techniques and styles from the second half of the 19th century (1852-1890). Their survival has kept the talent of their builders - architects, engineers, officers, and masons, as well as other craftsmen and workers - and of their former occupants - soldiers, refugees and deportees - alive. These men represented several nations and nationalities

living in this region of Europe, and therefore in its appearance, location and substance the fort represents a unique cross-section of the continuous common history of Central Europe from Roman times up to the Cold War.

Present situation

The forts have not been attacked in the recent wars of the 20th century, and therefore they make a suitable location for more peaceful messages and functions: museums, conference centres, sites for cultural events and art exhibitions, crafts training, non-profit workshops, art studios, memorials, and other services related to culture and tourism. The main attraction is and always will be the historic character of the forts themselves, qualities that are unique, intrinsic and authentic despite their current neglected state. After the withdrawal of Soviet troops, the military role of the fortress system of Komárom has come to an end.

Organization

The preparation for the future utilization of the forts took place between 1992-1996 in the co-operation of the Treasury Property managing Directorate and the Ministry of Defence,



parallel with the removal of the remained ammunition. The three responsible government bodies, i.e. the Ministry of National Cultural Heritage, the Ministry of Defence and the Treasury Property managing Directorate, together with the Local Governments of the City of Komárom and the County of Komárom-Esztergom, have established the Fort Monostori Centre of Military Culture Monument Real Estate Development and Utilization Public Company on the 1st of January, 2000. The eminent goal of the company is to turn the World Heritage-nominee fortress system into a European-level cultural/tourist centre, through an expensive renewal process expectedly lasting several years.

Development plans

The number of visitors has reached 100 thousand per annum in 2005, and after the completion of the restoration works - it will take 6-8 years -, tourist experts count on one million guests annually. Experience-site and Memory Palace are providing cultural and tourist attractions at the same time. The objects called Culture Bastion, Adventure Bastion and Theatre Bastion, just as the several blocks, barracks and casemates of the fort, are invested with new functions essentially fitting to

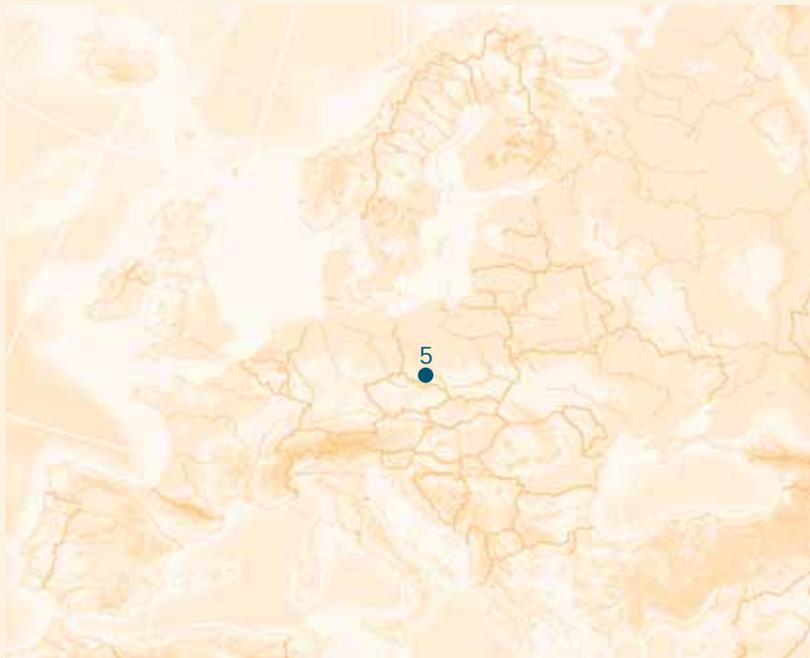
the spiritual and material heritage of military traditions, the recalled one-time soldier world. According to the plans, the renewed fortress system will receive the visitors with exceptional festival and exhibition sites as Centre of Military Culture, completed with services of up-to-date hotels, restaurants, shops, riding courses and clubs as well. The goal of all projects in the Development Plan is: finally, at the end of the removal process to create an EU-conform, self-sustainable organization for cultural-tourist services. The schedule of the Development Plan is separated in time and in thematic fields. Fort Monostor, after 3-5 years of development will be able to act independently and self-sustainable Culture Centre. Beside public funds, the project is offering opportunities for private investors.

Contact

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5

Srebrna Góra (Poland)



5 Srebrna Góra (Poland)

History

The fortress was erected in the 18th century between Sowie and the Bardzkie Mountains, on both sides of Srebrna Przelecz pass. The intention was to prevent access to Silesia, which was taken over by Prussia under the Treaty of Wroclaw in 1742.

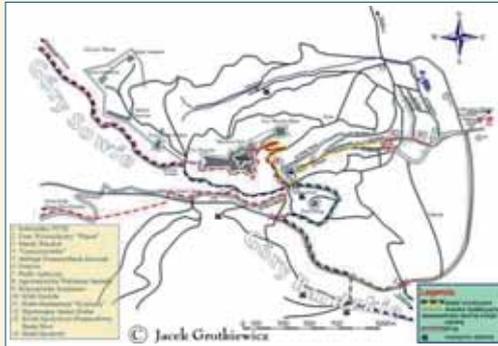
The main fort stands on the taller hill, with a height of 686 m. It comprises four linked towers, 30 m high and 60 m in diameter, while the entire body of the fort is 140 m long and 120 m wide-at some points its walls are 12 m thick. On the far side of the pass stands the smaller Ostróg Fort, on a 627 m-high hill. The pentagon-shaped fort is two stories high and is surrounded by a deep, dry moat. Its well is 84 m deep.

