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Major and local railways in Bukovina before World War I

Streszczenie: W artykule dokonano analizy historii rozwoju transportu kolejowego na Bukowinie, gdzie komunikacja kolejowa odgrywała i nadal odgrywa ważną rolę w rozwoju społeczno-gospodarczym regionu. Otworzyła one nowe możliwości organizacji ekonomicznego transportu dużej liczby osób, a także różnego rodzaju ładunków. Organicznie transport ten łączył interesy mieszkańców i gospodarki regionu. Kolejnym pozytywnym elementem rozwoju transportu kolejowego była poprawa ogólnego stanu mobilizacyjnego państwa w przededniu I wojny światowej. Zbadano rozwój dwóch rodzajów komunikacji – głównych i regionalnych kolei Bukowiny. Przeanalizowano znaczenie dla rozwoju regionu każdego rodzaju kolei (głównej i regionalnej) oraz strategiczne znaczenie kolei bukowińskich jako całości niepodzielnego kompleksu komunikacyjnego, który ma pozytywny wpływ na wszystkie sfery życia regionu. Oddzielnie wskazano strategiczne znaczenie kolei bukowińskich w ogólnym zespole infrastruktury kolejowej Cesarstwa Habsburgów. Udowodniono, że na początku XX w., jeszcze przed I wojną światową, Bukowina miała znaczącą komunikację zewnętrzną i odgrywała ważną rolę w całym systemie kolejowym Austro-Węgier. Ponadto dzięki łączności kolejowej Bukowina miała dogodne warunki do rozwoju handlu z różnymi regionami, zarówno imperiami, jak i innymi państwami.

Słowa kluczowe: Bukowina, Austro-Węgry, transport kolejowy, koleje lokalne, koleje główne

Introduction

100 years have passed since Austria-Hungary ceased to exist. Nevertheless, the history of the Habsburg Empire continues to attract special attention of many researchers. Scientists from many countries analyze and study economic, political, cultural, ethnic and other aspects of the development of the empire. Some of the issues are of the greatest interest for scientists and researchers. In our opinion, one of these issues is the formation of the network of major and local railways in the Habsburg Empire, development of their infrastructure and operation. A thorough study of railway transport provides an opportunity to identify fundamental laws of the internal processes of the empire. It also creates prerequisites for a comprehensive description of socio-economic, military, as well as political state of Austria-Hungary on the eve of the World War I.

In the context of the general study, our attention is drawn to the development of Austro-Hungarian railways in Bukovina. This issue has not been studied much, because not enough attention is paid to the study of railway transport system in Bukovina. The existing scientific researches cover only some aspects of the operation of these railways, without an organic combination of their economic and strategic functions in the overall infrastructure of Austria-Hungary. Under these circumstances, there is the need for a thorough study and analysis of the functioning of the railway transport system in Bukovina.

Bukovina became a part of the Austrian Empire under the Kuchuk-Kainajir Treaty in 1774. Coming under Austrian rule provided security for the inhabitants of the region and led to the rapid industrial development. The construction of water mills, brick factories, and other buildings began. From 1774 to 1849, Bukovina was a province of the governorship of Galicia and Lodomeria with its capital in Lviv. After the Spring of Nations, Bukovina received the status of a separate district. In general, the second half of the XXth century was a period of extremely rapid economic development of Bukovina.

Formulation of the problem

The railway network in Bukovina was mainly formed at the time of integration of the region into Austria and Austria-Hungary. The first railway construction projects were developed in the 1860s. The first railway connecting the capitals of Galicia and Bukovina was put into operation in 1866. The Lviv–Chernivtsi–Jassy strategic railway was put into operation in 1970. Before the World War I, the railway network in Bukovina had reached 592 km in total. At the same time, local narrow-gauge railways were being built. It still remains an unresolved problem to obtain a holistic picture of the development of railways, the volume of transport, the infrastructure of Bukovina on the basis of new data. Therefore, the purpose of the article is a comprehensive study of the network of strategic

and local railways of Bukovina from the development of railway construction projects to the beginning of the World War I.

A comprehensive study of the establishment and development of railway networks in Bukovina contains new, unpublished information as well as elements of scientific novelty, especially concerning issues of economic interpretation of the data received.

Historiography and source base. The study is based on statistical reference books and yearbooks *Podręcznik geografii Galicyi* (1904), *Podręcznik statystyki Galicyi* (1901, 1904, 1908, 1913), *Rocznik statystyki Galicyi* (1887, 1893, 1898), special editions directly related to development of railways (*Polskie Koleje Państwowe 1918–1928*, 1929; *Historia Polski w liczbach*, 2006).

Documents on the concession for the construction of Bukovina railways are given in the law bulletins of Austria-Hungary (*Konzessionsurkunde im Reichsgesetzblatt*, 1867, 1895, 1907, 1909, 1911, 1913).

A significant layer of information on the number of railway stations and their staffing is given in *Szematyzm królestwa Galicyi i Lodomeryi z wielk. księstwem krakowskiem* (1870–1884).

Significant materials are represented in individual scientific research papers of railway practitioners, historians and statisticians. In 1898, S. Kornman published a map of the railways and waterways connecting Galicia and Bukovina, where some statistics are given along with a detailed map on a scale of 1:750 000. L. Wierzbicki, who held senior positions in the Lviv and Stanislaviv railway directorates, cited historical and technical results of the construction of railways in Galicia (including Bukovina) in the monograph *Rozwój sieci kolei żelaznych w Galicyi od roku 1847 włącznie do roku 1890* (1907). Some issues of the formation of the railway network in Austrian times were reviewed by J. Skwarczyński (1926). K. Prochaska (1898) described the general features of the history of railways in the Austro-Hungarian Empire. S. Szuro (1997) cited statistical elaboration of materials on railways in his article. E. Ziffer (1908) provided information about local railways of Galicia and Bukovina. V. Röhl (1915) gives general data on the railways of Galicia and Bukovina in a special encyclopedic article. More detailed information on the history of the Galicia and Bukovina railways was published by V. Klapchuk (2012, 2016)¹.

