Development of Geological Studies in Lithuania: New Records on Roman Symonowicz's 1803 Mineralogical Travel

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Abstract: *At the start of the 19th century, geological research in Lithuania tended to encourage prospecting for useful minerals as the sources of salt, coal, gypsum, and iron ore deposits. Mineralogy – a popular discipline at that time – was introduced at the Vilnius Imperial University in 1803. Roman Symonowicz (1763–1813), Doctor of Philosophy and Medicine, but greatly interested in mineralogy, was invited to give lectures on mineralogy. Symonowicz was one of A. G. Werner's students at the Freiberg Mining Academy in 1804/1805; he was a diligent person and a thorough mineralogist. In 1806, Symonowicz published the first mineralogy handbook (in Polish), and wrought up the first classification of minerals. Symonowicz earned fame for his 'mineralogical' trip to Transylvania, Hungary, and Poland, carried out in 1803. This article presents new documents covering so far unknown events from more than two hundred years ago that were, for the first time, discovered in the Krakow (Poland), Vienna (Austria) and Banská Štiavnica (Slovakia) archives.*

Keywords: *geology, history of science, Lithuania, mineralogical travels, mineralogy, Roman Symonowicz, Vilnius University*

Introduction

After the Mineralogy course had been introduced at the Vilnius University[1] in 1803, it was Symonowicz who was the lecturer for the first-year students. In 1804,

[1] According to the Low Lithuanian language, the spelling *Vilnius* will be used henceforth (Engl. Vilna, Pol. Wilno, Rus. Вильно).

a special Mineralogy Cabinet was founded (Grigelis, 2003a, b, c). Already at the end of the 18th century, there was a small collection of minerals and rocks in the Nature History Cabinet of the Principal School, in the Grand Duchy of Lithuania, which had been used by the first lecturers Josephus Gerardus Sartorius, Jean Emanuel Gilibert, Johann Georg Adam Forster, Ferdinand Spitznagel, Stanisław Bonifacy Jundziłł.[2] The collections were accessioned not only by departmental purchases but also by private collections, including highly valuable items donated by rich patrons. Having become a mineralogy lecturer, Symonowicz took care about the enlargement and keeping of the collection; in 1803, he was sent by his university to collect and/or purchase minerals and rocks to Transylvania, Hungary, Saxony; however, "he had to see that the items collected were not too small or damaged" (Grigelis, 2005). The result was that, finally, the University Mineralogy Cabinet contained the richest in Europe collection of minerals, rocks, palaeontology samples and meteorites (Grigelis, 2007a, b). The collection was used for research; and only a small part of it survived in archives (Žalūdienė, 2008).

To increase his practical knowledge, Symonowicz visited the Banská Štiavnica and Banská Bystrica ore deposits, the Kremnitz and Hronitz mints, and the Wieliczka salt mines. Back in Vilnius, Symonowicz reported about his trip to the University Council, first published in Lithuanian (Grigelis, 2005). The report seems to be an eminently valuable document written over two hundred years ago. It is evidencing author's broad sophistication and scientific intelligence. Moreover, it reports on specific features of metal deposits and rock-salt exploration in the Central European deposits, demonstrating scientific circumstances and the state-of-the-art teaching mineralogy and mineralogical researches.

For several years the authors studied the archives of the Vilnius University (VU), Wroblewski Library of Academy of Sciences (MAB), the Princes Czartoryski Library in Kraków (B_Cz), and the Court Chamber for Mining and Minting (*Hofkammer in Münz- und Bergwesen)* in Vienna in order to enlarge knowledge about the activities of the Vilnius University at the start of the 19th century and the academic relations, as well as the phenomenon of the extraordinary popularity of mineralogy among the public (Garbowska, 1993). In 2007, these studies lead us to Slovak Republic, the State Central Mining Archives of Ministry

[2] Jean Emanuel Gilibert (1741–1814), taught natural history and mineralogy at the Principal Lithuanian School in Vilnius in 1781–1783, later became Mayor of Lyon in France; Johann Georg Adam Forster (1754–1794), lecturer of Mineralogy, Botany and Zoology (1784–1787), naturalist, traveller, publicist, participant of James Cook's second voyage around the World (1772–1775); Stanisław Bonifacy Jundziłł (1761–1847), botanist, lecturer of Natural History (1797–1803), Botany and Zoology, chair of Botany Department.

of the Interior, located in Banská Štiavnica (Fig. 1) (Pol. *Szczawnica,* Germ. *Schemnitz*, Hung. *Selmecbánya*), one of the main mining centres of the League of Seven Mining Towns (*Septem Civitatis; Ziemia Siedmiogrodzka*). Some new documents about Roman Symonowicz's mineralogy trip were found there.

Figure 1. Slovak Republic, situation map (Slovakia website).

Roman Symonowicz

Roman Symonowicz, Doctor of Philosophy and Medicine, graduated from the Vilnius Teachers' Seminary. From 1792, he lectured on law and history at the Vilnius Gymnasium, and from 1797 he was the vice-professor of Anatomy at the Main School of the Grand Duchy of Lithuania. In 1801, Symonowicz went to Vienna to improve his knowledge in medicine under Johan Peter Frank. However, at the same time he went in for mineralogy. So, in June of 1803, the Vilnius University sent him on a mineralogical trip to Hungary and Transylvania to get acquainted with ore and salt mining and to purchase minerals and rocks for the university collection. Rector of the university, Hieronim Strzemień Stroynowski[3], supported this trip in every possible way.

After coming back Symonowicz presented a comprehensive report to the University Council (*Roman Symonowicz's Report to the Vilnius Imperial University Council*, 1803, pp. 1–5, 10). This is one of the first sources about the geology of Lithuania given by a professional and well-educated geologist (Grigelis, 2005). Later, in 1804–1805, Symonowicz studied mineralogy further at the Freiberg Mining Academy under the distinguished geologist Abraham Gottlob Werner (Skuodienė, 2003; Wójcik, 1972).

[3] Hieronim Strzemień Stroynowski (1752–1815), university rector (1799–1806), priest, economist, lawyer, famous physiocrat; in 1804 Stroynowski sent a letter inviting Abraham Gottlob Werner as Mineralogy Professor at the Vilnius University.

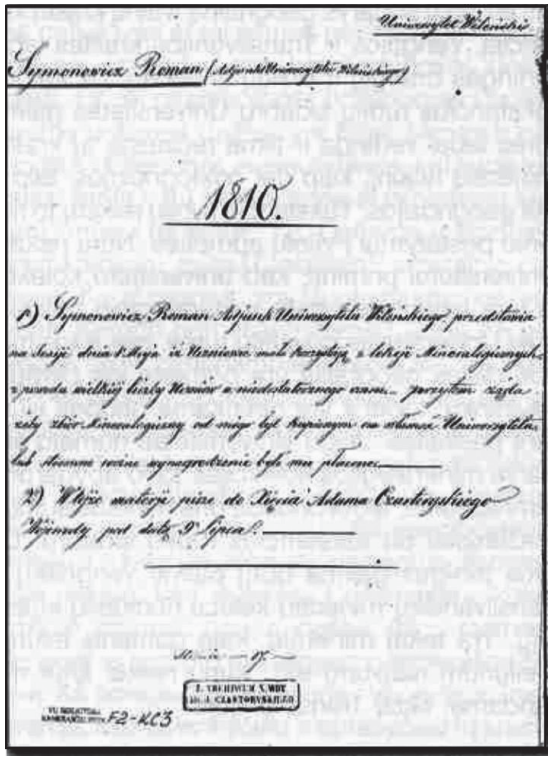

Figure 2. Facsimile of Vilnius University Yearbook for 1810 (VUB RS, F 2 KC3).

