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**MILITARY ASPECTS
IN THE SPATIAL DEVELOPMENT OF POLISH CITIES
IN THE NINETEENTH CENTURY***

Abstract

Military issues were deemed vital in the European politics of the nineteenth century. The aim of this article is to trace the most important implications of the 'military bias' of state authorities in the border region between the three empires (Germany, Russia and Austria – later the Austro-Hungarian Empire) which occupied the Central and Eastern part of the continent. Military authorities sometimes exercised a particularly strong influence upon urban policy. The two major issues addressed in this article are the fortifications (their creation, strengthening, and spatial development) which influenced urban sprawl – though perhaps not so much as is maintained in the scholarly literature – and the development of railways. The directions and tracks chosen for the railways were also influenced by the military plans, which in turn often differed much from the visions of the urban officials who made up the administration of the city.

Keywords: urban development, nineteenth-century cities, Polish territories, fortifications, railroads

In 1898 a great Polish-Jewish entrepreneur, whose wealth came mainly from railroad investments, published in Petersburg a six-volume work *Budushchaya Voïna*, translated into many languages (in English it was published under the title: *Is War Now Impossible?*¹). In this work he

* The paper is a result of research into the functioning of urban architecture in the Polish territories (1850–1914). The project is financed from the means of the National Science Centre (decision no. DEC-2015/19/D/HS3/03253).

¹ Jan Bloch, *The Future of War in Its Technical, Economic, and Political Relations; Is War Now Impossible?* (New York and Boston, 1899); below cited after its Polish edition: *Przyszła wojna pod względem technicznym, ekonomicznym i politycznym* (Warszawa and Kraków, 1900).

claimed that the military techniques had developed so much that any future war would be too costly in terms of both human lives and money to be seriously considered as a means of solving political problems. This book influenced the nascent pacifist movement and attracted the attention of activists such as baroness Bertha von Suttner. That same year Tsar Nicholas II of Russia issued an appeal for downscaling the size of armaments in Europe, though there were rumours that the young tsar backed the pacifist movement because of the military weakness of his empire at that time.² Indeed, Russia and other European countries had conducted an incessant arms race in the nineteenth century, which consumed a huge portion of their respective budgets and in fact proved the inefficiency of some of them. This race involved not only the quality and size of the field armies, but also the length of the lines of fortresses, the number and width of bastions around the cities, and the shape of the railroad network. This in turn shaped the quality of life of people in these countries, in particular the populations of the largest cities.

In this article I focus on the military aspects of the spatial development of the most important cities in the partitioned Polish territories during the nineteenth century, or more precisely between 1815 and 1914. It can be easily noticed that the first date pertains to the Vienna Congress, which changed the entire map of the Polish territories, and the second date marks the beginning of the First World War. Polish territories include the central-western, ethnically Polish, part of the dismantled early modern Polish-Lithuanian Commonwealth. This territory stretched from the borders of Brandenburg-Prussia in the West (areas known in Polish as *Wielkopolska*, or Greater Poland), to the eastern ethnic Polish limits (that is, to the eastern borders of the Polish Kingdom, which was a state created by the Vienna Congress), and includes the southern area of Galicia (a name invented by the Austrians), which was comprised of mainly Polish-speaking cities located in predominantly Ruthenian lands in its eastern parts. I refer to the larger cities located within these confines, stretching from Vilnius (Wilno in Polish) to Kalisz, from L'viv (Lwów, Lemberg) and Stanisławów (Ivano-Frankivsk) to Thorn (Toruń), and from Posen (Poznań) to Kholm (Chełm). My analysis includes the five largest

² Cf. Barbara W. Tuchman, *The Proud Tower. A Portrait of the World Before the War 1890–1914* (New York, 2014), 253–322.

cities which had a Polish-speaking majority during at least some point in this period: Warsaw (Warszawa), Lodz (Łódź), Cracow (Kraków), L'viv and Posen (Poznań). There is a large body of literature, both in Poland and abroad, about urban growth in the nineteenth century, and spatial development in particular. However, there are no comprehensive comparative studies involving cities in the Polish territories.

In this article it is argued that although this spatial development was based on many new factors in nineteenth-century Europe, the growth of the above-mentioned cities was influenced heavily by military factors, some of which were direct (e.g., the building of fortifications), and some of which were indirect (e.g., investments influenced by military purposes, like railway lines and stations). At the same time it is important to bear in mind the specific situation in which these cities found themselves, i.e., their political fate after the three successive partitions of the Polish state, which took place between 1772–95. The article does not address the detailed social and economic factors behind this growth, as these issues are already well described in the literature.³ Instead, it focuses on the final results, i.e. the spatial aspect of this process. I begin with some general remarks about different types of urban growth.

I SPATIAL DEVELOPMENT 'TYPES'

The growth of larger cities usually involved changes in the location of the city centre, i.e. the urban core, be it only a small shift from the previous centre, or a larger reallocation. Such spatial development could be planned by architects (the creation of new districts such as, for example, Munich's Ludwigstrasse, Berlin's Dorotheenstadt and Friedrichstadt, and Warsaw's southern Łazienkowska district after 1768), or it could take place in a more piecemeal fashion. Whereas smaller towns could expand without changes in the location of their cores, the growth and development of larger cities like Warsaw, Lodz, L'viv and Posen included the above-mentioned shifts. Many factors influenced this process: the urban fortifications (especially if a city

³ I can point to the well-known works on urban social history in Poland, written by or under the guidance of, Witold Kula and Janina Leskiewiczowa, and to the works of Ryszard Kołodziejczyk on economic urban growth.

was fortified during the nineteenth century), the topography of the urban area (the presence of hills and/or rivers), the location of certain urban structures which attracted traffic and attention (public edifices, railroad stations), or the pace of demographic growth itself. All of these factors will be discussed below.

The greatest change took place in Warsaw, which became the capital of the renewed Polish Kingdom in the first half of the century, and which – in the second half of the century (its political status having been changed) – became an industrial and communications hub. Because of the construction of the Citadel (from 1832 through to the middle of the century) just to the north of the former medieval urban core known as the Old City, and because of the laying down of its *glacis* (slopes or inclines created for military fortification processes), the northern direction of urban growth in Warsaw was closed for the rest of the century.⁴ Its natural growth to the south was therefore strengthened, along the former ‘Royal Route’ along the Vistula river leading south, through the Łazienkowska district, in the direction of Cracow. Finally, the building of the main railway station at some distance from the centre (to the south-west) attracted growth in that direction after 1845. These facts explain why streets near the station (most notably Marszałkowska street) became important commercial arteries at the turn of the nineteenth century, while cultural centres, such as the Theatre square near the Old City, found themselves almost on the periphery, although the Theatre square was still described in city guides as ‘nearly central’.⁵

A smaller shift of the urban core took place in Posen. The works to demolish the old city walls started at the end of the eighteenth century and a famous Berlin architect, David Gilly, outlined a plan to extend the city to the west (toward the former town of Kundorf). The central square with a cross alley (similar to Berlin’s Unter den Linden) was marked out on a hill called Musza Góra, with a set of new straight

⁴ The barrier of the Citadel was strengthened by the existence of military camps and exercise fields in Powązki and Bielany. About these fields: Piotr Oleńczak and Teodor Tuszek, *Twierdza Warszawa. Przewodnik historyczny* (Warszawa, 2013), 21–2.

⁵ *Przewodnik po Warszawie na rok 1910* (Warszawa, [1909]), 43. For more on the spatial development of the city, see Maria Nietyksza and Witold Pruss, ‘Zmiany w układzie przestrzennym Warszawy’, in Irena Pietrzak-Pawłowska (ed.), *Wielkomiński rozwój Warszawy do 1918 r.* (Warszawa, 1973), 21–7.

streets around it.⁶ Posen and Kundorf merged together only slowly, as the remnants of the old city walls survived well into the second half of the nineteenth century. An important axial route leading from the Old City Square to Wilhelmsplatz (the central square of the new district) was laid down only in 1838.⁷ The construction of a new, modern fortress in the city created a barrier to growth of the adjacent districts around the enlarged centre. A citadel in Winiary (built after 1828) placed a halt to development in that direction. The eastern districts (the former towns Chwaliszewo, Ostrów, and Śródka) beyond the Warta river served as the ‘backroom’ for a set of new bastions, and no new permanent buildings were allowed there until 1890; thus that area developed into a district for poorer people.⁸ The western area, including Jeżyce, south-western Łazarz and southern Wilda, was able to develop into elegant residential areas (but not only – Wilda also had important industrial functions) at the beginning of the twentieth century (1902), when the Posen fortress was finally scheduled for demolition and the *glacis* area set free. New investments began a few years before this date.⁹

The case of L’viv is interesting because it is the only city discussed herein that saw undisrupted, ‘normative’ development. With very few fortifications and an independent city council, it could work out its own policy of development. In this case a topographical factor was in force; the city was located in a small valley bordered by hills. It thus expanded along the main transit routes, taking on the shape of a star. The flattened slopes to the south-west must have seemed the most appropriate for building, and influenced urban expansion in that direction.¹⁰ The area around the former Jesuit gardens in the Krakowskie Przedmieście district, along with new streets laid down in the vicinity, became the new focal point attracting traffic and, later on, such important edifices as the Galician Parliament. The city centre moved to the west and south-west, which was also the result

⁶ Zofia Ostrowska-Kęmbłowska, *Architektura i budownictwo w Poznaniu w latach 1780–1880* (Poznań, 2009), 117–25.

⁷ *Ibidem*, 275; Maria Trzeciakowska, Lech Trzeciakowski, *W dziewiętnastowiecznym Poznaniu. Życie codzienne miasta 1815–1914* (Poznań, 1982), 20.

⁸ Ostrowska-Kęmbłowska, *Architektura i budownictwo*, 274.

⁹ Jan Skuratowicz, *Architektura Poznania 1890–1918* (Poznań, 1991), 86–112.