Presentation of the material

Lviv–Chernivtsi–Jassy Railway (Lemberg–Czernowitz–Jassy–Eisenbahn – LCJE). The construction of the main railway to connect Galicia and Romania in the

¹ V.M. Klapchuk, *Railways of Galicia*, „The Bulletin of the Precarpathian University. History” 2012, vol. 22, s. 10–21; idem, *Transport and Means of Communication in Galicia*, Ivano-Frankivsk 2016, 672 ss.

northeast of the Austrian Empire was initiated by the circular of the Austrian government of May 27, 1856. However, the project was hampered by the financial crisis of the mid-1950s (in Europe in 1863). »C.K. Uprzywilejowane Towarzystwo Akcyjne Galicyjskiej Kolei Karola Ludwika« together with the British capital formed the consortium »Uprzywilejowane Towarzystwo Kolei Żelaznej Lwowsko-Czerniowieckiej«. On January 11, 1864, the consortium was given a concession for the construction of a railway from Lviv to Chernivtsi. The concession was given by the Austrian government under state guarantees in an annual amount of 1.5 million crowns². The importance of the project was confirmed by the fact that until now joint-stock companies were required to provide capital in an amount of 5,5% of the total cost of work.

During 1864–1870, a 579.59 km long main railway was built on the territory of Galicia and Romania. It consisted of five sections: Lviv–Chernivtsi (September 1, 1866; 266.66 km); Chernivtsi–Suceava (October 28, 1869; 89.9 km); Suceava–Roman (December 15, 1869; 103.31 km); Patskany–Jassy (June 1, 1870) and Vereshti–Botosani (November 1, 1870). The total length of the railway was 119.72 km³. The section Lviv–Nepolokivtsi (238.4 km) was put into operation on September 1, 1866 at a total cost of 21 131 597 crowns⁴.

At the time of the opening of the first section of the railway in 1866, there were 27 locomotives, 40 passenger cars and 671 freight cars. In 1870, the number of rolling stock had nearly doubled. There were 57 locomotives, 100 passenger cars, and 1238 freight cars. In the last quarter of the XIXth century, their number fluctuated within the following ranges: 54–67 locomotives; 94–109 passenger cars; 1110–1742 freight cars.

During the first year of operation, the railway transported 133 000 people. In 1870, the number of passengers had doubled (292 000 people), and by 1887 it had grown to 570 000 people. During 1869–1887, 0,9–2,2% of passengers used I class cars, 15–16% (later – 7–8,8%) – II class cars, and 76–88% – III class cars. 3,3–10,1% passengers travelled at the military fare.

In 1867, 105 000 tons of freight were transported by the railway. However, their number was growing constantly. In 1870 it had reached 258 000 tons, in 1873 – 443 000 tons, in 1877 – 968 000 tons. In 1878, the number of freight began to decrease (to 528 000 tons in 1881)⁵.

² L. Wierzbicki, *Rozwój sieci kolei żelaznych w Galicyi od roku 1847 włącznie do roku 1890*, Lwów 1907, s. 10.

³ S. Szuro, *Informator statystyczny do dziejów społeczno-gospodarczych Galicji. Koleje żelazne w Galicji w latach 1847–1914*, „Historia Iagellonica” 1997, s. 27–30; https://pl.wikipedia.org/wiki/Kolej_Żelazna_Lwów-Czerniowce-Jassy.

⁴ J. Skwarczyński, *Rozwój sieci kolejowej pod zaborem austrjackim*, „Inżynier Kolejowy” 1926, nr 8–9.

⁵ Ibidem.

Since July 1, 1889, the traffic on these lines was carried out by »The Imperial-Royal State Railways«, on the basis of the agreement with »The Lemberg-Czernowitz-Jassy–Eisenbahn«⁶.

In 1888, the Romanian section of the railway went bankrupt and came under the control of the Romanian Railways (Căile Ferate Române). On July 1, 1889, the Galician section became the property of the Imperial Royal State Railways (K.K. Österreichische Staatsbahnen – KkStB)⁷.

Organizational support and staffing. As mentioned above, the consortium »Uprzywilejowane Towarzystwo Kolei Żelaznej Lwowsko-Czerniowieckiej« was established on the basis of the concession of January 11, 1864. The president of the board was Leon Sapięha, his deputy was Karol Jablonowski. The board also included 14 members. The General directorate was in Vienna headed by Victor Offenheim von Ponteuskın. The technical department included: director Emanuel Ziffer; chief inspector, inspector, 2 secretaries, 5 government officials of the I category, 11 government officials of the II category, 40 government officials of the III category, three trainees. The traffic operation directorate, headed by Henryk Gintl, included 1 second class and 3 third class chief engineers, 16 government officials of the I category, 24 government officials of the II category and 135 government officials of the III category, and 80 trainees⁸.

In 1875, the headquarters remained in Vienna headed by Karol Barichar, Ferdinand Perl was his deputy. There were 49 members of engineering and administrative staff. The traffic operation directorate was located in Lviv and headed by Juliusz Schreiber. The total number of the staff consisted of 81 employees, including the heads of railway stations⁹.

In 1879, Karol Jablonowski was appointed president of the Founding board, replacing L. Sapięha. Leopold Stern became his deputy. The headquarters headed by Alexander Klauđa-Klaudius were located in Vienna. They consisted of 67 employees of various specialties and categories. The traffic directorate was located in Lviv and headed by Karol Osterreicher, whose deputy was Ludwik Wierzbicki, a well-known railway engineer, who published a number of scientific and statistical works on the formation and operation of the Galician railways. The total number of employees of the directorate was 129. The staff of the railway also included the staffs of 4 railway stations and 28 stations (165 people). The staff on the territory of Bukovyna consisted of the following number of employees:

⁶ L. Wierzbicki, op. cit., s. 66–69.

