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Astronomical interests of Valvasor, FRS[1]

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Baron Janez Vajkard Valvasor is well known for his records of important Carniolan and Croatian writers, astronomers, and other scholars. In this article, his astronomical interests are placed in connection with his fellowship of the Royal Society of London and his correspondence with Thomas Gale and Edmund Halley. Through Valvasor's correspondence with the Royal Society, young Halley became Valvasor's personal friend. Halley's visits to the regions of today's Slovenia, Italy and Croatia are systematically listed for the first time to show how the new Newtonian physics spread to the Central European audiences by Halley's personal contacts in Trst, Ljubljana, and Rijeka. An emphasis is placed on Valvasor's astronomical books. Valvasor's library was second only to Auersperg's in their part of Central Europe and eventually it became an integral part of Metropolitana, the library of the Zagreb Archbishopric.

Keywords: Valvasor, E. Halley, history of astronomy, history of libraries, Metropolitana Zagreb Library.

Introduction

A Royal Society Fellow, Baron Janez Vajkard Valvasor (1641-1693), bought his books in Nürnberg and Frankfurt,[2] and some also in the new Janez Mayr's Ljubljana printing office. The applied mathematics of Valvasor's era included physics, technology, architecture, military sciences, meteorology and astronomy. Valvasor did not publish his mathematical manuscripts *Lumen naturae* (six volumes) and

[1] I wish to express my gratitude for the Mellon fellowship of the Oklahoma University History of Science Department.

[2] Branko REISP, *Janez Vajkard Valvasor*, Ljubljana, 1983., 103.

Flos Physico-mathematicus (three volumes), and they were eventually lost after he had gone bankrupt,[3] but he bought many mathematical and astronomical books. He owned more than 2630 titles, of which more than 130 were astronomical. Most of them were sold in 1690 and are now kept at Metropolitana Zagreb Library.

English connections

In Valvasor's time, Euclid's name was still a synonym for geometry and even for all mathematical sciences. Therefore Valvasor bought many editions of Euclid, although not as many as his friend Governor General Wolf Engelbert Count Auersperg (1610-1673). Valvasor bought Euclid's works edited by Oronce Finé (1651), Newton's professor Issac Barrow (1676),[4] Petrus Ruff (1600), and Christian Knödel (1675).

Barrow had first published his *Elementorum Euclidis* in Cambridge in 1655, before Isaac Newton became his student. Two years later, in 1657, he published *Euclidis Data*. Valvasor listed both items separately in his library catalogue, although he certainly bought them together. At the time of these publications Barrow widely traveled through France, Italy and even Istanbul (1655–1659), when Protestant party *Independents* got rid of him at Cambridge. When he finally returned to England, he published an English translation of *Elementorum Euclidis* (1660). In 1663, he became a Fellow of the Royal Society (FRS) and the first Cambridge Lucasian Professor of Mathematics. He had a strong body and high moral values. Valvasor never met him in person. Valvasor's early interests in Barrow's work mirrored his connection with England which later culminated with his own FRS election.

The unnumbered and unsigned introduction to the first part of Osnabrück's edition described Barrow's *curriculum vitae*. Barrow accomplished a semi-classical description of fifteen Euclid's books. His images were indeed small, but he made a good use of the contemporary printing feasibilities to draw prisms, square and a double pentagon. Valvasor used Barrow's work to broaden his surveying background necessary for mapping, which eventually spread Valvasor's fame to England after Barrow's death. The Royal Society of London urgently wanted a collaborator from Valvasor's part of Europe to obtain better maps of the Balkans and nearby regions.

Valvasor did not just buy the mathematical books of English researchers, but he even collaborated with them as a practical geographical and astronomical observer. The Royal Society Secretary Thomas Gale (1635/1636-1702) wrote a letter in

[3] Branko REISP, *Korespondenca Janeza Vajkarda Valvasorja z Royal Society*, Ljubljana, 1987., 8.