Besides these two forts, which constitute the core of the stronghold, several other fortifications were built on the site. The main fort was surrounded by seven auxiliary bastions. To the east, the fortifications extend to Chochół Wielki peak, 1.5 km from the stronghold. On the tallest hill near the stronghold, 740 m high, stands the mighty Bateria Kazamatowa fortification. Wysoka Skala fort bars access to the stronghold from the west. The entire stronghold was nearly 3 km long, with extensive cellars and barracks for the garrison, as well as

300 casemates on five levels. A secure supply of water was a real problem for any fortress at the time, so in the main fort the engineers drilled a 70 m well in the solid rock of the mountain. The fortress stored enough provisions to resist a three-month siege. There were nearly 6,000 rifles stored in the armoury, and there were around 250 artillery pieces of various calibres mounted along the walls. In times of danger the garrison numbered over 4,000 people, in peacetime there were 2,500 soldiers and over 100 officers. The construction of the stronghold took almost 13 years, lasting until 1777.

Present situation

In time the stronghold became obsolete, and it was disarmed in the 1860s. It was subsequently used as a prison and between World Wars I and II the Germans established one of the first youth hostels within its walls. During World War II a prisoners of war camp for Polish officers captured in September 1939 was established at the fortress, where Rear Admiral Józef Unrug, commander of the Polish Navy, was kept prisoner for some time. In 1940 around 170 Polish officers were kept in the fortress, many for earlier escape attempts. A handful of Poles even managed to escape from Srebrna Góra prisoners camp.



The first tourists started visiting the fortress near the end of the 19th century. Today you can visit certain parts of the various forts and the embankment around the stronghold. Nearly 20 casemates within one of the towers of the main fort are also open to visitors. From the scenic terrace on one of the higher points of the fortress you can admire a beautiful mountain panorama and see up to 60 km away in good weather.

Organization

3 NGO's are interested in the tourist development of the fortress. The fortress is owned and managed by Fortress Culture Park Co.Ltd (founded by local government - Commune of Stoszowice to revitalization & development fortress Area)

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www.srebrnagora.republika.pl
www.srebrnagora.com

6 Kraków (Poland)



History

The city of Kraków was established in 1257 according to the currently preserved regular check-board arrangement with the largest market place in Europe. The Royal castle, on the Wawel Hill, and the Citycentre were surrounded by medieval fortification walls.

In the 19th century Craków was a part of the Austro-Hungarian Empire. From the beginning of 1850 the construction of the Krakow defence system has been started. From now it was based on a polygonal system. By that time, The Wawel Castel was fortified as a citadel. Around the existing 18th century noyau established 6 forts: "Kosciuszko" , "Luneta Warszawska", "Luneta Grzegórzecka", on the right bank of the Vistula river "Krakus", "St. Benedict" , "Krzemionki" and 36 polygonal earthworks.

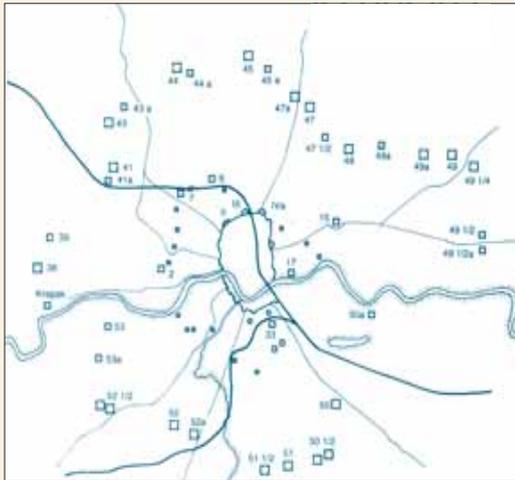
In 1860 the second ring of the fortresses was build and included five new redouble forts. After 1870 the creation of the third ring has started and it was established by 12 artillery forts. The periphery of the fortress was filled with batteries and earthworks. The evolution of artillery extorted in a modernization of the fortresses, by creating a system of armoured forts. To the end of 19th century 15 armoured close defence forts

and 3 infantry forts have been build. The Kraków Fortresses were effective: they stopped the offensive of the Russian army in World War I.

Present situation

Nowadays, about 120 objects of the Kraków Fortresses have been preserved: forts, barracks, shelters for ammunition, airport, roads system, earthworks and greenery. Some of these objects are still possessing military functions. Out of the original of 26 barracks, 20 do still exist: they are used as a university, hospital, library, storage, and military barracks. From the total number of 45 forts, 9 are in ruin. The municipality is the owner of 12 forts. In the period between 1980 and 1990 a conservation process was started. During this process, 3 municipal forts have been adapted: fort "Olszanica" as a hostel and horse stud, "Kosciuszko" as a hotel, museum and radio station, "Krzeszlawice" is used for cultural purposes. The remains of the third ring of fortresses create a greenery area surrounding the city. The spatial planning documents mark out 9 cultural parks with the number of 20 forts located in this area.

6 Kraków (Poland)



Organization

Almost all the forts are administrated (but no property) by Municipal Building Administration. The Municipality of Kraków is preparing a strategy of preservation and re-using for those forts, which are damaged or abandoned. These plans are made in cooperation with planners, architects, scientists and financial experts.

