



The solar eclipse of 1654 in the Grand Duchy of Lithuania: astrological prognosis, discussion, and the war

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Abstract

The French historian Élisabeth Labrousse dedicated a monograph to the solar eclipse of 1654, an event that sparked widespread debate and panic across Europe, including in Poland and the Grand Duchy of Lithuania. This study examines predictions related to the eclipse in: the work of Andrea Argoli, the European almanacs and calendars, the prognostication by the German astrologer Stefan Furman as well as the contemporary discussions in Poland and the Grand Duchy of Lithuania. Special attention is given to the role of astrology in elite society, particularly its connection to war prophecies. The eclipse became a focal point for clergy, nobility, and astrologers, whose interpretations varied dramatically. Forecasts of imminent wars and epidemics exacerbated apocalyptic fears, with many perceiving war as a literal apocalypse.

Keywords

the solar eclipse of 1654, astrology, European almanacs, Grand Duchy of Lithuania

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The history of astrology encompasses many topics and branches. Astrological forecasts and calendars also attract significant attention in historiography. Scholars have analyzed the solar eclipse of 12 August 1654, because of the great panic and much discussion that this event provoked in European countries. French historian Elisabeth Labrousse devoted a special book to this event. She investigated European astrological literature related to the solar eclipse.¹ The historiography of eclipse interpretation has predominantly centered on Western Europe. Even within this established framework, however, the topic requires further scholarly development.² Poland and the Grand Duchy of Lithuania (GDL) were not included in this analysis. Incorporating these cases would not only broaden the general understanding of the phenomenon, but also highlight the specific dynamics of 17th-century intellectual exchange in this region.

The work analyzes the prediction of the eclipse of 1654 in Andrea Argoli's work, European calendars, the prognostication of German astrologer Stefan Furman, and the discussion of the prognosis in Poland and the Grand Duchy of Lithuania, as well as its implementation. Additionally, attention is drawn to the role of astrology in politics and international relations, its use for decision-making, and its impact on society. Emphasis is also placed on the significance of astrology in emergency situations such as war. All these questions are traced through the analysis of various types of sources such as astrological literature, religious literature, correspondence, diaries, memoirs, etc.

This study has a threefold purpose. First, it aims to reconstruct the specific astrological forecast for the 1654 eclipse by tracing its transmission from Andrea Argoli's work through European calendars and local prognostications. Second, it seeks to investigate the political and social functions of astrology by demonstrating its concrete role in statecraft, international relations, and popular belief. Finally, it endeavors to assess the practical influence of this forecast on decision-making and public sentiment during the pre-war period.

¹ Lynn Thorndike, *A History of Magic and Experimental Science. The Seventeenth Century*, vol. 7 (New York; London: Columbia University Press, 1959), 309; Elisabeth Labrousse, *L'Entrée de Saturne au Lion. L'éclipse du soleil du 12 août 1654* (La Haye: M. Nijhoff, 1974); William Burns, "The Terriblest Eclipse That Hath Been Seen in Our Days': Black Monday and the Debate on Astrology during the Interregnum William," in *Rethinking the Scientific Revolution*, ed. by Margaret Osier (Cambridge, New York: Cambridge University Press, 2000), 137–152; Jacques Halbronn, "Questions autour du texte sur l'éclipse de 1654 attribué à Gassend," in *Gassendi et la modernité*, ed. by Sylvie Taussig (Turnhout: Brepols Publishers, 2008), 311–346.

² Michel de Certeau, "Élisabeth Labrousse, *L'Entrée de Saturne au Lion. L'Éclipse de soleil du 12 août 1654*," *Annales. Economies, sociétés, civilisations* 5 (1975): 1138–1141.

Italian astrologer Andrea Argoli and his work devoted to the solar eclipse of 1654

In Western astrology, apocalyptic predictions were very common between the fourteenth and the seventeenth centuries.³ The solar eclipses of 1300, 1478, and 1654 also provoked a number of prophecies.⁴ Eclipses occurring in the fire signs of the zodiac (Aries, Leo, Sagittarius) received particular scrutiny due to their perceived connection to the outbreak of wars.

It was common practice in astrological calendars to include forecasts of eclipses, which were often associated with severe consequences.⁵ In astrological literature solar eclipses were regarded to have a negative social impact. Particular scrutiny was given to eclipses that aligned with the major conjunction cycles – specifically those of Saturn-Jupiter and Saturn-Mars. Both astrological and historical literature frequently associated misfortunes with these celestial events.⁶

The beginning of the discussion and panic of 1654 was started by the Italian mathematician, astrologer, astronomer and physician Andrea Argoli (1570–1657). He was professor of mathematics at the Sapienza University of Rome, then at the University of Padua. Argoli's publications spanned several fields, from mathematics to medicine, astrology, and astrological medicine. His ephemerides were highly popular and went through multiple reprints. The book *De Diebus Criticis* was particularly valuable to medical astrology, as it presented individuals' natal horoscopes as well as the horoscope of the illness that caused the death. Argoli defended the astrological interpretation of critical days. He regarded the astrological positions of heavenly bodies as directly influencing a disease's course and duration.⁷ Owing to his prominent standing in the scientific community, his publications

³ Bernard Capp, *Astrology and the Popular Press: English Almanacs 1500–1800* (New York: Cornell University Press, 1979), 164–179.

⁴ Giangiacomo Gandolfi, "L'Eclissi e l'Orbe Magno del Leone: l'affresco astrologico del Duomo di Montagnana come profezia anti-turca," in *Il Cielo in Terra ovvero della giusta distanza*, cura di Valentina Giroto e Guido Rosada (Padova: Padova University Press, 2015), 213.

⁵ Kelly Marie Smith, "The Science of Astrology: *Schreibkalender*, Natural Philosophy, and Everyday Life in the Seventeenth-Century German Lands" (PhD diss. University of Cincinnati, 2003), 167–182.

⁶ For example, the Kazimierz councilman Goliński Marcin connected eclipses and misfortunes. Мартин Голінський [Marcin Goliński], *Silva rerum: (1648–1665)*. Ч. II: (1650–1653), упоряд. Ярослав Федорук; латин. Маркіян Домбровський, Орест Заяць (Київ: Лну ім. Івана Франка, ІУАД ім. М. С. Грушевського, 2020), 81–91.

⁷ Andrea Argoli, *De Diebus Criticis et agrorum decubitu libri duo* (Patavii: Apud Paulum Frambottum, 1639); Andrea Argoli, *Ephemerides annorum L iuxta Tychonis hypotheses, et accurate e coelo deductas observationes ab anno 1630 ad annum 1680* (Venetijs: Apud Pavlvum Frambottum, 1638); Andrea Argoli, *Ptolemaeus parvus* (Lyon: Joseph and Pierre Vilort 1652); Mario Gliozzi, "Andrea Argoli," in *Dizionario Biografico degli Italiani*, vol. 4 (Roma, Istituto dell'Enciclopedia Italiana, 1962), 132–134; Thorndike, *A history of magic and experimental science*, vol. 7, 122–124; Walter Pagel and F. N. L. Poynter, "Harvey's doctrine in Italy: Argoli (1644) and

naturally attracted considerable attention from diverse audiences.⁸

In 1652 Andrea Argoli published his work devoted to the solar eclipses of 1652 and 1654. The solar eclipse was at 11:22 a.m. on 12 August 1654 in Rome. The author gave a complete astrological description of the event. The positions of the Sun ($19^{\circ}32'$), the Moon ($19^{\circ}32'$), Saturn ($28^{\circ}50'$), Mars ($12^{\circ}24'$), the star Regulus⁹ (28°), and Dragon Tail ($25^{\circ}2'$) were in the fiery sign Leo (Fig. 1). The astrologer considered that at the time of the eclipse Saturn and Mars would be practically in conjunction. This was the reason for prognosticating war and violence for the next two years. The celestial phenomenon was supposed to affect the countries, regions and cities that were considered to be under the rulership of the sign Leo (Italy, Cremona, the Alps, Poland, etc.) and Sagittarius (Spain, Dalmatia, etc.). In the horoscope of the event, the eclipse was situated in the tenth house, which was associated with power. This gave grounds to predict an untoward influence on monarchs and the representatives of high society. The effect was expected on 12 December 1654 and 9 April 1655. Argoli connected this solar eclipse with another solar eclipse on 8 April 1652 which took place in the fiery sign of Aries. There was a quadrature between Saturn and the luminaries. In both cases, the events took place in a fiery sign and Saturn was related to them. Additionally, the eclipses were connected with the cycle of the conjunction of Saturn and Jupiter¹⁰ in the fiery signs, which began

Bonaccorsi (1647) on the Circulation of the Blood,” *Bulletin of the History of Medicine* 34, 5 (1960): 419–429; Darrel H. Rutkin, “Various Uses of Horoscopes: Astrological Practices in Early Modern Europe,” in *Horoscopes and Public Spheres: Essays on the History of Astrology*, ed. by Guenther Oestmann, H. Darrel Rutkin, Kocku von Stuckrad (Berlin: De Gruyter, 2005), 179–180; Broecke, Vanden Steven. “Evidence and Conjecture in Cardano’s Horoscope Collections,” in *Horoscopes and Public Spheres: Essays on the History of Astrology*, ed. by Guenther Oestmann, H. Darrel Rutkin, Kocku von Stuckrad (Berlin: De Gruyter, 2005), 217–218; Martin Craig, “Medicine and the heavens in Padua’s Faculty of Arts, 1570–1630,” *The British Journal for the History of Science* 57 (2024): 545–559.

⁸ For instance, the Carniolan provincial governor Volf Engelbert Turjaški (1610–1673) owned six books by Argoli in his library, among them the *Dissertatio in Eclipsim Solis 12. Augusti 1654*. Stanislav Južnič, “Kopernik v Turjaški in Licejski Knjižnici,” *Knjižnica: Revija Za področje Bibliotekarstva in Informacijske Znanosti* 50, 1–2 (2006): 7–33.

⁹ The star Regulus is situated in the constellation Leo. It is regarded as a royal star. According to Ptolimiy it affects as Mars and Jupiter and brings violence, success, glory, and ruin. Илья Касавин, *Знание за пределами науки. Мистицизм, герметизм, астрология, магия в интеллектуальных традициях I–XIV веков* (Москва: Республика, 1996), 101.