[4] Janez Vajkard VALVASOR, *Bibliotheca Valvasoriana. Katalog Knjižnice Janeza Vajkarda Valvasorja*, Ljubljana/Zagreb, 1995., 266.; EUCLIDES, *Elementorum Euclidis Libri XV. Breviter ac sucinte demonstrati opera et studio Mr. Is, Barrow*..., Osnaburgi, 1676.

Latin to Valvasor in 1687 (author's translation):

> "Because it seems that you are using too great magnitudes at your maps, at least if you begin your counting at Canaries Islands, please observe the times when Saturn hides and again reappears behind the Moon on March 29 morning according to the new calendar (if this letter will reach you soon enough). Saturn will remain hidden for an hour and three quarters. I have no doubts that you have a telescope. Also be so kind to observe the Sun eclipse on May 11 according to the new calendar and in both cases use good instrument to measure the positions of Sun and Moon an calculate the time (of the eclipse). We will measure the same events here, and the distance of London and Ljubljana meridians will be calculated. We are 18 degrees eastwards from the island Tenerife."[5]

Valvasor's answer was not preserved. The Royal Society was twenty years old at that time and Valvasor became a FRS four years later.

Valvasor's nicely illustrated letter to Gale about Valvasor's innovation of the thin statues casting of Virgin Mary statue erected it at the front of the Jesuit Church of St. Jacob in Ljubljana was published in the *Philosophical Transactions* in 1687. Between 1685 and 1693, this journal was edited by Valvasor's friend. Hooke stated that Valvasor's ideas contained no novelty except the use of different chemical components.[6] Valvasor added more zinc. Before the Second World War, it was not widely known that melting of zinc with bronze had been developed in China as early as 2750 B.C. A millennium later, the technique was known in Japan where bells were cast in wooden moulds in 700 B.C. The Japanese used an alloy with 13% to 15 % of zinc for their bronze bells, while Europeans used 20 % to 25 %. The famous 36 tonne, 404 cms high and 276 cms wide bell of Hokoji Temple in Kyoto was cast in 1614.[7] Valvasor's 16 % of zinc in bronze alloy was therefore nearer to his contemporary Japanese foundry hands. During his travels to England, Holland, South France and especially Tunis Valvasor certainly obtained some information about the Far East foundry technique.[8]

Halley on the Adriatic

Valvasor wrote several letters to the honorary secretary Gale. He wished to receive some Royal Society Fellow's poetry praising Valvasor's work. Valvasor added the verses praising his own publications. He planned to publish the poems at the

[5] REISP, 1987, *Ibidem*, 49.

[6] REISP, 1987, *Ibidem*, 8.

[7] Heinz WÜBBENHORST, "Jahresübersicht Zur Geschichte des Giessens (1. folge)," *Giesserei,* 74./17., 1987., 513.–514.

[8] Stanislav JUŽNIČ, "Janez Vajkard Valvasor (1641–1693), F.R.S. and His Scientific and Technological Connections to East Asia", *Historia Scientiarum,* Tokyo, 17./2., 2007., 1.–19.

beginning of his book *Die Ehre*[9] to attract publicity world-wide. The poetry exchange was the beginning of Valvasor's cooperation and friendship with a young astronomer Edmund Halley. Halley was a former student of Gale's at St. Paul's School and eventually became Gale's clerk at the Royal Society.

On 14 December 1687, Valvasor became a Royal Society Fellow. He wrote to Halley on 17 November 1687 about the Alps and Cerknica Lake with subterranean siphons and added his own map of the area. Halley personally performed the hydrodynamic experiments at the Royal Society to illustrate how Valvasor's subterranean siphons could change the Cerknica Lake water level.

The Royal Society expected to receive geographical and astronomical information from Valvasor. In 1688, Halley mailed to Valvasor his poems and highly praised Valvasor's map of Carniola. Halley used Valvasor's maps on 15 February 1703 when he visited Senj and measured the sea water depth near Bakarac. He returned through Rijeka, Ljubljana, and Graz to Vienna. On 3 March 1703 he visited the Viennese court of Emperor Leopold I (1640- 1705) and gave him the maps drawn on the basis of Valvasor's data.

