

Karol Łopatecki

Two Maps of the Podlasie-Grodno Borderline from 1706*

I. Characteristics of the maps. II. The toponymy of the maps. III. Scale and space.
IV. Conclusions

Key words: military cartography, Biebrza, Tykocin, Grodno, Joseph-Gaspard Lambert de Guerin, toponyms of Podlasie, Polish mile, Great Northern War, military camps

Słowa kluczowe: kartografia wojskowa, Biebrza, Tykocin, Grodno, Joseph-Gaspard Lambert de Guerin, toponimy podlaskie, mila polska, Wielka Wojna Północna, obozy wojskowe

In the sixteenth and seventeenth centuries, the degree to which the lands of the Polish-Lithuanian Commonwealth were cartographed varied. Apart from the areas perfectly mapped on the works of Stanisław Porębski, George Freudenhammer, Wilhelm Beauplan, Daniel Zwicker, Fryderyk Getkant, Maciej Strubicz, Tomasz Makowski, Casper Henneberger, or Józef Naronowicz-Naroński, there were lands of poor cartographic recognition¹. The latter include the centrally located Podlaskie Voivodeship and the adjacent areas of the Grand Duchy of Lithuania². This specificity can be observed when analysing the general maps of the Commonwealth from the second half of the seventeenth century, on which this area was represented as having very few settlements (though in fact it was densely populated), and the river network was very poorly reproduced (Fig. 3a and 3b)³. In the case of such regions, maps made for military purposes are particularly important. As early as in the seventeenth century, engineers were required to carry out a preliminary terrain survey, which then served as a basis for *itineraries* and maps.

In this study, I present two military maps kept in the Library of the Academy of Sciences in St Petersburg, which refer to the inaccessible area of the Biebrza Valley and its surrounding⁴. Both show the same area, that is the Polish-Lithuanian borderland from Grodno to Tykocin. Studies conducted so far provide little information on these cartographic objects. The archivists

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¹ See Alexandrowicz S., Łuczynski J., Skrycki R. 2017.

² This is a puzzling phenomenon, as this area had been covered by cartographic research for over a hundred years, that is from the first half of the sixteenth century, as it was there that the oldest property maps were created. We know of a map from 1527/1528, which depicts the upper course of the Rospuda River, and of another map from 1536, on which the borders of the Knyszyn and Rajgród-Goniądz estates are marked. There are three other maps related to this area, which were probably drawn in the years 1560–1561, Alexandrowicz S. 1966.

³ Laszuk A. 1999, p. 17–18, 31–32.

⁴ BAN, SRK, Osn. Op. 286 and 288, respectively.



Fig. 1. *Carte d'une partie de la Lithuanie et de la Pologne*, Biblioteka Akademii Nauk, Sankt-Petersburg, Sobranie Rukopisnych Kart, Osn. Op. 286 [Библиотека Академии Наук, Санкт-Петербург, Собрание Рукописных Kart, Osn. Op. 286]

Ryc. 1. *Carte d'une partie de la Lithuanie et de la Pologne*, Biblioteka Akademii Nauk, Sankt-Petersburg, Sobranie Rukopisnych Kart, Osn. Op. 286 [Библиотека Академии Наук, Санкт-Петербург, Собрание Рукописных Kart, Osn. Op. 286]

have only calculated the scale, made measurements, and concluded that they tentatively date back to the first half of the eighteenth century⁵. These valuable cartographic sources were introduced to Polish historiography by Stanisław Alexandrowicz⁶. Three years earlier, Alexander Sharymov

⁵ Aleksandrov B.V. 1946, p. 282.

⁶ Alexandrowicz S. 2012, p. 205–206.

had proposed that they were authored by Joseph-Gaspard Lambert de Guerin⁷. In this paper, I conduct a cartographic analysis of both maps and verify the existing findings about them.

The methods of research on old maps can be divided into geographical/historical (the analysis of verbal description and the represented space) and cartographic/mathematical (accuracy analysis)⁸. Apart from the mimetic map-territory relationship, I also refer to critical cartography, which stresses the subjective character of such sources⁹. The object of study in this article is toponymy, and the main aim is to prepare a complete list of toponyms occurring on the maps (see Table 1)¹⁰. In addition, the comparison of the collected data with other historical sources will allow to assess whether the authors of the cartographic sources in question used older printed maps when preparing them. This will also provide the answer to the question about the influence of the analysed works on maps produced later, in the 18th century. The above-mentioned geographical/historical research will be the basis for cartographic/mathematical analysis. I will use it to make a distortion grid (Fig. 4) and to calculate the scale and the surface area of both maps¹¹. I will do so with reference to distances between the main settlements, referred to as stable points (Tables 3 and 4). Further detailed studies concerning the authors of the maps, the circumstances of making those two cartographic works, the use of the maps for military purposes and the analysis of the road network are discussed in another article¹².