¹⁰ The Jupiter-Saturn conjunction occurs every 20 years. It is very important cycle for a forecast of social events. Argoli paid special attention to this topic at the beginning of his work. Andrea Argoli, *Dissertatio in Eclipsim Solis 12. Augusti 1654. Et aliqua in Eclipsim Solis 1652. 8. Aprilis*, ([S.l.], 1652), 3–6. Abū Mašar analyzed all types of conjunctions. Later, this topic was addressed by Messahalāh, Alcabitius, and etc. It was further developed in the 16th–17th centuries by Cyprian Leowitz, Lorenz Eichstaedt, William Lilly, and etc. Charles Burnett and



Fig. 1 – Argoli, Andrea, *Dissertatio in Eclipsim Solis 12. Augusti 1654. Et aliqua in Eclipsim Solis 1652. 8. Aprilis*, [S.l.], 1652. The horoscope of the eclipse of 12 August 1654.

in 1623 and continued in 1663.¹¹ Argoli considered eclipses in connection with other events, a technique that was prevalent in the astrology of that time.

The calendars of Polish astrologers also mentioned the eclipse of 1652, which was characterized as dangerous. Occurring under the influence of Mars, the eclipse was prognosticated to portend fire, plague, sudden death, and dangers to the upper classes. These malefic effects were forecast to persist until 1654.¹²

Argoli's prognostication was based on Ptolemy's *Tetrabiblos*, chording to which the forecast consists of four points: 1) the locality: the countries or cities that will be affected, which the position of Saturn, Jupiter and Mars influences greatly; 2) chronology: the time of the forecast and its duration; 3) classification: what kind of events will happen; 4) a special section determining the quality of the event.¹³

Why did Argoli draw such conclusions? The eclipse occurred in the sign of Leo, with Saturn and Mars, two malefic planets,¹⁴ positioned near the luminaries.¹⁵ At that moment, they were on the path of conjunction, which occurred on September 12, 1654. The cycle of the Saturn-Mars conjunction lasts for two years. The zodiac sign influences the nature of the prognosis. Some astrologers correctly stated that a conjunction of Saturn and Mars could not occur on August 12. But these trends were taken into account in the prognostication. Thus, the conjunction cycle of Saturn and Mars in 1654 was considered ominous, particularly as it coincided with the eclipse. Moreover, the eclipse occurring in the area of the Dragon's Tail further exacerbated the unfavourable conditions. While it was regarded that the Dragon's Head had a positive influence, the Tail was considered negative. It is important to note that astrological cycles do not directly cause events on the day of the conjunction, but rather set trends for a certain period.

Keiji Yamamoto, *The Great Introduction to Astrology by Abū Mašar*, vol. 1, (Leiden, Boston: Brill, 2019), 749–761; Edward Stewart Kennedy and David Pingree, *The Astrological History of Masha'allah* (Cambridge, MA: Harvard University Press, 1971), 39–88; Lorenz, Eichstaedt. *Prognosticon de conjunctione magna Saturni et Iovis in trigono igneo Leonis circa annum [...] 1623* (Alten Stettin: Schultz, 1622); William Lilly, *The world's catastrophe, or Europes many mutations untill, 1666. The fate of Englands monarchy untill its subversion. Government of the vworld under God by the seven planetary angels; their names, times of government. An exact type of the three suns seen in Cheshire and Shropshire, 3 April 1647* (London: Printed for John Partridge and Humphrey Blunden, 1647), 7–16.

¹¹ Argoli, *Dissertatio in Eclipsim Solis 12. Augusti 1654*, 4–20.

¹² Goliński, *Silva rerum: (1648–1665)*, 262–264, 317.

¹³ Klaudiusz Ptolemeusz, *Czworoksiąg = Tetrábiblos*, przeł. i przypisami opatrzył Grzegorz Muszyński (Wrocław: Wydawnictwo Uniwersytetu Wrocławskiego, 2012), 121–132.

¹⁴ Saturn and Mars are both classically considered malefic planets: Saturn due to its excessively cold nature, and Mars because of its excessively dry nature.

¹⁵ Traditional astrologers designated the Sun and Moon as the “luminaries,” the two brightest and most significant heavenly bodies. The name originates from their role as sources of light.

Argoli examined the eclipses in the connection with other events. This technique was used in that period in astrology. In forecasts astrologers took into account links between eclipses, ingressions of the Sun, the cycles of the Saturn-Mars and Saturn-Jupiter conjunctions.¹⁶ The astrologer described the eclipse as hazardous, though not world-ending.

The astrological discussion of Argoli's work

Argoli's work generated considerable public excitement, leading to the appearance of Pseudo-Argoli publications in France. For example, a brochure from 1654 in French contained some information from Argoli's work, but presented its consequences in an apocalyptic manner, predicting the end of the world in 1656. The next book with the same context was published in Danish, listing Angulus Andreus as an author.¹⁷ Notably, Argoli did not include this prediction in his work. Such publications caused widespread panic, as they circulated in France, Italy, Spain, and Germany. Some even recommended that people stay indoors on the day of the solar eclipse.¹⁸

The information about this eclipse spread across other countries. Two special leaflets were printed in Holland. The same text was accompanied by different images. It contained astronomical and astrological information of the event based on Argoli's works (Fig. 2).¹⁹ Albert Linemann (1603–1653), a mathematician, astronomer and astrologer from Königsberg, analyzed the solar eclipse in his prognostication for 1654.²⁰ A collection of some astrologers' works devoted to the eclipse was published in Nurnberg in 1654. Stefan

¹⁶ An unknown Portuguese author employed this technique to analyze and predict the consequences of the 1652 and 1654 eclipses, reaching conclusions similar to Argoli's. The manuscript was written for Prince Don Theodosio. Luís Campos Ribeiro, *Jesuit Astrology. Prognostication and Science in Early Modern Culture* (Leiden; Boston: Brill, 2023), 509–517.

¹⁷ *Prédiction merveilleuse du sieur Andreas, astrologue & mathématicien de Padoue, sur l'éclipse de soleil qui se fera le douziesme jour d'aout 1654* (Paris: Par Jacques Beslay, 1654); Andreus Angulus, *Prophecie ofte voorsegginghe van de toekomende ionghsten dach des Heeren* (Padua, 1653), 4–5, 20–23; Halbronn, "Questions autour du texte sur l'éclipse de 1654 attribué à Gassend," 319–343.

¹⁸ Lynn Thorndike, *A history of magic and experimental science. The seventeenth century*, vol. 8 (New York; London: Columbia University Press, 1959), 309.

¹⁹ There are two pamphlets with the same title: *Van den grooten eclips der sonnen, anno 1654. den 12. Augusti* (Amsterdam, 1654).

²⁰ Albertus Linemannus, *Deliciae calendario-graphicae, das ist die sinnreichsten und aller künstlichsten Fragen und Antwort: darinnen die edelsten Geheimnisse der Physic, Astronomi, Astrologi, Geographi etc. etc. bester Massen, Gelehrten und Ungelehrten zum Besten, anmutig und verständlich, außgeführt und verabschiedet werden* (Königsberg, Gedr. bey Pasche Mensen, 1654); Albertus Linemannus, *Prognosticatie, van ... Albertus Linemannus, ... Op de son eclips vanden 12 augusti, anno 1654 ... Vertaelt uyt zijn Prognosticon Astrologicum, op 't jaer 1654* (S.l.: s.n., 1654).



Fig. 2 – Van den grooten eclips der sonnen, anno 1654. den 12. Augusti. Amsterdam, 1654. An eclipse observation in Amsterdam.

Furman's preface to the calendar of 1654 was among them.²¹

The English astrologers, William Lilly (1602–1681)²² and Nicholas Culpeper (1616–1654) published their prognoses for the solar eclipse of 1652. Culpeper linked the solar eclipse in September 1652, the conjunctions of the Sun and Mars in May 1652, the Sun and Saturn in July 1652, Saturn and Mars in August 1652, the lunar eclipse in March 1653, and the conjunction of Saturn and Mars in 1654. According to Culpeper's forecast, the eclipse of September 17, 1652 would induce wars, sea storms, and other catastrophes.²³

²¹ Hermann de Werve; Johann Magirus; Caspar March; David Herlitz; Abdias Trew; Stephan Fuhrmann; Johann Crusius; Marcus Freund; Eberhard Welper; Andreas Goldmayer; David Frölich; Johann Majer; Johann Georg Götz; Nicolaus Schmidt Küntzel; Martin Horky; Vitus Stieffenberger; Johann Gabriel Sperber; Johann Michael Lihn; Georg Galgemair; Nicolaus Joly; Christian Pangratz. *Astrologische Beschreibung von der anno 1654 den 2., 12. August i vorfallenden grossen, sichtbaren und nachdencklichen Sonnen-Finsternuß* (Nürnberg: Endter, 1654), 16, 18.

²² William Lilly, *Annus tenebrosus, or The dark year Or astrological judgements upon two lunar eclipses, and one admirable eclips of the sun, all visible in England, 1652. Together with a short method how to judge the effects of eclipses* (London: Printed for the Company of Stationers, 1652).

²³ Nicholas Culpeper, *Catastrophe magnatum, or, The fall of monarchie a caveat to magistrates, de-*

Culpeper also analyzed the eclipse in a calendar for 1654, noting that the positions of Saturn and Mars in the sign of Leo would result in severe consequences. Mars's influence was expected to contribute to fires and other dangerous situations.²⁴ The English astrologer John Vaux (1575–1651) noted that the celestial event of 1654 would provoke the renovation of the world, but not doomsday.²⁵ Both the eclipses of 1652 and 1654 inspired not only a discussion, but also pamphlets against astrologers.²⁶

The eclipse of August 12, 1654 was described in various prognostics for 1654 and became the reason for discussions in Germany, France, England, and Holland. The sources mentioned above demonstrate how astrological information spread across Europe from country to country. Statements about the fatality of the event and the end of the world in 1656 led to critical publications against such forecasts.²⁷ Even later, the eclipse of 1654 aroused interest. The German poet and Jesuit Jacob Balde (1604–1668) mentioned it in his work of 1662. The astrological characteristics were based on Argoli's work.²⁸ Generally, Balde criticized astrology.²⁹ In a book against astrology, the Lutheran theologian Tobias Wagner (1598–1680) provided an addendum with a description of the eclipse of 1654. He stressed that not all astrological predictions would be realised.³⁰

The aforementioned works demonstrate that the eclipse was actively debated by European astrologers. This study, however, cannot provide a thorough analysis of the response in every country. Instead, this overview highlights broader trends in the eclipse literature to contextualize the reactions within the Crown of Poland and the Grand Duchy of Lithuania.