⁷ J. Skwarczyński, op. cit.

⁸ *Szematyzm królestwa Galicyi i Lodomeryi z wielk. księstwem krakowskiem na rok 1870*, Lwów 1870, s. 522–528.

⁹ *Szematyzm królestwa Galicyi i Lodomeryi z wielk. księstwem krakowskiem na rok 1875*, Lwów 1875, s. 499–504.

Luzhany – 2, Sadgora – 1, Chernivtsi (headed by Friedrich Grabner) – 27, Folkagarten – 2, Kuchurmare – 1, Hlyboka – 2, Cherepkuts – 2, Ruda – 1, Gadikfalfa – 2, Eastersegita – 1, Milleschutz – 2, Gatna – 1, Suceava (headed by Salamon Schaffner) – 21¹⁰.

During 1881–1884, 68–81 people worked annually at 2 railway stations and 11 stations in Bukovina¹¹.

In 1866, 10 locomotives were delivered by the factories »StEG« (Vienna) and »Sigl«. Each factory delivered 5 locomotives. They received the following names: Piorun, Grom, Strzała, Wiatr, Pospiech, Iskra, Swit, Cwał, Dzionek, Zmrok. In 1870, the factory »Neilson & Company« (Glasgow) delivered steam locomotives with the names Zorza, Coniec, Ruch. In 1880, steam boiler systems were modernized with increasing steam pressure to 8.0 atmospheres. After the nationalization of the railway, the steam locomotives were designated KkStB 18.01–18.13. In 1890, steam locomotives were modernized again (replacement of 13 series boilers, cylinders, cabin expansion). Until 1908, KkStB used steam locomotives of 18 series (Table 1)¹².

Table 1. Moving locomotives of the railway¹³

Locomotive type	Years of operation	Amount, numbers	Manufacturer	KkStB
Steam locomotive KkStB 1401 »Tiger bis Mora«	1855–1892	2 (no. 103–104)	Lokomotivfabrik der StEG »Sigl« (Vienna)	KkStB 14.01–14.02
High-speed steam locomotive KkStB 18	1866–1908	10 (no. 18–27)	Lokomotivfabrik der StEG »Sigl« (Vienna)	KkStB 18.01–18.10
Tank steam locomotive KkStB 95	1865–1918	3 (no. 101–103)	Manning, Wardle and Co. (Leeds, England) Worcester Engine	KkStB 95.01–95.03
High-speed steam locomotive KkStB 18	1866/1870–1908	3 (no. 46–48)	Lokomotivfabrik der StEG »Sigl« (Vienna); Neilson & Co. (Glasgow)	KkStB 18.11–18.13

¹⁰ *Szematyzm królestwa Galicyi i Lodomeryi z wielk. księstwem krakowskiem na rok 1879*, Lwów 1879, s. 477–483.

¹¹ *Szematyzm królestwa Galicyi i Lodomeryi z wielk. księstwem krakowskiem na rok 1881*, Lwów 1881, s. 493–500; *Szematyzm królestwa Galicyi i Lodomeryi z wielk. księstwem krakowskiem na rok 1882*, Lwów 1882, s. 494–501; *Szematyzm królestwa Galicyi i Lodomeryi z wielk. księstwem krakowskiem na rok 1884*, Lwów 1884, s. 475–482.

¹² K. Gölsdorf, *Lokomotivbau in Alt-Österreich 1837–1918*, Wien 1978.

¹³ B. Schmeiser, *Lokomotiven von Haswell, StEG und Mödling 1840–1929*, Nachdruck, Wien, 1992.

Steam locomotive for passenger transportation MÁV II	1873–1918	4 (no. 28–31; з 1875 p. – no. 124–127)	Wiener Neustädter Lokomotivfabrik	KkStB 19.08–19.11
High-speed steam locomotive KkStB 1	1883–1920s	5 (no. 24–28; з 1905 p. – no. 124–128)	Wiener Neustädter Lokomotivfabrik	KkStB 1.24– 1.28
Steam locomotive CFR 2	1922–1938	12 (no. 28–33, 40–45) (»SUCEAVA«, »MIHĂILENI«)	Société de Construction des Batignolles	CFR 201–206
Freight tender steam locomotive KkStB 40	1866/1887–1920s	33 (no. 1–17, 35–39, 58–63, 68–69, 81–83) (»CZERNOWITZ«)	Wiener Neustädter Lokomotivfabrik »Sigl« (Vienna); Dübs & Co. (Glasgow)	KkStB 40.01–40.30
Steam locomotive KkStB 46	1872/1884–1890s	7 (no. 64–67, 155–157)	Wiener Neust. Lokomotivfabrik »Sigl« (Vienna)	KkStB 46.37–46.43
Steam locomotive KkStB 171	1876/1878–1933	8 (no. 70–77) »Floridsdorf«	LOFAG (Vienna)	KkStB 171.21–171.28
Tank steam locomotive KkStB 94	1886–1923	1 (no. 104 »HATNA«)	Krauss (Linz)	KkStB 94.34
High-speed steam locomotive KkStB 4	1893–1940	8 (no. 538, 550, 551, 561, 564, 565, 594, 595)	Wiener Neustädter Lokomotivfabrik	kkSt 4.138, 4.150, 4.156, 4.161, 4.164, 4.165, 4.194, 4.195
Tank steam locomotive KkStB 97	1891	3 (no. 53, 54, 55)	Wiener Neustädter Lokomotivfabrik	97.53, 97.54, 97.55

Bukovina local railway (Bukowinaer Lokalbahnen – BLB). The railway belonged to the joint stock company »Bukovina Local Railway«, which was established during June 5 – July 2, 1883, and approved on July 15, 1883 in the name of the concessionaires Alexander Baron von Petrinho, Heinrich Popper, Baron Nikolaus von Mustatz, Stefan Stefanowicz, and Dr. Johann Zott. The de facto founding date was June 12, 1886.