I. Characteristics of the maps¹³

The first map is entitled on the reverse *Carte d'une partie de la Lithuanie et de la Pologne* (hereinafter: *Carte*, Fig. 1). There is no grid of geographical coordinates, and it only contains a simple graphic scale with a distance scale (see Chapter 3). On the map, a compass rose was drawn that shows sixteen directions without names. From cardinal directions, north and south were marked out. The map has a north-eastern orientation (north on the compass rose is inclined by 40° to the west). The size of the map is 51 × 31 cm (sheet: 53 × 33 cm). It was drawn by a French-speaking person, which follows from the fact that names of countries, as well as information about bridges, mills, crossings, and springs of rivers are written in this language. The author was utterly unfamiliar with Polish phonetics and spelling, hence the significantly twisted toponyms (see Table 1). The map was drawn with black ink and there is no legend on it. Neither does it bear any information about the authorship and date of execution. It presents a relatively narrow area from the town of Grodno to the fortress of Tykocin. The land transport route that connects the two towns with thirteen settlements and one mill (*Moulin*) are marked. The author focused his attention on watercourses, including the whole Biebrza River from its source (*Sowre de la Biebra*) to its mouth to the Narew River. A fragment of the Narew River from the town of Tykocin to the mouth of the Biebrza River is drawn, as well as the right tributary of the Biebrza River, namely the Elk River (*R. de la Legua*), and the left one without a name,

⁷ Sharymov A. 2009, p. 555–559.

⁸ Konias A. 1984, p. 64–76.

⁹ Franczak G. 2017, p. 194–195; Niedźwiedz J. 2019, p. 38; Harley J.B. 1989, p. 1–20.

¹⁰ The article does not include a detailed onomastic analysis of toponyms, but it is expected to contribute to future research in this regard.

¹¹ See Nieścioruk K. 2004, p. 273–281; Szeliga J. 1993, p. 51–66; Alexandrowicz S., Jankowska E. 1989, p. 134–147.

¹² Lopatecki K. 2019 (in print). The reason for dividing the articles was their length. Jointly, the two articles present the complete historical and cartographic questionnaire proposed in the work: Buczek K. 1974, p. 143–157.

¹³ Tadeusz Marian Nowak (Nowak T.M. 1988, p. 321) suggested using the term “sketch map” when referring to cartographic sources created as a result of the army’s march, and “not a map [sensu stricto — K.Ł.], because the objects in question are not characterized by all three elements of the definition of a map. They use a system of cartographic symbols and present a selection of generalized phenomena, but they do not have a mathematically defined structure”. I consider this argument to be too rigorous in relation to the pre-mid-eighteenth-century reality.

which should be associated with the Brzozówka River¹⁴. A fragment of the Nemunas (Neman) River and its left tribute — probably the Lasosna (Lasasyanka) River — were presented in a schematic and distorted way (its estuary was not recorded). It should be emphasized that the direction of watercourses was marked with arrows, which was important information. Particular attention was paid to the crossings on Biebrza and Narew (called *passage*), which were marked in red (seven places plus one without the colour¹⁵). Two bridges were also included.

The second map is entitled *Environs de Grodno et Ticochin par Lambert* (hereinafter: *Environs*, Fig. 2). The title clearly indicates that it was authored by Joseph-Gaspard Lambert de Guerin (Ros. Zhozef Gaspar Lamber de Geren), a general-engineer who served in the Russian army from 1701 to 1706¹⁶. The analysis of the cartographer's life shows that this map, as well as the previous one, had to be created in the first three months of 1706. Its creation was connected with the presence of the Russian army in Grodno who camped there together with allies that defended themselves against Swedish troops. The deteriorating situation in the city and the camp (diseases, hunger, and desertion) forced the supreme command to flee from Grodno, via Tykocin and Brest-Litowski, to Ukraine. The army marched out on 4 April and reached Tykocin after five days. In order to carry out this complex operation, a map was prepared, which allowed assessing the number of columns in which the army could march, and the number of places enabling the crossing through Narew and Biebrza¹⁷.

This cartographic source is similar to the former one in terms of the area represented and the method of production. It has a similar decorative but more elaborate compass rose, which consists of thirty-two parts. It has a north-eastern orientation parallel to the previous map (north is inclined by 44° to the west). It is also made by a person that spoke the French language. The above premises suggest the two maps have one author. The latter one shows an identical route from Grodno to Tykocin, but it is more accurate (see Table 1). It also covers a larger area, as it presents the whole Biebrza Marshes and the Biebrza river basin (the rivers marked on it include: Netta, Lega, Brzozówka, Sidra), as well as fragments of Nemunas (and the Lasosna River tributary), and Narew. In the southern part, from Tykocin to Suchowola, it repeats the route presented on the *Carte d'une partie de la Lithuanie et de la Pologne*. As a consequence of the application of a similar scale (see Chapter 3) the map was drawn on a larger sheet, 59 × 49 cm (the map itself is 55 × 45 cm large). As compared to its predecessor, on this map the road network is much more extended and shows also the connections between Grodno and Augustów or Rajgród. One bridge and road crossings on watercourses (seven fords) are recorded. Many lakes were recorded, but without names; in some cases, they symbolize the area of the springs of individual rivers. The author marked the directions of the rivers' currents (as many as nineteen times), which in the area of Biebrza Marshes could have been an important orientation guideline.

There is no legend and the settlements are recorded by drawings that depict groups of buildings usually including a church and some ordinary building complex. In cities, other buildings with towers are also marked (perhaps a town hall or other places of worship). The largest number of such objects were drawn in Grodno (six — including one characteristic Orthodox church), Tykocin (three), and Goniądz (two). The characteristic feature of this map is that it has not been completed. Not all names of towns and villages written on the map are accompanied by drawings of buildings,

¹⁴ The author noted that this river separates the Grand Duchy of Lithuania (*Lituanians* and *Pouloigne*) from the Crown (the Kingdom of Poland). Currently, Brzozówka is the border between the Białystok and Sokółka districts.