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Pictures on page 32: M.K. Kaczorowska & Tomasz Gdula

Map on page 32: R. Rolf

7

Gdansk (Poland)



History

The city of Gdansk, which is situated on the Motława and Vistula Rivers, was already an important inland and maritime port in the Middle Ages. A wooden watchtower was erected at the confluence of the Vistula and the Baltic Sea to protect the city and to monitor vessels entering Gdansk harbour. The wooden material used in the watchtower's construction was one the major reasons the fort was frequently destroyed. To overcome this problem in 1482 a stone watchtower was built on top of which a fire was lit to guide vessels and to indicate the safe passage from the sea into the Vistula River. During the French occupation the defence system of Gdansk consisted of a wall and several fortifications like Bischofsberg and Hagelsberg. A few kilometers north of Gdansk the Weichselmünde fortress was erected to protect the mouth of the Vistula. As the manner of waging war changed, new fortification systems were introduced between 1814 and 1870. The fortresses were renovated again between 1909 and 1911. In the same time two torpedo batteries and a coastal battery was erected.

Present situation

From the early 19th century the fortress gradually lost its military and navigational importance. During the last war it suffered serious damage and the fort gradually fell into ruin. Because of the ecologically aggressive industrial plants, which were constructed around it, the reconstruction and management of the fortress became quite impossible.

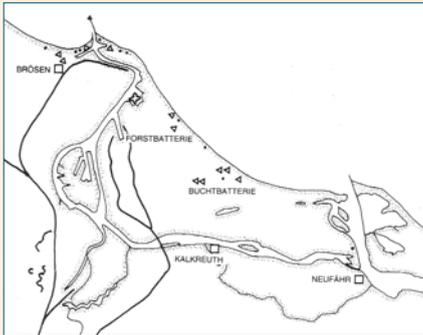
Organization

The History Museum of Gdansk City, which administers the fortress since 1974, is currently carrying out repairs and conservation work to restore the forts historical appearance. A culture park has been established around fortress Grodzisko.

Contact

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Map on page 36: R. Rolf





History

Przemysl, which has a history of 1000 years, has functioned as a fortified town since the 8th century, which was due to its advantageous location in terms of strategic and military importance. A castle, dominating the town, was constructed in the Middle Ages. In the times of the Austro-Hungarian rule Przemysl acted as a check controlling the roads leading from the north and the east to the south and the west.

When the Balkans dispute between Russia and Austria became aggravated, Przemysl, which was considered to be the main link in the chain of the Austrian - Hungarian eastern defence system was turned into a fortified camp in a system of artillery ranges at the time of the Crimean War (1853 - 1856). The town was surrounded with a ring of 15 km of embankment and a moat, reinforced with about 30 bastions, forts and gates. In the years 1878 - 1914 Przemysl was changed into a ring fort fortress of the first class; the third in size among 200 similar military objects constructed in Europe.

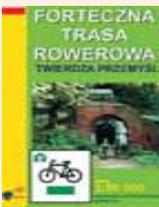
When the First World War broke out, the fortress served its function in the first siege (1914 - 1915) very effectively as it stopped over 300 000 Russian troops heading for the Carpathian mountain passes, Kraków and the Silesia. It did not

resist the second siege though, because of lack of food, cold and the exhaustion of the defending soldiers. All the forts, stores, bridges, cannons and materials that could be used by the enemy were blown up and the fortress was surrendered on March 22nd 1915. It was taken over again by the joined Austro - Hungarian and German armies on June 3rd 1915.

Present situation/organization

The devastated and neglected forts were recognized as a legally protected relics of defence architecture in 1968. They still make a historical, tourist, and a landscape attraction. An EU subsidised tourist project (Forteczna trasa Rowerowa) resulted in two unique historical and landscape attractive tourist routes. One route is created in the northern part of the city (30 km) and one in the southern part of the city (49km). These routes connects the different fortresses. Between the fortresses the urban and rural landscape gives a lot of diversity to these routes. The Przemysl County Administration is responsible for this tourist attraction. Although the fortresses are visited by tourists, the current condition of the fortresses is not so good.

8 Przemysl (Poland)



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9

Rupnik line (Slovenia)



History

The passage between the Alps and the Adriatic Sea through the so-called Postojna Door or Ljubljana Gap was since the pre-history connecting the basins of Panonian Plain and the river Po plain (Northern Italy) - the two important settlement centres. The history of controlling it by fortifications is almost equally long. In early 1930's the border with then Fascist Italy was judged by Yugoslav Military as the most endangered one.

Especially after the assassination of King Aleksandar Karadjordjevic which was evidently backed by Mussolini. Considering the shortness of that border, 220km long, the building of the strong defences fashioned after French Maginot Line seemed justified and economically viable.

According to original 1935 plans the line was to consist of two defence lines: the front and the main line. As a part of the main line nine gross ouvrage type forts were being planned (seven of which have been brought to the different phase of completion) and presumably three more. In 1938 the political situation changed dramatically. German annexation of Austria and Hungarian and Bulgarian alliance with Germany forced Yugoslavia in reviewing its plans. As a consequence the

construction of Rupnik line was virtually halted while fortifications elsewhere along Yugoslav borders were hastily built. In 1940 the construction of the Rupnik line was resumed. Plans were scaled down and in many cases replaced by a different concept. According to this new concept forts were to be much smaller, but not necessarily less effective.

Present situation

The Rupnik line extends from Radovljica at the North via Æiri, Logatec, Cerknica and Babno polje (still in Slovenia) to Susak near Rijeka (now in Croatia). At the onset of the war it was in semi-completed condition. In German occupation zone they remained intact while in their occupation zone Italians were systematically destroying them. The type of construction ensures line's longevity despite the neglect. The major part of pillaging was carried out by occupying Italians during 1941-43. For post war period two words could be used as most adequate: overgrown and forgotten. Interestingly enough the first attempt at tourism exploitation by a regional tourism organization has displayed a concerning lack of attitude and appreciation: iron bars were welded directly on a rather unique embrasure shields. Similar attitude was shown by the



mentioned organization in relation to locals, otherwise rather enthusiastic about the project. Another initiative by local history and tourism associations, coordinated by the Æiri Museum Society was clearly on much higher level, but has only recently succeeded in securing some funding.