The Chernivtsi–Novoselytsia line was transferred to the joint stock company. It was legally formalized by the local authorities by the law of May 25, 1880 and December 26,

1882. The railway line was opened on July 12, 1884, reaching the border with Russia (in Novoselytsia) and connecting with the line Novoselytsia–Larga–Oknytsia–Beltzy¹⁴.

The company owned the following railway lines:

- Chernivtsi–Novoselytsia (opened on July 12, 1884; 30,831 km; since January 1, 1894 owned by the state);
- Hlyboka–Bergomet-na-Sereti with the branch Karapchiv–Chudyn (November 30, 1886; 52,924 km; branch length – 18,710 km);
- Bergomet-na-Sereti–Mezhibrody–Lopushna (November 15, 1909; 14,621 km);
- Gatna–Dorna Varta with the following sections: Gatna–Kimpolung (May 1, 1888; 66,866 km); Kimpolung–Valeputna (January 9, 1901; 18,984 km); Valeputna–Jacobeni–Dorna Varta (October 29, 1902; 22,971 km);
- Pozoritta–Luisenthal / Fendul Moldovi connecting section (August 25, 1906; 6,246 km);
- Gadikfalva–Radauts (November 17, 1889; 8,140 km; since July 1, 1898 owned by the joint stock company »The New Bukovina Railways«);
- Vama–Ruska Moldavitsa connecting section (August 15, 1889; 20,059 km);
- Chudyn–Koszczuja narrow-gauge railway (October 15, 1908; 22,554 km).

The Kimpolung–Dorna Varta railway was given a concession on October 23, 1899. Chudyn–Koschuya was given a concession on January 18, 1907, and later on January 16, 1911¹⁵.

The unprofitability of the Lviv–Chernivtsi–Jassy railway led to its transfer to the Austrian State Railways (July 1, 1889).

Bukovina local railway existed until the end of the World War I. After that, it was liquidated and became a part of the Romanian Railways (Rumänische Staatseisenbahngesellschaft). The rolling stock of the railway included: 25 steam locomotives, 11 passenger cars, 107 freight cars, three work cars, 12 tractors.

Local line Chernivtsi–Suceava (89 km). Route Chernivtsi–Hlyboka–Bukovynska–Itskany – border with Austria-Hungary.

On September 1, 1866, Chernivtsi connected with Lviv and it was necessary to build local railways. On May 15, 1867, a consortium was formed to build the section to Suceava and extend it to the Austrian-Romanian border¹⁶.

The concession contemplated completion of the works by the end of 1869. One of the reasons for the rapid start of construction was the intention to allow transportation of passengers, raw materials, agricultural and forestry products from the periphery of the

¹⁴ E.A. Ziffer, *Die Lokalbahnen in Galizien und der Bukowina*, Band 2, Wien 1908.

¹⁵ Reichsgesetzblatt 1911, nr 14, s. 84.

¹⁶ Reichsgesetzblatt 1867, nr 85, s. 179.

region. Despite the unfavorable conditions of the area, it was planned to open the section on October 28, 1869¹⁷. With the commissioning of this section on December 15, 1869, the Romanian government decided to connect it with the railways of other countries by means of using the section Suceava–Roman. The Austro-Romanian border was south of the station Itskany¹⁸.

Despite its importance, the route could not be realized due to difficult economic conditions in Bukovina and northern Moldova. During 1872–1875, the railway was administered by the Austrian government through regional railway branches. During 1889–1894 the railway was administered by the state¹⁹.

Local line Hlyboka–Bergomet (53 km). The railway together with the Karapchiv – Chudyn section was opened on November 30, 1886. On July 1, 1889, it was transferred from the Lviv – Chernivtsi – Jassy Railway to the Austrian State Railways.

On November 15, 1909, the line was connected with the section Seret – Mezhybrody – Lopushna (14,621 km). The part of the section to Mezhybrody was 9.2 km long and existed since 1886. In 1913, passenger traffic was discontinued due to its unprofitability. In 1916, the line was partially captured by Russian military troops. After the World War I, the line was transferred to the Romanian State Railways (Căile Ferate Române).

New Bukovina Railways (Neue Bukowinaer Lokalbahn-Gesellschaft – NBLG) was established as a de jure consortium on September 25, 1895. As a de facto consortium it was established in 1897. It included standard and narrow-gauge railways²⁰.

The company operated the following railways:

- Hlyboka–Seret (January 1, 1897; 18,265 km);
- Itskany–Suceava (January 1, 1897; 4,851 km);
- Radauts–Brodina (July 7, 1898; 41,371 km);
- Karlsberg–Putna railway connection (5,456 km);
- Napolokivtsi–Vyzhnytsia (July 7, 1898; 43,914 km);
- Luzhany–Zalishchyky (July 12, 1898; 43,541 km; connected with the section Zalishchyky–Chortkiv in Zalishchyky);
- Gadikfalva–Radauts (July 1, 1898; 8,140 km; purchased by the state on November 17, 1889);

¹⁷ K. Prochaska, *Geschichte der Eisenbahnen der Oesterreichisch-Ungarischen Monarchie*, Band 1, Teil 2, Wien 1898, s. 34–37.

¹⁸ B. Neuner, *Bibliographie der österreichischen Eisenbahnen von den Anfängen bis 1918*, Band 2, Wien 2002.

¹⁹ V. Röhl, *Enzyklopädie des Eisenbahnwesens*, Band 7, Berlin–Wien 1915, s. 96–97.

²⁰ Konzessionsurkunde im Reichsgesetzblatt 1895, nr 161, s. 603.

- Vereshchanka–Okna (23,246 km) with the following sections: Vereshchanka–Yurkuts (October 17, 1909); Yurkuts–Okna (January 1, 1910);
- the railway connection Seret–Synouts–state border (June 27, 1911; 5,735 km);
- the narrow-gauge railway Brodina–Seliatyn (20,951 km) with the following sections: Brodina–Sipitul (August 10, 1912); Sipitul–Seliatyn (October 26, 1913).