Being just an adjunct (assistant professor – *author's note*) with 300 silver roubles as annual salary, Symonowicz was a scientist of merit for his time. In 1806, he published his mineralogy manual and pretended to become a mineralogy professor (Symonowicz, 1806). He was backed by the then Rector Hieronim Stroynowski, but the University Council had not elected him. Symonowicz was single and perhaps not financially well funded. On May 18, 1810, the curator Duke Adam Jerzy Czartoryski[4] wrote to the Rector Jan Śniadecki[5] in order that Symonowicz *"could be promoted as mineralogy professor"* (*Letter from Duke Czartoryski*..., 1810). However, being already a 47-year-old man, Symonowicz wrote directly to the university curator Duke Czartoryski on July 9, 1810 (*Vilnius University Yearbook*, 1810, pp. 255, 275; Fig. 2), linking two likely favourable circumstances: a chance to obtain professorship and a proposal to give over his collection to the university [translated from Polish]:

> *1. I supplicate His Grace W*[ojewóda] *Duke a favour that I was paid for the mineralogy collection I was using at public lectures.*
>
> *2. If I am elected ordinary professor with a salary* [annual] *of 15 000 roubles in silver, I shall give over my mineralogy collection to the University for twenty four thousand roubles in silver. This sum might*

[4] Adam Jerzy Czartoryski (1770–1861), who was Curator of Vilnius University in 1803–1824.

[5] Jan Śniadecki (1756–1830), Rector (1807–1815), astronomer, mathematician, philosopher, highly supported science and education; corresponding member of the St Petersburg Academy of Sciences.

be paid off outright or a half outright and the rest by the end of the next year of 1811.

3. If I remain at the University in present situation: the price of my mineralogy collection is twenty five thousand eight hundred roubles in silver. This sum [should] *be paid off me outright or by the end of 1810 at the latest. In this case I shall not take any care about the collection as soon as it lapses being my property.*

4. If the University does not acquire my mineralogy collection: I shall use it during my public lectures when I am elected ordinary professor with a salary of 15 000 roubles in silver and when the University pays for the use of the collection 500 roubles in silver per year. Such a 500 rouble pay shall not be any reason for the University to claim for my collection that will always be my property. In winter, I shall properly heat the rooms where my collection is kept at the expense of the University.

R. Symonowicz
9 July 1810.

The curator Czartoryski regarded this with favour. However, it was probably too late – the expectations of Symonowicz did not come true. He died on January 29, 1813, in Vilnius after his semi-centennial. His burial site is unknown (possibly, the Bernardine Cemetery).

Symonowicz's deserts to the university are outstanding: his mineralogy collection contained over 20,000 specimens; he created his (and the first Polish) classification of minerals; he owned a rich geological library that was later donated to the university. Few scholars who later became well-known scientists such as Makar Bogatko, Norbert Kumelski had learned mineralogy under Symonowicz (Grigelis, 2007a, b).

Symonowicz wrote that 12,643 mineral and rock specimens in the university's collection belonged to him; and this was the fourth collection in Europe after those of Werner in Freiberg, de Drèe in Paris, and van der Nulle in Vienna (Grigelis, 2005)[6]. After Symonowicz died, the university bought the collection from his brother Jacob for only 10,250 roubles in silver.

[6] Abraham Gottlob Werner (1749–1817), German geologist, professor at Freiberg Mining Academy, Saxony, leader of his time Neptunism school; Étienne Gilbert, Marquis de Drèe (1760–1848), French nobleman; Jacob Friedrich von der Null (Van der Nulle; d. 1826?), Austrian banker in Vienna.

Mineralogy travel

Having returned from Hungary and Transylvania, Symonowicz presented the above-mentioned report to the Council of the Vilnius Imperial University (Grigelis, 2005). The dates and events of this travel, according to the archive documents, are as follows:

- *At the end of June* [25] *he departed from Vilnius* [with a coachman]*;*
- *At the beginning of August he arrived to Vienna, where he got the permission* [August 10]*;*
- *At the end of August he departed for Hungary;*
- *On September 11 he got permission from the Banská Szczawnica* [Schemnitz] *administration;*
- *On September 14 the mountains were covered in early snow;*
- *In Banská Szczawnica he visited four ore mines: Pacherstollner, Zygmunt's, Stephen's, Maximilian's mine;*
- *He went to Kremnitz* [coin mint; Mennica Kremnicka]*;*
- *Maria Hilf ore mine;*
- *Banská Bystrzyca* [Neusohl; where 300 centners of copper coins used to be minted per day]*;*
- *Panska Dolina* [Herngrund] [4 hours' way from Bystrzyca]*;*
- *Tajow* [2 hours' way from Bystrzyca]*;*
- *Hronitz* [12 hours' way northwards from Bystrzyca].

In his report Symonowicz presents a detailed description of his travel. Its full translation from Polish is published in Lithuanian and in English (Grigelis, 2005; 2007a). An excerpt from it about the visit by Symonowicz to the Banská Štiavnica region rich in ore is given below:

> ***(i) Roman Symonowicz's Report to the Vilnius Imperial University Council About His Foreign Travel in 1803***[7]
>
> *I, the undersigned, was sent by the University to make the mineralogy trip to Hungary and Transylvania*[8]*, and now I present the report about the localities I had visited. I departed from Vilnius at the end of June, according to our calendar, and due to slender means – eight hundred roubles – given me by the University, I couldn't post but* [travelled] *with a coachman. In early August I reached Vienna, and*

[7] *Roman Symonowicz's Report to the Vilnius Imperial University Council*, 1803, pp. 1–5, 10. Translation from Polish.

