

THOMAS ŻEBROWSKI – THE DISCIPLE OF JOSEPH STEPLING

NIJOLĖ BULOITAITĖ

THOMAS ŻEBROWSKI, JOSEPH STEPLING'S STUDENT

In early eighteenth century, with the arrival of the Age of Enlightenment, the Jesuit Academy in Vilnius started to introduce various reforms. Political turmoil and the need to modernise the school system led to the introduction of Modern philosophy and science into the curriculum. Special attention was paid to mathematics and natural sciences, and this held even after the abolition of the Jesuit Order. Thomas Żebrowski, a talented mathematician, astronomer, and architect, was sent to Prague to learn about new methods and achievements of astronomy and mathematics from Joseph Stepling. He studied in Prague in 1751–1752. Upon his return to Vilnius, he started to teach mathematics, founded a cabinet of physics and mathematics, and in 1753, established an observatory. He kept in touch with Joseph Stepling and consulted him on various subjects including teaching, experimentation, and construction of an astronomic observatory. Ideas he brought from Prague had formed the foundation of advancement of mathematics and astronomy at the Vilnius University, where they were further developed by his students and contributed to a high level of exact sciences, which was maintained until 1832, when the university was closed.

Professor Żebrowski, whose career was short but productive, left behind an almost finished astronomical observatory, a modern museum of mathematics, and a legacy of public scientific activities. He is also considered one of the most important late Baroque architects in Lithuania. The university preserves Żebrowski's legacy. His former observatory now houses a museum of astronomical instruments, his books are kept in the university library, and his contribution to architecture is a subject of study.

Keywords: Vilnius Astronomical Observatory – Vilnius University – Joseph Stepling – Thomas Żebrowski – Lithuanian Jesuits – Marcin Poczubot – Museum of Mathematics – Cabinet of Physics

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With the ideas of Enlightenment and the fall of scholastic philosophy Vilnius Jesuit academy started the reforms. The political turmoil of the state and the need to improve and modernize the education system encouraged Jesuits to introduce philosophy of new ages and natural sciences. Already since 1740 the Jesuits started to expand the course of mathematics, taught in the academy, added the elements of algebra and geometry, astronomy, measuring of weight and length. Heights, distances, areas of sites were started to be measured for practical purposes of teaching. To prepare teachers for gymnasiums, special two-year courses of mathematics were organized in provinces. Each year the interest in mathematics and natural sciences was growing. Teaching of mathematics and natural sciences gained special attention and achievements that continued even after the abolition of Jesuit order. Most talented students were sent to foreign research centres. Mathematical

sciences especially started to flourish in the Polish-Lithuanian Commonwealth after the first young Jesuit students returned from their studies abroad.

The mathematician, astronomer and architect Thomas Żebrowski, the founder of Vilnius Astronomical observatory, was sent to Prague to learn about the new methods and achievements of astronomy and mathematics from the famous Jesuit scientist Joseph Stepling.

Professor Thomas Żebrowski lived a short, but very intensive life and played an extremely important role as mathematician, astronomer and architect. He was born in Lithuania in 25th November 1714, died in Vilnius in 18th March 1758. It is known, that he joined the Society of Jesus in 1732. He was admitted to the novitiate at St. Ignatius Church of Vilnius. From this period Vilnius University Library possesses a manuscript *Praxes*, where a title page is drawn by him with the inscription in Lithuanian language. The drawing proves his skills and knowledge in baroque art, as well as knowledge of Lithuanian language. He studied Philosophy in Vilnius Jesuit Academy in 1735–1738, Theology in 1740–1744. Żebrowski taught Latin in Kaunas Jesuit College, poetry and mathematics (arithmetic, horography, and geodesy) in Kražiai Jesuit College, rhetoric in Ilūkste and Babruysk. He became *minister noviciatus* of Vilnius Jesuit Novitiate in 1748–1750. At this time he already was an acknowledged architect, was taking part in quite a few reconstructions and buildings, carried out by the Society of Jesus.