The first five routes were given by the first concession in 1883, the Vereshchanka–Okna line on February 19, 1907, and January 9, 1909²¹. They were transferred to the Austrian State Railways due to bankruptcy. After the World War I, the line was transferred to the Romanian State Railways.

Local railway Czudin–Koszczuja (Lokalbahn Czudin–Koszczuja) was the only narrow-gauge railway in Bukovyna (gauge width – 760 mm).

The forest owners Oleksandr Ritter von Goyan and August Ritter von Goraysky initiated a project on the construction of a narrow-gauge railway to exploit forest resources in the vicinity of Gilch and Koszczuja. The railway should be connected with the local standard railway Hlyboka–Bergomet–Seret in Chudyn. The concession for the construction of the line was received on January 18, 1907. On October 15, 1908, the railway was opened²².

In subsequent years, the demand for passenger traffic increased. On January 16, 1911, the license was extended²³. After the World War I the railway was transferred to the Romanian State Railways²⁴.

During the period under study, a significant number of steam locomotives were used on the railway (Table 2).

Table 2. Moving locomotives of the railway²⁵

Locomotive type	Years of operation	Amount	Manufacturer	KkStB
Tank steam locomotive KkStB 94	1886/99–1936	5 (»Pino«...)	Krauss (Linz)	KkStB 94.31–94.36
Tank steam locomotive KkStB 83	1884–1902	3 (»Alesani I«...)	Krauss (Linz)	KkStB 83.31–83.33

²¹ Konzessionsurkunde im Reichsgesetzblatt 1907, nr 711, s. 372; Konzessionsurkunde im Reichsgesetzblatt 1909, nr 7, s. 12.

²² Konzessionsurkunde im Reichsgesetzblatt 1907, nr 19, s. 113.

²³ Konzessionsurkunde im Reichsgesetzblatt 1911, nr 14, s. 84.

²⁴ W. Wendelin, *Karpatendampf – Schmalspurbahnen in der Nordbukowina*, Band 2, Mautern 2003.

²⁵ B. Schmeiser, op. cit.

Freight tender steam locomotive KkStB 40	1887–1908	2 (»Giunaleu«, »Rareu«)	Lokomotivfabrik der StEG »Sigl« (Vienna)	KkStB 40.29–40.30
Motor car with traction electric motor KkStB 64	1897–1939	1 (»Goëss«)	Krauss (Linz)	KkStB 64.01
Tank steam locomotive KkStB 164	1906–1936	1 (»Konrad Hohenlohe«)	Krauss (Linz)	KkStB 164.01
Tank steam locomotive KkStB 264	1907–1936/37	3 (»Kochanowski«, »Derschatta«, »Bleyleben«)	Lokomotivfabrik der StEG	KkStB 264.01–264.03
Tank steam locomotive KkStB 364	1908/13–1936	4 (»Stroner«, »Viktor Styrcea«, »Forster«, »Graf von Meran«)	Krauss (Linz)	KkStB 364.01–364.04
Tank steam locomotive KkStB 464	1910/13–1936/37	3 (»Pflaum«, »Auffenberg«)	Krauss (Linz)	KkStB 464.01–464.03
(Narrow-gauge) steam locomotive KkStB Cv	1908/12–1939	3 (»Janosz«, »Grigorcea«, »Czudin«)	Krauss (Linz)	KkStB Cv 1–2, 3–4
Tank steam locomotive KkStB 97	1896/99–1939	13 (no. 19702/03, 19718–725, 19754)	Wiener Neustädter Lokomotivfabrik; Krauss (Linz)	KkStB 97.92/93, 97.103/104, 97.118–97.125, 97.157

During 1870–1890, the length of the Austrian railways increased 1.65 times (Table 3), and in Bukovina it increased to 486 km or 4.1 times. In absolute terms, the region ranked 8th out of 14 districts of Austria. During the last 25 years of the XIXth century, there was 1 km of railways per 21.5 km² and 1,897 people of the region. It should be noted that in the late 1870s, these figures, were 89.2 km² (4.4 times less) and 4,382 people (3.3 times less) respectively. The proportion of Bukovina as part of Austria increased from 1,03% in 1879 to 2,58% in 1899, namely 2.5 times. The increase in the length of railways in Bukovina was the highest among all parts of Austria. However, it should be noted that the density of railways was still quite low: in terms of length per capita, Bukovina ranked 10th out of 14 districts of the monarchy.

Table 3. Railways of Galicia in comparison with other Austrian districts²⁶

Austrian districts	Length of railways				Growth (1879–1899)		Density			
	1879		1899		km	%	km ² /km		people/km	
	km	% of Austria	km	% of Austria			1879	1899	1879	1899
Upper Austria	623	5,49	894	4,75	271	43,50	19,25	13,41	1182	879
Lower Austria	1238	10,91	1900	10,09	662	53,47	16,00	10,43	1607	1401
Bukovina	117	1,03	486	2,58	369	315,38	89,21	21,51	4382	1330
Galicia	1553	13,69	3483	18,50	1930	224,27	50,56	22,54	3506	1897
Dalmatia	105	0,92	126	0,67	21	20,00	121,99	81,85	4857	4186
Salzburg	206	1,82	381	2,02	175	84,95	34,79	18,77	744	455
Carinthia	418	3,68	477	2,53	59	14,11	24,82	21,65	808	757
Carniola	267	2,35	434	2,31	167	62,55	37,42	22,94	1747	1150
Moravia	956	8,43	1841	9,78	885	92,57	23,25	12,07	2110	1237
Silesia	298	2,63	575	3,05	277	92,95	17,25	8,95	1720	1053
Tyrol	578	5,09	863	4,59	285	49,31	50,75	33,94	1533	1076
Vorarlberg	273	2,41	319	1,69	46	16,85	29,20	24,97	2195	2180
Czechia	3720	32,78	5727	30,42	2007	53,95	13,96	9,07	1382	1020
Styria	995	8,77	1320	7,02	325	32,66	22,57	16,99	1144	972
Austria	11 347	100,0	18 826	100,0	7479	65,91	26,45	15,94	1797	1269

As of 1899 (Table 4), in terms of density of railways, Bukovina occupied the following places (out of 14 districts of the Austrian monarchy):

- 5th place – in terms of 1 km of railway per 100 thousand people;
- 8th place – in terms of area per 1 km of railway;
- 9th place – in terms of length per 1,000 km²;

²⁶ *Podręcznik statystyki Galicji*, red. T. Pilat, t. VI, cz. 2, Lwów 1901, s. 236.