[8] Orig. *Ziemi Siedmiogrodzkiej*.

till I was given the necessary passports, three weeks had passed. In late August I departed for Hungary, however, the last winter that had come too early to the mountains, covered them on September 14, therefore it was difficult to reach the mountains to do geognostic observations. In spite of all this I was in Szczawnica[9]*, where I visited four mines: Pacherstollner mine with its vein formed mainly of Zinopel*[10]*, Zygmunt's mine, Stephen's mine and Maximilian's mine with its vein formed of quartz, field spar, and white clay, but earlier – cinnabar.*

I looked over the shop, where various silver and gold ores[11] *are grinded, washed and processed into schlich* [heavy concentrate]*, where gold by means of washing is separated from lead schlich, and metallurgy furnaces, i.e., the furnaces where the ores are melted. In Kremnitz I looked over all metallurgy furnaces, smelting furnaces, furnaces and apparatuses, where nitric acid is obtained by distillation, where quartering, granulation and separation of the residual gold from silver takes place; I looked over the shop of silver and gold ore ragging, washing and processing into schlich, all mint shops and equipment and came around the Maria Hilf mine, where beside silver and gold ores, grey antimonite crystallised into prisms and long needles is found. I was in Bystrzyca*[12]*, where I looked over metallurgy furnaces and smelting furnaces. I was in Panska Dolina*[13]*, four hours by road from Bystrzyca, where I looked over the copper ore mine, notable for groundwater cementing by copper salt and cobalt salt, and most famous by its immeasurable length under the land surface. In Tajow, two hours by road from Bystrzyca, I looked over the liquation furnaces, i.e., furnaces where silver is separated from copper by means of lead, and smelting furnaces. No wonder that so many metallurgy and smelting furnaces are located near the Hungarian silver and gold mines, because soon after the death of Born*[14]*, his method of silver and gold separation from the ore by means of amalgamation was applied there. Bosses of the furnaces told me that, using amalgamation, much gold is lost, but this is hard to swallow this. During my visit to Bystrzyca, I looked over the mint, where 300 hundredweights of copper coins are minted per day,*

9 Orig. *Schemnitz* (Pol. Bańska Szczawnica), now Banská Štiavnica, Slovakia.
10 Orig. *Zinopel* – most probably 'cinnabar', mercury ore.
11 Orig. *minery* – ores.
12 Orig. *Nesohl* [Neusohl], now Banská Bystrica, Slovakia.
13 Orig. *Herngrund*, now Špania Dolina, Slovakia.
14 Ignaz Edler von Born (1742–1791) – Austrian mineralogist.

> *and where after the final marking they are sent to the Kremnitz mint[15]; I was in Hronitz[16], a locality 12 hours by road north of Bystrzyca towards the Carpathians, notable for furnaces and iron smithies belonging to royal treasure and very perfected. Two of these furnaces are 28 feet high, where mineras or iron ores, i.e., clayey common iron ore, ragged brown iron ore, brown hematite iron ore, common magnesium iron and spar iron ore, are melted. The raw material that is produced in the smithies in the same way as the material from four other mineras is processed into band iron. All iron machinery, used for various purposes in Schemnitz, Kremnitz and Bystrzyca mines, and all equipment in Kremnitz and Vienna mints are made in Hronitz smithies.* […]

Symonowicz made interesting remarks about the style of his trip, circumstances of visiting ore mines, as well as proposals to the university about the circumstances of acquiring a mineralogical collection. He wrote:

> […] *Being short of money and, hence, due to the short duration of my mineralogical trip, I could not fully fulfil the instruction sent me by the Curator of HG Duke and by the University[17]. It's not so difficult to describe which ores compose an ore field, and such a description wouldn't be very useful, but the description of mountains, rocks and ore veins constituting them with all geognostic circumstances, to learn whether these thick veins in Schemnitz up to 14 or 18 fathoms in some places are real veins, whether they are also ore beds, as Mr. Werner thinks, to describe peculiarities of melting of each ore, is not so simple a thing. Such observations and descriptions are very revealing and, in addition to mineralogy, geognosy and chemistry knowledge, they are much time- and labour consuming/*

> […] *More than a hundred students who attended my lectures on mineralogy, including twenty ones who passed the exams, persuade the University that the mineralogy knowledge in our country, in a short time, will become more popular than it was up to now. Many of them will study rock strata on the banks and valleys of our rivers, in order to satisfy various economic needs. In my lectures, I have finished the first class of oryctognosis, in all cases integrating the geognostic, geographical and economic knowledge about each mineral; major part of my students have copied my sextern down; the opinion about*

15 Orig. *Mennica Kremnicka*, now Kremnica, Slovakia.
16 Orig. *Hronice*, now Hronec, Slovakia.
17 *Instrukcja dla JP. Symonowicza*. CVIA, F 721, 1803, cited in Garbowska, 1993, p. 82.

their progress was expressed to the University by Highly Esteemed Rev. Dean of Physics Faculty[18] *and professors who took part in the examinations. Recurring to the trip that I wanted to carry on, I have the honour to inform the University that Hungarian, Transylvanian and Tatras mines are far away from each other, thus, visiting them caused expenses greater than I was given last year. In the mountains, where there is no post and rare* [inhabitants] *keep horses, to drive a mile or several miles, one should pay a local gold coin (zloty rynski) per mile, moreover to fodder a horse at one's own charge. Last year, all my trips made up 443 miles, except for distance covered by foot – then the total should be doubled; one has to take a guide everywhere, an office servant (officialist) who accompanies you to the mine, who shows you the furnaces and various machinery; the miners carrying lamps in the mine also should get at least their daily money; one can take an attendant not for good but for protection from various incidents.*

[…] *Visiting of all the above-mentioned localities and their mines will take me for more than a year. I ask the Council of the Vilnius Imperial University to allot two thousand five hundred roubles in silver for my trip useful in all respects. The instructions of HG Duke Mr Curator*[19] *prescribe me to buy "a collection of ore minerals produced from veins and mountains in the Hungarian and Transylvanian mines, supervising that the samples selected were not too small or damaged".*[…] *In the localities with the mines it is possible to buy at popular prices very rare and excellent minerals, which, in my own experience, would cost much more when buying from the traders. Moreover, minerals bought at the site are much more valuable, because their geography is known; thus the University seems, in time, to form a geographical collection from various regions. The region of Hungary and Transylvania is very rich in precious and excellent minerals. For a thousand roubles in silver, the University would be able to purchase a very valuable and the rarest collection of minerals of those countries, both in oryctognosis and in geognosis. One thousand roubles would be necessary to pay the transport of this collection to Vilnius* […].

Signed Roman Symonowicz
Adjunct of Imperial University
S. Malewski Prof. Sekret.
1804. 30 April

[18] Józef Mickiewicz, uncle of the poet Adam Mickiewicz.

[19] Adam Jerzy Czartoryski, University Curator in 1803–1824.

Septem Civitatis

As mentioned above, in 1803 Roman Symonowicz visited the Banská Štiavnica ore mine region called *Septem Civitatis* (*Siebenbürgen, Ziemia Siedmiogrodzka*). The State Mining Archives (*Štátny ústredný banský archív,* ŠÚBA) in Banská Štiavnica was found to have manuscript documents related to the visits by Symonowicz to the copper and silver mine area. By the way, since 1780, the publications about the history of the League of Seven Mining Towns have been known (von Fichtel, 1780). The area was already a well-known site exploiting copper and trading with a matter in European countries since the 16th century (Fig. 3).