¹⁰ Marcin Sepiał, ‘Rozwój miasta Lwowa w XIX wieku’, in Jacek Purchla (ed.), *Architektura Lwowa w XIX wieku* (Kraków, 1997), 18.

of the location of the railway station, the new Technical University (to the west), and the new public space of Wały Hetmańskie (including the former Karl-Ludwig-Strasse), which led along the western border of the Old Town to the south-west. Other districts were less fortunate. The Żółkiewskie Przedmieście district, a former Ruthenian city, was small, with the main obstacle to growth being the Castle Hill, with its remains of a medieval stronghold. New tenements were built around the hill. The Łyczakowskie Przedmieście district was large, but reserved for additional space-consuming functions. Hospitals were located there, along with the huge Łyczakowski cemetery and some parks. More green areas stretched throughout the Halickie Przedmieście district. Besides the university complex and elegant alleys, one cannot overlook the large Stryjski park, which included the area that hosted the 1894 State Exhibition.

Lodz's central space was subject to constant shifting throughout the nineteenth century, because the city developed only incrementally after about 1820 as a new manufacturing town (later as an industrial city). The new town square was located just to the south of the medieval square (which served the spinners and weavers who worked in separate family homes), but the development of manufacturing factories located near the river and far from the square to the south made the main north-south artery (Piotrkowska street) a focal point for traffic. It was only later that this tendency began to be clearly visible, notably after the building of the first factories with steam-driven production (e.g. those of Ludwig Geyer to the south and Karl Scheibler to the south-east) and the railway station near the middle part of Piotrkowska street.¹¹ For these reasons Piotrkowska street played a role similar to that of Marszałkowska street in Warsaw.¹²

Cracow was an exception, because the central core of the city remained more or less in the same place. New districts developed in the nineteenth century around the medieval Old City. In this regard we can point to the large area of Wesola, which was extensively built-up and 'reserved' for hospital and charity complexes (most

¹¹ For more on the development of Lodz in its first stage (up to about 1870), see Krzysztof Stefański, *Jak zbudowano przemysłową Łódź. Architektura i urbanistyka miasta w latach 1821–1914* (Łódź, 2001), first 3 chapters.

¹² Anna Rynkowska, *Ulica Piotrkowska* (Łódź, 1970), 104; Kazimierz Badziak, 'Geneza i rozwój łódzkiego węzła komunikacyjnego (do 1914 r.)', *Rocznik Łódzki*, xxi (1976), 152.

notably the Aleksander Lubomirski Foundation for boys), with some green areas (like the Botanical Garden created at the end of the eighteenth century) and the Rakowicki cemetery.¹³ One can notice some similarities between this eastern district and L'viv's eastern district of Łyczakowskie Przedmieście. The future growth of Cracow was destined to follow in this direction, though there was no sign of this before 1914. Piasek, to the west, developed as a mainly residential district with some monumental edifices, such as schools.¹⁴ Nowy Świat was also a residential area with ample green areas just outside the fortifications (later the railroad line) – for example the H. Jordan park and the garden suburb Salwator. Even the southern Stradom district, stretching down to the east from Wawel (which served as a military fortress) and bordered by Jewish Kazimierz, gained meaning when an old branch of the Vistula river was filled up, giving way to a broad Parisian-style artery (named Józef Dietl avenue, after the city president who took up the task). The Old City was too large to lose its function as a city core. If one had to choose a new central area that developed before 1914, one could point to the Kleparz district, which included the main railway station (built in the 1840s), a new and huge theatre built near it in the 1890s¹⁵, and a new, elegant and monumental square named after the painter Jan Matejko. The railway station was located very near the Planty, a park area that stretches around the entire Old City. No other larger district was created around the centre that could serve as a new commercial (or any other) centre.

II FORTIFICATIONS

At this point I turn my attention to the earlier past. City walls in the Middle Ages had a symbolic character; they not only defended cities from outside attacks but also marked the exact limits of urban law, which was especially the case for cities north of the Alps.¹⁶ The art of designing and extending cities in the past was often identical to

¹³ Jacek Purchla, *Jak powstał nowoczesny Kraków* (Kraków, 1990), 25–6, 55.

¹⁴ Cf. *ibidem*, 37.

¹⁵ *Ibidem*, 50.

¹⁶ Dieter-J. Mehlhorn, *Stadtbaugeschichte Deutschlands* (Berlin, 2012), 80; Wolfgang Braunfels, *Urban Design in Western Europe. Regime and Architecture 900–1900* (Chicago and London, 1990), 44.

designing fortified centres.¹⁷ A good example here are the early modern ideal cities.¹⁸ These cities, as other small centres, were designed in order to obtain the shortest possible circumference line. The largest medieval cities could afford to later build subsequent circles of walls around their borders many times, a good example being Paris.¹⁹ With the invention of gunpowder and the cannon, a more elaborate and space-consuming type of bastion fortification was invented, which additionally constrained the shape and size of inner-wall urban areas. Cities built their walls separately at their own cost (these walls were also symbols of urban independence, as political organisms). In the seventeenth and eighteenth centuries, there were roughly 1,000 walled towns in the German territories alone.²⁰

As bastion fortifications became more costly, not only to build but also to maintain, in the end it was the powerful state that had to act as investor. At the same time an opposite trend – to demolish city walls – became apparent in the seventeenth century, at the time when coherent nation-states were emerging. In this way the costs of maintaining fortresses inside the country could be avoided, as is illustrated in the case of France.²¹ The first spectacular defortification processes there began in the 1620s and 1630s as the result of the war against the Huguenots, who were forced by the army of Richelieu to pull down the walls of their strongholds (most famously La Rochelle, conquered in 1629).²² The new wave of defortifications in the centre of the state was accompanied by the raising or reinforcing of fortresses along the borders (especially the more threatened ones). Marquis de Vauban's famous system of fortresses had the advantage that it allowed for the dismantling of many less important strongholds along the border.²³ This trend was followed – as were many other

¹⁷ Cf. the case of Polish urban planners in the fifteenth through eighteenth centuries in Teresa Zarebska, *Początki polskiego piśmiennictwa urbanistycznego* (Warszawa, 1975).

¹⁸ Cf. Braunfels, *Urban Design*, 148 ff.

¹⁹ *Ibidem*, 308.

²⁰ Yair Mintzker, *The Defortification of the German City, 1689–1866* (Cambridge et al., 2012), 27.

²¹ Cf. Michael Wolfe, *Walled Towns and the Shaping of France. From the Medieval to the Early Modern Era* (New York, 2009), 147 ff.

²² Mintzker, *The Defortification*, 45.

²³ *Ibidem*, 48.

French ‘inventions’ – by the German princely leaders in the eighteenth century. Absolutist monarchs defortified some larger cities in order to gain space on which to build. The first example of such defortification was Paris in the 1670s, followed by some German cities at the beginning of the eighteenth century (Leipzig, Kaiserslautern, Freiburg im Breisgau), and then Bordeaux in France, Brussels, Graz, and later Hanover, Kassel and Elbing in the German states in the second half of the century. Only after 1791 was Munich defortified by the Bavarian king, Karl Theodor. Prussia, as one of the militarily stronger states of Europe, could afford a French-like policy regarding the walls of its capital. Berlin’s defortification took place in the 1730s.²⁴ Walls became an issue not just for the city to handle, but also for the state, although ownership of the freed-up areas was more often handed over to the municipality. By the same token, new green area complexes came into existence at the edges of cities. A French idea from the seventeenth century was the creation of tree-lined boulevards (the word stemmed from the military vocabulary).²⁵

This wave of selective defortifications reached the Polish territories in the last quarter of the eighteenth century. L’viv’s early modern walls were pulled down by Austrian authorities after 1777, the Prussians began demolishing Posen’s walls in the 1790s, and Cracow followed suit a bit later, at the turn of the century. This task was not easy and such decisions were usually the subject of heated discussion and opposition. Projects sometimes took entire decades to be completed (as was the case in Posen). The process did not depend on the size of the city; on the contrary, larger cities tended to retain their walls for economic or sanitary reasons (control over its citizens, collecting tolls, closing the urban area during epidemics). Large cities raised and maintained sanitary trenches (around the entire urban area and independent of the old walls). This was the case with Berlin, Munich and Vienna (the so-called *Linienwall*). The Berlin trench was built in the 1780s and maintained for economic reasons well into the next century.²⁶ Warsaw followed suit; a trench was built, based on the initiative

²⁴ *Ibidem*, 71.

²⁵ For more on the development of green areas around cities, see: Mehlhorn, *Stadtbaugeschichte*, 223–4; Spiro Kostof, *The City Assembled. The Elements of Urban Form Through History* (Boston, New York, and London, 1999), 32–4.

²⁶ Mintzker, *The Defortification*, 77–8, 214–15.

of Marshall Lubomirski, in the 1770s. The area inside the trench was very broad and anticipated the future growth of Warsaw. Its edges constituted the limits of the city until its removal a hundred years later, in 1875, making it possible to extend the existing streets outside these limits (especially in the case of urban extensions, which however were rare).²⁷ Similarly, in Cracow an earthwork trench was created at a certain distance from the demolished medieval walls at the turn of the eighteenth century.²⁸ It had originally a more military function; the insurgents of the national Kościuszko Uprising of 1794 planned to build proper fortifications from the north. All these trenches were equipped with tollgates, many of which have survived until this day.