¹⁵ One can only suspect that the red marked crossings were checked by an engineer and cartographer and could have been fit for military use. Perhaps the unmarked red crossing was no longer passable or had not been checked. At a town called Zajki, a crossing through a gulch (rather than a river) was drawn.

¹⁶ Dankov M.Yu. 2006, p. 113–122; Chernikov S. 2009, p. 705, 709, 732.

¹⁷ Łopatecki K. 2019.



Fig. 2. *Environs de Grodno et Ticochin*, Biblioteka Akademii Nauk, Sankt-Petersburg, Sobranie Rukopisnykh Kart, Osn. Op. 288 [Библиотека Академии Наук, Санкт-Петербург, Собрание Рукописных Карт, Оsn. Оп. 288]

Ryc. 2. *Environs de Grodno et Ticochin*, Biblioteka Akademii Nauk, Sankt-Petersburg, Sobranie Rukopisnykh Kart, Osn. Op. 288 [Библиотека Академии Наук, Санкт-Петербург, Собрание Рукописных Карт, Оsn. Оп. 288]

e.g. Rajgród, Netta, Osowiec are not marked in this way, and the symbol near the mill (*Moulin*) is missing¹⁸. One of the roads is recorded only in pencil. Obviously, the road on the Lithuanian side that led from Tykocin to Grodno was completed and stopped at Skindzier (*Seigner*).

¹⁸ Such a building is recorded on the map entitled *Carte*.

II. The toponymy of the maps

The use of maps analysed in this article is very difficult because the geographical names have been significantly distorted by the French cartographer. Below, in Table 1, I present all the names recorded in the analyzed cartographic sources together with their current official names, which will facilitate their geographical identification. In addition, names used in other cartographic sources from approximately the same time are provided in the notes. Additionally, I listed the main rivers and reservoirs (hydronyms), which are shown on the maps, but without names¹⁹. I present them in the order from Grodno to Lipsk, and then I characterise the objects along the Grodno–Tykocin route and the road that connects Grodno and Rajgród.

The comparative analysis is based on maps created by the Swedish army in years 1655, 1702 and 1708²⁰. The maps by Charles Perthées from 1770 and 1795 are also valuable²¹, as well as a map made in 1827 that shows the Biebrza River basin²². Of course, Johann Christoph Textor's work, published by Daniel Friedrich Sotzmann in 1807, was also used²³. The maps were used to help reconstruct the routes of the march of troops, and their usefulness was recorded in the comments to the table (by marking with abbreviations the dates of their creation; *Słownik Geograficzny Królestwa Polskiego i innych krajów słowiańskich* (Geographical Dictionary of the Kingdom of Poland and other Slavonic countries — hereinafter SGKP) and parish descriptions from 1784, published by Wiesława Werner was also used²⁴. The works of Jerzy Wiśniewski, Anna Laszuk and Marian Butkiewicz that concern the development of settlement in the discussed areas were of fundamental importance for my research²⁵. The identification of settlements included on maps from 1706 was possible thanks to considerable use of later, 18th- and 19th-centuries sources and studies. It was possible because location names were not changed after the Great Northern War²⁶.

The analysis of the toponyms clearly shows that the output of Joseph-Gaspard Lambert de Guerin was not used when creating later cartographic sources (Table 1, see Remarks). This was due to the cartographer's escape abroad in 1706, the unfinished work on *Environs*, and above all the fact that the handwritten version was not distributed among Polish and Lithuanian commanders. Rather than treated as a military source of information, both manuscript maps were meticulously archived. Sources confirm that both maps were kept in the Geographical Office in St Petersburg in 1735²⁷. The maps did not cover Russian territory at that time, so they were not put to use. At present, however, they constitute an invaluable source of knowledge on the Podlasie--Grodno borderland from the turn of the seventeenth and eighteenth centuries.

It is much more interesting to note that when making both cartographic works, their authors did not refer to the existing printed maps. This statement is confirmed by two facts. First, the

¹⁹ On the *Environs de Grodno et Ticochin* map, there are as many as fifty toponyms. This is a lot. On maps from the seventeenth century, no more than twenty-three names were recorded in this area (see Fig. 3). For comparison, *Descriptio Ducatus Polocensis* by Stanisław Pacholowiecki contains eight-five toponyms but represents four times the area, see Franczak G. 2017, p. 205.

²⁰ KA, SK, 5:46; KA, SK, 5:47; RA, WS, Kartor och ritningar, 0039: 00001-00002; Nowak T.M. 1988, Tabl. 1–11, p. 321–350; Nowak T.M. 1995, p. 197–2009; Łopatecki K., Walczak W., 2011, p. 260–265, 284–287.

²¹ Perthées C., *Mappa szczegulna wojewodztwa podlaskiego zrzadzona z innych wielu mapp miescowych tak dawniej iak y swiezo odrysowanych [...]*, 1795, AGAD, ZGSA, A.K. 98; C. Perthées, *Polonia Secundum legitimas proiectionis stereographicae regulas et iuxta recentissimas observationes adhibitis MDCCCLXX*, [1770]; Alexandrowicz S. 1990; Madej J. 1987; Ertman A. 2007.