Valvasor died a few years before Halley's visit to his homeland. Between 1701 and 1703 Halley visited Venice, Ljubljana, Trieste and Dalmatia several times on a secret mission for Queen Ann. Halley prepared for an English landing at the Dalmatian port Bakarac during the War for the Spanish Succession. These plans were never realized. The English-Dutch navy abandoned Halley's ideas after they invaded Gibraltar in 1706.

Table 1: Halley's visits[10]

Ljubljana (Laibach)	Trst (Trieste)	Rijeka (Fiume)
20 January 1703	1 February 1703	
21 February 1703	3 March 1703	Around 18 February 1703
30 July 1703	27 July 1703	4 August 1703
20 September 1703	15 September 1703	

Sixteenth-century astronomical books

The oldest astronomical book in Valvasor's personal library was *Theory*[11] by the Viennese professor Georg Peuerbach, published by the Protestant Erasmus Rein-

[9] Janez Vajkard VALVASOR, *Die Ehre dess Hertzogthums Crain*, Laybach-Nürnberg, 1689.

[10] Edmund HALLEY, *Correspondence and Papers of Edmond Halley,* (ed. Eugene Fairfield MACPIKE), London, 1937., 86.–87., 249.; Alan COOK, *Charting the Heavens and the Seas,* Oxford, 1998., 171., 292., 297., 299.–310., 475.

[11] Georg PEUERBACH (PURBACH), *Theoricae novae planetarum Georgii Peurbachii Germani ab Erasmo Reinholdo Saludensi...*, Witebergae, 1542., Reprint: Witebergae, 1580.

hold. Valvasor bought one of the later editions (1580). Because of his position at Vienna, Peuerbach's work was extremely popular in Carniola and several well-to-do people bought copies of the book.

Table 2: Peuerbach's *Theoricae novae planetarum* in Carniola, Gorizia, and Istria

Owner	Year
Dr. Janez von Putschar (1597-1650)	1650
Dr. Franc Kristof Ott pl. Ottheimb (Otto, † 1699)	1699
Jožef Teneffl pl. Tenau († 1661)	1661
Piran City Museum (with two added books, *adligats*)	
Franciscan Monastery in Gorizia	
Valvasor	Before 1690

Theoricae with its numerous geometrical drawings and calculations had to be studied with care. It was not an easy reading. People studying *Theoricae* had at least an elementary astronomical education and practiced some astronomical measurements.

Kepler

Valvasor bought the first edition of Kepler's *Dioptrice*, with Galileo's letters dated 13 November 1610, 1 January 1611, and 26 March 1611 included.[12] This was the only Galileo's publication that Valvasor possessed, but Valvasor's older friend Volf Engelbert Auersperg had almost all of them.[13] Furthermore, the well-educated

[12] Johann KEPLER, ... *Dioptrice seu Demonstratio eorum quae visui & visibilibus propter conspicilla non ita pridem inventa accodunt: praemissae epistolae Galilaei de iis*…, Augustae Vindelicorum, 1611., 15.–25.