Having the idea to establish the observatory at Vilnius Academy, the Jesuits sent Żebrowski to Prague and Vienna. One of his professors, Kazimierz Szulc, also studied mathematics in Prague in 1732–1734. Maybe that was one of the reasons for choosing Prague. Polish researcher Stanisław Bednarski mentioned four Jesuits from Lithuanian province, who studied Mathematics and Physics in Prague in the period of 1750–1756: Jan Bohomolec, Thomas Żebrowski, Kazimierz Naruszewicz and Marcin Poczobut.¹ Żebrowski studied astronomy, mathematics and architecture in Prague and Vienna in 1750–1752. He was sent there and supported by the Bishop coadjutor of Vilnius Joseph Sapięha. Precise dates of his studies are not known. He went there to learn about building and establishment of Prague and Vienna Observatories, the novelties of astronomical and mathematical sciences.

Having returned from Prague in 1752 Żebrowski started teaching mathematics and other exact sciences at the University of Vilnius, founded the cabinet of physics and mathematics, and established the observatory in 1753. He picked many novelties, and acquired enlightenment activities from his teacher Joseph Stepling. Since 1752 first cabinets, workshops were established in Prague and in other cities. He had established the Office (Museum) of mathematics and started preparations for construction of the Observatory in Vilnius University. It is interesting to note, that although it was obligatory for all Jesuit professors, he never taught any theological disciplines after returning from his studies, maybe because he was extremely valued as mathematician, astronomer and architect. He taught mathematics, mechanics, astronomy, geodesy, horology and was very busy as an architect, not to mention his fundraising and science promotion activities. Żebrowski was very successful in his educational activities, as already after one year of his teaching the number of external students of mathematics had increased nearly twice.

In 1752, having returned from Prague, he promoted his teachers (Steplings') ideas in his introductory lecture: „Only Mathematical Sciences are able to cure Philosophy“. He

¹ Stanisław BEDNARSKI, *Upadek i odrodzenie szkół Jeżuickich w Polsce*, Kraków 1933, p. 490.

gave the thesis of the new natural philosophy in his introductory lecture. He was the first to introduce empirical methodology into university studies. It became evident, that the set of physics instruments is necessary, so that the subjects taught will become more obvious and possible to prove, memorable. Although he did not teach Physics, he had some devices of experimental physics in his Museum of Mathematics. The Cabinet of Physics, called the Museum of Mathematics, was established in 1752, upon his initiative. Local masters constructed the first instruments – electric machines and vacuum pump. The bigger machine was constructed and improved by Thomas Żebrowski himself. In order to promote mathematics and astronomy, the professor organized public lectures with the visits to the Cabinet of Physics and the observatory, established by him, as well as organized demonstration of various experiments and phenomena for the general public. For demonstration of optical phenomena he acquired two concave mirrors and catoptric equipment. It gained a lot of attention and took a lot of his time. As those public presentations became more and more popular, more attention was given to aesthetic appearance of the equipment. It is mentioned in the inventory of the Cabinet of Physics, that a larger electric machine was painted in blue, with golden rim.

The interest of the nobility in the novelties and achievements of sciences was useful for the University, as it attracted more students as well as brought essential financial to buy equipment and to build premises. Some of the influential and powerful families started regular donations. After each public presentation there were some valuable gifts for the observatory and for the University. In April of 1753, when he demonstrated electric machines at the meeting of the Lithuanian Tribunal, the Voivode of Vilnius, count Michael Radziwiłł sent him a telescope, a bit later the bishop coadjutor Joseph Sapieha sent another one. Other nobles of Vilnius, intrigued by the experiments, presented by Professor Żebrowski, also tried to support and impress with their donations. The University received two more telescopes and acquired an astronomical clock of the famous English master John Ellicott. Only one of those donated telescopes and other valuable equipment has survived in the observatory until recent times. Duke Michael Radziwiłł, Governor of Vilnius, donated a 4 foot long telescope, which had been manufactured in Germany. The telescope was covered in Moroccan leather, with an inscription engraved in gold letters on the side: “*Dono celsissimi principis Michaelis Radziwiłł palat: Viln. supr: ducis exerc: M.D.L. cessit Acad: Viln: S. J. ad usum astronomicos*”. It is the oldest astronomical equipment of the collection of Vilnius Astronomical Observatory. Żebrowski regularly corresponded with the influential benefactors and even dedicated some public examinations programmes to them.