Criticism of forecasts for the eclipse of 1654 by the clergy in Polish–Lithuanian Commonwealth

The Crown of Poland and the Grand Duchy of Lithuania maintained intellectual and educational contacts with European countries, including in the field of astrology. From the 15th century onwards, the representatives of these countries studied astrology in Bolo-

duced from the eclipse of the sunne, March 29, 1652, with a probable conjecture of the determination of the effects (London: Printed for T.Vera and Nath. Brooke, 1652), 8, 57–58, 67–74.

²⁴ Nicholas Culpeper, *An Ephemeris for 1654* (London: Printed by John Macock for the Company of Stationers, 1654), 14–24.

²⁵ Capp, *Astrology and the Popular Press*, 171.

²⁶ Burns, “The Terriblest Eclipse That Hath Been Seen in Our Days,” 137–152.

²⁷ Labrousse, *L'Entrée de Saturne au Lion*, 7–12.

²⁸ Jacobo Balde, *De Eclipsi Solari Anno MDCLIV Die XII. Augusti, in Europa, A pluribus spectata Tvbo Optico*. (Monachii: Wagner, 1662).

²⁹ Labrousse, *L'Entrée de Saturne au Lion*, 21.

³⁰ Tobias Wagner, *Astrologia genethliaca, ex theologicis ac physicis principiis, ipsisque Astrologorum penetralibus* (Stuttgart: literis & impensis Johann-Wyrichii Rösslini, 1656), 128–134; Thorndike, *A history of magic and experimental science*, vol. 8, 307–309.

gna and Padua. The works of Guido Bonatti, Cardano, and other astrologers were held in private libraries.³¹ Information about new publications reached intellectual circles fairly quickly. Argoli was a well-known author. Therefore, within this context, an interest in intellectual trends was a natural phenomenon for the Crown of Poland and the Grand Duchy of Lithuania.

The discussion of the eclipse in the Polish-Lithuanian Commonwealth occurred in various circles, including among the clergy, the nobility, and the court of the Polish Queen and Grand Duchess of Lithuania, Marie Louise Gonzaga (Polish: Maria Ludwika Gonzaga). Astrology played a significant role at Marie Louise Gonzaga's court. Abbot Marolles noted in 1643 that this topic was discussed there.³² Three French astrologers, Pierre des Noyres (1608–1693), Ismaël Boulliau (1605–1694), and Jean Baptiste Morin (1583–1656), were members of the astrological circle of the Polish Queen and Grand Duchess.³³ Pierre des Noyres served as a secretary at the Gonzaga's court. The Gdansk astronomer Johannes Hevelius (1611–1687) was in communication with this circle. He carried out the astronomical observation of the 1654 solar eclipse and printed his results. The work was dedicated to Pierre des Noyres³⁴. The correspondence between Hevelius and Noyres sheds light on the discussions surrounding the solar eclipse and its significance for the intellectuals of the time. Hevelius observed that Boulliau's work accorded little significance to this particular eclipse.³⁵ Hevelius and Boulliau discussed the celestial event. Boulliau

³¹ Significant scholarly works have been devoted to contacts with European countries. It is pertinent to highlight several foundational studies. Leszek Hajdukiewicz, *Biblioteka Macieja z Miechowa* (Wrocław: Ossolineum, 1960); Leszek Hajdukiewicz, *Księgozbiór i zainteresowania bibliofilskie Piotra Tomickiego na tle jego działalności kulturalnej* (Wrocław: Ossolineum, 1961); Marian Chachaj, *Zagraniczna edukacja Radziwiłłów od początku XVI do połowy XVII wieku* (Lublin: UMCS, 1995), etc.

³² Karolina Targosz, *Uczony dwór Ludwiki Marii Gonzagi (1646–1667): z dziejów polsko-francuskich stosunków naukowych* (Wrocław; Gdańsk: Zakład Narodowy im. Ossolińskich, 1975), 45–46; Grell Chantal, "Astrologie et politique au milieu du XVII^e siècle: les "nativités" et "révolutions" de Boulliau et de des Noyers," *Dix-septième siècle* 266, 1 (2015): 46.

³³ Steven Vanden Broecke, "Catholic Spirituality and Astrological Self-Care in Seventeenth-Century France: Jean-Baptiste Morin's *Astrologia Gallica* (1661)," *Lias. Journal of Early Modern Intellectual Culture and its Sources* 47, 2 (2020): 123.

³⁴ *Johannis Hevelii Epistolæ II: Prior: De Motu Lunæ Libratorio, in certas Tabulas redacta* (Gedani: typis Andreae Molleri, 1654), 58–61; Targosz, *Uczony dwór Ludwiki Marii Gonzagi (1646–1667)*, 295; Adam Szanser, "Johannes Hevelius (1611–1687) – Astronomer of Polish Kings," *Quarterly Journal of the Royal Astronomical Society* 17 (1976): 488–498; Derek Jensen, "The science of the stars in Danzig from Rheticus to Hevelius" (PhD diss. University of California, 2006), 174–295.

³⁵ *Correspondance de Johannes Hevelius, t. III, Correspondance avec Pierre des Noyers, secrétaire de la Reine de Pologne, 1646–1686*, éd. par Chantal Grell (Turnhout: Brepols, 2020), 81–82, 250–257.

also observed it and made calculations.³⁶

This event did not go unnoticed by the Queen's astrological circle. It was a topic of discussion in many exchanges, although no predictions were published on this occasion. And if this discussion occurred in the astrological circle, it probably reached the Queen. Later, military events compelled the royal court to consult astrologers.

Within religious circles, there was a strong reaction to the prediction of the end of the world, as presented in the work of Pseudo-Argoli. Overall, the clergy tended to hold a negative attitude towards such predictions, since officially everything was believed to be in the hands of God.

The reaction to the publication of Pseudo-Argoli was immediate. One of the earliest responses is probably Friderik Alembek's work (?–1673), a canon from Przemyśl. He was the son of the Lviv (Polish: Lwów) Councilor Jan Alembek, who authored various theological works, some of which have survived in handwritten form, whereas the printed edition of his work may not have survived, since it has never been found.³⁷ According to textual evidence, the work was likely printed in 1652 in Wrocław. A synopsis of Alembek's work is included in a manuscript by Goliński Marcin (1608–1673), a chronicler of events that covers various political documents from the seventeenth century, with a notable emphasis on astrology. Alembek's work is just one example of literature related to astrology. Based on the synopsis, the title may have been the next: "Rewolutia prognostiku uczynionego od matematikow Andreasa Argoliusa y Israelia Hutnera³⁸ w Niemcech na rok 1654 y na rok 1656 przez i. m. x. Friderika Alembeka, sacrae theologiae doctora, kanonika przemiskiego" (The revolution of the forecast made by the mathematicians Andreas Argolius and Israelia Hutner in Germany for the years 1654 and 1656 by Friderik Alembek, doctor of theology, canon of Przemyśl).³⁹

In Alembek's work, Argoli is depicted as an intelligent and distinguished mathematician, renowned professor from Padua and author of substantial scholarly works. An as-

³⁶ Boulliau, Ismaël, "Texte manuscrit d'Ismaël Boulliau, Paris, 12 août 1654," *Bibliothèque numérique – Observatoire de Paris*, consulté le 23 avril 2024. <https://bibnum.obspm.fr/ark:/11287/2Zjcj>.

³⁷ Karol Estreicher, *Bibliografia polska*, cz. 3, t. 1 (Kraków: Akademia Umiejętności, 1893), 107; Sadok Barącz, "Wiadomość o Alembekach," *Przegląd Biblijograficzno-Archeologiczny I* (1881): 371–375; Jan Kwolek, "Alembek (Alnpech) Fryderyk," in *PSB*, 1 (Kraków: Polska Akademia Umiejętności, 1935), 73–74; Janina Bieniarzowna, "Goliński Marcin," in *PSB*, 8 (Kraków: Polska Akademia Umiejętności, 1958), 226–227.

³⁸ As for the name Israel Hulner there was a mistake. During this time there existed an astrologer called Israel Hebner (?–1668). He was an author of astrological works and calendars, who also addressed the topic of eclipses in his calendar for 1654. These errors in surnames further show that the clergy's reaction was rather addressed to the work of Pseudo-Argoli than to the authentic edition. Israel Hiebner, https://www.presseforschung.uni-bremen.de/dokuwiki/doku.php?id=hiebner_israel.

³⁹ Goliński, *Silva rerum*: (1648–1665), 317–324.

trological description of the eclipse was included in the text. The main arguments were against the theory dating from the end of the world in 1656, as well as against the belief in the fatal significance of the eclipse. It is noteworthy that astrologers were particularly concerned with the conjunctions of Saturn and Jupiter, as well as of Saturn and Mars. Religious arguments prominently feature in the reasoning, aimed at alleviating panic and bolstering the authority of the church.⁴⁰ While there is not sharp criticism of astrology, the intention is to address concerns and promote stability.

The next work appeared in Polish was called *Straszna dziwnych skutkow rzeczy po wszyskim swiecie metamorphosis z gwiazd y planetow niebieskich na rok panski 1654, 1655, 1656 przez Andrzeia Argola primarum astrologum paduanum et Israelem Hulnerum matheologum opisana* (The terrible strange effects of things all over the world, the metamorphosis of the celestial stars and planets in 1654, 1655, 1656 described by Andrea Argoli, one of the primary astrologers of Padua, and the mathematical theologian Israel Hutnerum). It is worth noting that this work was written under a foundational influence of Alembek's work.