[13] Auersperg had: Galileo GALILEI, *Galilaei de Galilaeis. Patritii Florentini, mathematum in gymnasio Patavino … De proportionum instrumento a se invento, quod meritò compendium dixerisuniversae geometria, tractatus ... ex Italica in Latinam linguam nunc primum translatus, rogatu philomathematicorum a Mathia Berneggero ex italica in latinam linguam nunc primùm translatus: adjectis etiam notis illustratus, quibis & artificiosa instrumenti fabrica, & usus ulterior exponitur,* Strasbourg, 1612., and Galileo GALILEI (ed. Carlo MANOLESSI), *Opere di Galileo Galilei Linceo nobile fiorentino, già lettore delle mathematiche nelle Università di Pisa, e di Padova, di poi sopraordinario nello Studio di Pisa, primario filosofi, e matematico del serenissimo Gran Duca di Toscana: in questa nuova editione insieme raccolte, e varij trattati dell' istesso autore non più stampati accresciute…*, 2 vol., Bologna, 1655.–1656. (Janez Ludvik SCHÖNLEBEN, *Catalogus Sive Repertorium omnium Librorum Bibliothecae Illustrissimi et excellentissimi Domini Domini Wolffgangi Engelberti R:I: Comitis ab Auersperg, et Gottschee, Domini in Schön= et Seisenberg, inclit: Carniola Ducatus, et Marchia Slavica Supremi, ac hereditoris Mareschalli, et Cameraris, ac Caes: Mais: actualis Cameraris et Consiliaris intimi, Provincia Capitanei Supremi, et Continui Deputatorum Praesivi ec: ec: In Clases Decem et octo divisus A:R:D:g:E:N:E:D:D:C:S:B: Anno Domini 1668. Haus-Hof- und Staats-archiv, Dep. Fürstlich Auerspergsches Archiv, Vienna, Minoritenplatz 1, VII Laibach, A 14/4 conv. 1 Laibach-Fürstenhof 1729–1895*, 1668 (copied in 1762), pp. 1–431, here p. 331).

Maria Theresa, Baroness Wintershoffen (1655?-after 1700) owned the work of Galileo, Petrarca, Bocaccio, Ariosto, Aretino, and Tasso among her 142 books.[14] She married the young Baron Antun Oršić (Orshitsch) of Gornja Stubica in Zagorje, but she was eventually divorced in 1700. After she passed away in the early eighteenth century, the inventory of her legacy was prepared and it included the list of her books, but the scribe did not bother to write the exact title of the Galileo's book *Discorsi* she owned.[15]

Table 3: Early modern science in Carniolan libraries

Copernicus	Münster's *Cosmographia*	Tycho Brahe	Galilei	Kepler
Ljubljana Jesuits 1754	Ferdinand von Siebenek	Jurij Andrej Triller Count Trilek's *Astronomia*	Volf Engelbert Auersperg's *Opere; De proportionum*	Volf Engelbert Auersperg's *Ad Vitellionem*
Ljubljana Franciscans	Volf Engelbert Auersperg's two exemplars	Mayr's catalogue (1678) *Historia coelestis*	Count Janez Ambroz Thurn-Valsassina's *Discorsi*	Dr Janez Putschar's several works in 1650
	Mayr (1678, 115)		Baroness Marija Terezija Oršić, *Discorsi*, early eighteenth century	Dr Franc Kristof Ott's (Otto) several works
	Valvasor		Ljubljana Jesuits' *Le operazioni*	Mayr's (1678, 79, 91) *Tychonis Hyperaspistes; Tabulae Rudolphinae*
				Valvasor's *Ad Vitellionem*, *Dioptrice*
				Ljubljana Jesuits' *Mysterium Cosmographicum* 1621; *Tabulae Rudolphinae* 1627

[14] Marko ŠTUHEC, *Rdeča postelja, ščurki in solze vdove Prešeren*, Ljubljana, 1995, 97, 196.

[15] *Archive of Republic Slovenia, Legacy archive, fascicle 39*, litera O, No. 10, p. 77.

Valvasor's astronomical sources

Valvasor bought the Georg Brentel's (1550-1616)[16] book and many others dealing with new inventions of mechanical and geometrical calculating machines. Valvasor (1603–1605, 1632) and his friend Volf Engelbert Auersperg (1604) had similar Levinus Hulsius' († 1606) works,[17] but it was just Volf who acquired Galileo's books.

Philippus van Lansberg (1561-1632) published Copernican tables with a critique of Kepler.[18] Valvasor bought Lansberg's shorter descriptions of the *astrolab* and *quadrant*.[19] Lansberg was a physician and pastor in Middelburg. He did not accept Kepler's theory of elliptic planetary orbits, but Valvasor found his instruments quite useful.

