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Chapter 1

Galileo, Astrologer

Antonio Favaro

Translated by Julianne Evans

Editor's Note. Until the 1990s, there was no published work on Galileo's astrology except for the two papers published by Antonio Favaro in Italian. These are presented here in English translation for the first time.

*Favaro's original notes are presented as footnotes, with numbered references in the text in superscript. The footnotes differ from the original in being numbered sequentially through the whole article; endnotes are indicated by square brackets in the text.

Part 1: 'Galileo Astrologo'

Editor's Note. This trail blazing essay by Antonio Favaro was composed a decade before he first started to publish his twenty-volume *Opere* of Galileo's complete works, and was published in the periodical *Mente e Cuore* in 1881.¹ Greatly ignored by scholars, it has of late been alluded to by Poppi and Ernst.

If, only a century or so ago, anyone had suggested that Galileo was a follower of judicial astrology, then without doubt they would have been accused of sacrilege. With so much expertise had the veil been drawn over anything that could suggest such a weakness of the great philosopher, with so much care have the few passages from his writings in which he ridicules those who 'pretend to read the future in that great book written in the characters of the stars' been evidenced [1], that for a long time it never crossed anyone's mind that even the great reformer had been unable to avoid this fatal influence.

However, the diligent modern critic will not rest satisfied with superficial views reached in early biographies of Galileo. Rummaging

¹ Biblioteca Nazionale di Florence (BNF), Manoscritti Galileiani, VI, Tomo VII. Favaro Antonio Ed., *Le Opere di Galileo Galilei*, Florence 1929-39, 20 Vols; Antonio Favaro, 'Galileo astrologo secondo i documenti editi e inediti', in *Mente a Cuore* (Mind & Heart, a periodical) 1881, Trieste, pp.1-10, 4.

through those papers, which a respect for all that belongs to that divine genius would not allow to be destroyed, they will find evidence that the grandiloquent phrase written by Vincenzo Viviani on the plaque on his house in Via dell'Amore, dedicated to '*inanis artis genethliacae perpetuo insectatori*' (eternal persecutor of useless genethliacal art) was nothing but a shameless lie.

Some would question whether it was really worth lifting this veil, while others might judge that it would be better not to touch the subject, from whose development today's science can expect no advantage. I disagree. When an investigation leads to a different truth, the investigation is still useful, and those undertaking it should bring the result to the attention of academics. On the other hand, I would not hesitate in declaring that I like these investigations, in which exactitude is pushed as far as it can go. I like the type of criticism that tries to evoke the minutest details of the circumstance and the answers, that investigates the testimonies of contemporaries, that unseals letters, and in biographical studies tries to show not only the academic but the whole person, in all their greatness and their weaknesses, faithfully reproducing not only the person but also the times in which they lived, exposing to the light of day all that is necessary to give a whole and complete reconstruction.

That Galileo had respectfully followed the Ptolemaic doctrine regarding the world-system before embracing the Copernican system, no one doubts. But the genesis of the idea of reform was not carried out in all particulars, even though, above all other interests, the great philosopher has left the elements for such a study. And if that history from our ancient universities, which is still in an unfulfilled state and is likely to remain so for some time – perhaps forever, was as complete as our academics wished it were, we would also be able to ascertain whether the first elements of judicial astrology made their way to Galileo in the same University of Pisa.

Later, we assuredly find him in full possession of all the secrets of the art, and the notion that Galileo acquired the first rudiments in the halls of the University, which was rightly proud to have him as student and professor, seems viable. It shows that in many of the old universities the notebook [*taccuino*] was still in use in the second half of the sixteenth century, in which a reader of astrology was obliged to draw up students' horoscopes, free of charge.

In his youth, Galileo probably applied himself with greater fervour to the things of judicial Astrology, and it is most likely that the study for his two works – *Porphyrii philosophi introductio in Ptolomaei opus de*

effectibus astrorum and *Hermetis philosophi de revolutionibus nativitatum* – goes back to this stage of his life. Examples of each, annotated in his handwriting, endure among the Galilean manuscripts in the National Library of Florence².