The terrible strange effects... is kept in the private archive of the Belsky castellan Jakub Michałowski (1612–1663) as a part of the collection of documents dating from 1602 until 1658.⁴¹ This work was submitted for publication in 1653, but no book with this title was found. It was likely never printed, but only distributed in manuscript form. The work offers both astrological and religious interpretations of the event. It provides information on the planets' influence on humans, plants, and weather, as well as the mechanism of eclipses according to Pliny. The consequences due to the appearance of a comet in 1618⁴²—which brought wars to many countries—are mentioned, with the author stating that one of them would have been a defeat for Moscow.⁴³ In our opinion, the information about the defeat of the Moscow state is included intentionally. This was because the eclipse of 1654 was expected to provoke a war with that country. The text notes that such an astrological event should not always be a problem for the Polish-Lithuanian Commonwealth; it could instead become a problem for the enemy. At the same time, the author emphasized that, according

⁴⁰ Ibid., 317–324.

⁴¹ Biblioteka Narodowa, rkps BN III 6634, kk. 208r–215r.

⁴² Astrologers were often involved in predicting events related to comets. In 1618, three comets appeared. This event drew the attention of both astrologers and astronomers, leading to numerous publications. Mario D'Addio, *The Galileo Case: Trial, Science, Truth* (Rome: Nova Millennium Romae, 2004), 74–79; Patrick J. Boner, *Kepler's Cosmological Synthesis: Astrology, Mechanism and the Soul* (Leiden; Boston: Brill, 2013), 105–134; Miguel A. Granada and Patrick J. Boner, *Michael Maestlin's Manuscript Treatise on the Comet of 1618: An Edition and Translation of Manuscript WLB Stuttgart, Cod. Math. 4° 15b, Nr. 8* (Leiden: Brill, 2022).

⁴³ In 1618, the Truce of Deulino was signed, which was the greatest success of the Polish-Lithuanian Commonwealth in the war with the Muscovite state. The truce ended the war that had begun in 1609. Andrzej Adam Majewski, *Moskwa. 1617–1618* (Warszawa: Wydawnictwo Bellona S.A., 2006).

to religion, comets do not have power over a person's will but can affect their body.

The terrible strange effects... was religious in nature, quoting the Bible, the Gospel, and the works of saints to emphasize that everything falls within God's will. Various predictions of the end of the world were mentioned, none of which came to pass. The text was intended to counter the spread of information portraying the eclipse as a terrible omen linked to an expected apocalypse in 1656.

Stryjewicz Sebastian Fabian (1621–1681), the theologian and professor of astronomy of the Cracow Academy, also published a response to an anonymous work about the eclipse of August 12, 1654 (Fig. 3). He was familiar with astrology and astronomy. His publication devoted to the movement of Mercury noted the position of the planet according to the Ptolemaic system.⁴⁴ Stryjewicz was even the author of astrological calendars in the second half of the 1650s.⁴⁵ He made a synopsis of Johannes de Sacrobosco's work *Tractatus de Sphaera* in 1644. The manuscript was kept in Radzivil's library in Niasviž.⁴⁶

Stryjewicz did not give information about the title and place of publication of this Latin-language work. The professor presented the astrological characteristics of the eclipse and its horoscope. He disputed the negative effect of the event because of its position between Mars and Saturn. Stryjewicz pointed out that the eclipses of October 2, 1652; April 19, 1648; June 20, 1648 and others did not lead to the end of the world. He referred to Ptolemy's statement that the eclipse in the sign of Leo affected the countries that belonged to this sign. Stryjewicz noted that Poland was situated in the sign of Aries. It meant that the country was not under the influence of the eclipse. The author used the ephemerides of the German astronomer David Origanus (1558–1628/29). He stressed that the conjunction of the planets could be in an orb of 6 degrees, not more. Referring to the Italian astrologer Gerolamo Cardano (1501–1576), Stryjewicz concluded that the eclipse could not do much destruction. He also noted that the Paduan astrologer Argoli wrote nothing about the end of the world in his treatise.⁴⁷

⁴⁴ Stryewicz, *Qvaestio astronomica de orbibus & motibus mercurij*, Ad disputandum publice in Academia Cracoviensi. Sebastian Fabian Stryjewicz, *Qvaestio Astronomica De Orbibus & Motibus Mercurij, Ad disputandum publice In Academia Cracoviensi* (Cracoviae: Drukarnia Wdowy i Dziedziców Franciszka Cezarego, 1653).

⁴⁵ Mieczysław Barcik, "Stryjewicz (Stryjewic, Stryewic, Stryewic) Sebastian Fabian (1621–1681)," in PSB, 44 (Kraków: Wydawnictwo Towarzystwa Naukowego Societas Vistulana, 2006), 528–530; Małgorzata Krzysztofik, *Studium z dziejów krakowskich kalendarzy astrologicznych XVII wieku: Almanachy Stanisława Słowakowica jako podstawa uogólnień* (Kraków: Księgarnia Akademicka, 2010), 487.

⁴⁶ Нацыянальны Гістарычны Архіў Беларусі, ф. 694, воп. 1, спр. 455.

⁴⁷ Sebastian Fabian Stryjewicz, *Krotki Respons Na Praktykę wydaną na świat O Sądnyim Dniu, Przez Anonima Anno Domini 1652. Do ktorego przydane Opisanie Komety widzianego w Roku 1652. 19 Decemb z efektami, ktorych się po nim spodziewać mamy* (Kraków: w drukarni wdowy y dziedziców Franciszka Cezarego, 1653).

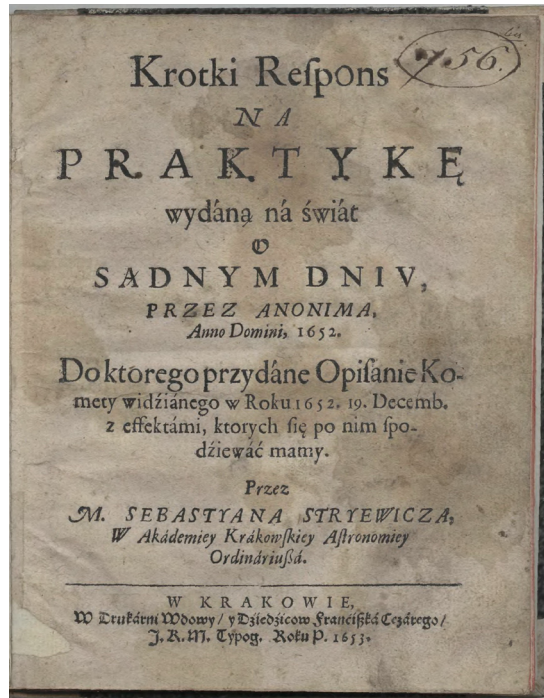


Fig. 3 – Sebastian Fabian Stryjewicz, *Krotki respons na praktykę wydaną na świat o sądnym dniu*, przez anonima anno domini 1652, Kraków, 1653.

The work was mainly directed against the assertion that the eclipse of 1654 would lead to Apocalypse. The arguments were based on the works of famous astrologers. It is worth noting that Stryjewicz treated astrologers with great respect, when referring to their works. His arguments were astrological, not theological. They had a professional character. The author showed a wide range of knowledge on astrology and commitment to this science, which was typical for a professional astrologer.

Of course, the eclipse did not mean the end of the world. This interpretation was used to propagandize and provoke panic. Critical works were necessary to pacify the situation. However, Stryjewicz could not avoid mistakes. From the astrological point of view the eclipse and the cycle of conjunction of Saturn and Mars provoked severe events. The Saturn and Mars cycle was also considered by astrologers as provoking conflicts, emergencies, and epidemics. As we saw it before, this cycle and the eclipse were included as the elements of the historical cycle of Saturn and Jupiter.

At the end of the work, there is also a text about a comet that appeared in Cracow on December 15, 1652. Here information is provided about the connection between the

appearance of comets and historical incidents. Stryjewicz also gave an astrological description of this phenomenon: in order to obtain the coordinates of the location of the comet, he used an astrolabe and a square. This demonstrates his astrological approach in explaining the appearance of comets and their consequences. Interestingly, this provoked the reaction of Professor of Cracow Academy Jan Tonsky, who published a special edition devoted to an astronomical description of the comet and criticized the astrological approach to the phenomenon.⁴⁸

In this context, the opinion of Lviv canon Tomasz Juzafowicz (1662–1728) is intriguing. The chronicles of Lviv for 1652 show that Alembek and Stryjewicz, in a Catholic manner, instigated a wave of panic about the end of the world due to the appearance of a comet that year. This panic was provoked by publications from Argoli and Hunter.⁴⁹ The author observed that Alembek used not only theological but also astronomical arguments in his assertions. Hunter was tagged as an unreliable and fraudulent astrologer.⁵⁰ The author spoke highly of the Catholic theologians' works, noting their correctness. He wrote nothing about Stryjewicz's astrological qualification. Juzafowicz based his work on documents from the Lviv magistrate, albeit much later than the incident itself. This explains the fact that he pointed out only the comet of 1652 and did not mention the eclipse.

The Vilna Academy (Vinius academy, Academia Vilmensis) entered the discussion in 1654 with a printed response to the prediction (Fig. 4).⁵¹ Belarusian linguist Mykola Ramanoŭsky translated the work into Belarusian. In the preface, he does not delve into the reasons behind the creation of the work, nor does he consider the astrological material. Instead, he emphasizes that this work is one of the first to oppose superstitions. It is worth noting that astrology cannot be strictly categorized as superstition. Nevertheless, Ramanoŭsky stresses that the prediction regarding the war in 1654 came true.⁵²

The brochure of the Vilna Academy contains no information about the author. It was written by "a certain Jesuit priest." Three errors in prognostics were submitted for consideration: 1) such an eclipse had never existed before; 2) the eclipse would be visible everywhere; 3) it would destroy the whole world, and after 1656 there would be no

⁴⁸ Ioannis Tonski, *De Cometa Dogma Mathematicum, Cometographo Anni proximè elapsi. 1652* (Cracoviae: apud Lucam Kupisz, 1653); Barcik, "Stryjewicz (Stryjewic, Stryewic, Stryewic) Sebastian Fabian (1621–1681)," 529.