Valvasor had Sacro Bosco's *Sphaera* with Franco Burgersdijck's (1590-1636) commentary.[20] Valvasor's friend Volf Engelbert Auersperg bought six different works on Argoli's astronomical observations and Valvasor acquired three more. Volf collected altogether sixteen of Kircher's works and Valvasor had twenty two of them.[21] Both had Kircher's astronomical *Itinerarium Extaticum Coeleste* dedicated to the Emperor Ferdinand III[22] who died a year after the first printing, on 2 April 1657. Kircher exchanged letters with Volf's younger brother, Ferdinand's Prime Minister Prince Janez Vajkard Auersperg (1615- 1677),[23] and personally delivered at least three of his books to Volf.

Valvasor bought Tycho Brahe's *History of Stars* published in the second posthumous edition of the München Jesuit Albert Baron Curtz (Curtius, 1600-1671).[24]

[16] Georg BRENTEL, *Quadrantis astronomici et geometrici utilitates=Ein tractat vom astronomischen und geometrischen quadranten; auss wekchen dess tags oder dess nachts, durch die sonn, mond, und andere planeten oder fixstern die studen moegen gefunden*…, Laugingen, 1611.

[17] Levinus HULSIUS, *Erster Tractat der mechanischen Instrumenten: Gründlicher, augenscheinlicher Bericht dess newen geometrischen grunntreissenden Instruments, Planimetra genandt... Sampt dess Quadrats und Quadrants,* Frankfurt, 1604., Reprint: *Der mechanischen Instrumenten,* Frankfurt, 1603.–1605.; Levinus HULSIUS, *Beschreibung dess Wegweisers und Sonnen-Compass*…, Frankfurt, 1632.

[18] Philippe van LANSBERG, *Theories Nouvelles, Vrayes & Propres, des mouvements celestes de Philippe Lansbergue. Ensemble le calcul de chacun des Mouvemens, par la doctrine de triangles*, 1633; Philippe van LANSBERG, *Tresor d'observations astronomiques de Philippe Lansbergue,* 1633.

[19] Philippe van LANSBERG, …*Astronomischen ende geometrischen Quadrants*…, Middelburg en Zelande, 1633.; Philippe van LANSBERG, *Astrolabium*… Middelburg, 1635.

[20] Iohannes de SACRO BOSCO, Franco BURGERSDIJCK, *Sphaera Ioannis de Sacro Bosco, emandatiore sermone & methodo tradita, multisque praeceptionibus quae ad illustrationem hujus doctrinae requirebantur, adaucta,* Lugduni Batavorum, 1626.

[21] VALVASOR, 1995., *Ibidem*, 425.–430.

[22] Athanasius KIRCHER, *Itinerarium Extaticum Coeleste quo mundi opificium id est Coelestis expansi, siderumque tam errantium, quam fixorum natura, vires, proiprietates, singulorumque compositio & structura, ab infimo telluris globo usque ad ultima Mundi confinia, per ficti raptus integumentum explorata, nova hipothesi exponitur ad veritatem. Interlocutoribus Cosmiele et Theodidacto*, Romae, 1656., Reprint: Herbipoli (Würzburg), 1660., 14.

[23] Wiktor GRAMATOWSKI, Marjan REBERNIK (ed.), *Epistolae Kircherianae index alphabethicus index geographicus*, Roma, 2001, 112., 136.

[24] Tycho BRAHE, Albert CURTZ, *Historia coelestis… compectens observationes astronomicas varias ad historiam coelestem spectantes,* Augsburg, 1666.

The first edition was published in Vienna ten years earlier.[25] Curtz designed the book to amuse Emperor Ferdinand, similarly as the Jesuit Schott did later with his mathematical problems. Both Jesuits closely collaborated with Kircher of Rome.

Valvasor bought a copy of the second edition (1672)[26] of Eberhard Welper's (1590 Lohra in County Hohenstein - 1664) *Gnomonic* prepared by Johann Christoph Sturm (1635-1703), the professor of physics and mathematics at Altdorff.