In the programme of the public examination of mathematics, theoretical astronomy and mechanics (1754), dedicated to the Bishop count Joseph Sapieha, he included specific questions on geodesy, such as – division of cultivable fields into spaces, comfortable for cultivators. He tried to show the practical application of science, to demonstrate the value of knowledge in everyday life. He cared for surveillance of land at the state level and was even consulting Professor Joseph Stepling, his teacher, about triangulation works carried out in rugged terrains in France. In 1755 he draw attention of his patron count Michał Kazimierz Radziwiłł to the fact, that only the University should examine the land surveyors and issue their certificates. This particular project was implemented later, by his disciples. In his letter to Stepling he reported about the creation of the Museum of Mathematics, about construction of the Observatory building and about complete support and approval of the rector. He

was turning more and more towards practical applications of mathematics. Żebrowski had been corresponding with Stepling, and consulting him on important matters of teaching, experimenting and establishment of the observatory. A collection of valuable minerals, brought by him from Czech, is mentioned in one of his letters.

It was stated before by some researchers, that Thomas Żebrowski had a collection of books, which he donated to the Museum of Mathematics. Some of those books were most probably bought in Prague and Vienna. It is mentioned, that he brought a lot of books on Philosophy and Mathematics from Prague and used to borrow them to his students. Previously the researcher Stasė Matulaityte, who wrote a monograph *The Old Vilnius University Astronomical Observatory and its Library*, found twenty books with the label *Post fata R.P. Thomae Zebrowsky S.J. accessit Musaeo Mathematico* (After the death of Thomas Żebrowski went to the Museum of Mathematics). Preparing for this report, the Library funds were checked repeatedly, and with the help of the librarians of the *Rare Book Department* twenty five books, marked with this label, were discovered. It is important to note, that there may be even some more discoveries, when a more careful examination of the holdings will be completed.

The only portrait of Thomas Żebrowski, made by Jan Egenfelder, shows him with the plan of Vilnius Astronomical Observatory in his hand. At the back there is a bookshelf, and the authors of the books on the shelf are clearly seen in the portrait: Eucklidus, Platon, Vitruvius, Copernicus, and Stepling. Those names are symbols of the main fields of his activities and show the main authorities he was influenced by. Even without having finished the equipment and construction of Vilnius Observatory, Żebrowski started his observations. His first job was to measure Vilnius geographical latitude, accomplished in a rather primitive style method, but very precisely and carefully.

Thomas Żebrowski had established the meteorology station; he sent his thermo- and baroscopic observations to Joseph Stepling. In his letters he expressed his delight in his disciples and colleagues. He did not publish any scientific work, had no time for that, but his students, disciples did. His most important work was the construction of the observatory, which he did not fully finish himself. Professor sent the plan of the Observatory to Joseph Stepling and to the Jesuit authorities in Rome. He got the answers very soon and started working. The first donator, who supported the building of the observatory, was Ignacius Ogińsk, the marshal of the General Tribunal of Lithuania, after him – his daughter Elżbieta Ogińska-Puzynina, who has contributed quite large funds a few times, and is considered to be the main patron of Vilnius Astronomical Observatory. Żebrowsky visited her in her mansion a few times, invited her to the academy. She came to see the experiments, was interested in electric machines and in the air pump. Elżbieta Ogińska-Puzynina, being one of the most important donors, was also portrayed with the plan of the observatory by Jan Egenfelder. When prof. Żebrowski died unexpectedly, the Marshal Ignacius Ogiński said, that “*Death of this man is a huge loss for the whole state*“.

According to his plan, prof. Żebrowski built two halls and two towers, and planned two cupolas, the smaller hall with a hole for lifting equipment. The small hall was intended for astronomical observations. It is considered, that the two cupolas were not build then, and later some changes were introduced in the project, as astronomy was developing very rapidly. The small hall later was turned into feast property warehouse, according to lustration act of 1774. Until 1768 only the eastern tower was built. It is clearly seen in the engraving

of Franciszek Smuglewicz, that it had a clock. The western tower was built by an Italian architect Carlo Spampani, according to art critic Vl. Dréma, in 1770–1773. It had a turning roof in the form of a cone with an opening for astronomical observations.