- 9th place – in terms of proportion in the railway system of Austria;
- 10th place – in terms of population per 1 km of railway.

**Table 4. Railways of Galicia in comparison with other Austrian districts
(compiled by the authors after²⁷)**

Austrian districts	Length of railways, km	Area of the district, km ²	Population, people	Density				
				km ² /km	km/ /1000 km ²	people/ /km	km/ /100 thousand people	% of Austria
Upper Austria	894,244	119 85,41	785 831	13,40	75	879	113,796	4,75
Lower Austria	1899,584	198 23,11	2 661 799	10,44	96	1401	71,365	10,09
Bukovina	486,342	10 451,61	646 591	21,49	47	1329	75,216	2,58
Galicia	3483,256	78 496,99	6 607 816	22,54	44	1897	52,714	18,50
Dalmatia	125,982	12 882,57	527 426	101,86	10	4187	23,886	0,67
Salzburg	381,153	7152,19	173 510	18,76	53	455	219,672	2,03
Carinthia	476,761	10 327,71	361 008	21,66	46	757	132,064	2,53
Carniola	434,044	9955,84	498 958	22,94	44	1150	86,990	2,31
Moravia	1841,167	22 221,90	2 276 870	12,07	83	1237	80,864	9,78
Silesia	575,151	5146,85	605 649	9,95	112	1053	94,964	3,06
Tyrol	862,878	29 288,22	928 769	38,94	29	1076	92,906	4,58
Vorarlberg	318,484	7966,04	695 384	25,01	40	2183	45,800	1,69
Czechia	5727,339	51 948,17	5 843 094	9,07	110	1020	98,019	30,42
Styria	1319,612	22 427,77	1 282 708	17,00	59	972	102,877	7,01
Austria	18 825,997	300 024,38	23 895 413	15,94	63	1269	78,785	100,0

During the first decade of the XXth century, the network of standard railways in Bukovina increased by 8.5% (42 km), which was 3% lower than in Austria (Table 5).

²⁷ Ibidem.

The longest railway network was in Czechia, which was of exceptional geopolitical importance for Europe. Bukovina was in 9th place. The fewest railways were in Dalmatia and Salzburg. The highest density per 1,000 km² was in Czechia, and per 100 thousand people – in Salzburg. In terms of these indexes, Bukovina was in 9th and 10th places respectively.

Table 5. Length and density of Austrian railways, 1910 p. (compiled by the authors after²⁸)

No.	District	Length, km	Density	
			km/1000 km ²	km/100 thousand people
1	Upper Austria	985	82,1	122
2	Lower Austria	2165	109,3	70
3	Bukovina	528	50,5	72
4	Galicia	3830	48,8	52
5	Dalmatia	230	17,9	39
6	Salzburg	408	57,1	212
7	Carinthia	522	50,5	142
8	Carniola	433	43,5	85
9	Moravia	1990	89,6	84
10	Silesia	602	116,9	89
11	Tyrol	975	33,3	99
12	Voralberg	467	58,6	62
13	Czechia	6466	124,5	102
14	Styria	1400	62,5	103
Austria		21 001	70,0	95,2

During 1897–1906, the growth of the length of railways was 24% in Austria, and almost 52% in Bukovina (Table 6). In absolute terms, the largest increase was recorded in Czechia and Galicia, the smallest one – in Carniola and Silesia. In Bukovina, this rate was 183 km. In terms of speed of railway development, Bukovina was in second place, despite the fact that a significant part of the region was located in inaccessible and uninhabited places. A decisive role was played by geopolitical location and need to connect the eastern borders of the Austro-Hungarian Empire with Moldavia, Romania and the south of the Russian Empire with the Black Sea coast.

Thus, during this period, the length of railways and the provision per capita increased by one quarter. There was 1 km of railways per less than 20 km² of the territory, that is this

²⁸ S. Kornman, *Mapy Galicyi i Bukowiny. Dodatek statystyczny*, Lwów 1911, s. 46–47.

rate increased by half. At the same time, Bukovina ranked only 11th in Austria in terms of railway length, 10th in terms of density per unit of area, and 12th in terms of density per capita. The growth of the railway network in Austria led to the fact that the proportion of Bukovina in the length of railways decreased by 0,1% until 1906.

Table 6. Dynamics of Austrian railways during 1897–1906²⁹

No.	District	Length, km				Growth		Density			
		1897		1906		km	%	km ² /km		people/km	
		In total, km	Proportion, %	In total, km	Proportion, %			1897	1906	1897	1906
1	Upper Austria	864	4,96	987	4,57	123	14,24	13,87	12,14	909	821
2	Lower Austria	1790	10,28	2295	10,63	505	28,21	11,07	8,64	1487	1351
3	Bukovina	352	2,02	535	2,48	183	51,99	29,73	19,54	1839	1365
4	Galicia	3082	17,7	3901	18,06	819	26,57	25,47	20,12	2144	1876
5	Dalmatia	126	0,72	230	1,06	104	82,54	101,86	55,72	4187	2578
6	Salzburg	329	1,89	408	1,89	79	24,01	21,76	17,54	528	473
7	Carinthia	448	2,57	583	2,70	135	30,13	23,07	17,72	806	630
8	Carniola	422	2,43	472	2,19	50	11,85	23,57	21,08	1181	1076
9	Moravia	1768	10,16	1990	9,21	222	12,56	12,56	11,17	1287	1225
10	Silesia	550	3,16	602	2,79	52	9,45	9,36	8,55	110	1130
11	Tyrol	852	4,89	1037	4,80	185	21,71	34,37	28,23	1090	947
12	Vorarlberg	318	1,83	574	2,66	256	31,30	25,01	13,87	2183	1318
13	Czechia	5228	30,02	6566	30,41	1338	25,59	9,94	7,91	1118	962
14	Styria	1284	7,37	1414	6,55	130	10,12	17,47	15,86	999	959
Austria		17 413	100	21 594	100	4181	24,01	17,23	13,89	1372	1211