Organization

Official owner of these fortifications is still Slovenian Army that was so far cooperative in giving their accordance for their alternative use. Their own engagement, apart from supporting the efforts of a Czech research team studying the line in 2003, is limited to the exhibition based on "Rupnikova linija in Alpski zid" by A.J. Potocnik and displayed currently in Ljubljana in the hall of the Ministry of Defence (until February 2006). On March 2nd 2006 a Department of Fortification Studies has been established within the Ad Pirum Institute. It's aim is to establish, in liaison with the Faculty of Architecture at the University of Ljubljana, Slovenian Architecture Museum and Centre for Conservation of the Republic of Slovenia, a register of the fortifications heritage, to support as an expert advisory body local initiatives and, if possible, carrying out own initiatives in preservation and presentation of this heritage.

Development plans

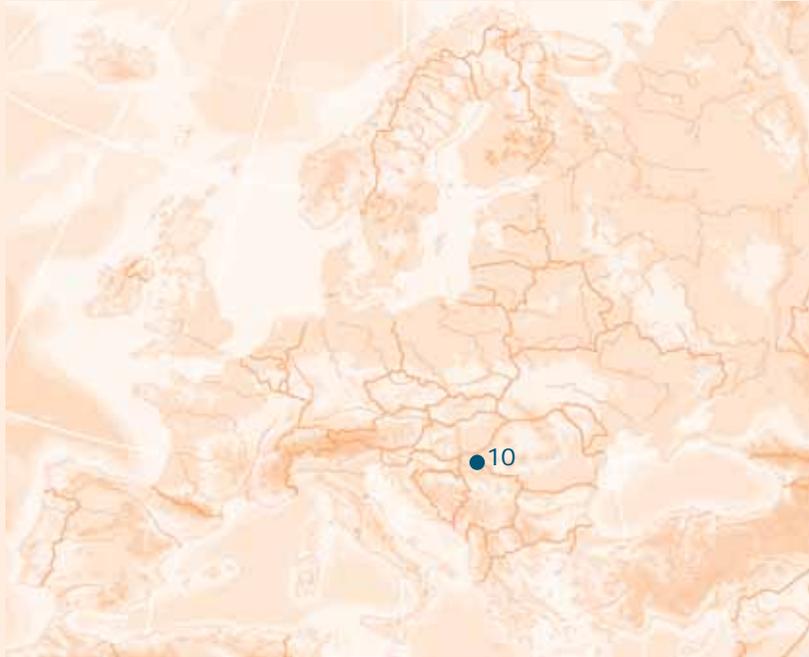
The ideas were thus far more or less fragmented and based on initiatives of the local communities. First task of the newly established Fortifications Studies Department of the Ad Pirum Institute (Zavod Ad pirum) is to establish a coherent fortification heritage register and offer an expert support to the local initiatives.

Contact

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www.ars-cartae.com/rupnik.htm

Pictures on page 44: A. Jankovic-Potocnik

10 Kalemegdan and Petrovaradin (Serbia)



History

During the period of 1720-1739 Austrian fortifications have been built in Serbia, Croatia and Bosnia. In the region of Vukovar, Novi Sad and Belgrade at least 7 fortresses have been preserved.

The fortress of Kalemegdan is in Belgrade. Belgrade is undoubtedly one of the oldest towns in this part of Europe, though its present appearance gives an impression of a completely new city. Nowadays, the only place where the remains of its distant past can be seen is the fortress, situated on the site of the former fortified settlement - the site where Belgrade was founded during the Roman era in the 1st century AD and on which it developed right down to the second half of the 18th century. The fortress we see today was built in mid-18th century, but its walls encircle the old 15th century Acropolis or the Upper Town made when Belgrade was proclaimed for the Serbian capital in 1404. The Fortress is the major archaeological and historic site in Belgrade today.

The fortress of Petrovaradin is in Novi Sad, on the opposite side of the Danube. The fortress Petrovaradinska Trdava (old

name is Peterwardein) was built from 1699 to 1780 after the plans of the French architect Vauban. From the very closely built, quite beautiful lower part of town one comes up over steep stairs. On top there are residential buildings, which are currently being restored, a church and many polished walls. The whole fortress must have been rather large. It is on the extension of the Fruska Gora (Fruschka Mountains) - with a maximum height of 539 m the only mountains in the far surrounding field.

Organization

The different fortresses can be visited. As far as we found there is no coordinating organization for the different fortresses in this region.