⁴⁹ Juzafowicz recorded the surname as 'Hunter,' which appears to be the same error found in *The Terrible Strange Effects....* The correct name was Israel Hebner.

⁵⁰ Tomasz Józefowicz, *Kronika miasta Lwowa od roku 1634 do 1690: obejmująca w ogólności dzieje dawnej Rusi Czerwonej: a zwłaszcza Historyą arcybiskupstwa lwowskiego w tejże epoce* (Lwów: Drukarnia Jezuitów, 1854), 158; Barącz, "Wiadomość o Alembekach," 374.

⁵¹ *Błędy jednego prognostyku z zaćmienia słonecznego roku pańskiego 1654 dnia 12 augusta około południa wystawione* (Wilno: Drukarnia Akademii Societ. Iesv, 1654).

⁵² "Аблуды аднаго прароцтва аб сонечным зацьменьні Году Гасподняга 1654," прадрома і пераклад Міколы Раманоўскага, *Спадчына* 5 (1993): 70–80.

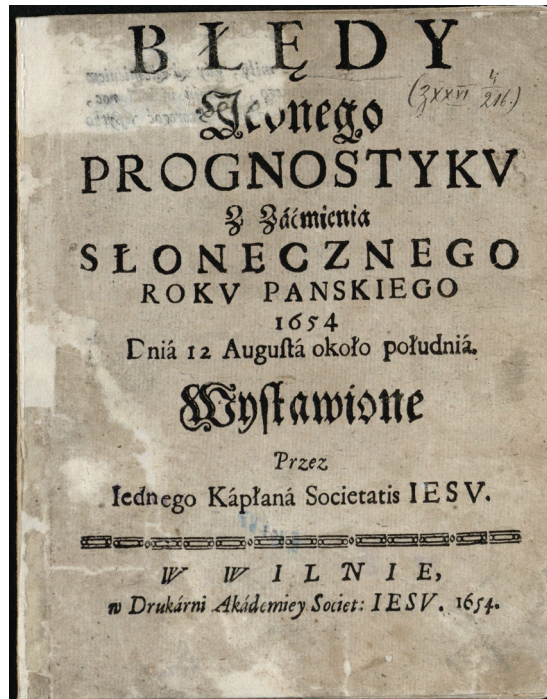


Fig. 4 – Anonymous, *Błędy jednego prognostyku z zaćmienia słonecznego roku pańskiego 1654 dnia 12 augusta około południa wystawione*, Wilno, 1654.

country. Astronomical information about the eclipse was presented as an argument. The list of eclipses for different years (393, 840, 957, 1415, 1485, 1560, etc.) showed that they did not lead to the Apocalypse. The information was taken from Plutarch, Johannes de Sacrobosco and other authors. A lot of citations in Latin were included in the text, thus showing wide knowledge in ancient literature and literature of that time. The nature of the celestial event explained the impossibility to observe it from all over the world. The thesis about doomsday and the destruction of countries was presented sceptically. Astrological description of the eclipse was also included. It was emphasized that Saturn and Mars did not make a conjunction in that period. They were 8 degrees away from the Sun.⁵³

Astrological data are present in the work, but there is no such astrological analysis of the phenomenon as in Stryjewicz's work. The text has a religious approach to the topic. It appears to be a critique of prognostication errors rather than astrology itself, aiming to address and alleviate fears related to an eclipse panic. The use of Latin language, while

⁵³ *Błędy jednego prognostyku z zaćmienia słonecznego roku pańskiego 1654 dnia 12 augusta.*

potentially complicating the text, suggests an attempt to reach an educated audience, although the work was intended for broader readership.

The emergence of this work at the Vilna Academy underscores the profound impact of the publicity surrounding the prediction. The participation of Catholic priests from the Polish-Lithuanian Commonwealth in the discussion regarding the eclipse is noteworthy. It raises an interesting question about whether their involvement stemmed from the chosen positioning of the local clergy or was rather driven by the Vatican. The autonomy of the Vilna Jesuits is also a matter of interest in this context. Despite their local presence, they maintained close ties with Rome, submitting reports and adhering to Vatican policies in their activities. The Jesuits were well-versed in astrology,⁵⁴ which was included in various courses of the Vilna Academy. The Jesuits aimed more at controlling knowledge and education than spreading it.⁵⁵

The correspondence between French Catholic priest Saint Vincent de Paul (1581–1660) and Charles Ozenne, superior in Warsaw⁵⁶ show the panic reaction to the eclipse. Saint Vincent de Paul wrote in his letter (Paris, July 10, 1654): “Although those extraordinary manifestations occurring there are not sure signs of some evil event, and ordinarily such portents should not be dwelt on, it is good, nevertheless, to redouble our prayers that God may be pleased to avert from His people the ills with which He may have planned to afflict them. We here are being threatened with a solar eclipse, the worst to take place for several centuries. It is supposed to occur on August 12, around nine or ten in the morning, so they say. Please find out if it will be visible in Poland and let me know the details.”⁵⁷ Indeed, the passage highlights the prevailing excitement within the community preceding the eclipse, as evidenced by the implementation of measures such as double prayers aimed at assuaging anxieties. Additionally, the author’s interest in the situation in Poland suggests a broader awareness of the socio-political context surrounding astrological events and their perceived significance within various regions.

After the event (September 11, 1654) Vincent de Paul returned to this issue. He noted

⁵⁴ Ribeiro, *Jesuit Astrology*; Natallia Sliž, “Astrology in exact sciences in Vilna Academy,” in *Vilnius ir jo bendruomenės: žvilgsnis į 700 metų miesto istoriją*, ed. by Jolita Sarcevičienė, Jurgita Šiaučiūnaitė-Verbickienė, Mindaugas Klovas (Vilnius: Lietuvos istorijos institutas, 2025), 385–408.

⁵⁵ Knowledge of the Copernican system, for instance, existed within the Academy but was disseminated through unofficial channels. Sliž, “Astrology in exact sciences in Vilna Academy,” 385–408.

⁵⁶ The first Missionaries arrived in Poland in November 1651, thanks to the petition of Queen Marie-Louise de Gonzaga. She knew St. Vincent personally and was familiar with the works of the Congregation of the Mission. Stanisław Rospond, “The Missionaries in Poland (1651–1697),” *Vincentiana* 2 (2011): 196–204.

⁵⁷ Vincent de Paul and Pierre Coste, *Correspondence, Conferences, Documents*, vol. V, ed. by Marie Poole, Julia Denton, and Elinor Hartman (USA: New City Press, 1995), 167–168.

that French astrologers assured people that they should not fear the eclipse. Monsieur Cassandieux (1592–1655), alias canon Pierre Gassendi, the famous astronomer and author of numerous works, gave him very pertinent arguments, noting that a solar eclipse was inevitable every six months. If the eclipse were so disastrous, people would see more often famine, plague, and the other calamities. Vincent de Paul regarded: “The experts in astrology are disturbed much by it, and even less those who are instructed in the school of Jesus Christ, who know that the wise man *dominabitur astris*.”⁵⁸

However, in this case, it is worth paying attention to the dates of these exchanges, it was July–September 1654. The ongoing war with the Moscow state likely intensified the atmosphere of fear and uncertainty during that time. In such a context, efforts to calm the public would have been particularly challenging, as people may have been concerned about the conflict and its potential consequences.

The wave of panic surrounding the eclipse was significant. The participation of the Catholic clergy in the discussion indicates a perceived need to address and manage the fears and concerns of the public, suggesting the magnitude of the event’s impact on society at large. These publications vividly show that the Catholic clergy in Polish-Lithuanian Commonwealth knew European astrological publications and questioned their influence on society. The learned ecclesiastics were well acquainted with astrology. While their primary arguments were grounded in religious texts, they also skilfully employed astrological principles to bolster their positions.

The eclipse of 1654 in the Grand Duchy of Lithuania

The information about the eclipse of 1654 was spread widely in the GDL thanks to Stefan Furman’s calendar. It was printed in Lubča (Polish: Lubczka, now Belarus⁵⁹) in December 25, 1653. This date is given in Jan Langius’ preface.⁶⁰ The settlement belonged to the Field Hetman of the Grand Duchy of Lithuania Januš Radzivil (Polish: Janusz Radziwiłł). The edition was dedicated to Januš’s relatives Baguslaū Radzivil (Polish: Bogusław Radziwiłł), the stableman of the GDL. Both Januš and Baguslaū belonged to Calvinism.⁶¹

In the Radzivils family it was common practice to support such publications. Thanks to Baguslaū Radzivil, a philosopher of Cracow Academy, Damian Pajęcki, published the

⁵⁸ Ibid., 181–183.

⁵⁹ I use official Belarusian Latin transliteration for spelling proper and geographical names in the cases attributed to the history of Belarus.

⁶⁰ Stefan Furman, *Xiąg rocznych część pierwsza to iest stary y nowy kalendarz... na Rok 1654* (Lubecz: typografia Jana Langiusa, 1653).

⁶¹ About the role of Radzivil in the Protestant movement see: Andrej Kotljarchuk, *In the Shadows of Poland and Russia The Grand Duchy of Lithuania and Sweden in the European Crisis of the mid-17th Century* (Huddinge: Södertörns högskola, 2006), 45–61.

calendar of 1651.⁶² Januš Radzivil inspired Furman's calendar of 1652.⁶³ In 1632, Jan Jonston's book was printed in Amsterdam under the patronage of Januš and Baguslaū Radzivils, Bogusław Leszczynski, Uladzislaū Monvid Daragastajski (Polish: Władysław Monwid Dorohostajski).⁶⁴ The publication contained encyclopaedic information about plants, metals, etc. However, it also included parts about the sky, the four elements (earth, air, water, and fire), comets and meteors. Based on different authors (Copernicus, Brahe, Ficino, etc.), the author provided astronomical and astrological information. Jan Jonston was a well known scientist and author of a number of works on natural science, medicine, etc. He came from Scotland, had received a good education and defended his dissertation in medicine.⁶⁵

The Radzivils belonged to the upper nobility and had great social influence. Moreover, they were interested in astrology. B. Radzivil was a well-educated person, having graduated from the Sluck gymnasium.⁶⁶ He possessed a good library, consisting mainly of Latin books on architecture, philosophy, medicine, etc. It included books by John Johnson, Vitruvius, Galen, and Francis Bacon.⁶⁷ They contained information on astrology. Celestial signs were considered important by B. Radzivil.⁶⁸ Januš Radzivil had occupied a number of posts in the state administration: the Field Hetman of Lithuania (from 1646) and the Grand Hetman of Lithuania (from 1654), the voivode of Vilna (from 1653), and others.⁶⁹ Januš and Baguslaū Radzivils were relatives. They were mentioned as being among the most influential people in the country according to the Italian espionage report from the

⁶² Damian Pajęcki, *Kalendarz z praktyką na Rok Pański 1651* (Kraków, 1650); Mariola Jarczykowa, *Książka i literatura w kręgu Radziwiłłow birżańskich w pierwszej połowie XVII wieku* (Katowice: Wydawnictwo Uniwersytetu Śląskiego, 1995), 71.