Leaving aside the question of how Galileo came to learn astrology, he indubitably came into possession of such knowledge, and this was known to the extent that his skills in the art were called upon. During the last illness of Grand Duke Ferdinando I, the Grand Duchess Cristina of Lorraine wrote to Galileo imploring him to find the true day of birth of the Duke using judicial astrology, in order to determine his climacteric year. Galileo's reply is in print, where he gravely described how much time he had spent searching the answer this question.³ He writes that he had to 'calculate with the *Pruteniche* tables and amend the motion of the Sun with those of Tycho Brahe for both of the dubious times of birth of his Serene Grand Duke'. He finishes with a quite flattering prognosis, which did not, however, prevent Ferdinando from dying 22 days later; we must confess that in this answer we do not find any trace of the skill that even Albèri would want us to recognise [2]. In this regard we do not want to silently pass over a particular that seems quite provocative to us.

The copy of the letter with which we are concerned is preserved among the precious Galilean manuscripts already cited. Now, at the beginning of the volume containing this letter there is an index listing all the letters contained in the tome, with the addition of their respective subjects. The gallant man who undertook this task did not have the heart to say explicitly that Galileo had written about judicial astrology, only limiting himself to write, under the date, in the usual place for the subject of the letter: 'It speaks of ... enough, it is better not to say'! The horoscope of Grand Duke Cosimo II, who succeeded Ferdinando I, was drawn up by Galileo himself and it is worth mentioning that it was widely circulated, as we find it was known not only in Italy but also in Germany and Poland.⁴

2. Part VI. Tome I. Vol. II. Minor annotations on pp. 177, 211, 214, 215, 218, 278.

3. *Le Opere di Galileo Galilei*. First complete edition conducted on the authentic Palatine manuscripts. Tome VI. Florence. Società Editrice Fiorentina, 1847, pp. 66-67.

4. Medici Archives. File 446S. Letter from Cilli, secretary to Sigismond III King of Poland, to Belisario Vinta, secretary of State in Tuscany, dated in Wilna, 13 August 1611. – 'New unpublished documents from the trial of Galileo Galilei

The correspondence between Galileo and Ottavio Brenzoni, an astrologer from Verona, refers almost entirely to judicial astrology. From these letters, of which we have only Brenzoni's, still unpublished, it seems that Galileo himself made use of this Veronese mathematician's work, either consulting him in cases of doubt or acting as an intermediary for friends who wished to put questions on which Brenzoni was considered to have a certain authority.⁵ To illustrate this we have, in print, a letter of Curzio Picchena to Galileo, in which he expresses doubt about a prognosis that had been asked for and obtained from Brenzoni regarding Curzio's recently-born daughter, and asks Galileo to repeat the operation more carefully.⁶ This time, it seems, the astrologer had exaggerated. Picchena writes, 'First he says that this year her life was in danger, particularly in the month of September; and to this I say that the said daughter has not had any considerable illness, and it is already the end of the eleventh month. Then he says that she would have things from her ecclesiastical relatives; and I answer that I have no relatives left, so that nothing can come to her now nor in a hundred years from now, neither from my side of the family nor that of my wife'. But all this was not enough to shake Picchena's faith in the art of prognosis, as he even sought for cavils to justify the astrologer's work and to find the error in the data he had given him. Picchena, in his letter, does not go into all the details of the horoscope, but he says enough about it to conclude that the Veronese astrologer was unable to read in the stars the dismal end of that unfortunate woman, the daughter of Curzio Picchena.

Cardinal Alessandro d'Este asked Galileo in all faith, as if it were something quite common, to draw up a 'nativity' based on the accompanying data. In order clearly to emphasise the importance attached to such a favour, he added, 'On this subject, Sire, the obligation I will owe to you in exchange for this pleasure will be as much as the esteem I have of your virtue'.⁷ [3]

Giovanfrancesco Sagredo, the Venetian patrician who was one of Galileo's dearest friends and among those who held him in the highest

illustrated by Dott. Arturo Wolynski'. Florence, Gazzetta d'Italia printers, 1878, pp. 164-165.

5. Galilean Manuscripts in the National Library of Florence. Part VI. Tome VII.

6. *Le Opere di Galileo Galilei*, etc. Tome VIII. Florence, etc. 1851, pp. 35-37. The letter is dated: Florence, 18 December 1608.

7. *Unpublished letters to Galileo Galilei*, collected by Dott. Arturo Wolynski. Florence, printers of the Association, 1872, p. 44. The letter is dated 2 March 1618.

esteem, in a letter sent by him, still unpublished and preserved in the Campori Archive of Modena, without preamble and leaving one to presume he had requested the same favour many other times, asks [Galileo] for a horoscope to be calculated relative to the accompanying data – and all without appearing in any way that Sagredo wanted to subject Galileo to a torment, as Albèri would expect.⁸ [4] It would therefore seem to me that there can be no doubt that Galileo not only concerned himself with astrological things but was also reputed as being very skilful in the subject, so much so that important people appealed to him to cast horoscopes and make his prognoses for them, in a trusting manner.