Contact

Belgrado, Kalemegdan, www.beograd.org.yu
Petrovaradin, www.peterwardein.com

10 Kalemegdan and Petrovaradin (Serbia)



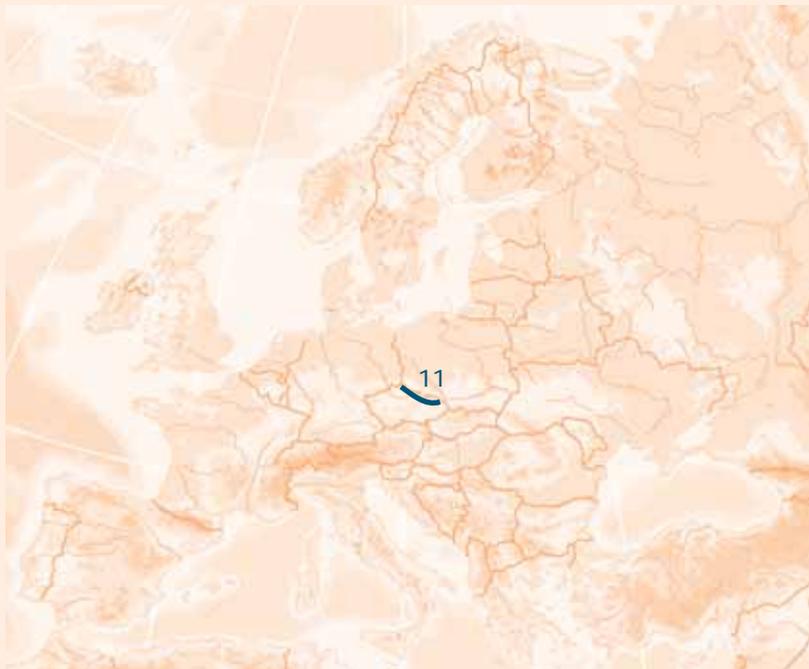
Kalemegdan



Petrovaradin



11 Czech Maginot line / Bohemian line (Czech Republic)



History

In 1933 Adolf Hitler won the elections in Germany. The young Czechoslovakia had to secure its borders against a surprise German attack. There were two concepts how to do it. The first one -build large mobile army, and the second one -build border fortresses. The first one had a big disadvantage. Czechoslovakia was too small to build a mobile army powerful enough to stop the bigger German army. However the second one also had disadvantages. If the fort line was broken, there wouldn't be enough strength to stop the enemy units entering Czechoslovakia. The second one won in the end, because the fortresses were built with an idea, that they could stop the enemy as long as allied forces (France and Great Britain) entered the war with an attack against Germany from the west. Czech engineers were influenced by the French Maginot Line (the Maginot Line was a system of French border fortresses, which was building from the early thirties to the beginning of WWII), so the first types of the Czechoslovakian fortresses look much like the French types. There were two main types of the forts - light and heavy (blockhouses).

Present situation

Over the whole former defence line, 8 museums exists in 8 different villages. These museums are usually in hands of enthusiasts who repair the forts and they are also guides in those forts. Entrance fees to forts are low or voluntary. The "Museum of Czechoslovakian fortresses in Darkovičky" has the best preserved and equipped fort in Czech Republic. The fortresses Bouda, Hanička (Hanicka) and Dobrošov (Dobrosovo) have large underground network and more forts on the surface in quite small area.

Contact

<http://www.geocities.com/athens/forum/8414/Forts.html>



- 1 Babi
- 2 Poutaka
- 3 Janova Hora
- 4 Dobruška
- 5 Píšťice
- 6 Hrástka
- 7 Adam
- 8 Bouda
- 9 Hruška
- 10 Orlík
- 11 Štěpánov
- 12 Štěpánov
- 13 Orlík
- 14 Bystřice



12 Oder-Warthe-Bogen (Poland)



12 Oder-Warthe-Bogen (Poland)

History

The fortress front Oder-Warthe-Bogen is besides the Maginotlinie and the Atlantic barrier one of the largest, best remained fortress systems of the 20th century. It was constructed between 1934 and 1938. Together with the Pommernstellung, which is at the north and the Oder-Stellung, which is at the south, the Oder-Warthe-Bogen had the task to secure the eastern border of Germany. One called this fortress system also "Ostwall". The Oder-Warthe-Bogen originally acts around a 110 km broad laid out fortress front, 120 km from the capital of Berlin to defend it. The defence line consists of two parts: a system of inundations with barrages and a system of fortifications and tunnels. In 1938 a tunnel network of 28 km was constructed! A part of the Oder-Warthe-Bogen was destroyed by the Russians and Polish to end of World War II.

Present situation

In the west Polish landscape, the area between Oder and Warthe one finds today still the partial well preserved remnants of this fortress front. A lot of bunkers, fortresses and other relicts are hidden in the landscape. The current condition is various: from reasonable to very bad. A lot of volunteers and lovers of the military history do explore the defence system on their own. No formal organization is being established. Some local tourist excursions will be offered on the internet.

Contact

website by very enthusiastic volunteers,

www.ostwall.de

organizes adventure trips to several military heritage sites,

www.wildost2000.de

12 Oder-Warthe-Bogen (Poland)



13 Stalin line (Ukraine and other countries)



13 Stalin line (Ukraine and other countries)

History

The Stalin Line was constructed between the Black Sea near Odessa and Leningrad along the Gulf of Finland in the period between 1931 and 1938 to protect the USSR against western aggression. In fact the Stalin Line was not a linear defence system, but a number of concentrations of casemates and underground tunnel systems. In total the fortified parts of the line had a length of 1835 km. Some 3096 heavy casemates were built.

With the westward expansion of the USSR in 1939 and 1940 the decision was made to abandon the line in favour of constructing the so-called Molotov Line further west, along the new border of the USSR. The guns were moved, but were mostly in storage as the new line began construction. The 1941 German invasion caught the new line unfinished and the Stalin Line largely abandoned and in disrepair.

Present situation

The ruins of these fortifications, many of them well preserved, can be found today in Lithuania, Poland, Belarus and Ukraine. Access to some sections of the Stalin Line may still be restricted for reasons of border security.