In the 18th–19th centuries the visitors entered the Observatory Hall – called the White Hall – from the east side, the western entrance was made after 1920. The ceiling with an elliptical opening connects this hall with a smaller hall above and embodies the baroque principle of infinite space. A remarkable western portal with two pilasters was made by Carlo Spampani in 1770–1773. It is one of the first examples of early classicism in Vilnius. The contemporaries admired the building of the Observatory, and there were quite a few historical figures, who left their impressions in written form – the last King and Grand Duke of the Polish–Lithuanian Commonwealth Stanisław August Poniatowski and Paul I, Emperor of Russia.

In 1756–1758 Żebrowski was the main executive of Vilnius University constructions. At this time the renovation works of the University Church of St. John's were going to an end, the annexe of Aula was being constructed. It is considered, that Żebrowski built a university chapel (nowadays called the Hall of Joachim Lelewel) at this time. All those buildings are attributed to late baroque school of Vilnius. Thomas Żebrowski was a very popular architect. He built a lot of palaces and churches. Unfortunately, the more concrete information about his work, as an architect, is very scarce, although it is mentioned in his obituary, written by the Jesuit authorities. It is also an important fact that his obituary was much longer and more detailed, than the obituary of the bishop J. Sapieha, who died a few years before. It is considered, that he was working at the reconstruction of Kaunas Jesuit Church, at the restoration of St. John's Church. It is justified, that he was actively participating in the building of Babruysk Jesuit Church. It is also possible, that he was working at the construction of Polatsk and Minsk Jesuit churches. It is known, that he was taking part in the restoration of St. Ignacius Church in 1748–1750. Unfortunately, many of those constructions lack documentation to prove his participation and influence, although his name is associated with many more important buildings of this period.

He was a universal person. At this time the specialization of sciences started. None of his disciples was so universal. The most famous of his disciples – Marcin Poczobut, had achieved quite a lot. He became a member of London Royal and Sorbonne Academies, was Director of Vilnius Astronomical Observatory, Rector of Vilnius University in 1780–1799. On 30 August 1765 he calculated the total eclipse of the Moon. On 24 February 2 of 1766 he calculated the eclipse of the Moon and during this eclipse also calculated Vilnius Observatory latitude quite precisely. He was given the name of Royal Astronomer for that, while the Observatory gained royal favour from King Stanisław August Poniatowski – it was named royal observatory and Poczobut became King's astronomer.

The ideas that he brought from his studies in Prague have formed the basis for advancement of mathematics and astronomy in Vilnius University. They were continued by his disciples and made the basis for flourishing of exact sciences until 1832, when the university was closed. The University is preserving and promoting the heritage of Żebrowski and his disciples. There is a museum of astronomical equipment in the former observatory building, planned and built by Żebrowski. His public activities and attempts to strengthen mercenary tradition are remembered and valued. His architectural heritage is studied and restored.

In recent years the idea has emerged to restore the second observatory tower, as it was planned by Thomas Żebrowski. This western observatory tower was destroyed during the fire in the end of the 19th century. The plan of the Observatory building was never fully accomplished by Żebrowski; therefore there are some discussions about fulfilment of this project. However, it serves as means of remembering and examining his ideas and his works.

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NIJOLĖ BULOTAITĖ

Thomas Żebrowski – ein Schüler von Joseph Stepling

ZUSAMMENFASSUNG

Mit den Ideen der Aufklärung begann die Jesuitenakademie in Vilnius (Wilna) zu Beginn des 18. Jh. mit Reformen. Die politischen Tumulte und das Bedürfnis nach Modernisierung des Bildungssystems ermutigten die Jesuiten zur Einführung der Philosophie der Neuzeit und der Naturwissenschaften. Die Lehre der Mathematik und Naturwissenschaften gewann besondere Aufmerksamkeit und erwarb Errungenschaften und hielt sich auch noch lange nach der Aufhebung des Jesuitenordens.