²² *Carte du Cours de la ligne de jonction entre la Narew et le Niemen passant par la Biebrza, la Netta, la chaine des laes d'Augustów, et la Hancza*, AGAD, ZGSA, A.K. 129.

²³ Textor J.C. 1807, section 5, 5a, 9.

²⁴ Opisy. 1990; Rękopiśmienne. 1994.

²⁵ Wiśniewski J. 1964; Wiśniewski J. 1967; Wiśniewski 1975; Laszuk A. 1998; Butkiewicz M. 1998.

²⁶ Butkiewicz M. 1998, p. 176.

²⁷ Bobrova Ye.I., Murzanova M.N., Pokrovskaya V.F. 1961, p. 193–194; Nevskaya N.I. 2000, p. 140–141.

analysis of toponyms used by Lambert shows they are unique, not similar to any other cartographic sources (see Table 2). Second, the cartographer serving the Russian authorities did not use the settlements recorded on maps printed before 1706. Ten important towns known from printed maps were not recorded: Dowspuda, Kuźnica, Perstuń, Sokołda, Supraśl, Wasilków, Choroszcz, Waniewo, Knyszyn, Kolno, and Brzeziny (Fig. 3a, 3b).

Military reconnoitre of the Polish-Lithuanian borderland between Tykocin and Grodno provided a lot of information, as compared to the existing maps. For comparison purposes, it is worth mentioning the so-called Radziwiłł Map (Fig. 3a)²⁸. The course of the Biebrza River is depicted on it in a very faulty way. Only the lower section and part of the middle section are depicted, and three tributaries are also marked: Netta (which according to the authors is the beginning of Biebrza), Lega (Jegrznia — erroneously opening into Biebrza or Netta, depending on the interpretation), and Elk. Of the twenty-eight settlements recorded in *Environs*, only seven were marked in the area presented here: Grodno, Tykocin, Goniądz (on the wrong side of the Biebrza River), Rajgród (also on the wrong side), Augustów, Lipsk (incorrectly marked away from the Biebrza River), Nowy Dwór. No qualitative change was brought about by the map of Nicolas Sanson from 1665 that shows Mazovia and Podlasie. *Environs de Grodno et Ticochin* should be considered the most valuable cartographic monument depicting the Biebrza River basin until Charles Perthées created his maps during the reign of Stanisław August Ponia-towski.



Fig. 3a. *Map of the Grand Duchy of Lithuania*, drawn by T. Makowski, Amsterdam 1631

Ryc. 3a. *Map of the Grand Duchy of Lithuania*, rys. T. Makowski, Amsterdam 1631



Fig. 3b. *Masovie duché et Polaquie; ou sont les platinats de Czersk, Bielsk, et Plocsko*, drawn by N. Sanson, Paris 1665

Ryc. 3b. *Masovie duché et Polaquie; ou sont les platinats de Czersk, Bielsk, et Plocsko*, rys. N. Sanson, Paris 1665

²⁸ Łuczyński J. 2013; Alexandrowicz S. 1965.

Table 1
Toponyms and hydronyms recorded on *Environs de Grodno et Ticochin* and
Carte d'une partie de la Lithuie et de la Pologne

Tabela 1
Toponimy i hydronimy odnotowane na *Environs de Grodno et Ticochin*
i *Carte d'une partie de la Lithuanie et de la Pologne*

Name in <i>Environs</i>	Name in <i>Carte</i>	Identification	Remarks
Grodno	Grodno	Grodno	City ? SGKP II 831-835
Coiqnouky		Kaniuchy	1770 (Karciuchy), 1807 (Kaniuchy)
Besnosofqua		[Beznośówka]	An unidentified village, perhaps Bogalówka or Bukowszczyzna (1770) located on the road from Holinki through Kurianki to Lipsk
Petit Libsqua		Upper course of the Biebrza River before the tributary of the Sidra River near the village of Rogożynek	1770 and 1807 marked as the Bobra River (Biebrza); in 1702 the lake (Libskimalo) was recorded
[petit tin] Libsqua		Lipsk Murowany	Manor farm, currently between Siólek and Kopczyany ? SGKP V 294 (Lipsk Murowany), 1702 (Lipskimalo), 1770 (Lipsk)
[River Sidra]	Eslang i Sowre de la Biebra	River Sidra	1770 (Siderka). Incorrectly attributed as the spring of the Biebrza River, the word „Enslang” should be understood as a broads, or possibly river marshes
Courianqui		Kurianka	SGKP IV 941 (Kuryanki), 1770 (Kurianki), 1807 (Kurianki), 1827 (Kuryanki)
Libska		Lipsk	City since 1580 ? SGKP V 294
passage	Libska passage	crossing the Biebrza River at the level of Lipsk	The crossing was also marked in 1708, 1770, 1795, 1807, 1827
[Lasosna River]		Lasosna River	The river is the left tributary of the Nemunas: 1770 (Lososna R.). The lake symbolically marks the springs of the river
Nouituor		Nowy Dwór (Sokółka district)	1702 (Nowitwar), 1708 (Nowidwor), 1770 (Nowydwor), 1784 (Nowydwor), 1807 (Nowydwor)
Doubasna		Dubaśno	SGKP II 186 (Dubaśna), 1708 (Topaszna), 1770 (Dubasne), 1784 (Dubasno), 1807 (Dubasznia)
passage		crossing on the river Sidra at the level of Dubaśno village	In 1702 the prepared road through Sidra and then Biebrza was marked
Rosanistok		Różanystok	SGKP IX 858, 1702 (Rosaniistock), 1784 (Rozanystok), 1770 (Różanystok), 1795 (Różany Stok), 1807
Donbroua		Dąbrowa Białostocka	1708 (Dombrowa), 1770 (Domborwna), 1784 (Dombrowa), 1795 (Dąbrowna), 1807 (Dombrowa), 1827 (Dąbrowa)
Forge	[passage between Libska passage and Echenky]		The road and the crossing on the river Biebrza between Świerzbutowo and Kobyliszce are shown: 1770, 1795, 1807
Grogiska		Grodzisk	1708, 1784, 1795, 1807 (Grodziska)