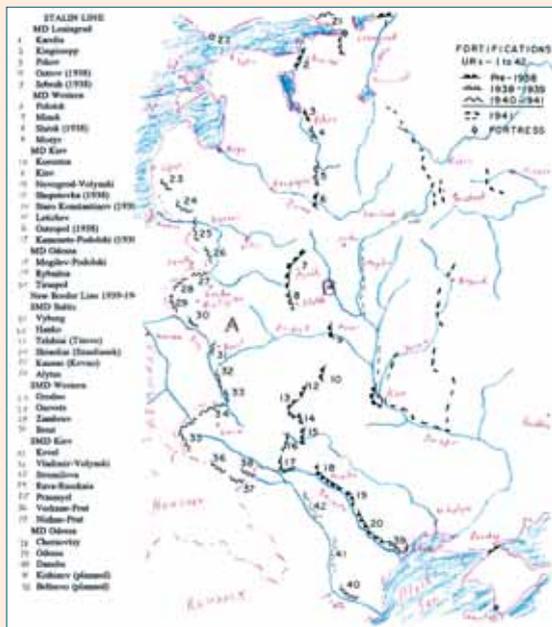
A historical and cultural complex "the Stalin Line" was opened in July 2005. The park includes several bunkers that are opened for visitors. Field fortifications around bunkers have been built according to authentic plans.

In June 2004 the first special museum of the Soviet pre-war fortification in Belarus was opened. The museum is the reconstruction of the typical Soviet machine-gun pillbox. The museum was created by enthusiasts of the history of fortification. The pillbox-museum is branch of Zaslavl country history museum.

Contact

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13 Stalin line (Ukraine and other countries)



14 Metaxas line (Greece)



14 Metaxas line (Greece)

History

The Metaxas Line was a chain of fortifications constructed along the line of the Graeco-Bulgarian border, designed to protect Greece in case of a Bulgarian invasion during World War II. It was named after Ioannis Metaxas, the then dictatorial ruler of Greece, and chiefly consists of tunnels that led to observatories, emplacements and machine-gun nests.

The Metaxas Line fortifications consist of 22 independent clusters, the largest of which is the Roupel Fortress as it covers 6.1 out of the 155 km of the full line and had been constructed at a height of 322 m.

Before the outbreak of World War II, the additions made to the Roupel Fortress were considered to be too weak. Thus, it was decided that further fortifications should be constructed, not only in the particular region, but also along the entire northern Greek borderline. The plans were drawn up in 1935 and work began at Kerkini in 1936. The original intention was that the full fortifications' line reaches as far along the border as Ormenion. Greece, however, became involved in World War II in 1940, thus preventing completion. At the war's outbreak, the fortification line had only reached Komotini, Thrace and was 155km long.

Like the Maginot Line on the Franco-German border, the Metaxas Line was outflanked by German forces -specifically when the Germans invaded Greece in April 1941 through Yugoslavia. The line was also poorly manned as most of the Greek Army was fighting against the Italians, on the Albanian frontier.

Present situation

The constructions are so sturdy that they survive to this day, some of which are still in active service. Some of them are open to the public.

Contact

www.metaxas-project.com

Conclusions

In the following table, an overview of the different sites is given. This table will be explained in the following text.

	Typology buildings	Single/line/ circle	Initiative of re-use	Organization	Re-use activities	Present relation with the landscape
New Dutch Waterline	Bastioned and polygonal fortresses	Line 85km	National government	National public body	Tourism, urban activities	Strong
Suomenlinna	Bastioned fortresses	Circle	National board of antiquities	National public body	Urban activities: Culture, restaurants, tourism	Strong
Salpa Line	Concrete bunkers, caves, antitank obstacles	Line 1300km	Volunteers (veterans)	Local public body	Military tourism, museums	Strong
Komárom	Polygonal fortresses	Circle	Local, regional and national government	National government body, supported by county and local government	Tourism, memorial place	Weak
Srebrna Góra	Bastioned and polygonal fortresses	Single	Volunteers, supported by local government	Local government body	Fortress cultural park ltd.	Strong
Kraków	Polygonal fortresses	Circle	Municipality	Local government body	Tourism	Weak
Gdansk	Bastioned and polygonal fortresses	Circle	History museum of Gdansk	Local history museum	Tourism, museum	Weak
Przemysl	Polygonal	Circle	?	Przemysl County	Tourism	Strong
Rupnik Line	Bunkers and casemates	Line 220km	Local initiative	No formal organization yet	Tourism	Strong
Petrovaradin/ Kalemegdan	Bastioned fortresses	Single	Local initiative	No formal coordinating organization	Tourism	Strong
Bohemian Line	Concrete bunkers	Line	Volunteers	No formal coordinating org.	Tourism, museums	Strong
Oder Warthe Bogen	Concrete bunkers	Line 110km	Volunteers	No formal coordinating org.	Tourism	Strong
Stalin Line	Casemates, tunnel systems	Line 1850km	Volunteers	No formal coordinating org.	Tourism	Strong
Metaxas Line	Concrete fortresses	Line 155km	?	No formal coordinating org.	Tourism	Strong

Typology of buildings

The military sites, which are investigated in this study were erected in different time stages. In general, we distinguish three different types of military buildings: the bastioned fortresses (15th-18th century), the polygonal fortress (19th century) and the concrete bunkers in the 20th century. The Suomenlinna is a good example of a bastioned fortresses. The fortresses in Srebrna Góra and Gdansk were also bastioned fortresses, but they were re-enforced in the 19th century as polygonal fortresses. The fortresses in Komáron, Kraków and Przemyśl are polygonal buildings. During the First and Second World War the military buildings were concrete bunkers. Good examples are the Salpa Line, the Ostwall or Oder-Warthe-Bogen, and the Metaxas line.