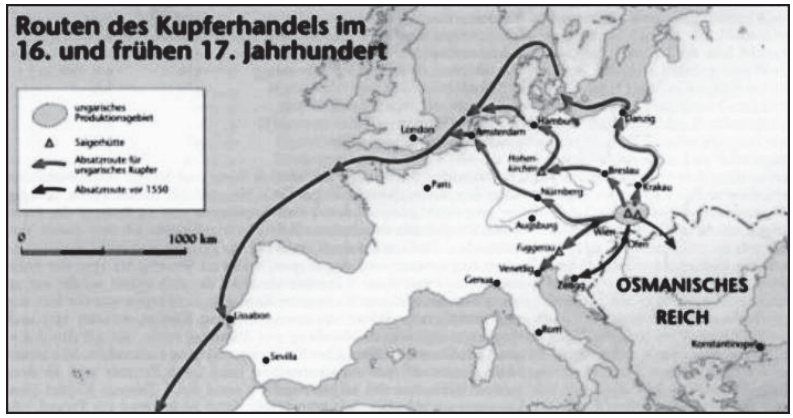

Figure 3. Copper trade routes from the Hungarian mining area in 16th- to 17th-century Europe (Slovakia website).

Banská Štiavnica (with a population of 10,000) lies in the area of the Štiavnica Mountains, Central Slovakia, on the slopes of a picturesque volcanic caldera between the hills of Glanzenberg and Paradayz; from the south it is blocked by the hill of Calvary (Scharffenberg). This well-conserved medieval town with Baroque churches, monuments and Renaissance houses is placed on the UNESCO heritage list. There are two universities *(Banícka a lesnícka akadémii v Banskej Štiavnici)* in the town. The site of Krahule about 10 kilometres from Banská Štiavnica is notable for the geographical centre of Europe, marked by a stone monument on the hilltop.

The development of the town is closely related to the working of rich silver ores. The settlement is known from the Neolithic, and the first silver mine had been established by the Celts in the 3rd century B.C. The Slavonic tribes moved here in the 10th–11th centuries. From the early Middle Ages there was the main gold and silver production centre (*terra banensium,* 1156) in the Kingdom of Hungary. In

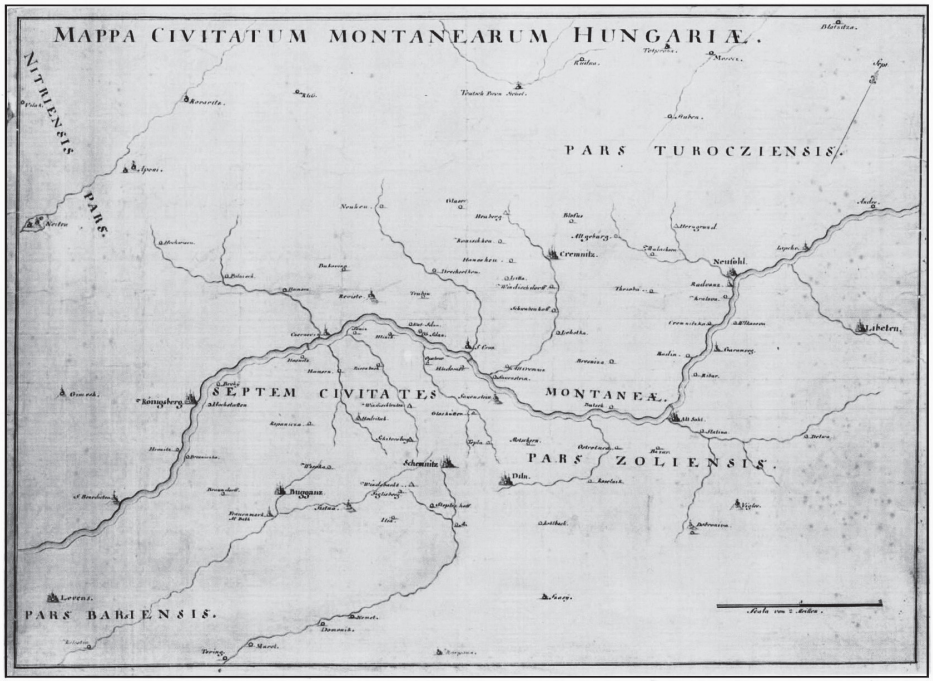

Figure 4. Map of Lower Hungary (present-day Central Slovakia) Mining Towns (ŠÚBA, HKG VI, Inv. No. 247).

the 13th century, the Germans, representing a higher level of culture, came here. In 1238, the town was given the royal status. During battles against Ottomans in the 16th century, a defence system had been built with its two elements – the Old Castle and the New Castle – still standing. During the Reformation period, the town was within the League of Seven Mining Towns together with Banská Belá, Banská Bystrica, Kremnica, Ľubietová, Nová Baňa and Pukanec (Fig. 4).

The town was an important mining industry centre. In 1627, for the first time in the world, smokeless gun powder was used in the ore mines. In the 18th century, the water storage and canal system, the so-called *tajchy*, had been constructed to drain the mine water. In 1735, for the first time in the Kingdom of Hungary, Samuel Mikoviny established the mining school which later, in 1762–1770, favoured by the Empress Maria Theresa, had been reformed into the Mining Academy, the first technological university in the world (Novák & Herčko, 1992). In 1782, Banská Štiavnica's population was over 23,000; and it became the third largest town in the Kingdom of Hungary after Bratislava and Debrecen. In the second half of the 19th century, the scale of ore mining sharply decreased, and the best part of the mines was closed. Nowadays one mine, Hodruše Hamré, is still working in the vicinity of Banská Štiavnica.

Now Banská Štiavnica is an attractive recreation and tourist centre notable for its Slovakian Mining Museum. Here one can visit the two-kilometre-long seventeenth-century mines and galleries; by the way, the galleries of Pacherstollner mine extend under the very centre of the town.

Archive trouvaille

A large part of the Vilnius University curatorship archive is kept in Krakow's Princes Czartoryski Library Manuscript Unit of old printed and cartographic matter. In the 1803 files, we have found several documents in which the trips made by Symonowicz are mentioned. The document dated to 25 June 1803 [old style] is written to the curator Czartoryski by the Rector of the Vilnius University, M. Stroynowski (Fig. 5; in Polish):

> *Mam honor donieść* [illegible] *Dobrodzieiowi, że Adjunkt Symonowicz (o ktorym Uniwersytet przeszłey poczty uczynił Przedstawienie) pożyczył bym czasem na swoy woyaż pieniędzy u iednego z naszych Profesorow, aby niestracił naysposobnieyszey pory do wykonania swego przedsięwzięcia, y dzis wyieżdża do Wiednia, dla otrzymania tam pozwolenia Rządu, ktore iest potrzebne do oglądania kopalni w Węgrzach y w Transilwanii.* [...] *Woyaż Adjunkta Symonowicza do kopalni w Węgrzach y w Transilwanii iednomyslnie od wszystkich iest uznany za potrzebny y użyteczny: bo tenże Symonowicz ma wielką passyą, y zdatność do Mineralogii, y dał tego dowody.* [...] *H. Stroynowski Rektor.*
>
> *[English translation: I have the honour to inform* [illegible] *the Benefactor that the Adjunct Symonowicz (the University had introduced him earlier by mail) has now borrowed money for his trip from one of our professors in order to avoid losing the best time for his undertaking and now departs for Vienna to obtain there the permission of the Government necessary for the survey of ore mines in Hungary and Transylvania.* [...] *The trip by the Adjunct Symonowicz to the ore mines of Hungary and Transylvania has been unanimously recognised as necessary and useful since Symonowicz has a strong partiality and gift for mineralogy and has presented proof of it.* [...] *H. Stroynowski Rector].*