Let us now return to the issue of military fortifications. An important turning point in this regard came in the Napoleonic era, especially as a result of the peace treaty of Lunéville (1801), when a large number of cities had to be defortified. Whereas before 1789 only about a fifth of the German cities had begun defortification, by 1815 the majority had done so. The result was the ‘opening’ of Germany from the west (Rhine river), which was all the more rational given that Napoleon attacked Central Europe from the south, from Italy, without crossing the Rhine. After the Prussian defeat at Jena (1806) Silesia was also ‘opened’ (Breslau was defortified, though Glogau was not²⁹). During this period, walls were demolished based not only on the command of the victorious French, but also on the basis of decisions made by the cities themselves, because the walls were no longer uniformly viewed as providing security, but were viewed increasingly as a threat, i.e. they posed the risk of a ruinous siege. The main proponents of this approach were the ruling elites of Frankfurt am Main and Hamburg. Such decisions had major consequences. They meant huge costs, ownership problems (walls were often inhabited) and other difficulties, and the projects lasted for years. The results of such actions were also of major significance: they opened up new plots of land, which could be turned into green areas and into new built-up parts of the city, which provided new income to their owners.³⁰

²⁷ Nietyksza and Pruss, ‘Zmiany’, 21, 32.

²⁸ Janusz Bogdanowski, *Warownie i zielen twierdzy Kraków* (Kraków, 1979), 77–81.

²⁹ The fortress hosted French garrison which served as a warranty for the payment of contribution by the Prussian state, Wiesław Maciuszczak, *Twierdza Głogów. Garnizon i ludzie 1630–2009* (Głogów, 2009), 53.

³⁰ Mintzker, *The Defortification*, 86, 135, 145, 160, 168.

There were various, contradictory approaches to the issue of de-fortifying cities after 1815. Military theorists and state authorities did not abandon the idea of fortresses; all the more so because many of them had surrendered to Napoleon without a fight and often completely efficient bastions had to be pulled down. Thus, a chaotic policy persisted throughout this period – some fortresses were demolished and some were reinforced.³¹ One of the most important principles at this time was to strengthen borders and weaken the defensive strongholds of the inner regions. In the last decades of the nineteenth century this was especially important along the border between France and Germany. While some fortresses between the former independent German states were pulled down (Torgau,³² Nuremberg, Augsburg, and Magdeburg), fortresses in other regions remained (e.g., Metz in the newly conquered German Alsace). Most vulnerable were still the areas in the borders between states, but inasmuch as alliances in Europe were stabilized in the second half of the nineteenth century, some borders became more significant than others. Here one can point to the French policy of building defence regions against the newly united Germany (for example, the Ile-de-France³³) before and after the Franco-Prussian war of 1870–1. Those cities which became fortresses (or which were already fortresses from Vauban's time and were subject to reinforcement, like Besançon, Belfort, Neuf-Brisach and Bitche) had limited chances to develop spatially, although many communities asked for permission to dismantle their forts, especially after Lyon's hill La Croix-Rousse was declassified as a fortress in 1887.³⁴ This development came about as a result of the fact that France preferred to maintain fortresses and – more generally speaking – relied on defence rather than attack against its 'perennial' enemy,³⁵ which

³¹ *Ibidem*, 193, 210.

³² In 1889; it enabled the city to develop spatially more freely, cf. Leszek C. Belzyt, *Torgau. Miasto i twierdza 1809–1914* (Zielona Góra, 2007), 26–7.

³³ Martin Barros and Jean-Francois Pernot, *Les fortifications en Ile-de-France: 1792–1944* (Paris, 2005), 197–207, cited after: Michael Greenhalgh, *Destruction of Cultural Heritage in 19th-Century France: Old Stones Versus Modern Identities* (Leiden, 2015), 79. Cf. also Karol Kleczke and Władysław Wyszynski, *Fortyfikacja stała* (Warszawa, 1937), 95–100.

³⁴ Greenhalgh, *Destruction*, 81.

³⁵ The same was true for battlefield tactics before 1870. Cf. Geoffrey Wawro, *Franco-Prussian War: the German Conquest of France in 1870–1871* (Cambridge and New York, 2003), 54.

of course affected urban spatial development. The army owned many urban areas and did not want to give them up in the face of sometimes strong opposition from local communities.³⁶

Another 'sensitive' area was the Russian-German border, a fact which had a significant impact on the Polish territories. These territories, after the partitions, formed border areas of the three neighbouring empires – Prussia (later Germany); Austria (later Austria-Hungary) and Russia. As these provinces were of a border character, and relations between the above-mentioned powers were always complicated (the periods in which these three countries enjoyed close strategic alliances were short, with their hostile attitudes towards Polish patriotic movements being one of very few issues in which they were truly in agreement), Polish territories were considered as a probable future battlefield, especially by the late 1870s. All of this explains why each empire developed its own line of fortresses defending the 'gates' leading to interior regions.³⁷

Germany had its line stretching from Graudenz (Grudziądz), Thorn (Toruń) and Posen to Glogau and Neisse (Nysa), and there were also reinforced areas around the Mazurian region. When a trend to reduce the number of fortresses in the region emerged, the most developed remained those in Posen and Thorn.³⁸ Austria had two fortresses defending the routes towards Vienna – at Krakau (Cracow) and Przemyśl – against the Russians, who became Austria's main foe. The fortresses in Galicia were the most important for Austria-Hungary.³⁹ Some small reinforcements were also introduced in Lwów in 1875, and some free standing forts were built there around 1900,⁴⁰ as well as in some smaller towns (Jarosław, Radymno, Halicz). Russia, having all the central areas of these territories within its borders, developed a longer line. Initially its fortresses included mainly Zamość, but after 1831 new fortifications were built in Novo-Georgievsk (Modlin),

³⁶ Greenhalgh, *Destruction*, 80.

³⁷ Bogdanowski, *Warownie*, 157; Jeremy Black, *War in the Nineteenth Century, 1800–1914* (Cambridge, 2009), 143.

³⁸ Jerzy Stankiewicz, 'Ze studiów nad fortyfikacjami pruskimi na ziemiach polskich', *Studia i Materiały do Historii Wojskowości*, xii, 1 (1966), 128–9, 143.

³⁹ *Ibidem*, 161; Bloch, *Przyszła wojna*, ii, 263.

⁴⁰ Janusz Bogdanowski, 'Fortyfikacja austriacka na ziemiach polskich', *Studia i Materiały do Historii Wojskowości*, xii, 1 (1966), 95; Bloch, *Przyszła wojna*, ii, 263.

Ivangorod (Dęblin) and Brest.⁴¹ In the 1880s the line stretched from Kovno and Grodno, Osowiec, through Łomża, Ostrołęka, Pułtusk, Novo-Georgievsk, Warsaw, and Ivangorod to Brest and Lutsk (in the so-called Warsaw War Region).⁴² Behind this line were such fortresses as Vilnius and Kiev. The aim of such a strong line of fortresses was to halt the enemy so that the Russian army would have time to gather its troops (the railroad network in Russian territories was very sparse compared to the networks in the German and Austro-Hungarian territories, and the experience of the Crimean War was still in fresh memory). Defending the inner railway lines, which served to amass concentration of the army, also played a role.⁴³ The western part of the Polish Kingdom was left as a battleground (unfortified) because it was deemed highly difficult to defend against the German army.

Thus it can be seen that a whole range of cities and towns were turned into fortresses and a 'defensive' mentality prevailed in Russia,⁴⁴ much like in France. Such strenuous efforts to fortify entire regions resulted in – as Jan Bloch predicted – the mounting cost of future wars, their more 'static' character, and the growing military importance of such issues as the economic possibilities of states and abilities and morale of particular armies. His forecasts proved to be correct.⁴⁵

Owing to the above-mentioned geopolitical framework, almost all the cities on which this article focuses were transformed into fortresses. A new polygonal type of fortification (developed by Marc-René, marquis de Montalembert) facilitated the achievement of this task, because its form could follow the outlines of cities more easily than the older type of *bastion* or *tenaille* defensive-work.⁴⁶ What's more,

⁴¹ Andrzej Gruszecki, 'Twierdze rosyjskie na ziemiach polskich', *Studia i Materiały do Historii Wojskowości*, xii, 1 (1966), 203.

⁴² Lech Królikowski, *Twierdza Warszawa* (Warszawa, 2002), 21; Jan Ciałowicz, 'Fortyfikacje na ziemiach polskich w czasie pierwszej wojny światowej', *Studia i Materiały do Historii Wojskowości*, xii, 1 (1966), 237. The form of this fortified line was designed so as to prevent the possible German-Austrian attack towards Brest in order to seal off the territory of the Polish Kingdom, cf. Oleńczak and Tuszek, *Twierdza*, 42–3.

⁴³ Adam Dobroński, 'Dyslokacja wojsk rosyjskich w Królestwie Polskim przed I wojną światową', *Studia i Materiały do Historii Wojskowości*, xx (1976), 242; Bloch, *Przyszła wojna*, ii, 50, 83.

⁴⁴ Dobroński, 'Dyslokacja', 243.

⁴⁵ Bloch, *Przyszła wojna*, ii, 499.

⁴⁶ Kleczke and Wyszynski, *Fortyfikacja*, 6.

cities could act as supply bases for these fortresses. A related aspect of this issue involved transportation and supply. State ‘investors’ chose well-connected points to locate such bulwarks. Medieval cities always lay on the ancient commercial routes and later, in the nineteenth century, they became the junctions of railroad networks. Moreover, many towns and cities already had some sort of earthworks or ancient walls, which could be reinforced into fortresses at a relatively low cost. Rivers also played a role, because they made a fortress more difficult to conquer; many urban centres were located along a river, or at least close to one. Finally, hills were also used as ‘platforms’ for the new forts (in Cracow and Posen). All of the above explains why it was so common for authorities to decide in favour of creating fortress-cities.