⁶³ Stefan Furman, *Nowy i Stary Kalendarz Świąt rocznych na Rok 1652* (Gdańsk: drukarnia Andrzeia Hünefelda, 1651).

⁶⁴ Ian Jonston, *Thaumatrographia naturalis* (Amsterdam: Blaeu, 1632).

⁶⁵ Tadeusz Bilikiewicz, "Jonston Jan (1603–1675)," in *PSB*, XI, (Wrocław, Warszawa, Kraków: Zakład Narodowy im. Ossolińskich; Wydawnictwo Polskiej Akademii Nauk, 1964–1965), 268–270.

⁶⁶ Elżbieta Bagińska, "Boguslavo Radvilos įvaizdis pagal jo privatų dienoraštį – pomėgiai, pramogos, sveikata," *Lietuvos Istorijos Metraštis* 2 (2019), 72–74.

⁶⁷ Martin Silvester Grabe, *Catalogus librorum quarumlibet facultatum, a (...) Boguslao Radziwil (...) Electorali, quae Regimonti Borussorum est. Bibliothecae legato donatorum 1668* (Regimonti: typis Friderici Reusneri, 1673).

⁶⁸ B. Radzivil wrote to Jan Merzensky (20 April 1665) about a comet and three suns in the sky. At the same time, he noted that even without such signs in the sky everything would be bad. Archiwum Główne Akt Dawnych, Archiwum Radziwiłłów, dz. IV, sygn. 60, k. 14r. I would like to thank Belarusian historian Aliaksandr Prudnikaŭ for paying attention to this source.

⁶⁹ About political situation in the GDL see: Robert Frost, *After the Deluge: Poland-Lithuania and the Second Northern War, 1655–1660* (Cambridge: Cambridge University Press, 1993); A. Kotljarchuk, *In the Shadows of Poland and Russia*.

middle of the seventeenth century.⁷⁰

Stefan Furman (German: Stephanus Fuhrmann, 1616–1683) hailed from the family of a Protestant clergyman and obtained his education at the University of Rostock. In 1642, he returned to his hometown of Lippstadt, where he was appointed as a pastor. In 1638 he commenced the publication of astrological calendars. Primarily written in German, these calendars were also translated into Polish and Swedish. Their designs varied, although their structures remained similar. German-language editions often featured his portrait on the cover (Fig. 5). The calendars were printed until Furman's death. Astrological information in them was based on Argoli's ephemerides. Biographical details about Furman mainly come from his calendars and a sermon delivered upon his death in 1683.⁷¹

The calendar for 1654 was published in both German and Swedish editions. The Swedish version was divided into two parts: one addressing the comet of 1652, and the other focusing on the eclipse of 1654.⁷² The German editions were dedicated to Queen Christina of Sweden. The preface, dated January 8 (18), 1653 (Fig. 6).⁷³ The aforementioned A. Argoli dedicated his work to her in 1652.⁷⁴ A gesture likely not made by chance. Christina was known to have an interest in astrology and sought advice from astrologers. Her own horoscope has also been preserved. Astrological calendars and horoscopes were topics of discussion at her court, a tradition that continued under her successor, Charles X Gustavus (Swedish: Karl X Gustav). An interesting correlation emerges between the Queen's

⁷⁰ This document meticulously outlines the structure of the Commonwealth's government, enumerating offices in the Grand Duchy of Lithuania and Poland and identifying key noble families. It furnishes detailed profiles for each elite figure, including personal attributes, networks with other councils, domains of activity and influence, and foreign connections. In doing so, it reveals the sophisticated espionage conducted within the political elite. Archivio di Stato Firenze, Miscellanea medicea, f. 101, insert 16, ff. 13v–14v.

⁷¹ "Fuhrmann, Stephan." *Biobibliographisches Handbuch der Kalendermacher von 1550 bis 1750*. https://www.presseforschung.uni-bremen.de/dokuwiki/doku.php?id=fuhrmann_stephan; Małgorzata Krzysztófik, "Aksjologia czasu antropologicznego w XVII-wiecznych kalendarzach gdańskich Stefana Furmana," *Respectus Philologicus* 26 (2014): 217–229.

⁷² Stephani Fuhrmans, *Kortta berättelse om thet ettusend sexhundrade femptijo och fierde åhrets beskaffenheet i gemeen; hwarvtinnan cometens som an. 1652. vppå himmelens firmamente lyste: jämwäl ock then stoore solenes an. 1654. föregående förmörkelses wärckande, then christiålskande läsaren troligen för ögon stält warder* (Stockholm: tryckt hoos Heinrich Keyser. 1654).

⁷³ Furman published calendars in German two editions of different formats. Stephan Fuhrman, *Jahr-Buchs Nach der erwünschten Menschwerdung Jesu Christi deß wahren Messiae und Heilandes der Welt M.DC.LIV* (Lüneburg: Gedruht und verlege durch Johann und Heirich denen Sternen Gehrudern, 1653); Stephan Fuhrman, *Jahr-Buch Nach der heilsamen Geburt unsers Herrn und Seligmachers Jesu Christi M.DC.LIV* (Lüneburg: Gedruht und verlege durch Johann und Heirich denen Sternen Gehrudern, 1653).

⁷⁴ Andrea Argoli, *De Diebus Criticis et agreorum decubitu libri duo* (Patavii: Apud Paulum Frambotum, 1652).



Fig. 5 – Stephani Fuhrmann, *Zeit-Buchs Ubers Jahr nach der Gnadenreichen Geburt Jesu Christi...* M.DC.LX, Lippstadt 1659. Stefan Furman's portrait.

biography and the solar eclipse. The influence of astrology and discussions surrounding the eclipse at court were also noted by the researcher Susanna Åkerman. Queen Christina abdicated in favour of Charles X Gustavus on June 14, 1654, after having announced her decision in February.⁷⁵ There is another noteworthy significant historical fact concerning Christina. Prior to the war, a Moscow embassy was sent to her court in 1653 to ascertain Swedish stance in the impending conflict. The outcome was very favorable: the planned military actions were not condemned, and the Queen agreed to supply twenty thousand muskets. This response was influenced by the tense relations between Sweden and the Polish-Lithuanian Commonwealth.⁷⁶ The Queen was aware of the impending war thanks to both the diplomatic channels and the astrological counsel. We can infer from these facts

⁷⁵ Susanna Kristina Åkerman, *Queen Christina of Sweden and her circle: the transformation of a seventeenth century philosophical libertine* (New York; Leiden: E.J. Brill, 1991), 157–177; Kjell Lekeby, “Astrology in the Early Modern Period in Sweden,” in *Western Esotericism in Scandinavia*, edited by Henrik Bogdan, Olav Hammer (Leiden: Brill 2016), 79.

⁷⁶ Заборовский, *Россия, Речь Посполитая и Швеция в середине XVII в.*, 33.



Fig. 6 – Stephani Fuhrmann, *Jahr-Buch Nach der heilsamen Geburt unsers Herrn und Seligmachers Jesu Christi M.DC.LIV*. Lüneburg, 1653.

that Christina was aware of the forecast for 1654. The prevailing political situation and astrological discussions likely played a role in her decision to relinquish the throne.

Furman's calendars were translated from German into Polish. They were mostly printed in Gdańsk. Some of them were dedicated to the Polish King and Grand Duke of Lithuania Jan Casimir.⁷⁷ Since a lot of astrological calendars were published in Gdańsk, the publication of Furman's calendars did not seem to be an extraordinary event for this city.⁷⁸ There are seven miniatures on the cover page of the 1654 calendar (Fig. 7).⁷⁹ It differs from the front pages of German and Swedish publications. The images of Saturn, Jupiter and Venus are on the top, Mercury and Mars on the left side, while the Sun and the Moon are on the

⁷⁷ Karol Estreicher, *Bibliografia polska*. t. XVI (Kraków: Uniwersytet Jagielloński, 1893), 374–376.

⁷⁸ Jensen, "The science of the stars in Danzig from Rheticus to Hevelius"; Piotr Paluchowski, "Kompozycja graficzna kart tytułowych gdańskich kalendarzy XVI–XVII wieku," *Rocznik Biblioteki Narodowej* LXIV (2013): 91–112.

⁷⁹ I would like to thank Magdalena Marcinowska and the Library of Polish Academy of Science in Gdańsk for the photo of the cover page of the calendar of 1654.