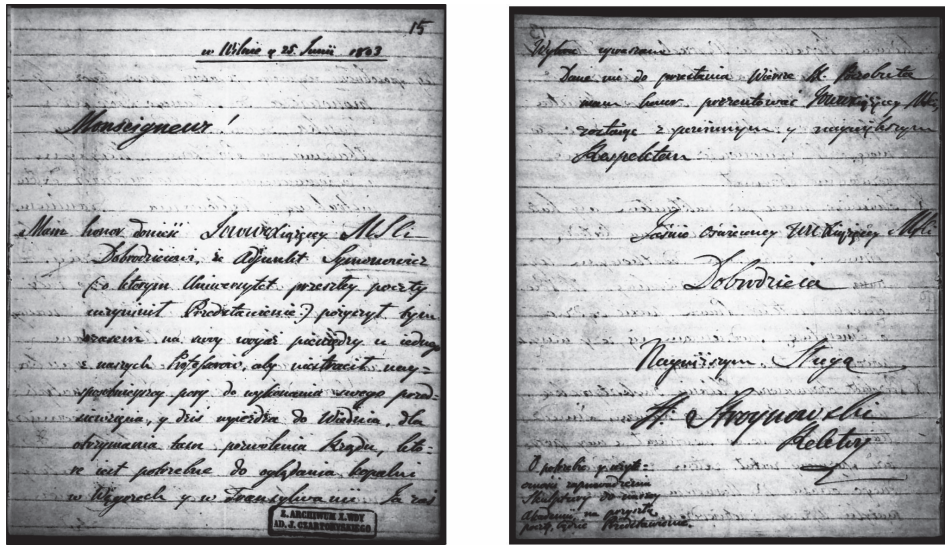

Figure 5. H. Stroynowski's letter to A. J. Czartoryski dated 25 June 1803 (RKPS_B Cz, No. 6395. T. 2, 15–17).

When Symonowicz arrived in Vienna, he applied for accreditation at the Court Chamber for Mining and Minting to obtain a license to visit Hungarian ore mines. As stated in the archive document (*Decision of State Vice-Chancellor Count Cobenzl to grant license...*, 1803)[20] an application was presented by a State Vice-Chancellor to Chamber meeting on 10 August, 1803 (full original extract is given in German):

1397/8863	*Statim*
d.d. 6ten praes. 8t August 1803 Graf d Cobenzl Staatsvicekanzler ersuchet, den russisch kaiserlichen Unterthanen Simonovicz, Doktor der Arzneykunde, die Bereisung der Hungarischen Bergwerke zu gestatten, und die Ausfertigung, der erforderlichen Anweisungen, und Credite zu veranlassen.	*Exped. d. 9t August*
Offenes Creditiv	*Zur Raths Sitzung den 10n August 1803*

pr Creditiv

In diesem Gewähr wird das anverlangte Creditiv an das k.k. Haupt–Oberstkammer–Grafenamt und die übrigen Haupt- und

[20] The document presented by Professor Marianne Klemun, Department of History, University of Austria, on 7 July, 2009.

*Oberbergämter und die Siebenbürgische k. Landes Thesauriat ausgefertigt haben. * Da man auf Ansinnen der k.k. geheimen Hof und Justizkanzellei den Rusisch kaiserlichen Unterthan, Doctor der Arzneykunde und Mitglied der Lithauer Universität zu Wilna Herrn Simonovicz erlaubt hat, die Hung.- und Siebenbürgischen Bergbezirke bereisen, und die Berg und Hüttenwerke einsehen zu dürfen, so hat das k. Oberstkammergrafenamt, und die übrigen k. Bergoberämter; so wie das k. Siebenbürgische Landes Thesauriat diesen wißbegierigen Reisenden mit aller Willfährigkeit die Befahrung der Gruben und Besehung sämtlicher Manipulationen Werker zu gestatten.*

An die k.k. Geheime Hof– und Staatskanzellei

Die k.k. geheime Hof und Staatskanzellei aber wird mit Note erwidert. Mit danknehmiger Rückstellung als mit Note von 6ten dieses anhero gefällig mitgetheilten Ansinnens als Russich kaiserlichen Gesandschafts,– Trägers hat man die Ehre auch das zur Bereisung der Hungarisch und Siebenbürgischen Berg und Hüttenwerke, für den Russisch kaiserlichen Unterthan und Doctor der Arzneikunde Herr Simonovicz anverlange Creditiv in Freundschaft beyzüfugen.

S. Anton Ruprecht[21]

Mittels beiliegender Note verwendet sich der russisch-kaiserliche Geschäftsträger v. Anstett, womit dem russisch kaiserlichen Unterthan Hernn Simonovicz, Doktor der Arzneykunde, und Mitglied der Universität zu Vilna in Lithauen gestattet werden möge, zur Erweiterung seiner chemisch und mineralogischen Kenntnisse die Bergwerke in Ungarn zu besichtigen. Wenn dennoch kein Anstand dagegen abwaltet; so würde der unterzeichnete Hof- und Staatsvizekanzler Seiner des k.k Vizepräsidenten in Münz und Bergwesen Hernn Grafen von Wrbna Excellenz für die gefällige Ausfertigung und Anherosendung der für den Herrn Simonovicz benöthigten Credideten sehr verbunden seyn.

Anbey hat Unterzeichneter auch die Ehre, sich die beliebige Zurück-Stellung des ballegierten Communikats Dienstfreundschaft zu erbitten.

Wien den 6. Aug. 1803.
Ludwig Cobenzl[22]
An Seine des k.k Präsidenten in
Münz und Bergwesen Hernn Grafen
v. Wrbna Excellenz!

[21] Anton Ruprecht (1748–1814), mining advisor, the Court Chamber for Mining and Minting.

[22] Johann Ludwig Joseph Graf von Cobenzl (1753–1809), Austrian politician, the Court Chamber for Mining and Minting in Vienna.