But there is more. Among the oft-cited Galilean codices there is a precious manuscript which contains several notes that Galileo himself kept in order, each day recording in them daily expenses and special daily earnings. If these notes had reached us completely intact then no doubt many uncertainties surrounding his life could be put to rest, but even mutilated as they are they provide vital biographic material. Many of these records were published under the direction of Domenico Berti.⁹ Among those notes that refer to his period of residence in Padua, Galileo recorded his income from private lessons, and among them, relative to the year 1603, we find:

the 1 st of January from the illustrious Sig. Sweinitz per sortem L 116.12 ¹⁰	
the 28 th of February ... , from his brother per sortem	60.
the 2 nd of March from Sig. Lerbac per sortem	60.
22 nd of October from Sig. Massimiliano in name of Sig. Cristoforo and Marco Stettner per sortes	120. ¹¹

From the first time I saw these notes in Berti's publication I started to suspect strongly that behind those words 'per sortem' hid pure and simple

8. *Le Opere di Galileo Galilei*, etc. Tome VI. Florence, etc. 1847, p. 66, note 2.

9. *Acts of the Royal Venetian Institute of Science, Letters and the Arts*, from November 1870 to October 1871. 16th Tome, Third Series. Number 9. Venice, Antonelli printers, 1870-71, pp. 2028-2044. – *The Coming of Galileo Galilei to Padua and the invention of the telescope*, by Prof. Domenico Berti, pp. 48-64.

10. Part I. Tome XVI, car. 63 verso.

11. Part I. Tome XVI, car. 64 verso. – Above the people mentioned here and above most of the others noted in Galileo's autograph records I will give informative details, based on documents found in the old University Archive of Padua, in my next publication, which will be entitled *Galileo Galilei and the University of Padua*.

judicial astrology, but with only these elements it did not seem I could hazard such a serious hypothesis on the subject. As luck would have it, while recently leafing through the volume of Galileo's manuscripts containing astrological matter, I found among other things the horoscope of Cristoforo Stettner[5], one of those referred to in the above-mentioned notes, written in the hand of our philosopher.¹² This dispelled any doubt, and I believe I can now affirm that even during his residence in Padua Galileo accepted payment to draw up horoscopes for the use of those same students who heard him, both in public and private [6]. If the sum recorded in the first of these notes has not led me astray, I could also add that a horoscope drawn up by Galileo cost sixty Venetian lire, that is, about thirty of our current lire [7].

The earlier-mentioned volume containing Galileo's astrological material is only about fifty pages, and these certainly do not contain all our philosopher did regarding this subject: among the different horoscopes in the said volume we cannot find most of those we know from his correspondence that he agreed to draw up and deal with. Some of these horoscopes show only their calculations while others include the figure of the nativity plus the astrological computations and the relative interpretations. Among the latter are the horoscopes of Galileo's two daughters, all in his handwriting.¹³

In the face of all this, the sentence that Galileo puts into the mouth of Salviati in *Dialogue Concerning the Two Chief World Systems*, where he ridicules astrologers 'who after the outcome see it so clearly in the chart, or that is to say in the celestial figure', loses much of its effectiveness.¹⁴ In any case it did not suit Galileo to think like this many years previously, when he wrote the dedication of the *Nunzio Sidereo* to Grand Duke Cosimo II, in which adulatory phrases alternated with astrological affirmations in such a way as to lead his contemporaries to the conviction that Galileo held a certain belief in stellar influences.¹⁵ This assertion is

12. Part VI. Tome I, car. 35-36.

13. Part VI. Tome I, car. 21 *recto*, 22 *recto*, 23 *recto*, 24 *recto*, 26 *recto* and 25.

14. *Le Opere di Galileo Galilei*, etc. Tome I. Florence, etc. 1842, p. 123. See also where Galileo makes Sagredo put forward this same idea.