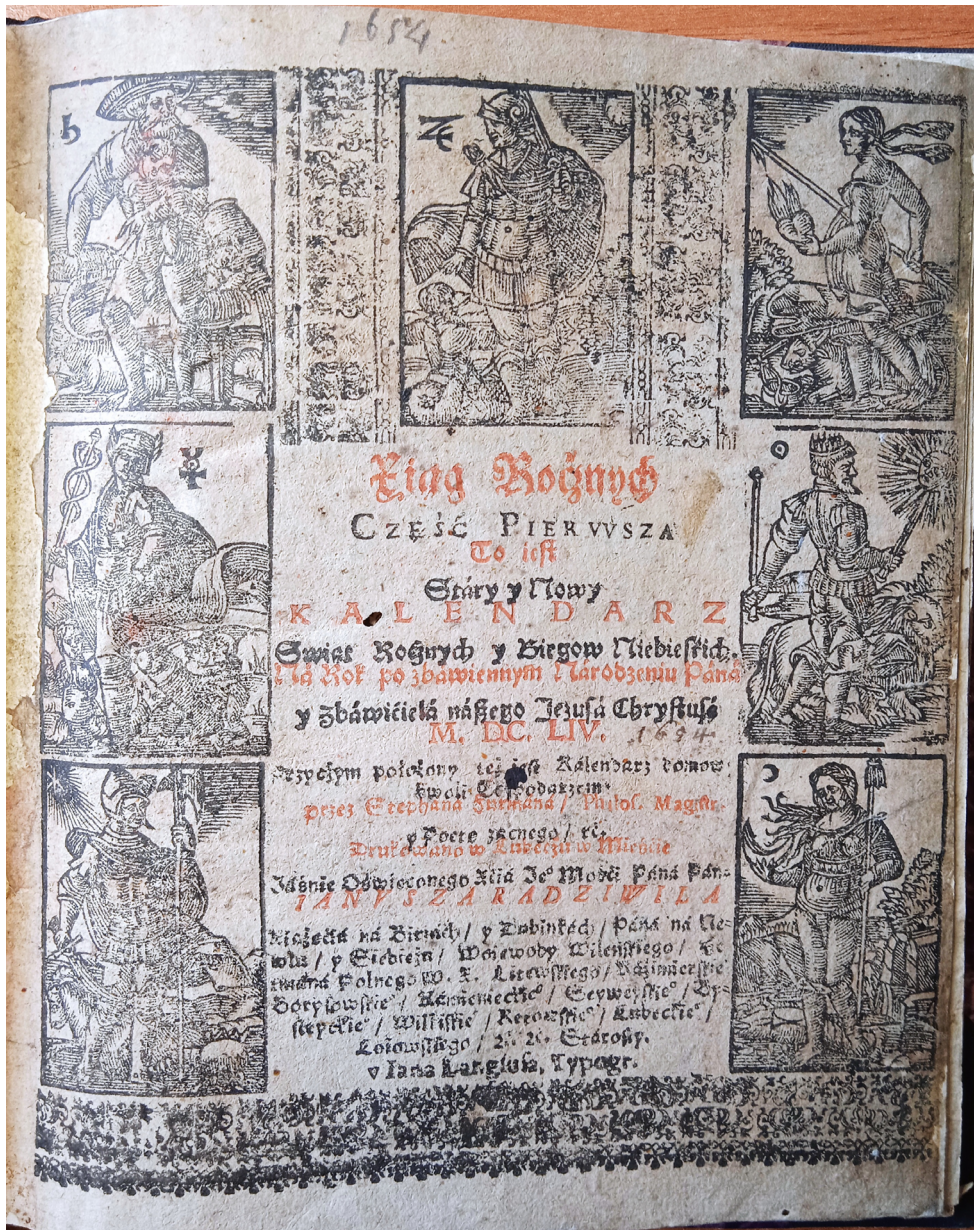


Fig. 7 – Stefan Furman, Xiag rocznych część pierwsza to iest stary y nowy kalendarz... na rok 1654. Lubcza, 1653.

right. The planets are presented with their zodiacs: Saturn with Aquarius and Capricorn, Jupiter with Pisces and Sagittarius, Mars with Aries and Scorpio, the Sun with Leo, Venus with Libra and Taurus, Mercury with Gemini and Virgo, and the Moon with Cancer. The same images were used in the herbal of 1568.⁸⁰ The anthropomorphic images of planets were usual in publications and employed as a decoration in Western and Eastern Europe.⁸¹

Quite exceptionally prognostications made the interpretation of the eclipse of 12 August 1654 their main focus, which was not common in such calendars. S. Furman noted that he had read a lot of German and Dutch calendars concerning 1654, which actively discussed the eclipse. However, the author was very surprised by “the unreasonable and inadequate fantasy” in these calendars. Like other astrologers⁸² he sharply criticized Pseudo-Argoli’s text. Furman did not agree that there would be a conjunction of Saturn and Mars during the eclipse. He criticized the idea that the eclipse was a bad omen because it involved the Sun and Moon, Saturn, Mars, the Tail of the Dragon and the star Regulus. He considered doubtful that an eclipse in the heart of the Leo had never happened before in history as well as the fact that it could provoke a fall of the upper strata. The author did not see astrological reasons for the end of the world in 1656. Furman mentioned that periodically astrologers (for ex., Regiomontanus) raised this question. Interestingly, Furman’s arguments were very similar to the arguments of the Dutch edition.⁸³ They derived more heavily from astrological premises than from religious doctrine. The astrologer knew the polemics about this eclipse in European publications. Furman used his calendar to take part in the discussion and present his position about it.

Furman’s forecast predicted the year as unfavorable because of indicators of the annual ingress of the Sun⁸⁴ and the eclipse. This eclipse would have brought strong changes for Germany and the Polish-Lithuanian Commonwealth. It would have also provoked epidemics and wars. The enemies would have come from the East and South. The main danger was expected from the Ottoman Empire. War, famine, and diseases would have affected representatives of all estates. The conjunction of Saturn and Mars would have led to military actions in September. The great danger would have been for the upper strata. The author also linked it to the consequences of the comet appeared in 1652.⁸⁵ The calendar

⁸⁰ Marcin Siennik, *Herbarz, to jest ziół tutecznych, postronnych y zamorskich opisanie* (Kraków: drukarnia Mikołaja Szarffenberga, 1568), 428–431.

⁸¹ About astrology in art see: Jean Seznec, *The Survival of the Pagan Gods. The Mythological Tradition and Its Place in Renaissance Humanism and Art* (New York: Princeton University Press, 1953).

⁸² Labrousse, *L’Entrée de Saturne au Lion*, 17–19.

⁸³ *Klaer vertoogh van de eclipsis of sons-verdonckeringh. Die geschieden sal in’t iaer 1654. den 12 augusti* (Amsterdam: Webber, Zacharias, 1654).

⁸⁴ The Aries Ingress was pivotal for forecasting annual events (wars, plagues, etc.).

⁸⁵ Furman, *Xiąg rocznych część pierwsza to iest stary y nowy kalendarz... na Rok 1654*, A–E2.

presented other information about this year: the characteristics for each month (weather, Moon phases, etc.), aspects of the planets, harvest (expected to be average), the dates of fairs in Vilna, Kapył, Cracow, Warsaw, etc. This calendar differed from the German one in content and design.

Furman's calendar clearly demonstrates the Protestant approach in envisioning the event and in dealing with the situation in the GDL. The publication of this calendar, supported by the Radzivils, cannot be deemed as a coincidence. The calendar was addressed to the nobility and the royal court. It was an attempt to draw attention to external and internal problems through astrology. The Catholic clergy sought to reduce public panic. By contrast, although the Protestant calendar also downplayed the end of the world, its predictions specifically focused on an impending military conflict. In practice, these two modes of discussion were actually not in conflict with each other. Catholicism was the dominant religion at that time, and therefore several representatives of the clergy participated in the discussion. As for the Protestant side, the Furman calendar played a major role. We did not find any separate public publications issued by the Protestant clergy.

The discussion of the eclipse in the private documents of the nobility of the Grand Duchy of Lithuania

The sources provide a rare glimpse into the range of contemporary attitudes toward the 1654 forecast. Januš Radzivil's reaction, as outlined in his letter to Baguslaū Radzivil, provides insight into the diverse responses to astrological predictions during that period. Januš believed that the nobility relied too heavily on astrologers. He mentioned negative predictions made by Furman and Żórawski for the country in 1654.⁸⁶ Instead, he emphasized the importance of the Polish-Lithuanian Commonwealth's policies and actions in determining its future.⁸⁷ The letter was written on October 18, 1653, but the calendar was

⁸⁶ Mikołaj Żórawski also printed the calendar for 1654 (*Hemerologeion abo Kalendarz święt rocznych na rok p. 1654... przez Mikołaja Żorawskiego... wyrachowany*, Kraków, 1654). But it has not been preserved. Żórawski was the son of a Lublin notary, a professor at the Cracow Academy, a physician to Sigismund III, Władysław IV and Jan Casimir. Marcin Goliński's contains the excerpts from his calendars of 1646, 1649, 1650, 1652, 1653, 1655, and 1656. The calendar for 1653 was established according to the information that it was sent to Hrodna to Jan Casimir. Żórawski forecasted a war and famine in 1655. It would be interesting to compare both the calendars, but Żórawski's publications have not been found in libraries. Later, Żórawski published calendars abroad. He was the author of the translation of Cicero. The book contains the horoscope for June 2, 1631. Józef Przyborowski, "Rok śmierci Fab. Seb. Kłonowicza," *Ateneum* I (1878): 318–319; Goliński, *Silva rerum: (1648–1665)*, 83–84, 89–91, 259–262, 315–316; Zakład Narodowy im. Ossolińskich, zespół 5, dz. 1, rkps 189, kk. 723r–726r, 786r.

⁸⁷ Edward Kotlubaj, *Życie Janusza Radziwiłła* (Wilno; Witebsk: M. Mindelsohn, 1859), 383–384; Jarczykowa, *Książka i literatura w kręgu Radziwiłłów*, 70.

published after December 25. It means that Januš Radzivil knew the content of Furman's calendar before its publication.

Radzivil's letter also delved into the political landscape of the country, expressing concerns about Moscow's aggression and the nobility's lack of attention to the need for defence. He complained about the lack of freedom of thought at the Sejm and the dominance of Catholicism, which hindered the emergence of alternative ideas and discussions.⁸⁸ In fact, he indicated a political crisis.