According to official state statistics, from 1901 to 1911 (Table 7), the length of railways in Austria increased by 16%. The length of railways in Bukovina increased by 17%, but it did not increase its proportion in the railway network of the monarchy. Since the beginning of the XXth century, there was 1 km of railways per 17.6 km² of the territory of

²⁹ Ibidem, s. 51.

Bukovina, which was a quarter less than in the monarchy as a whole. This rate was even worse in Dalmatia, Tyrol, Carniola and Galicia. There was 1 km of railways in Bukovina per 1,351 people, which was much less than in Dalmatia and Carinthia.

Table 7. Railways of Galicia in comparison with other Austrian districts, 1901–1911³⁰

Austrian districts	Length of railways				Growth, 1901–1911		Density			
	1901		1911		km	%	km ² /km		people/km	
	km	% of Austria	km	% of Austria			1901	1911	1901	1911
Upper Austria	947	4,84	1028	4,52	81	8,55	12,66	11,65	856	830
Lower Austria	1971	10,07	2477	10,89	506	25,67	10,06	8,00	1573	1426
Bukovina	506	2,59	592	2,60	86	16,99	20,66	17,63	1443	1351
Galicia	3584	18,32	4120	18,11	536	14,95	21,90	19,05	2041	1948
Dalmatia	185	0,94	234	1,03	49	26,48	69,37	54,91	3210	2763
Salzburg	381	1,95	418	1,84	37	9,71	18,77	17,11	506	514
Carinthia	504	2,58	620	2,73	116	23,01	20,49	16,64	729	638
Carniola	434	2,22	508	2,23	74	17,05	22,94	19,60	1171	1036
Moravia	1849	9,45	2110	9,28	261	14,11	12,02	10,53	1318	1243
Silesia	592	3,03	659	2,90	67	11,32	8,69	7,81	1149	1149
Tyrol	897	4,59	1150	5,05	253	28,20	32,65	25,47	1095	950
Vorarlberg	319	1,63	586	2,57	267	83,70	24,97	13,61	2372	1526
Czechia	6053	30,94	6769	29,76	716	11,83	8,58	7,67	1044	1000
Styria	1340	6,85	1478	6,49	138	10,30	16,74	15,18	1012	977
Austria	19 562	100	22 749	100	3187	16,29	15,34	13,19	1337	1256

In general, before the World War I (Figures 1–3), the length of railways in Bukovina was 592 km of standard tracks, which was only 2.6% of all railways in Austria. In 1880, there was 1 km of railways per 89 km² of the total area of Bukovina. After 30 years, this rate had improved fivefold (17.6 km²), but it still did not meet the demand passenger and industrial railway transportation. However, in 1910, this rate rapidly approached the national rate, and 30 years before it was almost four times higher.

An important indicator of the development of railway transport was the provision of local population. In 1880, there was 1 km of railways per almost 4.4 thousand people,

³⁰ Ibidem, s. 252.

30 years later it improved fourfold and was much larger than in the monarchy as a whole. As shown in the Figure 3, these rates were only one half of the rates in Salzburg and Carinthia, but they were almost equal to the rates in Lower Austria and Moravia.

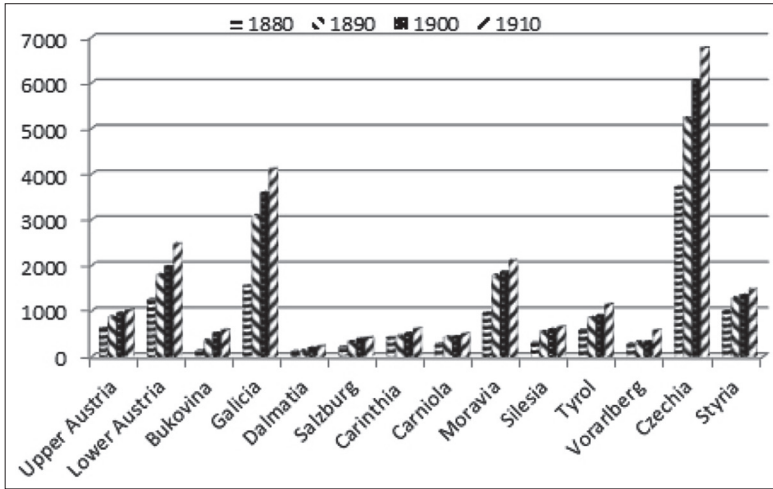


Figure 1. Length of railways in the Austrian monarchy (km), 1880–1910 (compiled by the authors)