Two documents about the permissions given to Symonowicz to visit the *Septem Civitatis* ore mines have been found in the Slovak State Central Mining Archive in Banská Štiavnica (ŠÚBA) in the Fund of the Great Duke Chamber Board (HKG). The first one (ŠÚBA, 1803a) is given in Vienna on 10 August 1803 by von Leüthner, Vice-President of the Emperor's Royal Court Chamber for Mining and Minting (Fig. 6):

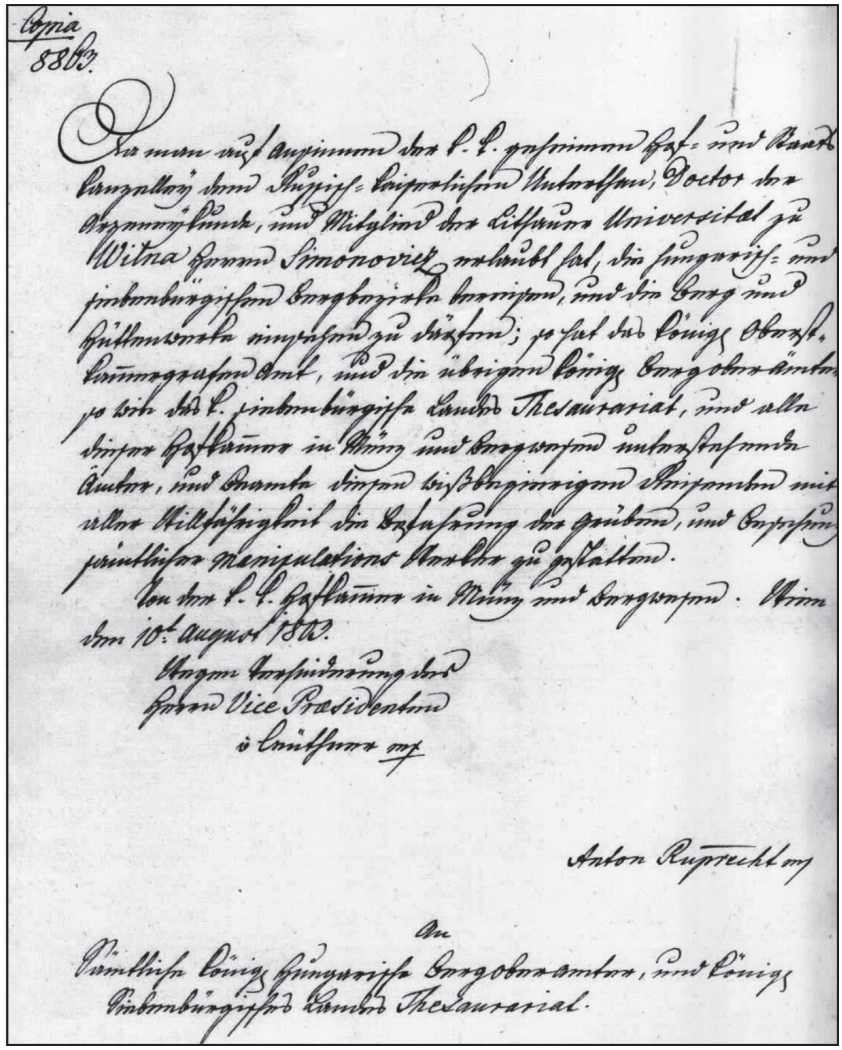

Figure 6. Permission to visit the mines of Hungary (present Central Slovakia) and Seven Mining Towns (Siebenbürgen; former Transylvania) given to R. Symonowicz by the Emperor's Royal Court Mint and Mining Chamber in Vienna, 10 August 1803 (ŠÚBA–HKG, No. 4002/1803).

Da man auf Ansinnen der. k. (kaiserlichen) k. (königlichen) geheimen Hof- und Staatskanzeley dem Russisch-kaiserlichen Unterthan, Doctor der Arzeneykunde, und Mitglied der Lithauer Universitaet zu Wilna Herrn Simonovicz erlaubt hat, die hungarisch- und siebenbürgischen Bergbezirke bereisen, und die Berg und Hüttenwerke einsehen zu därfen; so hat das königl. Oberstkammergrafen Amt, und die übrigen königl. Bergoberämter, so wie das k. siebenbürgische Landes Thesaurariat, und alle dieser Hofkammer in Münz und Bergwesen unterstehende Ämter, und Beamte diesem wissbegierigen Reisenden mit aller Willführigkeit die Befahrung der Gruben, und Besehung sämtlicher Manipulations Werker zu gestatten.

Von der k. k. Hofkammer in Münz und Bergwesen. Wien den 10. August 1803.
Wegen Verhinderung des Herrn Vice Praesidenten von Leüthner mp (manu propria = vlastnou rukou) Anton Ruprecht mp.
An Sämtliche königl. hungarische Bergoberamter, und königl. Siebenbürgisches Landes Thesaurariat.

[English translation: The subordinate of Russia's Emperor, Doctor of Pharmacy and Member of the Lithuanian University in Vilnius Mr. Symonowicz made a request to the Royal Secret Court and State Chancellery of the Emperor to allow him to visit the mining regions of Hungary and Septem Civitatis, as well as to see the ore mines and mining factories; the Chief Royal Director of the Duke's Chamber and the rest royal chief mining directors and the Thesaurariat of Septem Civitatis land, as well as all the directors mints and mining factories belonging to the Court Chamber, and officials can allow with all the attentions this hungry in knowledge traveller to visit the ore mines and see all [ore] treatment factories.

From the Emperor's Royal Court of Mint and Mining Chamber. Vienna, August 10, 1803.
Due to business of the vice-president Mr. von Leüthner mp
*Anton Ruprecht mp [*mp – manu propria]*
To all chief royal Hungarian directors and the Royal Septem Civitatis Thesaurariat.]

Symonowicz waited for this permission for three weeks in Vienna. Having got it, he went to Banská Štiavnica where he received the second document, issued on September 11, 1803 by the Great Duke Chamber Board (HGK) in Banská Štiavnica and signed on September 14, 1803 by the HGK mining advisor Prof. Patzier[23] (ŠÚBA, 1803b; Fig. 7):

[23] Michael Ignatz Patzier (1748–1811), metallurgy professor at Banska Štiavnica in 1792–1811.

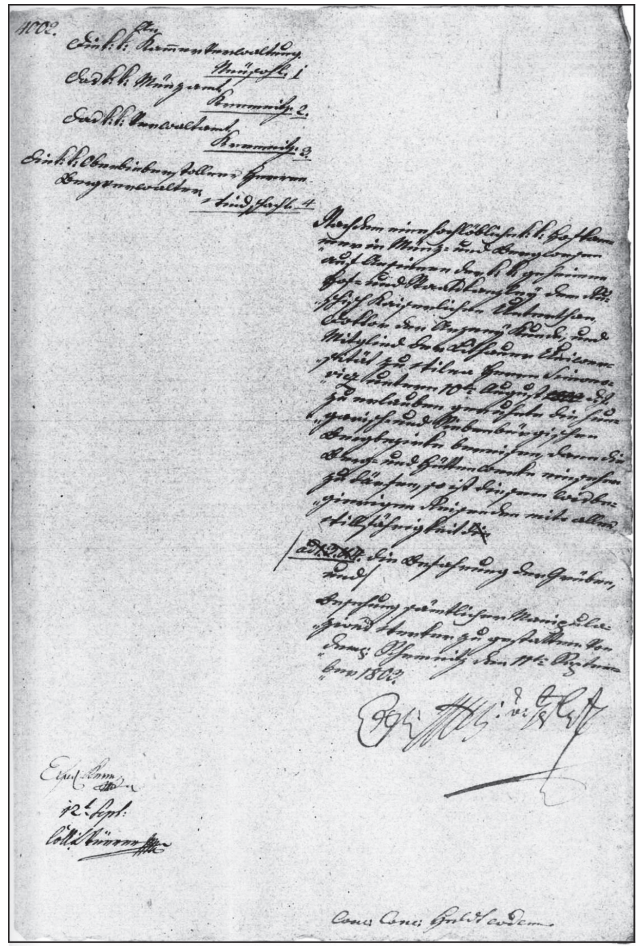

Figure 7. Permission to visit mines and ore-dressing factories given to R. Symonowicz by Great Duke Chamber Board in Schemnitz (present Banská Štiavnica), 11 September 1803 (ŠÚBA–HKG, No. 4002/1803).