15. 'Etenim quemadmodum hae Stellae tamquam Jove digna proles nunquam ab illius latere, nisi exiguo intervallo, discedunt; ita quis ignorat clementiam, animi mansuetudinem, morum suavitatem, regii sanguinis splendorem, in actionibus majestatum, autoritatis et imperii in alios amplitudinem, quae quidem omnia in tua Celsitudine sibi domicilium ac sedem collocarunt, quis, inquam, ignorat, haec omnia ex benignissimo Jovis astro, secundum Deum omnia bonorum fontem,

confirmed by the letter of Tommaso Campanella who, offering by means of astrology to heal our philosopher afflicted by a number of infirmities, and seeing that Galileo evaded it, wrote to him from his prison in Naples:

For your infirmities I offered to do what I could. You said that you would write to me about them and give me your nativity, but you did not. Do not disdain Sire the advice of friends because they cannot. Our prince says he asked for his nativity from you Sire and that you did not want to give it to him saying that you do not believe in it [8]. I am astonished because if you, Sire, do not believe then why did you say to the Grand Duke in your epistle that Jupiter in his geniture gave him it (*sic*)? So you have ridiculed it. *Absit*. It is not right, Sire, that you use false opinions believed only by the common people. Though I am certain that this doctrine is full of fallacies, it contains divine things.¹⁶

Campanella's letter paints a vivid picture of the state of opinions regarding judicial astrology – even the most illuminated, though not having blind faith in those ravings and even sometimes making fun of them, were not able to completely rid themselves of prejudice. *Sempre vetabitur et semper retinebitur*, as they once used to say.

After the publication of the famous *Dialogue*, in a letter addressed to Elia Diodati,¹⁷ but written at the same time to him as to Gassendi, speaking about the two books of Morin and Fromond which reached him six months after the publication of his work, he regrets not having known about it before, as he would have had the 'occasion to say many things in praise of both, and also to add some considerations on certain particulars'.¹⁸ He then comes out with:

emanare? Jupiter, inquam, a primo Celsitudinis tuae ortu, turbidos horizontis vapores iam transgressus, mediumque coeli cardinem occupans, orientalemque angulum sua Regia illustrans, felicissimum partum ex sublimi illo throno prospexit'. etc. *Le Opere di Galileo Galilei*, etc. Tome VIII. Florence, etc. 1843, pp. 56-57.

16. *Le Opere di Galileo Galilei*, etc. Tome VIII. Florence, 1851, pp. 306-307. The letter in question is dated the 8th March 1614.

17. *Le Opere di Galileo Galilei*, etc. tome VII Florence 1848 pp. 16-20. The letter is under 15 January 1633.

18. In truth, it does not seem that Galileo would have had the opportunity of praising the work of Morin, at least if one wishes to assume it from the 'Notes for Morin', which he added, in his own hand, to a copy of the work 'Famosi et antiqui problematis de telluris motu vel quiete; hactenus optata solutio', etc., to Jean Baptiste Morin, etc. Parisiis, MDC-XXXI, notes which were published by D. Baldassarre Boncompagni in *Bullettino di Bibliografia e di Storia delle*

In Morin, I am amazed by the very great esteem he has for judicial astrology, and that he expects to establish with his conjectures (which seem to me quite uncertain, if not to say very uncertain) the certainty of astrology. It would be a really admirable thing if, with his acuteness, Astrology were placed in the higher seat of human science, as he promises. With great curiosity I will wait to see this marvellous novelty. [9]

These words are not to be taken in the sense of complete criticism, that some have been pleased to recognise.

Thus, the evidence shows that Galileo concerned himself at different times with judicial astrology, even though it may not have been minimally proved that he had certain faith in its responses; but, even were this so, it should not in anyway diminish the great esteem he rightfully deserves.

It does grieve me, I confess, in reading the expressions of contempt from nearly all historians and biographers towards astronomical authors who were unable to maintain themselves immune from the bias of judicial astrology. It is a grave injustice committed against distinguished men who have more than anything else come under the influence of the times in which they lived. In truth, the posthumous affectation of disdain and the energetic show of it regarding astrology and the men who more or less concerned themselves with it, would have reason if these studies in themselves had constituted an obstacle to the progress of astronomy - but they did not. Those who impartially undertake to interrogate history will easily understand how the science of astronomy is indebted to astrological studies.

On the other hand is it really worth trying to justify Galileo when it is patently clear that Copernicus, Tycho Brahe or Kepler were none of them immune from astrological biases?