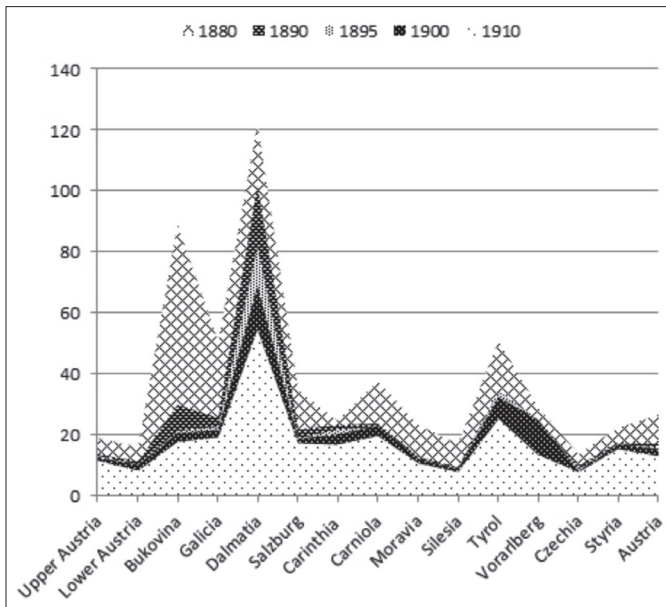


Figure 2. Density of railways in the Austrian monarchy (km²/km), 1880–1910 (compiled by the authors)

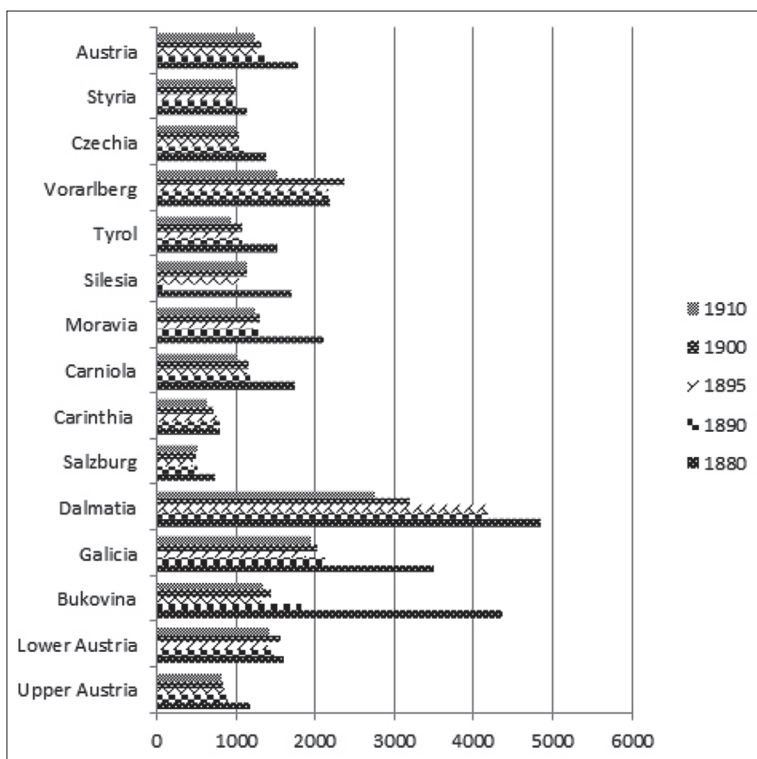


Figure 3. Provision of railways in the districts of the Austrian monarchy (people/km) (compiled by the authors)

Conclusions

Thus, the emergence of a wide railway network in Bukovina and its effective functioning was determined by the needs of the Austro-Hungarian Empire, as well as regional and national needs of local population. We can see that the process of formation and functioning of the railway network in Bukovina in the second half of the XIXth – early XXth century occurred quite intensively.

In the context of the study, there were two periods of intensive development of the railway infrastructure in Bukovina. The construction of the main railway line Lviv–Chernivtsi–Jassy–Suceava belongs to the first period. Its timeline covers the years between 1866 and 1869.

It is significant that the construction of the Lviv–Chernivtsi–Jassy–Suceava railway took the first place in the Austro-Hungarian Empire in terms of material and technical potential, and was of a great defensive and economic importance. The effective function-

ing of this railway was decisively influenced by the integration of Bukovina's routes into the Austrian transport network.

The second period covers the years from 1884 to 1890. During this period, there was an intensive construction of a network of local railways in Bukovina. At the end of the second period and until 1918, huge costs were invested in the modernization of railway infrastructure.

The second period of the development of local railway network in Bukovina had its own features. First of all, local railways played an important role in the socio-economic life of Bukovina. The local railways of Bukovina did not have any strategic purpose, but they made it possible to connect the most remote regions of the district. However, it could be considered that local railways were a significant complement to the major railway line, which provided a greater intensity of freight and passenger transportation, increasing their overall profitability. At the same time, the process of exchanging goods between the remote regions and the center of the Austro-Hungarian Empire was strengthened. At the same time, the development of certain parts of Bukovina intensified.

Thus, at the beginning of the XXth century, on the eve of the World War I, Bukovina had significant external railway connections and played an important role in the overall railway system of Austria-Hungary. In addition, thanks to railway connections, Bukovina had favorable conditions for the development of trading both with the districts of the empire and other countries. For example, during almost the whole period of railway functioning, Bukovina had a positive balance in trade with Germany. More goods were exported to Germany than imported into Bukovina.

Having gone through a complex process of finding organizational forms, the railway network in Bukovina has actually no analogues. It is unique in that it has remained unchanged and is still functioning.

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Major and local railways in Bukovina before World War I

Summary: The article analyzes the history of railway transport in Bukovina. Railway connections have played and continue to play an important role in the social and economic development of the region. Railway connections created new opportunities for the organization of cost-effective passenger and cargo transport. Railway lines organically combined passenger needs with the region's economic interests. Railway transport also facilitated the general mobilization in the country on the eve of World War I. The study explores the evolution of major and local railways in Bukovina. The strategic importance of the network of major and local railways for the region's development and its positive impact on all areas of life in Bukovina were analyzed. Special emphasis was placed on the strategic importance of Bukovina's railways in the overall railway system of the Habsburg Empire. The study demonstrated that on the eve of the World War I at the beginning of the 20th century, Bukovina had numerous connections to external railways and played an important role in Austria-Hungary's railway system. The railway system contrib-

uted to Bukovina's status as a trade hub that exchanged goods with other districts in the empire as well as foreign partners.

Keywords: Galicia, circle, district, voivodeship, county, administrative and territorial division, ethnic groups, religious groups