An
die k.k. KammerVerwaltung Neüsohl. 1.
das k. k. Münzamt Kremnitz. 2.
das k.k. Verwaltamt Kremnitz. 3.
die k.k. Oberbieberstollner Herren Bergverwalter Windschacht. 4.

Nachdem eine hochlöbliche k.k. Hofkammer in Münz- und Bergwesen auf Ansinnen der k.k. geheimen Hof- und Staatskanzlei dem Ruschisch kaiserlichen Unterthan, doktor der Arznei Kunde, und Mitglied der Lithauer Uniwersität zu Wilna herrn Simonovicz untern 10. August d. J. zu erlauben geruhete die Hungarisch- und Siebenbürgischen

Bergbezirke bereisen, dann die Berg- und Hüttenwerke einsehen zu dürfen, so ist diesem Wissbegierigen Reisenden mit eller Willfährigkeit /~~ad 1.3.und 4.~~ die Befahrung der Grüben, und/ Besehung sämtlicher Manipulazions Werker zu gestatten. Von dem: Schemnitz (Banská Štiavnica) den 11. September 1803.

[Vlastnoručná poznámka banského radcu HKG a profesora akadémie Patziera:]
Hiernach sind die unterstehenden Ämter das gehörigen angewiesen worden.
Schemnitz 14. Sept. 1803.

[English translation: To:
the Emperor's Royal Neusohl Chamber Board. 1.
the director of the Emperor's Royal Kremnitz mint. 2.
the director of the Emperor's Royal Kremnitz Board. 3.
the director of the Emperor's Royal Ober Bieber Mines Mr. chief manager of the Wind Pit. 4.

The highly honourable Emperor's Royal Court Mint and Mining Chamber, under the request made on August 10 by the Russia's Emperor's subordinate Doctor of Pharmacy and Member of the Lithuanian University in Vilnius Mr. Symonowicz to the Emperor's Royal Secret Court and State Chancellery, granted him the permission to visit the mining regions of Hungary and Septem Civitatis, as well as to see the ore mines and mining factories; thus, this hungry for knowledge traveller is allowed to visit the ore mines and see all [ore] treatment factories.
Schemnitz [Banská Štiavnica], September 11, 1803.

[HGK mining advisor and [Mining] Academy Prof. Patzier mp.]
Therewith the subordinate officials shall fulfil in due order.
Schemnitz, September 14, 1803.]

Mines visited by Symonowicz

From Symonowicz's report follows that he arrived at Banská Štiavnica at the beginning of September 1803. That year the mountains were covered in an early snow. Nevertheless, Symonowicz went to see the ore mines in the vicinity of Banská Szczawnica: Pacherstollner, Zygmunt's, Stephen's; Maximilian's in Panska Dolina [Herngrund]; Maria Hilf ore mine; he ran also in Kremnitz [Mennica

Kremnicka], Banská Bystrzyca [Neusohl], Tajow, and Hronitz. Some exciting remains of the former ore mines, such as Maria Hilf, still exist on the slope of Štiavnica mountains (Fig. 8).

Figure 8. Entrance to the former Maria Hilf ore mine, slopes of Štiavnica Mountains (Slovakia website).

One of the biggest was 'Maximiliani Schacht' located in Špania [Panska] Dolina (Fig. 9). The mine section plan shows seven underground levels (Lauf, Germ.) crossed by numerous vertical shafts sliding along ore body. Galleries of the Maximilian mine remind of a spider-web stretching for kilometres underground. The mine operated for many centuries, from 1567 to the 1820s. The rubble dump of this mine forms a steep artificial hillside, containing ca. 405,510 m^3 of debris which is called 'anthropogenic landscape element'. The Ferdinand mine close-by in

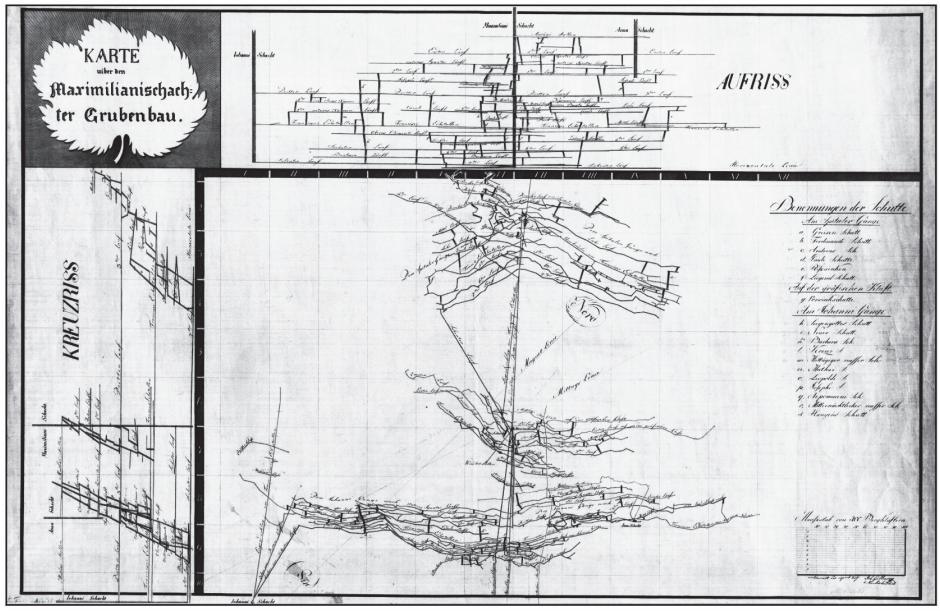

Figure 9. The 1827 plan of Maximilian's ore mine in Špania Dolina, Slovakia (ŠÚBA–HKG, Inv. No. 13646).

Figure 10. Special signals desk of shaft lifting from Maximilian's shaft. Photo by A. Grigelis, 2007.