Cracow was a fine example of that. The Austrians, after they took control of the city in 1846 (formally in 1848), designed a ring of fortifications based on the previous earthworks around it. This was the work of Graf August von Caboga and was executed from 1849 to 1865.⁴⁷ An important military event which highlighted the need to develop more modern types of fortifications was the siege of Sevastopol during the Crimean War. Such fortifications had to be strengthened by forts, and there was a need for some central forts to be located inside the ring of bulwarks. In the case of Cracow, there were the mounds (an ancient medieval one and a new monument to Kościuszko in form of a mound), two newly built *lunettes*, and the old cathedral hill of Wawel as the central fort. The fortress constrained Cracow’s growth to a great degree, because its walls were located at 1–1.6 km from the centre of the city. Warsaw was transformed into a fortress later. It had the above-mentioned citadel at its borders, which served, however, more as a defensive point against possible rebellions in the city than as a stronghold against external threats. Later, from 1847 to 1864, the citadel was strengthened by a set of additional forts, which was overseen by general Eduard Tottleben.⁴⁸

The fortress of Posen was a result of the same military policy as in Germany, and the relevant decision was taken already in 1815. The city was an important element in the chain of fortresses between the Vistula and Oder rivers. The stronghold was developed in 1828, based on the initiative of Karl von Grolman, and it was

⁴⁷ Bogdanowski, *Warownie*, 83.

⁴⁸ Lech Królikowski, *Warszawa – dzieje fortyfikacji* (Warszawa, 2011), 171.

an early example of the Neo-Prussian school of fortifications.⁴⁹ The large fortress Winiary was built not far to the north. The next stage began in 1839. New fortifications were designed – as in other cases – at a certain distance from the city centre, leaving 947 hectares of urban area inside the ring. More forts in the form of lunettes were erected on the eastern bank, around former medieval towns. This task was completed in 1869.⁵⁰

The second important moment in the military history of that time was the Franco-Prussian war of 1870–1 (and the sieges of Belfort and Metz), and later the Russian attack on Turkey in 1877–8 (and the unfortunate Russian siege of Plevna in Bulgaria).⁵¹ Generally speaking it may be said that the race between the improvement of fortifications and the development of firearms was constantly won by the latter. Ever more powerful and accurate (through the use of rifling) weapons, equipped with high-explosives, could easily drop projectiles over walls from a distance of a few kilometres,⁵² which made fortified rings built closely around cities steadily less efficient. New forts had now to be built at a distance of 4–7 km from the centre of, for example, Paris, and the same was true for certain cities in Central Europe. It should thus be no surprise that all of the three fortress-cities considered in this article also had to be upgraded. Central fortifications (the so-called *noyau*) were of little importance now. The main task of defending belonged to the independent external forts, shifted far into the neighbouring areas around the *noyau*.⁵³

A so-called ‘third ring’ of forts was developed, starting in 1878, around Cracow at a distance of 6–6.5 km from the centre. The developer of these new ring fortifications was Daniel Salis Soglio. Each fort had its own crew and was conceived as an independent ‘small town’. In the years 1888–1902, in order to strengthen the ring, a new group of forts was built at a distance of 7–8 km from the centre.⁵⁴ The main problem here involved building restrictions outside the inner fortifications, an area that stretched at a radius of about 1,140 m from the

⁴⁹ Stankiewicz, ‘Ze studiów nad fortyfikacjami’, 128.

⁵⁰ Bogusław Polak (ed.), *Poznańskie fortyfikacje* (Poznań, 1988), 76, 95, 111.

⁵¹ Black, *War*, 135, Bloch, *Przyszła wojna*, ii, 224 ff.

⁵² Greenhalgh, *Destruction*, 79.

⁵³ Bogdanowski, *Warownie*, 166–70; Polak (ed.), *Poznańskie fortyfikacje*, 115; Kleczke and Wyszyński, *Fortyfikacja*, 10–11; Bloch, *Przyszła wojna*, ii, 228 ff.

⁵⁴ *Ibidem*, 170 ff.

belt.⁵⁵ The inner fortifications went out of use in the 1880s, and the municipality (under the leadership of an ambitious president, Juliusz Leo) began in 1893 to buy up the plots in the formerly restricted area. The final stage involved the purchase of the plots under the trench around the city in 1912. This action was tied in with the plan to extend the city borders (the so-called 'Greater Cracow' plan), which was passed in 1908⁵⁶ and was completed by 1915.

Posen was crucial for Helmut von Moltke's war plans. At the end of the nineteenth century, these plans of attack concentrated on the French border, with the eastern border being intended above all to be part of a defensive war.⁵⁷ Hans A. von Biehler's initial plans for a new ring of forts in Posen was drawn up in 1872 (11 forts), then changed to nine forts around the city in 1876. They were located at a distance of 4–5 km from the centre.⁵⁸ The first stage of work ended in 1883, then it was further developed in 1887–96 (eight new forts) to avoid longer distances between them, thus changing it from a fort-fortress to a ringed one.⁵⁹ But this was still not enough; over the years the forts were constantly modernized (brick-and-mortar covers were partly replaced by steel and concrete ones), and in 1913 a new ring of forts was planned, at a distance of 6–14 km from the central point.⁶⁰ Building restrictions, like those in Cracow, encompassed the area within the radius of 1,275 m from the city borders,⁶¹ which explains why the outer districts were so poorly developed. This

⁵⁵ The first 570 m was a zone with a total building ban, in the outer zone lower buildings could be constructed only after agreeing on paper to demolish them at the behest of military authorities and at one's own expense (so-called *rewersy demolacyjne*); cf. Purchla, *Jak powstał nowoczesny Kraków*, 13.

⁵⁶ Celina Bąk-Koczarska, *Juliusz Leo twórca Wielkiego Krakowa* (Wrocław 1986), 64 ff.

⁵⁷ Przemysław Jurkiewicz, 'Twierdza fortowa Poznań 1876–1914', *Kronika Miasta Poznania* (2005), no. 1–2, 40.

⁵⁸ Polak (ed.), *Poznańskie fortyfikacje*, 117 ff.

⁵⁹ Jurkiewicz, 'Twierdza fortowa', 26–32; Polak (ed.), *Poznańskie fortyfikacje*, 120.

⁶⁰ Jurkiewicz, 'Twierdza fortowa', 39; cf. the analysis in Bloch, *Przyszła wojna*, ii, 242–9.

⁶¹ The most vulnerable was the inner zone stretching 600 m from the core, with no permanent buildings allowed; then came a zone 375 m long with only half-timbered, low dwellings; the other 300 m was less restricted; cf. Zbigniew Pilarczyk, 'Pozdrowienia z twierdzy Poznań. Wpływ budownictwa militarnego na rozwój terytorialny miasta', *Kronika Miasta Poznania* (2005), no. 1–2, 14–15.

obstacle was finally removed in 1902, when the Emperor agreed to abandon the inner ring of fortifications. The gates began to be pulled down already after 1890 (the outer ring of forts was then completed). All this was possible only because the state bought the reinforced area (120 hectares) from the military authorities, as the city could not afford it. This space remained under the influence of the army, but the city could be finally integrated with its outer districts (the demolition of the eastern bank fortifications was completed in 1912; the rest survived until the war)⁶² and its limits were extended. As of 1900, Posen was about 3,300 hectares in size and had a density of about 40 people per hectare,⁶³ but most important was the possibility to build virtually without restrictions in places such as Jeżyce, Łazarz, or Wilda.

The Warsaw fortress proper was developed according to a broad strategic plan called 'Directive no. 18' from the year 1879, with the zealous support of General-Governor Iosif Khurko. The project began in 1883 and the final fortifications consisted of two rings of forts (19 forts in the outer ring and 8 forts in the inner ring), all planned at the same time.⁶⁴ The project was finished in the early 1890s (the first group of forts was made denser on the basis of plans put forward by Konstantin Vodichko⁶⁵). This two-ring system was designed as a tight one, with the inner ring having a radius of 6 km from the central point, and the outer one around 7–8 km. The main reason for this tight belt (Warsaw had nearly 400,000 inhabitants when the work began) might well have involved a desire to keep the cost of the fortresses down to a reasonable level,⁶⁶ which was also an important factor in other cities. The result was particularly significant for such a large city. The inner border of the esplanade stretched just outside the administrative limits and military rules prohibited building durable constructions (like brick-and-mortar houses) there. This esplanade was sometimes as close as 2–3 km from the central point, and the outer limits reached as far as 8 km from that point. This fact prevented the city's growth until the first decade of the twentieth

⁶² Polak (ed.), *Poznańskie fortyfikacje*, 131 ff.

⁶³ Skuratowicz, *Architektura Poznania*, 26.

⁶⁴ Królikowski, *Twierdza Warszawa*, 36. The initial decision was made already in 1873; Królikowski, *Warszawa*, 177–8.

⁶⁵ Gruszecki, 'Twierdze rosyjskie', 218–20.

⁶⁶ Królikowski, *Twierdza Warszawa*, 156.

century. It was only in 1909 that the tsarist authorities realized they could not afford to maintain so many forts and bastions in the country, and building restrictions were lifted in 1911.⁶⁷ The overall strategy of leaving the Polish Kingdom without much capability to fight in case of a war with its Western neighbours also played a role.⁶⁸ In 1913 forts were partially blown up in order to avoid being used by the enemy.

We can now move on to discussing the effect these fortification rings had on these respective city's spatial development. Were they marked out at some distance from the centres to allow for urban growth? If we look at the maps of Cracow, Posen and Warsaw⁶⁹ we can see that in the 1880s and 1890s there was still a great deal of open space between the fortifications (or, in the case of Warsaw, the former trench) and the inner urban fabric. This fact could be a result of a building ban in the vicinity of the inner border of the ring⁷⁰ or the reservation of some area inside the city for military purposes,⁷¹ but even if one takes these possibilities into consideration, it is not difficult to describe the free space as ample. One of the reasons for this involves the idea of an 'active' fortress, developed by Joseph Rogniat, in which a lot of space was reserved in case of war, so as to be able to serve the needs of an enlarged garrison.⁷² It is possible to conduct a more in-depth evaluation if we look at the written Polish sources, as urban historians do. In such a case we can obtain a view that is dependent on the general attitude of the partitioning state towards its Polish citizens. Both Posen⁷³

⁶⁷ *Idem*, *Warszawa*, 190–2.

⁶⁸ Dobroński, 'Dyslokacja wojsk', 243–4.