Welper was well known in Ljubljana and the new Ljubljana bookseller and printer Janez Mayr (20. 2. 1634 Frauen-Chiemsee-1708 Salzburg)[27] listed two of Welper's books in his sales catalogue (1678). Welper also published a geometry textbook (1620)[28] with several medical and botanical ideas.

Table 4: Welper in Mayr's (1678) Ljubljana catalogue

Welper's	*Gnomonica oder gründlische Unterricht von allerhand Sonnen=Uhren in 2 Theil abgetheilet*
Welper's	*Beschreibungdes Gebrauchseines Astronomischen und Geometrischen Quadranten*

Valvasor bought Georg Welsch's (* 1624 Augsburg; † 1677) Persian-Turkish astronomy[29] and also three of Welsch's medical works. The acquisition was connected with Gale's wish to broaden the knowledge of Turkish geography and sciences in England. The physician Welsch published the first European edition of the Oriental sky observation with its calligraphic aspects included.

Valvasor used the second edition of the Swede Johann Peterson Stengel's *Gnomonica universalis* (1679). At the end of his book Stengel described the clock of Tycho Brahe and his assistant Longomontanus. He listed the longitudes and latitudes of European and African cities but Zagreb, Graz, and Ljubljana were not included.[30] He literally copied the data from his German predecessor Metius.[31]

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[25] Albert CURTZ (vulgo Lucius BARETTUS), *Sylloge Ferdinandea: sive collectanea historiae caelestis ex comm. Mss obss. Tichonis Brahei ab. Anno 1582. ad annum 1601*, Viennae, 1656.

[26] Eberhard WELPER, 1625., Reprint: *Neu=vermehrte Welperische Gnomonica oder Gründlicher Unterricht und Beschreibung / woe man alle regulare Sonnen=Uhren auf ebenen orten leichtlich aufstreissen*…, Nürnberg, 1672.

[27] Joannis Baptistae MAYR, *Catalogus Librorum qui Nundinis Labacensibus Autumnalibus in Officina Libraria Joannis Baptistae Mayr, Venales prostant*, Ljubljana, 1678., 120.

[28] Eberhard WELPER, *Elementa geometrica, in usum geometriae studiosorum ex variis authoribus collecta*, Argentorati (Strasbourg), 1620.

[29] Georgius Hieronymus VELSCHIUS (WELSCH); Wafá SHAIKH, *Commentarius in Ruzname Naurus, sive Tabulae aequinoctalis novi Persarum et Turcarum anni*. Augustae, 1676.

[30] Johann STENGEL, *Gnomonica universalis, oder nutzführliche Beschreibung der Sonnen=Uhren/ Worinen Allerhand Arthen derselben inhierzu deinlichen Figuren vorgestelt weden/ wie folche auf allerley flachen Ebenen*…, Ulm, 1679., Reprint: Ulm, 1712., 329.–333.

[31] Adriaan Adriaanszyoon METIUS, *Adriani Metii Alcmariani prof Mathes. In Acad. Frisiorum De Genuino usu utrisque globi tractatus adjecta est nova Sciatericorum, & artis Navigandi ratio novis Instrumentis & inventionibus illustrata,* Franekerae, 1624., 23.–28.

Valvasor bought both parts of Jean Baptiste Du Hamel's (* 1624 Vire; † 1706 Paris) Philosophy with sound astronomical parts included. Du Hamel used figures from *Menander*, *Theophilus,* and *Simplicius* to express his own thoughts. He discussed the opinions of Epicurus, Gassendi, and Descartes. Du Hamel proposed different models of sunspots, some of them close enough to the hypotheses of Descartes or Kepler.[32] Du Hamel's heroes, whom he cited, praised Copernicus' discoveries,[33] and the measurements of Reinhold, Kepler, and Tycho Brahe.[34]