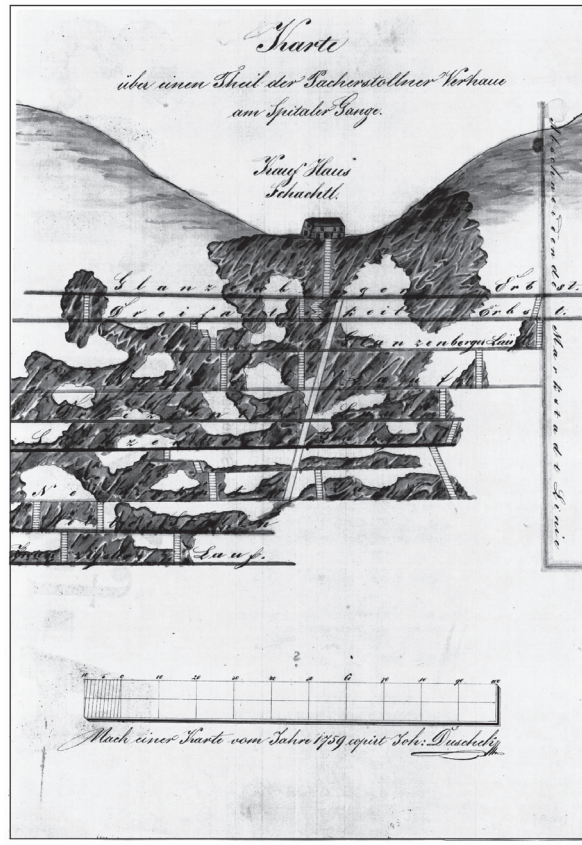

Figure 11. Section of Pacherstollner ore mine in Banská Štiavnica, after the map of 1759 (ŠÚBA–HKG, Inv. No. 13960).

Špania Dolina had been exploited since 1400; it reached 295 m in depth, and its galleries were 4,050 m in length. Every miner was obliged to know the special signals that were used for shaft lifting or in case of emergency (Fig. 10).

The Pacherstollner and Zygmunt's mines were situated in the entire Banska Štiavnica city. The *Pacherstollnie Hause* was located at the so-called 'Hospital Down'. In 1759, this mine had twenty underground levels (Fig. 11). The Zygmunt's mine was rather modern and had three vertical tubes for ore mining (Fig. 12). Notably, the plans of the mines referred to above have been made in a very precise technique.

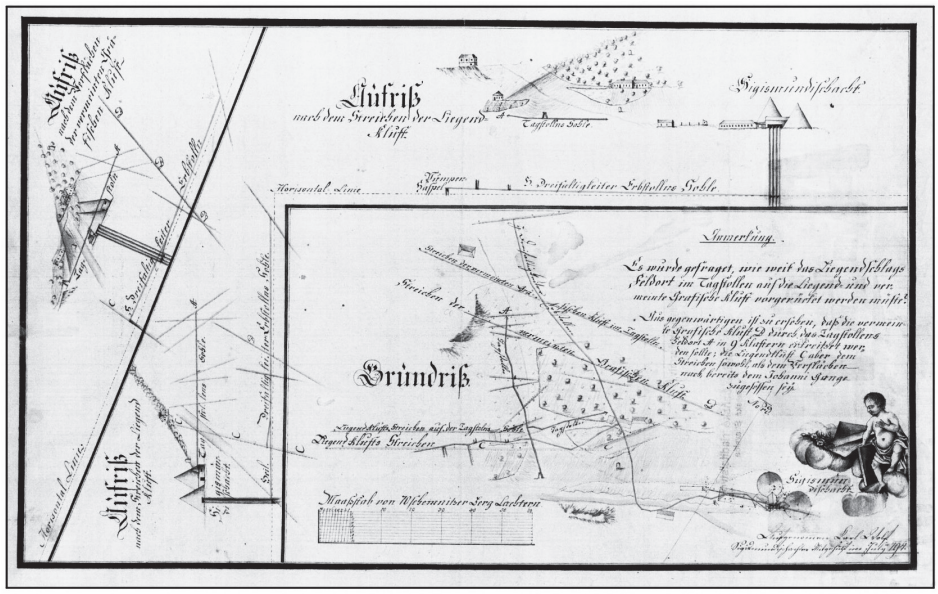

Figure 12. The 1794 plan of Zygmunt's ore mine in Banská Štiavnica (ŠÚBA–HKG, Inv. No. 6753).

Some conclusions

An assumption is made that in 1801, during his stay in Vienna to improve his medical skills, Roman Symonowicz obtained useful knowledge in mineralogy; a favourable circumstance was that "the Emperor's Royal Court Mint and Mining Chamber" was in Vienna, the capital city of the Empire. We can see that the important sphere of ore mining belonged to the Royal Court was centralised and well organised. The ore region of *Septem Civitatis* was "very rich in precious and nice minerals". The ore mines were operating, metal extraction and melt technologies were improving. The Banská Bystrica mint used to produce up to 300 centners of copper coins per day for the empire's coffers.

This mining branch needed highly skilled specialists, especially ore experts (mineralogists), mine-surveyors, and constructors of mine machinery. The Mining School, established in 1735 in Banská Štiavnica, was reformed in 1762 as part of the Mining Academy which was the first of its kind in the world and older than the famous Freiberg *Bergakademie*. The ore mining plans drawn by the then mine-surveyors in Banská Štiavnica delight us even now.

Symonowicz turned towards mineralogy, since he had a "strong partiality and gift" for this science. He became the first mineralogy lecturer at the Vilnius University. All students of Physics and Medicine faculties were liable for the mineralogy courses. "More than a hundred students who attended my mineralogy lectures and those twenty of them which passed the exams convince the University that in a short time the mineralogy knowledge will become more general than up to now", Symonowicz wrote in his report. However, good teaching without a good collection is impossible. In 1803, Symonowicz was implementing his "passion", even borrowed money for his trip and departed for Hungarian and Transylvanian ore mines. He was said to acquire a collection of ore minerals for the university, while "the specimens should not be too small or damaged".

Roman Symonowicz, "this hungry for knowledge traveller", formed such a collection. Of course, a part of the collection already existed before. He had bought very many specimens of minerals and rocks for the university with his own resources or used to get them directly from miners. He noted himself that of the 20,800 collection samples, more than 12,600 were his own property! Undoubtedly, he collected the rock and mineral samples in different areas. He mentioned that, except for the Hungarian and Transylvanian ore mines, he made three visits to the well-known salt mine of Wieliczka, surveyed the sulphur mine in Swoszowyce; he wrote about gypsum rocks occurring in Upytė Powiat, Kursh and Podole; he knew about Čiobiškis sandstone, as well as about cold sulphurous springs at the gypsum outcrops where natural sulphur should be present as well.

As one ore specimen weighed, in average, about 100 g, it would make 1200 kg of ores and rocks. Symonowicz could have struck it rich from this collection that was "the fourth in Europe". In 1810, he asked "his Grace W[ojewóda] Duke for his favour that I was paid for the mineralogy collection I was using in public lectures by now". However, he had not managed to sell the collection to the university during his life.

Thus, Roman Symonowicz was an excellent mineralogist dedicated fully to the science, a well-known expert who used to be invited to noblemen to put in order their collections in such a manner as "the nature did". Further archive studies will disclose new aspects of his life and, at the same time, of mineralogy and geology at the beginning of the 19th century in the panorama of Lithuanian science development.

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