⁶⁹ *Plan Król. Stoł. Miasta Krakowa*, publ. by M. Dąbrowski (1883); *Neuester Plan der Stadt Posen*, publ. by E. Rehfeld (4th edition 1888); *Plan goroda Varshavy. S"ëmka pod rukovodstvom Glavnogo Inzhenera W. H. Lindleya* (1896–7). In Przemysł, the free space inside the fortified line was ample until 1914, cf. Maciej Dalecki, 'Rozwój przestrzenny Przemysła w latach 1867–1914', in Zbigniew Beiersdorf and Andrzej Laskowski (eds.), *Rozwój przestrzenny miast galicyjskich położonych między Dunajcem a Sanem w okresie autonomii galicyjskiej* (Jasło, 2001), 144.

⁷⁰ As in Poznań; cf. Pilarczyk, 'Pozdrowienia', 15.

⁷¹ In Cracow it comprised 11 per cent of the city. Cf. Bąk-Koczarska, *Juliusz Leo*, 57.

⁷² Bogdanowski, 'Fortyfikacja austriacka', 74; Kleczke and Wyszyński, *Fortyfikacja*, 89. This idea prevented hostile armies from passing by such fortresses.

⁷³ Ostrowska-Kęmbłowska, *Architektura i budownictwo*, 273; Polak (ed.), *Poznańskie fortyfikacje*, 141.

and Warsaw⁷⁴ are described as cities suffering from a lack of space. Cracow, on the other hand, was considered a city with a great deal of space still at its disposal.⁷⁵ If we look at population densities in 1900, tiny Cracow (577 hectares) appears overpopulated (roughly 158 people per hectare⁷⁶), but Warsaw's situation was even worse, as it had 3,273 hectares (after some limited city extensions in 1889 and later) and a density of 209 people per hectare.⁷⁷ Posen, by comparison, looked much better with its 947 hectares and around 80 people per hectare.⁷⁸ At the same time, it has to be stressed that there were certain areas in such fortress-cities where the population density was extremely high. For example, in Posen the density was as much as 553 persons per hectare in the centre, which stood in contrast to cities that lacked tight fortified belts.⁷⁹ Some parts of the Jewish district in Warsaw had a population density of 570.3 persons per hectare in 1913.⁸⁰ The real problem with Warsaw was the fact that even though it had the greatest area, its density was even higher than its smaller counterparts. Moreover, whereas Posen had its inner stronghold partly demolished and the building restrictions cancelled already in 1902 (this happened even earlier in Cracow, in the 1880s), military restrictions remained in force in Warsaw until 1911, which meant there was not enough time to change the pattern of the urban fabric prior to the First World War. Generally speaking, we can assume, that the unfavourable consequences of fortifications began to be felt in all these cities before the war, and it was the time, when their centres were already built up very densely, what could not be altered without an action of mass destroying of the urban fabric.

Another aspect we must take into account involves the aims of those who developed these strongholds. While Austrian fortifications in Cracow were deemed more 'friendly' towards the urban population (with the exception of the Wawel fort, they were destined

⁷⁴ Królikowski, *Warszawa*, 185–91.

⁷⁵ Bogdanowski, *Warownie*, 150.

⁷⁶ Based on: Janina Bieniarzówna, Jan M. Małecki, *Dzieje Krakowa*, iii: *Kraków w latach 1796–1918* (Kraków, 1979), 315.

⁷⁷ Based on: Maria Nietyksza, *Ludność Warszawy na przełomie XIX i XX w.* (Warszawa, 1971), 27.

⁷⁸ Based on: Skuratowicz, *Architektura Poznania*, 25–6.

⁷⁹ *Ibidem*, 25.

⁸⁰ Królikowski, *Twierdza Warszawa*, 188.

only to defend against external attacks), the men who created the citadel and forts of Warsaw and Posen bore in mind the possibility of a popular uprising, and they thus designed their projects so that actions could be carried out against the central *noyau* of the fortress as well.⁸¹ This problem was especially crucial in the Russian partition, where the 1905 revolutionary movement against the backward tsarist regime proved very dangerous, not only in Saint Petersburg but also in cities like Warsaw or Lodz. The economic policies by which military investments were guided also differed in the three partitions. The construction of the Cracow fortress boosted the economy there by providing employment to the local population (the scale of the task was such, that it triggered a lack of skilled labour in the civilian building industry, which was the real reason for housing problems in the city⁸²). By contrast, the population of Posen, for example, was initially not welcomed in the construction of the fortress, and workers were imported from Germany.⁸³

Building restrictions around the fortresses were also an issue. The esplanades (*glacis*) around them prevented the growth of suburbs, but the forts had to be connected with each other and with the city, so the military authorities developed a system of roads (radial and circular), which would later turn out to be the origins of future streets.⁸⁴ Another issue involved the general evaluation of the *glacis* area around the cities. Areas around Cracow were regarded as a space well-connected with the city, free of ugly industrial and poor tenement buildings (which typically surrounded the metropolises of that time), and ready for new and orderly development in the twentieth century.⁸⁵ Meanwhile, the urban fabrics of Jeżyce and Wilda near the borders of Posen were often described as chaotic.⁸⁶ However one should not

⁸¹ Polak (ed.), *Poznańskie fortyfikacje*, 141; Królikowski, *Warszawa*, 189.

⁸² Purchla, *Jak powstał nowoczesny Kraków*, 16; Bogdanowski, *Warownie*, 149; Janusz Bogdanowski, 'Od miasta-twierdzy do miasta-ogrodu (przemiana śródmieścia Krakowa)', in *Kraków na przełomie XIX i XX wieku* (Kraków, 1983), 90–1. A different opinion was expressed by Krzysztof Broński, who stressed the fact that the fortress was built mainly by Austrian building companies, *idem*, *Rozwój gospodarczy większych miast galicyjskich w okresie autonomii* (Kraków, 2003), 118.

⁸³ Polak (ed.), *Poznańskie fortyfikacje*, 85.

⁸⁴ Bogdanowski, *Warownie*, 97; Ostrowska-Kęłbowska, *Architektura i budownictwo*, 274; Królikowski, *Warszawa*, 183.

⁸⁵ Bogdanowski, 'Od miasta-twierdzy', 98.

⁸⁶ Ostrowska-Kęłbowska, *Architektura i budownictwo*, 275.

draw too broad conclusions from these descriptions. Insofar as the building restrictions and the areas they encompassed were similar in both cities; the urban fabric within them should thus also have been similar. Yet another issue involves the difficulties in the way the cities themselves functioned. Traffic in and out of the city walls of Cracow and Posen was strictly limited by the military authorities, especially in Posen, which developed faster than Cracow.⁸⁷ The number of gates was limited, and traffic jams appeared in the vicinity of the more busy gates (like the Berlin Gate leading to the railway station), with some of them even temporarily closed. This helps explain why the demolition of some of the gates in the 1890s (and through to the year 1904) was such a big relief for many in Posen.⁸⁸ That having been said, we have to bear in mind that traffic tolls were also collected near these gates. Moreover, the roads outside of the belt belonged to the army, and its authority restricted their use even if the city agreed to pay for their maintenance. In the 1880s, the circular road that linked the forts could be used by the public only on a conditional basis in Posen.⁸⁹ Such were the everyday obstacles that hindered the travel of the civilian populations of these cities. In this context it is worth stressing that Warsaw avoided the fate of cities with inner fortification belts, because the decision to reinforce the entire city was made at the moment when polygonal belts had gone out of use, which explains why some districts (Wola, Praga) could be extended even though the city was fortified.

So what happened when the restrictions were finally lifted? It is important here to mention, first of all, some of the more significant defortifications which took place outside of Poland before this time. The most famous was the demolition of the Vienna walls and the creation of the Ringstrasse. As there is a vast body of literature on this topic, I will briefly describe two other cases. In 1861 a proposal was addressed to remove the belt around Cologne, which had become one of the most densely populated cities in Germany. It took 20 years to get approval from the military authorities.⁹⁰

⁸⁷ *Ibidem*, 280.

⁸⁸ Waldemar Karolczak, 'Utrudnienia komunikacyjne w poznańskiej twierdzy od połowy XIX wieku do 1914 roku', in Agnieszka Wilkaniec and Marcin Wichrowski (eds.), *Fortyfikacje w przestrzeni miasta* (Poznań, 2006), 63–6.

⁸⁹ *Ibidem*, 69.

⁹⁰ Brian Ladd, *Urban Planning and Civic Order in Germany, 1860–1914* (Cambridge, 1990), 96–9.

Finally, in 1881 the terrain was bought by the city and a new district was designed by Joseph Stübben (whose fame came precisely from this project). He combined a set of radial and circular streets to improve transportation throughout the area, not forgetting to leave space for green areas, as was practiced in Paris already in the seventeenth century.

The second case is Breslau, which lost its walls at the behest of Napoleon after 1807. The city appeared ruined after the war and the King promised to hand over ownership of the walls' plots to the city. However, he hesitated for a few years and it was only in 1812 that the King's will was made into a formal decision.⁹¹ From 1813, according to a design by Johann Friedrich Knorr a new green Promenade was built, a traditional eighteenth-century strolling alley, with some ramparts left as viewpoints along the way (most notably, Liebich's Hill, previously called Taschenhöhe). Over the course of the nineteenth century some parts of the moat (which was left for fire safety reasons) were filled in and new squares were created (e.g. Königsplatz, today Plac Jana Pawła II at the western side of the city). The Promenade retained its function as an elegant place for strolling.⁹²

This same process of de-fortification happened relatively late in the Polish territories, but some interesting new districts came into being. In Cracow the main advance came with the development of transportation. A circular railway line was built upon the western trench of the city in 1888,⁹³ which was then turned into a wide alley and later named after the three greatest Polish romantic poets (*Aleja Trzech Wieszców*). Once this was accomplished, it turned out to be easier afterwards to integrate the centre with the surrounding districts, what was important in the context of their unification with Cracow after 1908. In Posen, defortification meant new chances for the neighbouring districts; Wilda became a partly industrial centre, and Jeżyce became a residential district. Moreover, a new

⁹¹ Agnieszka Zabłocka-Kos, *Zrozumieć miasto. Centrum Wrocławia na drodze ku nowoczesnemu city, 1807–1858* (Wrocław, 2006), 24–9.