The use of the fortresses was different. Single fortresses were used to protect an access: passes, rivers or roads. A fortress could also be part of longer chain: a circle to protect a town or a line to protect a wider area. Srebrna Góra is a good example of a single fortress: it protects the Srebrna Przelecz pass between the Sowie and Brodzkie mountains. Komáron has a circular defence system. It had to protect the city of

Vienna. The river Danube was fortified on both sides: Komáron (Hungary) and Komárno (Slovakia). The defence systems around Helsinki, Przemyśl, and Kraków are also circular. These cities are surrounded by two or more defence circles: if the outer circle was broken by the enemy, the inner circle would give the city extra protection. Few of the investigated military sites were constructed as a line like the Nieuwe Hollandse Waterlinie. Four lines were constructed in the Second World War. The Salpa line was constructed to protect the Finnish border from the Russians; the Rupnik Line was constructed to protect Slovenia from Italy; the Bohemian line was built to protect Czechoslovakia from Germany; the Oder-Warthe Bogen was built together with the Pommernstellung to protect the German border in the east. Also the Metaxas line was built in the Second World War; it should protect the Greek border from the Bulgarian. More to the East, Stalin ordered to build a defence system from the Black Sea to Leningrad.

Initiative of re-use

While looking at the different European military sites, we can recognize some different stages of development, see figure 1.

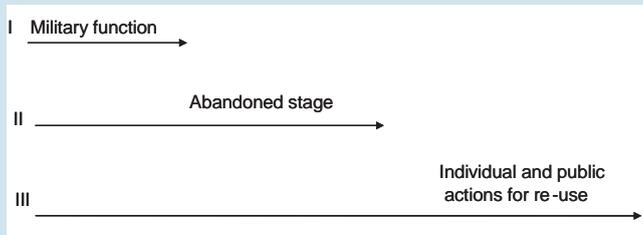


Figure 1. Three stages of development of military sites.

The first stage of every site was their military use. Sometimes it took centuries to develop it into a military asset, like the New Dutch waterline, Gdansk or Przemysl. In other cases, the place was built very quickly, like the Salpa Line: in a few years the line was erected.

In most cases, the military use of these sites was stopped and the place was abandoned. The fortresses, bunkers, and other relics were forgotten and the maintenance was stopped. The owner was still the ministry of defence. A good example of a

defence system in this stage is the Rupnik line. The Slovenian army stopped using the line only recently and it has to give their accordance for alternative use. For now, it is in the abandoned stage, but some local architects and planners took initiative to start the transition into the stage of re-use.

So, in most cases, the abandoned stage was followed by the stage of re-use. The abandonment of the place was in most cases a reason for taking some action to use the site for a different use than a military one. It is interesting to see where the initiative for re-use comes from. In most cases it is coming from volunteers. In our cases two different types of volunteers can be described. One who has some military remembrance or military interest and wants to 'tell' the history to the next generations. The other type of volunteer is the 'entrepreneur volunteer'. An interesting example for the first type of volunteer is the Salpa line: the veterans started with the restoration of the fortresses and blocks to use it for tourist attractions and museums. Some examples with entrepreneurial approaches are Srebrna Góra, the Bohemian line and the Oder-Warthe-Bogen. A lot of activities can be undertaken and the military site is an interesting place to do that.

In other cases the initiative is coming from the local or national

Conclusions

government. In case of Komárom, New Dutch Waterline and Suomenlinna, the national government was taking the initiative to preserve and develop the site. One of the objectives for these governments was to list the site on Unesco's World Heritage List. In case of Srebrna Góra, the initiative of the volunteers was supported by the local government. In Gdansk and Kraków the museum was started by the initiative of the local government.

In general we can say that initiatives started by volunteers are more sustainable when the government is supporting them. Although the public organization gives more stability to the development of the military heritage, the volunteers must keep their contribution. For example the Salpa Line: volunteers work closely together with the local authorities. Both the authorities and the volunteers work with the same intention: preservation of the military site.

Organization

When we look at the organization of the different sites, we can distinguish two different ways: an informal and a formal way of organization. The informal way of organization can be placed at the beginning of stage III (figure 2): volunteers start to

initiate new forms of re-use. Good examples are the Bohemian line, Metaxas line, Stalin line and Oder-Warthe-Bogen. In these sites no formal coordination and future planning has been done. This does not mean that there is no kind of organization: the organization is local and aimed at single activities. For example the organization of a guided tour or a museum in one fortress.

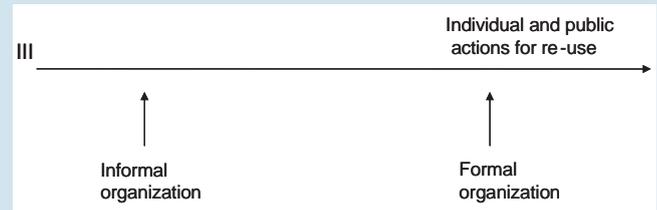


Figure 2. Two different organization types in the stage of re-use.

When political awareness of a site is increasing, in some cases the organization becomes more formal: a governmental body will take over. It takes time to develop a public organization, the formal organization structure can be placed later on the 're-use bar' (figure 2). A good example is the Suomenlinna where, in cooperation with some enthusiastic board members

of the national board of antiquities, the board started a governmental body for the development of Suomenlinna. The Suomenlinna will be used for the regional development of the city of Helsinki. The aim of the national organization for the New Dutch waterline is to coordinate the huge number of local governments, so they develop the defence line with respect for the heritage. Also in Komárom, where three different ministries started in cooperation with the county and the local government a national governmental body. For the organizations of Suomenlinna and Komárom, an important aim is to get listed on Unesco's World Heritage List. Without any formal governmental organization this is impossible.