Valvasor used *Coelum planetarum* by Johann Schultzen (1681). At the end of the second part, Schultzen added a list of comets visible during his era. Several of them were discussed in the seventeenth century. On 24 September 1607, Longomontanus observed a comet which supposedly predicted the Thirty Years War. The comet of 28 January 1661 was seen all around Europe and it was believed to predict the Turkish wars. Among the new ones, Schultzen listed the comets of 1664, 1665, 1672, 1677 as well as the latest one, visible between 16 December 1680 and 2 February 1681.[35] Valvasor used Schultzen's and other publications on comets as guide-books when he observed comets with the Croatian Pavle Vitezović and their friends and collaborators at Valvasor's castle Bogenšperk in Carniola.[36]

Conclusion

The Royal Society Fellow Valvasor was an exceptional erudite among the Europeans of his era. Although he had not obtained a university degree, he educated himself during his long travels. Valvasor's Latin was therefore somewhat rough and he published his books in German. The horizon of his huge astronomical knowledge became clear only after the careful study of the books in his library.

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[32] Jean Baptiste DU HAMEL, *Operum philosophicorum tomus 1. In quo continentur tractatus hi sequentes: I. Astronomia physica. II. De meteoris & fossilibus libri duo. III. De consensu veteris & novae philosophiae. Tomus 2. in quo continentur sequentis qui tractatus: IV. De corporum affectionibus cum manifectis, tum occultis, libri duo. V. De mente humana libri quator. VI. De corpore animato libri quator,* Norimbergae, 1681., 57., 60.

[33] Ibidem, 1681., 106.–108., 111., 125.

[34] Ibidem, 1681., 117.

[35] Johann SCHULTZEN, *M Johann Schultzens Duc. Paedeg. Gotting. Math. Prof. Coelum planetarum, das ist Planeten Himmel/ Darinnen zugleich eine Beschreibung deß neuen grossen Cometen, so im Decembr. deß 1650sten Jahrs erschienen / auch die Natur Eigenschafft der Cometen durch gewisse Vernunfft= Schlüsse und Lehrsatze auß den neuen und proba=testen Astronomen/ Nebenst dessen mathemaßlischer Bedeutung/ und Beygefügter Erzehlung aller Cometen/ so von Christi Geburth an gesehen worden/ Der edlen Mathematic Zugethanen und Astronomie Liebhabern zur Nachricht/ Auffs eylffertigte fürstlich antworffen wird.* (second part) *Coeli planetarum continuatio das ist….* Göttingen, 1681., 2: 53-67.

[36] Stanislav JUŽNIČ, Marijan PROSEN, *Janez V. Valvasor in astronomija (Astronomski del Valvasorjeve knjižnice ob 320letnici njegove izvolitve v londonsko Kraljevo družbo),* Ljubljana, 2007., 3.

Astronomski interesi Valvasora, *FRS*

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Valvasor je dobro poznat po svojim bilješkama o važnim kranjskim piscima, astronomima i drugim znanstvenicima. U ovome radu njegova su astronomska istraživanja povezana s njegovim članstvom u londonskom Kraljevskom Društvu (*Royal Society of London*) i njegovom prepiskom s Galeom i Halleyem. Kroz korespondenciju s Kraljevskim Društvom mladi je Halley postao Valvasorov osobni prijatelj. Halleyeve posjete područjima današnje Slovenije, Italije i Hrvatske su, po prvi puta, sustavno navedene kako bi se objasnilo širenje nove Newtonove fizike u Centralnoj Evropi putem Halleyevih kontakta u Trstu, Ljubljani i Rijeci.

Poseban je naglasak stavljen na Valvasorove knjige. Samo je Auerspergova knjižnica prednjačila pred Valvasorovom u ovom dijelu Europe, a potonja je na koncu postala sastavnim dijelom Metropolitane, knjižnice Zagrebačke Nadbiskupije.

Ključne riječi: Valvasor, E. Halley, povijest astronomije, povijest knjižnica, Metropolitana knjižnica u Zagrebu.