⁹² Iwona Bińkowska, *Natura i miasto. Publiczna zielen miejska we Wrocławiu od schyłku XVIII do początku XX wieku* (Wrocław, 2006), 105–28.

⁹³ That was possible due to the fact that the inner lines of fortifications became obsolete at that time, cf. Janusz Bogdanowski, 'Rozwój miast-twierdz na galicyjskim place du manoeuvre', in Beiersdorf and Laskowski (eds.), *Rozwój*, 268.

'imperial' district was created on the former fortifications, with plenty of green areas and important and monumental state edifices, most notably the Posen Castle. The urban design was prepared by the above-mentioned Stübben.⁹⁴

III RAILROADS AND STATIONS

The second main factor discussed herein is that railroads, as the new means of transportation, quickly took on a strategic military role, parallel to their role in boosting demographic growth in cities. The railroads, built first in England and in the 1830s on the continent, were initially mainly an economic issue; only later did they become a part of the strategic and military infrastructure (although it should be noted that, somewhat ironically, very early on some viewed railroads as a factor in a potential pacifist cooperation among nations). The history of railways in the Polish territories began as early as 1835. A line linking Warsaw and Galicia was planned by Henryk Łubieński as a private initiative in the Russian partition. This plan eventually failed and the line had to be completed by the state, which was the typical fate of the first railroad lines. Work on the Warsaw–Galicia line began in 1840, the first section was completed in 1845, and the line reached Galicia in 1848.⁹⁵ The next successful projects were carried out in the late 1840s in Posen and Cracow.⁹⁶ There were no more openings of new and longer lines in the Russian partition until 1862 (a branch from Warsaw to Bromberg in Germany, and a line from Warsaw to Saint Petersburg). The next important line

⁹⁴ Cf. Zenon Pałat, *Architektura a polityka. Gloryfikacja Prus i niemieckiej misji cywilizacyjnej w Poznaniu na początku XX wieku* (Poznań, 2011).

⁹⁵ Mieczysław Krajewski, *Dzieje głównego dworca kolejowego w Warszawie* (Warszawa, 1971), 13; Piotr Paweł Pawlicki, *Droga żelazna Warszawsko-Wiedeńska w 50-letnim okresie swojego istnienia od r. 1845 do 1895* (Warszawa, 1897), 30–41.

⁹⁶ The Austrian railroad reached the border city in Moravia in 1840 and the plan was to extend it to Cracow, which was then an independent Republic. Austrian Lviv lagged behind as a result of the imperial decisions. Cracow, a formally independent city at that time, was more fortunate. Because of the cooperation with Prussian railroad entrepreneurs, an access line was built from the city to the thoroughfare linking Vienna and Silesia after 1844 (to which Austria at first objected). It was later linked with the Warsaw line in Russia (1848). Cf. Juliusz Demel, *Początki kolei żelaznej w Krakowie* (Kraków, 1954), 8–19.

in Galicia, linking Cracow and L'viv, was finished only in 1861 due to insufficient funds.⁹⁷

The pace at which railways were built was influenced by the history of European warfare.⁹⁸ The Crimean War was crucial for the two 'slower' (when it comes to building railroads) empires, namely Austria and Russia. The railroad was viewed as an important factor during war, above all because it facilitated the transport of armies. Thus the year 1857 marked a turning point in Russia's railroad policy.⁹⁹ Military authorities were put in control of the construction of railway lines, and private entrepreneurs were well aware of this fact.¹⁰⁰ In Austria, war changed the overall political atmosphere, a fact that led to the decision to improve the railroad network (making it denser) as well as to speed up the process of issuing railroad concessions.¹⁰¹ The initiative to build the line between the two largest cities in Galicia was – due to the financial problems facing the Austrian state – implemented by a private railway society.¹⁰² The next war with Prussia, in 1866, further encouraged railroad development, the aim of which was to avoid a situation whereby an entire region could be cut off if one line was blocked by hostile troops.¹⁰³

The Franco-Prussian war was the next turning point. The German army, as Helmut von Moltke had planned, was mobile; German leaders agreed that the use of railways would be decisive in winning a war.¹⁰⁴

⁹⁷ Konrad Meus, 'Lwów w europejskiej i galicyjskiej sieci komunikacyjnej (1772–1914)', in Tomasz Głowiński and Robert Klementowski (eds.), *'Mkną po szynach...'* Z dziejów transportu i komunikacji na ziemiach polskich na przestrzeni wieków (Wrocław, 2014), 116.

⁹⁸ The usefulness of railroads in transporting armies was proved quickly, in Austria as early as in the 1840s, Wilhelm Kolberg, *Drogi żelazne w Europie* (Warszawa, 1844), 125–6.

⁹⁹ Leszek Madej, 'Armia rosyjska w XIX i na początku XX stulecia', *Studia i Materiały do Historii Wojskowości*, xlvii (2009), 161.

¹⁰⁰ Jan Bloch proposed linking the Brest fortress to the drafted line linking Warsaw with Central Russia in the early 1860s, and the governor-general Fëdor Trepov personally controlled the project. Cf. Feliks Filipek, *Kolej warszawsko-teres-polska* (Warszawa, 1972), 42, 54.

¹⁰¹ Marek Pisarski, *Koleje polskie, 1842–1972* (Warszawa, 1974), 33.

¹⁰² Ludwik Wierzbicki, *Rozwój sieci kolei żelaznych w Galicji od roku 1847 włącznie do roku 1890* (Lwów, 1907), 6–7 (from *Czasopismo Techniczne*); Demel, *Początki kolei*, 33.

¹⁰³ Wierzbicki, *Rozwój sieci kolei*, 40.

¹⁰⁴ Money was shifted from the fortress budget into the military railway budget, Wawro, *Franco-Prussian War*, 47. Cf. also Kleczke and Wyszyński, *Fortyfikacja*, 91.

The outcome of the Russo-Turkish war, unlike the Crimean War, was different because of the use of railroads by the tsarist forces.¹⁰⁵ This moment marked a shift in priorities, and Russian railroad policy became even more 'militarized' than before.¹⁰⁶ Russian railway lines had previously been built thanks to a system of privileged concessions given to private entrepreneurs (with state-guaranteed profits for shareholders). This system was developed by the finance ministry under Mikhail von Reutern (1862–78), and its aim was to strengthen state security. After 1881 such a developed network was no longer sufficient. In the face of the growing threat from victorious Germany, the state began buying up the lines.¹⁰⁷

Railroad lines in the German partition were built by privately owned societies, which had to obtain royal acceptance for each line. In Posen the most important such society turned out to be the Upper-Silesian Railway Society (*Oberschlesische Eisenbahn*, in which the state also had a stake), which built the connection between Breslau and Glogau in 1856. The society was later favoured by the state and thereby gained the concession for the line connecting the Bromberg branch of the Russian railroad (finished in 1873). Some lines had to be bought up by the state (like the Stettin–Posen line in 1851), which anticipated the general trend that saw the state buying up lines after 1883.¹⁰⁸

The process of building railroads was not easy. Many cities had to wait a long time before their demands were fulfilled, and their hopes were dependent on the activity of private societies (and entrepreneurs), on their connections in the courts, and (in the Russian case) on money paid under the table.¹⁰⁹ The fact that Poland was partitioned also explains the poor connections between the country's largest cities. Until 1914, there was no direct link between Posen and Warsaw or between Warsaw and L'viv.¹¹⁰ Posen had to even wait

¹⁰⁵ Bloch, *Przyszła wojna*, ii, 79.

¹⁰⁶ Pisarski, *Koleje polskie*, 34; cf. also Bloch, *Przyszła wojna*, ii, 50–5.

¹⁰⁷ Ryszard Kołodziejczyk, Introduction to: Filipek, *Kolej warszawsko-terespolska*, 18–20.

¹⁰⁸ Robert Kroma, 'Koleje żelazne w Poznaniu', *Kronika Miasta Poznania* (2013), no. 4, 7–35.

¹⁰⁹ This aspect is discussed in, e.g.: Filipek, *Kolej warszawsko-terespolska*, 37–8, 88; Michał Jerczyński, 'Historia łódzkiego węzła kolejowego', in *Szlakiem łódzkiej kolei* (Łódź, 2003), 22.

¹¹⁰ Filipek, *Kolej warszawsko-terespolska*, 33.

nearly 30 years, following its application for approval in 1841, to be connected with its then-state capital (Berlin).¹¹¹ Lodz also serves as an interesting case. This rapidly growing industrial centre had about 15,000 inhabitants at the time of creation of the Warsaw–Vienna line, but the line did not connect with it. In the mid-1860s the city’s population reached 40,000,¹¹² and large factories with steam-driven production were already active there, but only horse-drawn transport was available to the nearest railway station (in a town called Rokiciny, 30 km from the city). This is all the more surprising considering that Lodz was located not far from the German border. About 1856 proposals were made to connect the city to the Russian network. The concession for this project was obtained by the entrepreneur Jan Bloch in 1865, soon after the failed Polish uprising of 1863–4. The fact that Lodz was then a mainly German-speaking city (and not a Polish one) probably explains why this concession was offered at this particularly unfavourable time. Nevertheless Lodz had to wait until 1878 to have the first railroad siding leading to a factory built, and at the turn of the twentieth century there was still no circular line around the city. It was only after a new line was built linking the second important coal basin with Koluszki (near Lodz) in 1885, and after a more favourable atmosphere was established at the court, that the idea of lengthening the Lodz connection and linking it with Kalisz was accepted, and that a junction around the city was created (in 1903). In 1906 Lodz finally obtained a direct connection with Germany.¹¹³

Though the territories of the Polish Kingdom had some military value, authorities quickly realized that they were unable to defend themselves in case of war (as mentioned above). This fact had consequences for the construction of railroads. All the territories west of the Vistula (a region stretching from Warsaw to the German border) were – as we have seen – viewed as a flat, empty battleground, one that could be easily conquered by enemy armies. Therefore, the argument was that there were to be as few railway lines as possible that could be

¹¹¹ Ostrowska-Kęłbowska, *Architektura i budownictwo*, 378.