Name in <i>Environs</i>	Name in <i>Carte</i>	Identification	Remarks
Auchenky	Echenky	Sztabin	The town of Sztabin was founded in 1760, earlier it was the village of Osinki. The crossing on the river at the level of Sztabin was recorded: 1770 (Stablow), 1784 (Sztabin), 1795 (Sztabin), 1807 (Stabin), 1827 (Sztabin)
Chidera R. [Riviere]	Chidera	River Biebrza from the Sidra estuary to the Brzozówka estuary	1770 (Bobra), 1784 (Bobra), 1795 (R. Bobr), 1807 (Bobr fl.), 1827 (R. Bobra)
Sourauola	Souearola	Suchowola	SGKP XI 542, 1708 (Suchawola), 1770 (as above), 1784 (as above), 1795 (as above), 1807 (as above). The settlement is located on the Olszanka River, which is a tributary of the Brzozówka River
	Passage, Rouda gitstrof, Retisqua	?	There are no equivalents on the maps. These points were not recorded on the <i>Carte</i> , which suggests erroneous identification
Souronole	Suronole	[possibly Suchowo] a town currently non-existent; alternatively, it may be Suchowola marked for the second time	1708 (Suchowo)
Seinger	Seinger	Skindzierz	1702 (Skinsers), 1708 (Skinzers), 1784 (Skindzierz), 1795 (Skindzierz 2x), 1807 (Skindzery)
Presoua	[no name]	River Brzozówka	SGKP I 426-427, 1708 (Brozowa fl.), 1770 (Janowka), 1795 (R. Brzozowka), 1807 (Brzozowo fl.)
Mikichin	Mikichin	Mikicin	SGKP II 331, 1708 (Mykozoin), 1795, 1807 (Mikiczyn)
Semogrosqua	Semongrosqua	Smogorówka Goniądzka, alternatively Dolistowska	SGKP X 888, 1708 (Smogorowka x2), 1795 (Smogorowka), 1807 (Smugorowka)
Cretz	Cretz	Krzecze	1708 (Kretz), 1770 (Krzeczy), 1795 (Krzecze), 1807 (Zkrzeczze), 1827 (Skrzeczze)
La Biebra (x2)	La Biebra	rzeka Biebrza	SGKP I 204, 1708 (Bober v. Pieprs fl.), 1770 (Biebra, Bobr), 1795 (Biebra, Bobra), 1807 (Bobr fl.), 1827 (R. Bobra)
Goignons	Guoinons	Goniądz	city: SGKP II 682
Passago	[marked crossing]	Passage through Biebrza at the level of Goniądz	No cartographic sources indicate a possible crossing. Written sources commonly confirm its presence
Ausouiets (no drawing symbol of settlement)		Osowiec	SGKP VII 651, 1708 (Ossowiez ? on the left bank of the Biebrza River), 1770, 1795, 1807, 1827
Passage s'ausovieta	Auseuieto passage	Crossing on the Biebrza River at the level of Osowiec	Crossing marked in 1770, 1795, 1807, 1827
Pont Comanse	Pont Comanse	Swedish bridge, „incomplete bridge”	This bridge was marked in 1708
Tresana	Tresana	Trzcianne	1770 (Trzana), 1784 (Trzciane), 1795 (Trzciana), 1807 (Trzciana), 1827 (Trzciana)