Der talentierte Mathematiker, Astronom und Architekt Thomas Żebrowski wurde nach Prag geschickt, um hier von Joseph Stepling die neuen Methoden und Errungenschaften der Astronomie und Mathematik zu erlernen. Er studierte von 1751–1752 in Prag. Zurück in Vilnius, begann er Mathematik zu lehren, gründete das Kabinett für Physik und Mathematik und richtete 1753 ein Observatorium ein. Von seinem Lehrer J. Stepling übernahm er Neuheiten und eignete sich aufklärerische Geschäftigkeit an. Mit J. Stepling stand er in Briefwechsel und beriet sich mit ihm über wichtige Angelegenheiten der Lehre, des Experimentierens und der Einrichtung des Observatoriums. Die Ideen, die er von seinem Studium in Prag mitbrachte, bildeten die Grundlage für die Weiterentwicklung von Mathematik und Astronomie an der Universität Vilnius. Beide Disziplinen wurden von seinen Schülern fortgeführt und gaben bis 1832, als die Universität geschlossen wurde, die Grundlage ab für die Blüte der exakten Wissenschaften.

Professor Th. Żebrowski, dessen Laufbahn sehr kurz und intensiv war, hinterließ ein fast vollendetes Observatoriumsgebäude, ein modernes Mathematikmuseum mit moderner Ausstattung sowie die Erinnerung an öffentliche wissenschaftliche Aktivitäten, welche auch die mänenatische Tradition beeinflussten. Auch gilt er als einer der prominentesten spätbarocken Architekten Litauens.

Die Universität bewahrt und fördert das Erbe Żebrowskis und seiner Schüler. Es gibt ein Museum für astronomische Instrumente in dem ehemaligen, von Żebrowski entworfenen und erbauten Observatoriumsgebäude. Die Bibliothek der Universität Vilnius besitzt eine Sammlung wertvoller Bücher, die einst diesem berühmten Wissenschaftler gehörte. Seine Aktivitäten in der Öffentlichkeit und seine Bemühungen um eine Stärkung der mätzenatischen Tradition werden in Erinnerung behalten und gewürdigt. Sein architektonisches Vermächtnis wird studiert und instandgesetzt.

Deutsche Übersetzung aus dem Englischen Wolf B. Oerter

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Thomas Żebrowski – žák Josefa Steplinga

RESUMÉ

Pod vlivem osvícenských myšlenek začala vilenská univerzita začátkem 18. století s reformami. Politické zmatky a volání po modernizaci vzdělávacího systému donutily jezuity k zavedení novodobé filosofie a přírodních věd. Výuce matematiky a přírodních věd byla věnována obzvláštní pozornost a dosáhla úspěchů, které se udržely i dlouho po zrušení jezuitského řádu.

Talentovaný matematik, astronom a architekt Thomas Żebrowski byl vyslán do Prahy, aby se učil novým metodám a výsledkům astronomie a matematiky u Josefa Steplinga. Studoval v Praze v letech 1751–1752. Po návratu do Vilna začal vyučovat matematice, založil kabinet pro fyziku a matematiku a v r. 1753 zřídil observatoř. Od svého učitele přejal novinky a osvojil si osvícenské myšlení. Se Steplingem zůstal v korespondenčním styku a radil se s ním o důležitých záležitostech kolem výuky, pokusů a budování observatoře. Názory, které si přinesl z Prahy, tvořily základ pro další rozvíjení matematiky a astronomie na vilenské univerzitě. Oba obory byly dále pěstovány jeho žáky až do r. 1832, kdy byla univerzita uzavřena, a staly se základem pro rozkvět exaktních věd.

Profesor Th. Żebrowski, jehož životní dráha byla velmi krátká, ale intenzivní, zanechal po sobě téměř dokončenou stavbu observatoře, moderní matematické muzeum s moderním vybavením a také paměť na své veřejné vědecké aktivity, které ovlivnily mecenášskou tradici. Proslul také jako jeden z nejvýznamnějších pozdně barokních architektů na Litvě.

Univerzita uchovává a pěstuje dědictví Th. Żebrowského a jeho žáků. V budově jeho observatoře působí muzeum astronomických přístrojů. Univerzitní knihovna ve Vilně vlastní sbírku cenných knih, které kdysi patřily tomuto významnému vědci. Jeho veřejné aktivity a snahy o posílení mecenátu se udržují v paměti. Jeho architektonické dědictví je studováno a realizováno.

Český překlad B. Zilynská

*Nijolė Bulotaitė
Vilnius University Library
nijole.bulotaite@mb.vu.lt*