¹¹² Julian K. Janczak, ‘Ludność’, in Bohdan Baranowski and Jan Fijałek (eds.), *Łódź. Dzieje miasta, i: Do 1918 r.* (Warszawa and Łódź, 1980), 196.

¹¹³ Jerczyński, ‘Historia łódzkiego węzła’, 14, 15, 24, 26 ff., 38 ff., and 45. Cf. also on the importance of Lodz railroads and the difficulties met by the investors, Andrzej Pieczewski, ‘Kolej Fabryczno-Łódzka. Znaczenie dla gospodarczego rozwoju Łodzi’, in Głowiński and Klementowski (eds.), ‘*Mkną po szynach*’, 77–86.

used by an attacking army there. Until 1914 there were only two lines in the region (other than the earlier Warsaw–Vienna line) built using the standard European track gauge (1435 mm). All the other lines (including the line from Warsaw to Kalisz and Germany) used the broader Russian gauge (1520 mm) and were, therefore, useless for German trains. Moreover, these lines were built with astonishingly long delays. A case in point is the Warsaw–Kalisz line, which included a circular line around Lodz. The German government asked the Russian authorities to build a second direct connection between both countries as early as in the 1860s, but had to wait four decades before that application was accepted, the main reason being the presumption that lines in the western part of the Polish Kingdom should be developed only after the eastern part was well connected with Russia. Other reasons included Russia's strained relationship with Germany in the 1870s and its fear of conflict with this expansionist state. The result was a clear difference in the level of railway network development between the Russian and German empires¹¹⁴ – a phenomenon that is visible even on today's maps.

As a result of the construction of this network of railroads, some cities became major junction points, which was true above all for Warsaw, which combined the lines on the western bank of the Vistula (mainly with European standard gauge tracks) and the eastern bank (with Russian gauge tracks). Warsaw, located on the main Berlin–Moscow and Vienna–Saint Petersburg routes, witnessed enormous development when it became this junction.¹¹⁵ Posen was also a type of junction, connecting the lines to Stettin (Szczecin), to Bromberg (and further to Warsaw), to Breslau and Silesia, to Frankfurt an der Oder (and further to Berlin), and, finally, to Kreuzburg (Kluczbork).¹¹⁶ Lodz had to wait a long time (as mentioned above) to become a small junction (lines linking it with the Warsaw–Vienna railroad, lines

¹¹⁴ Wiktor Leszkowicz, 'Kolej kaliska. Budowa. Eksploatacja. Znaczenie dla przemysłowego rozwoju', in Ryszard Kołodziejczyk (ed.), *Studia z dziejów kolei żelaznych w Królestwie Polskim 1840–1914* (Warszawa, 1970), 152; Mieczysław Krzysica, 'Rola czynników wojskowo-politycznych w budowie kolei żelaznej w Królestwie Polskim', in *Studia z dziejów kolei żelaznych*, 13, 38–9; Pisarski, *Koleje polskie*, 34; Badziak, 'Geneza i rozwój', 151.

¹¹⁵ Jerzy Braun, 'Warszawski węzeł kolejowy', in *Wielkomiński rozwój Warszawy*, 123.

¹¹⁶ Kroma, 'Koleje żelazne', *passim*.

to Kalisz and Germany, and to Warsaw).¹¹⁷ Cracow was not a true junction until 1914,¹¹⁸ although the line leading south to Podgórze was completed in 1856, and a circuit line around the city was created in 1888. The main obstacle in Cracow's case was its extremely peripheral location in the Austro-Hungarian Empire and the industrial policy conducted in Austria.¹¹⁹

Another important factor involved the location of railroad stations and lines leading to the cities. Railways were always constructed on embankments, with thoroughfares only rarely located under them. Although proximity to a station was convenient for city inhabitants, it also resulted in densely populated districts near the urban core being cut into parts, and made transportation between them more difficult. Train stations were an important generator of traffic, and therefore had an impact on the direction of urban spatial development. Streets leading to train stations ran along what were to become important commercial and residential areas.¹²⁰

Military factors also influenced the location of railway stations. The civil railway lines were not intended to pass through the walls of fortress-cities. By placing the stations at some distance from the centres, the authorities could control traffic flow and cut a path to the railway in case of emergency.¹²¹ The first station in Posen was located in the peripheries of Jeżyce in the fortress *glacis* (1848), and therefore had to have a provisional status and form of construction (as a wooden structure). This station was in fact demolished around 1879,¹²² when a new central station was built. Its location outside the city was the result of the influence of military authorities, who did not

¹¹⁷ Badziak, 'Geneza i rozwój', 159.

¹¹⁸ Larger junctions were in Mysłowice and Bohumín; cf. Jadwiga Warszyńska, 'Krakowski węzeł komunikacyjny', *Folia Geographica. Series Geographica Oeconomica*, i (1968), 121.

¹¹⁹ Railroads in Galicia during the neoabsolutistic period were not built so much for economic reasons, as for the purpose of centralization and Germanization. That network helped later the Austrian and Czech factory production to penetrate the Galician market. Cf. Alojzy Zielecki, 'Struktura ludności miast Galicji w dobie autonomicznej', in Beiersdorf and Laskowski, *Rozwój*, 87–8; Broński, *Rozwój gospodarczy*, 100.

¹²⁰ Ostrowska-Kęblowska, *Architektura i budownictwo*, 378.

¹²¹ Jerczyński, 'Historia łódzkiego węzła', 39.

¹²² Kroma, 'Koleje żelazne', 7–9.

allow the station to be built inside the walls.¹²³ Another reason for keeping the railway at a distance might well have involved aesthetic issues. In German Breslau (no longer a fortress-city) there was no chance for a railway connection to be built in the city centre because citizens opposed the idea of breaking up the beautiful Promenade, which stretched around the urban core.¹²⁴

By contrast, Cracow's station was located near the centre and near the Planty park, and was a brick-and-mortar building. The reason for this is that it was finished in 1847, before the creation of the city fortress. Initially plans were for the station to be built further from the centre, but no military authorities opposed the idea of locating it near the centre, by Lubicz street.

In the case of cities with no inner fortresses (like Warsaw, Lodz and L'viv), the location of railway stations was motivated by anticipated urban growth and the lower cost of land outside the centre.¹²⁵ In Warsaw, the junction of Aleje Jerozolimskie (built only two decades earlier) and Marszałkowska street was chosen because it was quite distant from the city's true and historic hub, which had been built up in the 1840s.¹²⁶ The station was in fact a terminus, though it was built so as to allow for possible extension in the future, which can be explained not by the far-sightedness of the station's creators, but by the fact that it was built in the early days of railways (1845), when the mature form of a terminus station (as we know it from, i.a., Paris or Budapest) had not yet been invented. An associated problem involved the modest size of the station, which was tied to the fact that, generally speaking, people were not yet fully aware of railroads' potential. As a result the construction carried out in the 1860s turned out to be insufficient to accommodate the steadily growing number of trains and passengers.¹²⁷

Station in L'viv was a different case. Plans (in the 1840s) were to locate the train station south-west of the centre so that the tracks

¹²³ The city had long reserved plots of land for the station inside the fortifications; cf. Ostrowska-Kęmbłowska, *Architektura i budownictwo*, 379–81.

¹²⁴ Bińkowska, *Natura i miasto*, 114–15.

¹²⁵ The land prices in the district around the station soared considerably in the years following the establishment of a railroad line, cf. Pawlicki, *Droga żelazna*, 7.

¹²⁶ Krajewski, *Dzieje głównego dworca*, 20.

¹²⁷ 'Pobieżny rzut oka na rozwój dróg żelaznych Warszawsko-Wiedeńskiej i Warszawsko-Bydgoskiej', *Kłosy*, vii, 157 (1868), 7.

would lead through the southern outskirts of the city to Czernowitz (Chernivtsi). A different decision was finally taken by the Carl Ludwig Railway Society, which eventually obtained the concession; namely that the tracks should go through the northern outskirts, surrounding Castle Hill. The station was therefore located to the west, in the Krakowskie Przedmieście suburb,¹²⁸ 2.5 km from the centre. The main reason for this considerable distance was the high cost of land closer to the city centre. This particular site turned out to have some other shortcomings, including marshy ground, which increased the foundation costs. In 1860 other proposals were made to place the station in the vicinity of the St. George cathedral and – later – to build a new central passenger station closer to the centre at the Jewish cemetery on Janowska street. A particularly interesting proposal was made by the aristocrat Waclaw Jabłonowski – to locate the station closer, to the north-west in Kleparów, near the House of Military Invalids. He even published a plan depicting the station with an array of diagonal streets linking it with the old medieval city and Gołuchowski Square.¹²⁹ However, the military authorities did not agree to give up these tracts of land and the main passenger station remained far from the centre.

What is significant here is that the authorities were unable to build the lines through the city centres, one of the reasons of which was technical in nature: the railways were generally built on embankments, which caused urban traffic problems (as mentioned above). The construction of overpasses posed great financial problems for municipalities (in the Russian partition they had to have formal acceptance from the government for such investments). Lodz was close to executing such a diameter line after 1865, when the railway almost reached Piotrkowska street, but there was no money to build the line further west (the causes are not clear; costs connected with the overpass were not an important factor).¹³⁰ Even the existing, eastern part of the line caused problems with traffic between two districts near Widzew, and an additional overpass was finally built in 1912.

¹²⁸ Wierzbicki, *Rozwój sieci kolei*, 13–14.