Governmental bodies are not only organized nationally. For the Salpa line, Srebrna Góra, Przemysl and Gdansk the local administrations run the organization.

An advantage of a formal organization is that it can be helpful in the process of fundraising. Governmental organizations know better how to raise funding for restoration and re-use of the fortresses. They also try to develop a more consistent type of re-use, more long term planning will be done. The defence system can be developed as a whole, not as a single fortress.

Re-use activities

All sites have a common re-use activity: the fortresses are very attractive for tourists. The tourism activities vary from visiting a well accessed fortress to visiting a ruin which is hardly accessible. For high density tourism activities, the site has to be well accessible. A lot of sites, who are in the beginning of their re-use stage (figure 3), do not have good accessibility. For this reason only low density tourism activities can be explored on these places. Popular forms of re-use for the sites that are in the beginning of their re-use stadium are the low profile guided trips, organized by local volunteers. It is interesting to see that these trips can often be booked on the internet. As we noticed these are the not well known sites as the Rupnik Line, Stalin line or the Oder-Warthe-Bogen. The Bohemian line is another not well coordinated case: 8 museums in 8 different cities. In case of Srebrna Góra the idea of having a non-military function came very early: after the First World War it was used as a youth hostel. When the Second World War started the place was used as a different 'hotel': prisoners of war were kept here by the Germans. So, in the Srebrna Góra case we can see that the process of becoming part of the public interest was interrupted.

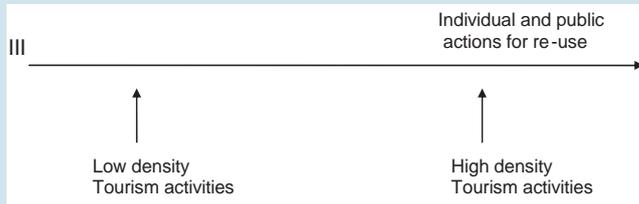


Figure 3. The development of tourism from low density tourism activities to high density tourism activities.

The well accessed tourist activities are in most cases organized by a public organization. Examples are Komárom, Suomenlinna and Gdansk, where thousands of tourists a year visit the sites. Because of the help of a public organization, the place is able to handle a lot of tourism and can arrange a good communication strategy. It took some years to reach this level of accessibility and to be widely known, so this kind of activities can be placed in a later stage on the 're-use bar' (figure 3).

Besides tourist activities, a public organization can give some extra dimensions of re-use. They can coordinate the military site as a whole. They can also use the site for spatial and regional development. The New Dutch Waterline and

Suomenlinna are good examples. This Suomenlinna defence system is involved in the recent development of the city of Helsinki. Nowadays the islands of Suomenlinna are well integrated in the city, because of their culture and gastronomic abilities. People work there and go out to these islands. It is a very popular place to be. The New Dutch Waterline tries to use the landscape as a 'connector' between the past and the future. For example the flood plains, that were used in the past as inaccessible areas can be used nowadays for water retention and nature development.

Relation with the landscape

The different sites are situated in both rural and urban areas. The fortifications in the fortified cities Gdansk, Przemysl and Kraków were originally built in a two ring structure. The inner ring was closely connected to the old town but the outer ring was situated some kilometers outside the city centre in a more rural area. These defence rings were built very mathematically: the use of the natural environment was limited to a minimum. The last decades these fortresses were overgrown with urban activities, like housing and infrastructure. The Suomenlinna was also erected to protect a city, but it did use the natural



Conclusions

environment very well: the different islands around the city of Helsinki were used to build different fortresses on. Nowadays, this natural defence system is still visible. The systems of Komárom and Petrovaradin are also built in an urban area, but their primary task was not to defend a city but to defend an access.

Defence systems that are situated in the rural area are the New Dutch Waterline, Salpa line, Srebrna Góra, Rupnik line, Metaxas line, Oder-Warthe-Bogen, Bohemian line and the Stalin line. The reason for this rural location is that these systems should protect a bigger surface of land than just a single city. They had to protect a border (Metaxas, Salpa) an access (Srebrna Góra) or a strategic piece of land (including cities) (New Dutch waterline, Oder-Warthe-Bogen, Bohemian line and Stalin Line). These rural systems used its natural environment very well: the environment was a part of the system so fortresses were only needed on strategic places. Nowadays this relationship with the landscape is still visible and could be a starting-point for future landscape planning.

Recommendations

- Fortifications are a gift from our European military history, which should be cherished;
- Fortifications are a gift from our European military history, which should be cherished;
- The former military sites have become peaceful places where nature, landscape, urban activities and culture can come together;
- Give attention to the way the defense system operated in its regional and European context in the past;
- By making the heritage visible, the local and regional identity can be reinforced;
- The re-use of military heritage into a modern function is a good way of preserving this heritage;
- The possibilities for new use are endless: every new form of re-use should be considered in each local situation;
- The re-use of military heritage should become part of a common environmental planning, landscape policy;
- Local initiatives, started by volunteers should be supported by (local or national) government;
- The former military heritage gives a good opportunity to cooperate and work together on European level. Also, the heritage could be a connection for the new 10 EU-members to the rest of the EU.
- Knowledge exchange about the re-use of military heritage on European level is important for:
 - Knowledge about organization and management;
 - Knowledge about historical aspects;
 - Knowledge about technical aspects for restoration;
- For the knowledge exchange and marketing purposes, an European network for cooperation should be started.

Colofon

This study is an exploration of defence systems in Europe, ordered by the management body of the New Dutch Waterline. This study should make the European cooperation and communication with other countries more possible.

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