Name in <i>Environs</i>	Name in <i>Carte</i>	Identification	Remarks
Chorise	Chortse	Szorce	SGKP XII 21, 1795 (Szorce Ciborzewo)
Ticochin	Ticochin	Tykocin	Town: SGKP XII 695-698
Moulin	Moulin (marked crossing on Narew)	The mill	The mill near Tykocin was recorded on the map in 1795 (3x)
Lazy	Lazy	Łazy Duże or Łazy Małe	1795 (Lazy), 1807 (Alt and Neu Lazy)
passage	[recorded passage]	Crossing on Narew at the level of the Łazy village	Lack of crossings recorded on maps
Zayky	Zayky	Zajki	1795 (Zayki), 1807 (Zayki)
passage	[recorded passage]	Crossing on the Narew River at the level of the Zajki village	Lack of crossings recorded on maps
	[a bridge on Narew at the Tykocin fortress]	Bridge on the Narew near the Tykocin fortress	Bridge was recorded in 1702, 1795, 1807
La Lequa (Lick—in pencil)	R. [Rivière] de la Lequa i Leque	River Elk (formerly Lek, Lyk)	It is possible that the outlet of river Elk to Biebrza changed in the modern period. On both maps they are located west of Goniądz. Identically 1770 (Jebrzna R.), otherwise: 1795 (R. Lek), 1807 (Lyk F.), 1827 (R. Lyk)
Reygrad (no symbol of settlement)		Rajgród	A city since 1568: SGKP IX 495-496. 1655 (Raygrad), 1770 (as above), 1795 (as above), 1807 (as above), 1827 (Raygród)
[Lake Rajgrodzkie and River Jegrznia]		Lake Rajgrodzkie and River Jegrznia (Lega)	On <i>Carte</i> the river is the right tributary of Netta, but all sources indicate that it is a mistake because it opened into the Elk River: 1770, 1795, 1807, 1827
Chelistsouque		Solistówka	1655 (Solistowka), 1770 (as above), 1795 (Szelistowka), 1807 (Sotisowo), 1827 (Solistówka)
[Three lakes connected by a river that opens into Netta]			The depiction is erroneous. The lake Dręstwo is probably marked near Solistówka (connected with the Jegrznia River)
Forge		Bargłów Kościelny? (smithy, blacksmith)	The settlement is located between Solistówka and Netta on the route from Rajgród to Augustów: 1655, 1795, 1807, 1827. Located on the Bargłowska River ? SGKP I 108
Netta (no symbols of settlement)		Netta	1655 (Nieta), 1770 (as above), 1795 (Neta), 1807, 1827, SGKP VII 5-6
Augustof		Augustów	A city since 1557: SGKP I 53-54, 1655 (Augustow), 1770 (Augustow), 1784 (Augustow), 1795 (Augustow), 1807 (Augustow), 1827
[Lake Necko]		Lake Necko	River Netta flows from this lake
La Nietra		River Netta	SGKP VII 5
Forge i Rouda		The settlement currently nonexistent (near Wojciech Street in Augustów) and Przewięź	Settlement(s) between Lake Biały and Lake Studzieniczne: 1770 (Wojciech Ruda), 1784 (Woyciech), 1795 (Woyciech Rudnia), 1807 (Ruda), 1827 (Woyciech and Ruda Woyciech)
[River Sajnica, Lake Sajno and Lake Studzieniczne]		River Sajnica and Lake Sajno	Lake Studzieniczne and Lake Sajno mistakenly combined into one lake

Name in <i>Environs</i>	Name in <i>Carte</i>	Identification	Remarks
[Lake Biale]		Lake Biale	On the map it is north of the connected Studzieniczne and Sajno lakes
Boudae			An unidentified settlement on the route from Lipsk to Augustów, possibly Balinka Strażnik (1770)
Lituanie	Lituanie	Grand Duchy of Lithuania	The border ran along the Brzozówka River (Presoua) and then along the Biebrza River
Pouloigne	Pouloigne	Crown of the Kingdom of Poland	

Table 2

List of town names occurring on the most important maps from the 17th century and in the works by Joseph-Gaspard Lambert de Guerin.

Tabela 2

Zestawienie nazw miejscowości występujących na najważniejszych mapach z XVII stulecia i dziełach Joseph-Gaspard Lambert de Guerin

Contemporary official names of cities	<i>Map of the Grand Duchy of Lithuania, 1631 (Fig. 3a)</i>	<i>Masovie duché et Polaquie, 1665 (Fig. 3b)</i>	<i>Joseph-Gaspard Lambert's maps, 1706 (Fig. 1–2)</i>
Augustów	Augustow	Augustow	Augustof
Goniądz	Goniadz	Gonins / Goriuntz	Goignons / Guoinons
Grodno	Grodno	Grodno	Grodno
Lipsk	Lipsk	Lipsk	Libska
Nowy Dwór	Nowijdwor	Nowidwo	Nouituor
Rajgród	Rajjrod	Raygro	Reygro
Tykocin	Tijkoijn	Tykoczyn	Ticochin

The analysis of the road network is not the object of analysis in this article. However, it is worth noting that both maps from 1706 only include the settlements located near the roads marked on the maps²⁹. This was related to the military character of the maps, whose aim was to facilitate the march of the army. When compared to later cartographic (1795) and printed (1784) sources, the maps prove the permanence of the main communication routes in the early modern period in the Podlasie-Grodno borderland.

III. Scale and space

The distance scales on both maps and the compass rose suggest that compass-based reconnoitering of the area along transport routes was conducted. On the first map, there is a linear scale that shows the distance of three leagues (*Eschele de Trois Lieues, Lieues*). On the second coloured source there is a pitch on which four leagues or miles were presented (*Eschelle de quatre Lieues: ou mile*³⁰). This information shall indicate whether distances have actually been recorded using French distance units.

The evaluation of the scale and area presented on the map needs to be clarified. Russian archivists, in accordance with common custom, calculated the scale of both maps by measuring the scales on the maps and adjusted them to the measure provided in the legend. The problem is that the authoritatively assumed basis for the calculation was the French league according to

²⁹ The only exceptions are two towns, Souronole and Seinger, which were to be marked on the incomplete route running from Tykocin to the east of the roads marked on the map, through Knyszyn, Jasionówka, Korycin, Janów, Sidra, up to Grodno.

³⁰ Actually, it should be Echelle.