¹²⁹ Map: *Narys upiększeń Miasta Lwowa proponowanych i podjętych w 1860 r.*, published by Waclaw Pruss Jabłonowski (1861).

¹³⁰ There were some plans, but the authorities did not support the idea; cf. Jerczyński, 'Historia łódzkiego węzła', 17 ff.

New systems of railway transportation, separating track lines from the streets (by raising them over the street level or directing them through tunnels), were developed in, for example, Berlin. Such an idea was also elaborated in Warsaw, though only on paper. In 1879 Polish engineers designed a line linking the western and eastern stations through the use of underground tracks cutting through the centre (along Aleje Jerozolimskie), but this design was not implemented. Subsequent designs, from the 1890s, relied on the same idea. One such design was approved in 1903 after Saint Petersburg made major changes, and though work began shortly afterwards, a lack of funds postponed the creation of a central passenger line and station until after 1918.¹³¹ In L'viv the idea to cut through the city by railway was impossible because of, among other reasons, the city's topographical situation (its surrounding hills).

In such situations the only solution was to build railways around the city centres. Usually the circular line went outside the contemporary city boundaries, leaving cemeteries, for example, inside the circle. In Cracow the former military trench was used as an embankment. The line leading south to Podgórze (1856) cut through the eastern district of Wesoła, but a tunnel under the railway lines along Lubicz street (1898) facilitated traffic flow in the area.¹³² In Warsaw such a line was built to the north-west and north from the left-bank centre to connect the left-bank and right-bank terminal stations. The junction was built in 1873–1876.¹³³ Because of the difference in track spans on both banks of the city, passengers had to change trains and cargo had to be unloaded and reloaded.¹³⁴ Authorities viewed the embankments as an additional northern 'wall' around the city, which served sanitary purposes.¹³⁵ That particular line was not very convenient for passengers and for people responsible for the transport of goods, but there was no money to build a central station. What is interesting is that Warsaw's right-bank district, Praga, became an example of a 'railway district'. Praga was connected with the Russian Empire in the 1860s: the wide-gauge line to Saint Petersburg was completed in 1862, and

¹³¹ Krajewski, *Dzieje głównego dworca*, 32–43, 62–80.

¹³² Purchla, *Jak powstał nowoczesny Kraków*, ill. 107.

¹³³ Braun, 'Warszawski węzeł kolejowy', 126–9.

¹³⁴ Krajewski, *Dzieje głównego dworca*, 34. This didn't pertain to the lines leading west and south, which had a 'Russian gauge'.

¹³⁵ Królikowski, *Twierdza Warszawa*, 31.

to Moscow in 1871 (opened for shorter distances in 1867). Both stations were terminus stations located not far from the river (which stemmed from the fact that Praga was spatially underdeveloped at the time). The district played the role of an 'entrance door' to Warsaw for the Russian authorities; it thus began to take on a Russian feel. After the circular line around the city was completed, several railway sidings were built in Praga¹³⁶ that cut through the urban fabric at the core of the district, separating different residential sub-districts off from one another (such as Nowa Praga, Szmulowizna and Kamionek).

Lodz's circular line, described above, was also built at some distance from the city, the main reason for which was not economic (cheaper land was available even closer to the centre), but rather involved the fact that the overall goal was to prevent the civilian population from observing moves made by the military. The western part of the circular line led nearer to the centre of the city, but it cut off two of the previously existing four arteries leading west.¹³⁷

A contrasting case involved the line around L'viv and the extension of the railroad to Czernowitz, which was built very near the centre (to the north) and cut through the Żółkiewskie Przedmieście district. The Podzamcze station was located near Castle Hill as a result of a decision by municipal authorities, who believed that such a move would foster urban development¹³⁸ (even though it threatened to create enormous traffic problems in the area). For the most part, contemporaries viewed the subsequent development of the L'viv junction as crucial for the viability of the extant lines,¹³⁹ and it was also regarded as a key factor in urban development. Finally, the connection of the Galician and Russian railways was possible in 1871, a development that boosted the importance of the L'viv junction.

Posen was the only city that represented a modern railway junction¹⁴⁰ (if we consider the Warsaw junction as problematic due to its two types of track gauge). The junction was comprised of five lines, which were built in the city over the course of the second half of the nineteenth century. The line to Guben and Berlin (1870) was built on an overpass, and was a rare example of a railroad junction near

¹³⁶ Braun, 'Warszawski węzeł kolejowy', 130–1.

¹³⁷ Jerczyński, 'Historia łódzkiego węzła', 39–40; Badziak, 'Geneza i rozwój', 157.

¹³⁸ Wierzbicki, *Rozwój sieci kolei*, 18–19.

¹³⁹ *Ibidem*, 11.

¹⁴⁰ Cf.: Kroma, 'Koleje żelazne', *passim*.

a city centre. The line to Bromberg (1872) entailed building a circular line from the north-west and north, using four bridges. The line's stations were located mainly to the south-west and west of Posen and were connected by roads leading through the fortification gates. The main success came with the developing of the central railway station and the fact that existing tracks were restructured accordingly. Old stations had to be abandoned, like the first station in Jeżyce (1879), the Kreuzburg line's station in Wilda (1893), and the Berlin–Posen line station (1896). The central railway station building was erected in 1879 and the work to restructure the tracks was completed in 1891. New footbridges were built over the railway tracks to facilitate pedestrian traffic. A new and larger station edifice was finished in 1906, and subsequent updates were made through to 1914. The result of all these actions was the formation of two main lines: Stettin–Breslau and Berlin–Danzig, which crossed through Posen.

The issue of building railroads was tied to military policy to such an extent that the military aspects of projects and their overall goals were often viewed as more important than the civil goals. Military policy influenced the construction of railroad lines (recall here the tsarist authorities' reluctance to develop the western territories of the Polish Kingdom), their course (railroads had to connect important fortresses, not only urban centres¹⁴¹), their function (they led to certain gathering points that were important to the army¹⁴²), and the siding lines.¹⁴³

IV CONCLUSIONS

Cities in the Polish territories were not exceptional in Europe insofar as the military aspects of their growth in the nineteenth century are concerned. Similar militarily important regions could be found in, i.a., Ile-de-France, in Belgium, in the northern part of Italy,

¹⁴¹ Krzysica, 'Rola czynników wojskowo-politycznych', 17.

¹⁴² The Warsaw–Kalisz railroad was a means of transporting the Russian army to the vicinity of the German fortress in Glogau; cf. Jerczyński, 'Historia łódzkiego węzła', 39.

¹⁴³ In Posen, although the civil railway could not reach the inner city, a special military railway branch line was built inside the fortress to help deliver artillery supplies. Cf. Kroma, 'Koleje żelazne', 10–11. In Lodz, by 1911 the circular line had only six sidings built into the factories; cf. Jerczyński, 'Historia łódzkiego węzła', 102.

and elsewhere. The circumstances in which these cities developed were unfavourable. Military authorities saw them as crucial points in the event of war, and this had a decisive impact on the discussions and decisions made by the states and magistrates at that time. The city authorities were either unable, or at the very least experienced great difficulties, to decide the important issues concerning huge parts of urban areas. All of the three cities which were most important culturally for the Poles (Warsaw, Cracow and Poznań) were turned into fortresses, so there was no 'inner region' (like in France and Germany) free of fortifications, with the exception of the Lodz region. The 'military system' (which included forts, military railways, exercise squares etc.) had to interact with the 'civilian system' (i.e., the rest of the city), because elements of both 'systems' happened to be located at (almost) the same place. Warsaw was the city which suffered the most, because it reached nearly 900,000 inhabitants before 1914, yet remained a fortress until 1909. It was probably the largest tightly designed city-fortress in Europe. Paris can be discounted because its fortifications did not hinder its spatial growth before 1914, and the other city-fortresses were less populated: e.g., Antwerp, Reims, Strasbourg, Magdeburg, Verona, Bucharest, Vilnius, and Kiev.

In spite of some optimistic solutions to the situations within the city walls and the presence of loosely-built areas along their inner borders, it must be stressed that the overall circumstances were unfavourable. Districts with lower costs of living around the urban centres were cut off from them, and no urban laws or by-laws were in force there. With no chance to control their surroundings, the municipalities had to plan their housing policies in a limited way and on a smaller scale. If one compares their situations to that of a big city with an opportunity for uninterrupted growth, like Munich, it can be seen that in the latter a professional magistrate could, already in the 1890s, formulate a conscious land policy. The more well-off urban citizens could benefit from the higher prices of plots in fortress-cities with no chance of spatial growth (whereas Munich had to even downscale the policy of urban extensions in order to keep the price of their plots high enough, catering to the voters¹⁴⁴), but for the working class this situation was far less favourable.

¹⁴⁴ Cf. Leif Jerram, *Germany's Other Modernity. Munich and the Making of Metropolis, 1895–1930* (Manchester and New York, 2014), 84.

That having been said, it is important to bear in mind that in the period after 1918 it was possible to make use of the military land, which became incrementally free during the period from about 1900 to 1918. The former *glacis*, or military grounds, were located just outside the nineteenth-century urban centres and could be used as an area for the location of new residential, administrative, or transportation complexes. That fact was obvious for urban activists like Józef Holewiński in Warsaw before 1914, and that was the reason why the British garden cities movement found such a profound reaction in the Polish territories.¹⁴⁵ After the First World War the designs in the Żoliborz district near the Citadel in Warsaw, the new Warsaw airport, and the planned Marshal Piłsudski's district just to the south of the city, are cases in point. It was possible to create such new, monumental, and modern complexes inside the central area of the city, whereas similar investments in, for example, Berlin (Weiße Stadt, Schillerpark, the new Olympic area) had to be located on the peripheries. Some parts of the nineteenth-century fortifications today serve as green areas. For example, in Warsaw new residential complexes are being built in the vicinity of the once far-away forts, which no longer retain a military function. Today the forts' surrounding land serves as recreation areas, boosting the prices of the apartment complexes built nearby.

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