Radzivil, deeply involved in the political events of the time, was gravely concerned about the threat from the Muscovite state. The actions of this eastern neighbor provided compelling reasons for his apprehension. On October 11, 1653, the Zemsky Sobor decided to go off the war with the Polish-Lithuanian Commonwealth. Throughout 1653–1654, Moscow conducted active diplomacy across Western Europe. Its envoys were dispatched to various countries to gauge their support in the eventuality of an impending war as well as the strength of their anti-Moscow sentiment. The mobilized intelligence indicated that European powers were unlikely to intervene in the conflict.⁸⁹

As a military and political figure, Radzivil likely analyzed the situation from various angles and sources. He may have also considered astrology as one factor among many, but undoubtedly his attention was primarily focused on practical considerations and strategic decisions about the potential threats to the Commonwealth. Radzivil may have hoped to use the astrological forecast as a catalyst to mobilize forces for the potential conflicts. By highlighting the dangers represented by Moscow and advocating for greater vigilance and defense measures, he aimed to influence the course of events and mitigate potential risks for the Commonwealth's security and stability. Radzivil was not the only one concerned about Moscow's aggression, as evidenced by similar discussions among other contemporaries such as Jan Jonston.⁹⁰

The forecast for 1654 in the GDL and Poland matched with the outbreak of a bloody war between the Moscow state and the Polish-Lithuanian Commonwealth (1654–1667) and the Second Northern War (1655–1660). These conflicts led to widespread devastation, including epidemics, famine, and other negative consequences that affected all levels of society. The upper stratum faced significant danger, with estates being ravaged by enemy forces, peasants, and neighboring factions. Many representatives of the nobility were either taken prisoner or killed in the conflict, while peasants seized the opportunity to seek revenge against their oppressors.⁹¹

⁸⁸ About Radzivil's political activity before the war see: Milewski, "Między Moskwą a Szwecją: Jan Leszczyński i Janusz Radziwiłł," 169–191.

⁸⁹ Milewski, "Między Moskwą a Szwecją," 169–191; Заборовский, *Россия, Речь Посполитая и Швеция в середине XVII в.* 30–55.

⁹⁰ Bilikiewicz, "Jonston Jan (1603–1675)," 269.

⁹¹ About the war see: Bobiatyński, *Od Smoleńska do Wilna Wojna Rzeczypospolitej z Moskwą*

The war also revealed the unpreparedness at the eastern borders of the Grand Duchy of Lithuania, as Moscow's troops swiftly advanced into the country. The Battle of Škloū, which took place on August 12, 1654, and coincided with the day of the eclipse, saw Januš Radzivil leading the GDL army to victory, albeit with heavy casualties.⁹²

Radzivil understood well that the situation was catastrophic for the GDL.⁹³ Before the battle (August 6, 1654), he appealed for the nobility's intervention to defend the country. In his correspondence, Radzivil acknowledged the military superiority of the Moscow army and was aware of the daunting challenges ahead.⁹⁴ It seems that Radzivil strategically chose the date of the battle, so as to make it coincide with the eclipse, understanding the potential psychological impact this could have on both his own troops and the enemy forces. He probably tried to take advantage from the potential disarray or irrational behavior that this coincidence could provoke among the enemy ranks, particularly among those soldiers who, less educated, could be more susceptible to superstition or fear. Radzivil probably considered this tactic, because the Muscovite army was likely uninformed about the eclipse's astrological significance. No broad astrological discussion about the event occurred in the Muscovite state, despite Tsar Alexei Mikhailovich's personal interest in the subject and his later order to translate astrological calendars.⁹⁵

Some sources contain the next information about the battle. An unknown participant from the GDL army wrote the following (August 13, 1654): "Yesterday, 12 August, the severe and bloody battle of Škloū happened during that terrible eclipse of the Sun, but by the grace of God we gained the victory." The darkness caused by the eclipse contributed to confuse the Moscow ranks, so that the Moscow regiments attacked each other and the Lithuanian army won on the battlefield.⁹⁶

1654–1655; Kotljarchuk, *In the Shadows of the Poland and Russia*.

⁹² Maciej Vorbek-Lettow, *Skarbnica pamięci: pamiętnik lekarza króla Władysława IV*, oprac. Ewa Galos, Franciszek Mincer (Wrocław, Warszawa, Kraków: Zakład Narodowy im. Ossolińskich, 1968), 191–195; *Ojczyście spominki w pismach do dziejów dawnej Polski; diaryusze, relacye, pamiętniki... Tudzież listy historyczne do panowania królów Jana Kazimierza i Michała Korybuta, oraz listy Jana Sobieskiego*, t. 1 (Kraków: J. Cypcer, 1845), 114–116; Wisner, *Janusz Radziwiłł 1612–1655*, 170–171; Bobiatyński, *Od Smoleńska do Wilna*, 35–62.

⁹³ About Radzivil's military activity see: Wisner, "Działalność wojskowa Janusza Radziwiłła, 1648–1655," 53–109; Kroll, "Kompania białoruska Janusza Radziwiłła 1654 r.," 43–64.

⁹⁴ *Korespondencja wojskowa hetmana Janusza Radziwiłła w latach 1646–1655: Dziariusz kancelaryjny 1649–1653*, oprac. Mirosław Nagielski, Konrad Bobiatyński, Przemysław Gawron, Krzysztof Kossarzecki, Piotr Kroll, Andrzej Adam Majewski, Dariusz Milewski (Warszawa: Wydawnictwo Neriton, 2019), 186–188.

⁹⁵ Вильям Фрэнсис Райан, *Баня в полночь. Исторический обзор магии и гаданий в России* (Москва: НАО, 2006), 578–580.

⁹⁶ *Ojczyście spominki w pismach do dziejów dawnej Polski*, 114, 116.

A physician Maciej Vorbek-Lettow (1593–1663)⁹⁷ and the Deputy Cupbearer of Novogorodak Jan Cadroŭski (Polish: Jan Cadrowski) (1617–1682) had contrasting views of on the significance of the solar eclipse of August 12, 1654. Both belonged to Protestant Radzivil’s circle. Vorbek-Lettow’s perspective, as a physician, focused on the physical aspects of the eclipse itself rather than its broader implications. He noted that the eclipse was not as severe as that predicted by Furman in his calendar,⁹⁸ considering that the prognostications of the eclipse rather described just the phenomenon itself. But Furman actually meant that the eclipse would have those consequences.

In contrast, Cadroŭski characterized the eclipse as “terrible,” likely emphasizing the its broader impact, particularly in the context of the ongoing war and its aftermath. He underlined the significant losses among high-ranking individuals in the battle, such as Hrygory Mirsky, and he mentioned this event as one of the devastating consequences of the eclipse within the societal and political context.⁹⁹

Indeed, the publication of Furman’s calendar in the GDL appears to have had a notable impact, particularly among the nobility. The prognostications contained in the calendar likely captured the attention of the educated elite, who were familiar with astrology and were then probably influenced by the predictions of dire consequences associated with the solar eclipse.

However, the most significant effect seems to be represented by the victory against the Moscow army on the day of the eclipse. In all likelihood this victory, narrated in association with the eclipse, contributed to a sense of divine intervention or providence among the populace. The darkness caused by the eclipse may have also played a role in sowing confusion or disarray among the Moscow troops, potentially aiding the GDL army in securing victory.

Overall, if the publication of the calendar may have heightened awareness and anticipation of potential threats, it was rather the tangible outcome of the battle on the day of the eclipse that in all likelihood had the most profound impact, solidifying the belief in the efficacy of astrology and the providential significance of celestial events.

⁹⁷ Maciej Vorbek-Lettow, a diarist, physician, and Lutheran activist, received a comprehensive education. He attended the Academic Gymnasium in Elbląg, the Academic Gymnasium in Gdańsk, and the Vilna Academy (1608–1610). He subsequently studied law at the University of Leuven (1611–1612) and medicine at the University of Padua (1612–1614) and the University of Bologna (1614–1616). In 1616, he established his medical practice in Vilna. Dariusz Champerek, “A Lutheran, Maciej Vorbek-Lettow (1593–1663) and his Studies in Padua,” *Perspektywy Kultury* 41, 2, 1 (2023): 63–74.

⁹⁸ Vorbek-Lettow, *Skarbnica pamięci: pamiętnik lekarza króla Władysława IV*, 188–189.

⁹⁹ Jan Cadroŭski studied with his twin brother Stefan in Königsberg and at the Cracow Academy. From 1637, he served at the court of Baguslaŭ Radzivil, accompanying the prince on extensive travels throughout Western Europe and executing various commissions for him. Аляксандр Коршунаў, *Помнікі мемуарнай літаратуры Беларусі XVII ст.* (Мінск: Навука і тэхніка, 1983), 132.

Conclusions

Argol's publication about the eclipse of 12 August 1654 significantly sparked public interest across various countries. The main sources of spreading astrological information were calendars, brochures, and publications for professional astrologers. The discussion touched upon many countries, from England to the Polish-Lithuanian Commonwealth. The eclipse was discussed by the clergy, nobility, and astrologers.

Interpretations of the celestial event varied widely. Forecasts of upcoming wars and epidemics fuelled the spread of apocalyptic ideas, with people viewing war as a true apocalypse. This was the reason for such a panicked reaction. At the same time, not all publications predicted the end of the world. Apocalyptic and panic-stricken moods began to spread throughout Europe, provoking publications created by the Catholic clergy.

This case clearly shows the importance of interpretation and the related problems. The categorical and harsh interpretations in forecasting provoked different reactions. This discussion vividly presented the mentality and the way of thinking at that time. This example also presents the manipulating of public opinion. Astrological calendars were related to popular literature, but they had a strong influence on mentality. People were afraid of the future. Fear was one of the strong emotions exploited by religion, government, etc. Prognoses were a good instrument for manipulating people, influencing the future, and preparing for events. Moreover, Catholic and Protestant approaches to the eclipse were presented in this case.

In the seventeenth-century GDL astrology was still on the Monarch's and the nobility's service. Astrological forecasts played an important role for them. The high strata took into account prognoses in their decision-making process. Of course, a war, as any extraordinary situation, pushed people turn to astrology and seek support. The practical use of astrological knowledge became equally important in this system.

In conclusion, the case of the 1654 eclipse touches upon a wide range of issues. It has shown the different kind of astrological publications, the level of development of astrology and its place in society, astrologers' work and the use of astrology by the upper strata, the spreading of astrological information in European courtiers, the reaction to forecasts and the mentality of the society of that time.

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Abbreviations

PSB= Polski słownik biograficzny

НГАБ= Нацыянальны Гістарычны Архіў Беларусі

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