Table 3
Distances between settlements on the cartographer's route (prepared by K. Łopatecki)
Tabela 3
Odległości pomiędzy osadami znajdującymi się na trasie kartografa (obliczenia własne)

Towns and cities	Distance on the map (mile/league)	Current distance in kilometers	Length of 1 mile/league in kilometers
Tykocin–Goniądz	3.5	32	9.14
Tykocin–Trzcianne	2	16	8
Goniądz–Krzecze	1.25	8	6.4
Krzecze–Mikicין	2	10	5
Mikiciny–Dąbrowa Białostocka	3.5	28	8
Dąbrowa Białostocka–Różanystok	1	4	4
Różanystok–Nowy Dwór	1	9	9
Nowy Dwór–Grodno	2	20	10
Lipsk–Dąbrowa Białostocka	1	10	10
Lipsk–Augustów	3	30	10
Augustów–Rajgród	2.75	22	8

Table 4
Distances between settlements on the route according to *Carte* (prepared by K. Łopatecki)
Tabela 4
Odległości pomiędzy osadami znajdującymi się na trasie według *Carte* (obliczenia własne)

Towns and cities	Distance on the map (mile/league)	Current distance in kilometers	Length of 1 mile/league in kilometers
Tykocin–Trzcianne	1.75	16	9.1
Trzcianne–Goniądz	2.5	18	7.2
Goniądz–Krzecze	1	8	8
Krzecze–Mikicין	1.75	10	5.7
Mikiciny–Suchowola	1.5	14	9.3
Suchowola–Sztabin	1	13	13
Sztabin–Grodno	3.5	54	15.4

a measure calculated by Jaen Picard in 1669. In this way it was calculated that *Environs de Grodno et Ticochin par Lambert* was drawn up at a scale of 1:111,200, and the other map at 1:89,000³¹. First of all, we do not know which units the cartographer used, leagues or miles? The mile itself, and in particular the mile on the lands of the Polish-Lithuanian Commonwealth, took on different values. There were small, medium and large miles (on the so-called Radziwiłł Map they measured about 5560, 6336 and 7370 meters, respectively). Even calculations of the mile length used by the army during two different expeditions from the same year 1579 show radical differences of up to 62 percent³².

In order to assess the measure used by the cartographer, it is necessary to compare the distances between the towns marked on the map with the real distances. In this case, it is rela-

³¹ One league measured by Jean Picard in 1669 was 1/25 of the degree length; the degree had 57,060 toises (the unit was about 1,949 metres), so the league measured 4,448 metres, Gillispie Ch.C. 2004, p. 111–112; Konvitz J. 1987, p. 9–10.

³² Krzysztof Radziwiłł, while preparing his expedition to Livonia in 1579, made an itinerary in which the mile should be counted as 8 km, while Stanisław Pacholowiecki's map of the Polatsk region made at the same time shows a mile of only 5 km in length, Łopatecki K. 2018, p. 46, 61.

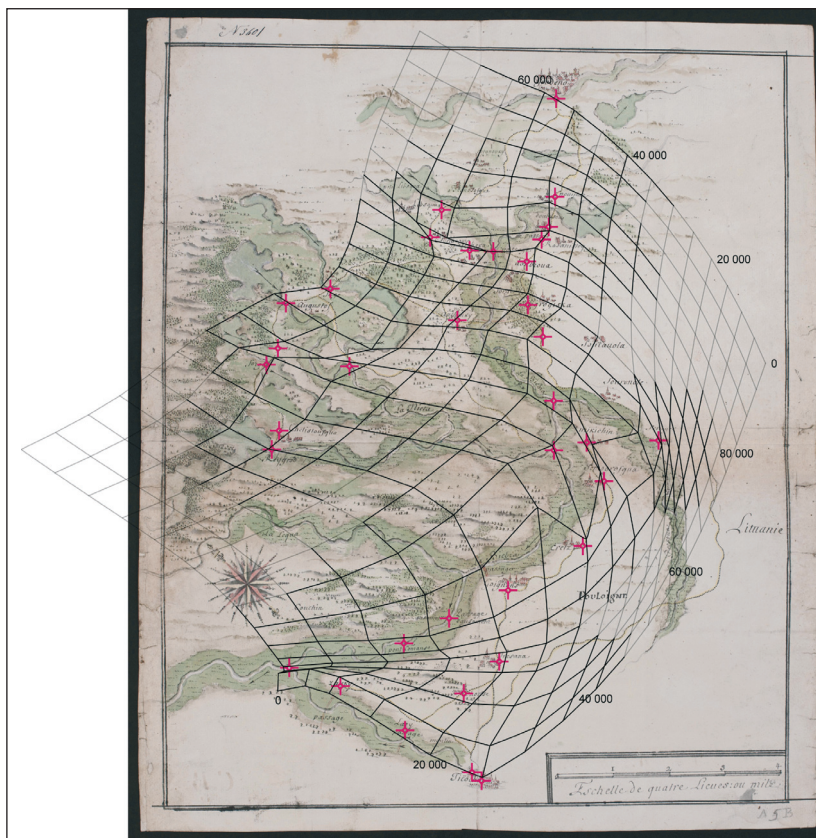


Fig. 4. Distortion of a kilometre grid of squares with the side of 5 km on the map *Environs de Grodno et Ticochin* (prepared by Karol Łopatecki)

Ryc. 4. Siatka zniekształceń o boku 5 km na mapie *Environs de Grodno et Ticochin* (opracował Karol Łopatecki)

tively difficult as neither of the maps has clear locators³³. Therefore, this is done by assuming that the villages shown are precisely on the road network marked on the map. Thanks to this we can confront the distances from the source with reality³⁴. Based on the calculations presented in Table 3, the adopted distance unit was 7.96 km. Thanks to calculations by Tadeusz Marian Nowak, we know that in the middle of the seventeenth century the Swedish army used slightly smaller mile sizes equal to 7.5 km³⁵.

If we accept such a calculation as binding, it will turn out that the map was made at a scale of about 1:199,000. The area shown on the map is approximately 9,800 km² (109.5 km × 89.5 km) (Table 3).

In my opinion, similar calculations cannot be applied to the *Carte d'une partie de la Lithuanie et de la Pologne*, because in the upper half of the map it is basically an *itinerarium pictum* (Fig. 1). These observations are confirmed by the distance between the settlements (see Table 4). In the

³³ It is not possible to treat towers marked in every settlement as location points because some cities contain more such elements.

³⁴ I calculate the distance according to the current shortest pedestrian routes.

³⁵ Nowak T.M. 1988, p. 324.

northeast, miles denote great distances (13–15.4 km), which would certainly be verified if a military engineer had driven this route. The length of a mile in the reconnoitered area (south-western, Fig. 1) was 7.86 km and in principle corresponds to the calculations made on the basis of *Environs*. The scale of the south-western part of the map can be estimated at 1:157.000.

Using the MapAnalyst program³⁶, a distortion grid with a 5 km mesh was prepared on the basis of 35 stable points. The mean error of location is even 10.95 km. The calculations clearly show that the map was the result of an erroneous combination of several separately recognized routes. Some of them were oriented with the use of a compass, while others were not (e.g., the Grodno–Rajgród route or the Narew River area with Tykocin). The lack of use of printed maps caused their erroneous juxtaposition, which led to huge distortions of the represented space on the map³⁷.

IV. Conclusions

Two maps created for military purposes in 1706 by Joseph-Gaspard Lambert de Guerin are the most valuable cartographic monuments related to the Biebrza river basin up to the time when Charles Perthées created his works between 1770 and 1795. The analysis of the maps resulted in a list of seventy-nine toponyms (Table 1), which made it possible to identify or propose their probable contemporary equivalents. The research showed that no other cartographic sources were used when producing both maps. Lambert's maps belonged to the Russian army, so they could not be used later when preparing further maps representing the Podlasie-Grodno borderland. The calculations conducted show that the units given by the author are miles (not leagues, as suggested by the legend). Their length recorded on *Environs de Grodno et Ticochin* corresponds to almost eight kilometres (7.96) and the map is made at a scale of c. 1:199.000. This work presents the Biebrza river basin area together with fragments of the Narew and Nemunas Rivers, with a total area of 9,800 km². The *Carte d'une partie de la Lithuanie et de la Pologne* is a combination of an itinerary (in the north-eastern part) and a map (in the south-western part). The mile length (named in the cartouche as "league") is 7.86 km and the scale can be estimated at 1:157.000. The prepared distortion grid reveals the primitive way of making the maps, based on the recognition of the main roads and an attempt to reproduce them without using other maps or detailed descriptions. As a result, Lambert erroneously combined the known routes (*itineraria*) when producing *Environs de Grodno et Ticochin*, where the mean error of the marked points is almost 11 km (Fig. 4).

Translated by
Kaja Szymańska

Adress of the Author:
dr hab. Karol Łopatecki, prof. UwB
Wydział Historii i Nauk Politycznych UwB
Plac Niezależnego Zrzeszenia Studentów 1
15-420 Białystok
karollopatecki@gmail.com
<https://orcid.org/0000-0002-7921-9421>

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³⁶ The use of the MapAnalyst program to study old maps concerning the Polish land: Strzelecki K. 2016, p. 213–227; Zyszkowska W. 2013, p. 95–100.

³⁷ Detailed analysis: Łopatecki K. 2019.

BAN [Библиотека Академии Наук, Санкт-Петербург], SRK [Собрание Рукописных Карт], Osn. Op. [Osn. Op.] 286, 288
 KA [Krigsarkivet], SK [Sveriges Krig], 5:46; 5:47
 RA [Riksarkivet], WS [Wijksamlingen], Kartor och ritningar, 0039: 00001-00002

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Dwie mapy granicy podlasko-grodzieńskiej z 1706 roku

W niniejszym artykule zaprezentowano dwie mapy przechowywane w Bibliotece Akademii Nauk w Petersburgu, które przedstawiają obszar kotliny biebrzańskiej i pogranicza podlasko-grodzieńskiego. Zatytułowane są one: *Carte d'une partie de la Lithuanie et de la Pologne* oraz *Environs de Grodno et Ticochin*. Oba są dziełem jednego autora. Był nim generał-inżynier służący w armii Piotra I — Joseph-Gaspar Lambert de Guerin (ros. Жозеф Гаспар Ламбер де Герен). Obie pochodzą z roku 1706.

W artykule obliczono skalę i wyliczono przybliżoną jednostkę miary użytą przez kartografa — długość mili. Wskazano również przyczyny błędnych obliczeń przyjętych przez archiwistów rosyjskich. Ustalono 79 użytych na mapie toponimów oraz zaproponowano identyfikację odnotowanych nazw jezior i rzek.