Scienze Matematiche e Fisiche. Tome VI. Rome, 1873, pp. 52-60. – A note of Galileo's about the work from Fromondo we received came to light in the work entitled 'The added autographs of Galileo to the dialogue on the two chief systems in the copy possessed by the Seminary Library of Padua'. Modena, 1880, p. 17.

Part 2: Mathematics at the University of Padua before Galileo

A. Favaro 1883 [10]

'*Fair Padua, nursery of the Arts*', Shakespeare.

Editor's Note. Padua was Europe's second oldest university, after Bologna. One seeks in vain for anything written about its chair of mathematics, beyond this single essay by Favaro. This neglect is presumably on account of the central role which it assigned to astrology, down through the centuries. Santillana's essay *The Crime of Galileo* makes what one must view as a fictional statement, that, when Galileo accepted the Chair at Padua in 1592, 'The chair of mathematics then covered the teaching of geometry, astronomy, military engineering, and fortification' [8]. That could describe Padua's mathematics chair a century later, perhaps in the 18th century. The first two paragraphs of Favaro's essay are here translated, and in addition two of Galileo's letters about his mathematics lectures are here reproduced, showing that the students who attended them were either philosophers or medical doctors - the latter, in order to learn how to cast erect a horoscope for the onset of disease.

Among those topics which Padua University historians have neglected, with a very casual attitude, and left unexplored or incomplete, is the teaching of mathematics – from the beginning of the University, right through the 15th century and up to the present day: the almost complete lack of certain documents seriously impedes fuller study. We could even say that by now it has become impossible, and it would be best to gather together what little remains in various parts and try to fill in the gaps with well-founded conjecture or from the biographies of individual teachers whose names have come down to us, or their works.

No document has come to light that could tell us when such work would have originated. It is highly probable that its principles were mixed in with those of the chair *ad astrologiam*, a generic title used in the Middle Ages and early Renaissance to indicate not only judicial astrology but also any kind of astronomical study of celestial systems, periods of revolutions and movements of the stars. Such an opinion would confirm the idea that, apart from the vain claims of the astrologers, some mathematical elements were absolutely indispensable, apart from the fact that in previous times the two were found paired. And when one considers that right from the earliest years of the University no account was taken of physicians, who were equally learned in both medicine and Astrology, one is induced to argue that readers of medicine were also those of Astrology and therefore of mathematics, their names being passed on to posterity, especially recommended for the works of

medicine or, as it was sometimes called, of physics, from which the Chair took its title. Faced with this lack of title holders for such chairs our hypothesis acquires further credibility in the light of the early University Statutes regarding the astrologer, of which is written: '*quem Tanquam necessarissimum omnino volumus*'. This phrase quite eloquently expresses how much importance was attributed to an argument that strongly stirred not only the spirit of the common people but also that of the more enlightened. It is not our intention, however, to let ourselves be led astray in this regard, where anyhow 'the long road goes where it will'; it would be enough to have even a quick mention of the great part that, right from the early days of the University, was dedicated to astrology, as we can easily admit that, directly or indirectly, from the very beginning the honours of the Chair were not lacking.

Additional Notes (Nick Kollerstrom)

The Favaro essay was published in the Periodical *Mente e Cuore*, Trieste, 1881.

1. Only one such reference exists in the writings of Galileo and is found in his *Dialogues*, on the Fourth Day; nor does it decry those 'who pretend to read the future', but rather, it is those judicial astrologers who make 'predictions' only in retrospect, and claim to be wise after the event, who there receive the scorching blast of Galileian scepticism.

2. Favaro here finds a lack of 'skill' which should not pass without comment. The letter is here reproduced (No. 204, January 1609). Even the year of birth of the Grand Duke Ferdinando was somehow unknown, and Galileo was required to ascertain a possible birthdate by the astrological process called 'rectificaton'. It is quite incorrect to say that he made a 'flattering prognosis' for the Duke. One invariably finds this averred (e.g., 'Despite his forecast of many more happy years for Fernando' (Sobell, 30) - together with sneering comments about how the Duke died a few weeks later. Galileo's letter made no prognosis for the Grand Duke's future, which had not been requested, but merely made an affirmation concerning divine guidance: 'I hope H.S.H. will happily get through this time with the help of his Divine Lord, in whose hands those who are destined to rule the people principally reside'. Galileo had been asked to ascertain how soon H.S.H.'s 'climacteric' year was coming up, which he did. The climacteric was the 63rd year, the idea being that it was a multiple of 7 and 9!

3. The letter is here translated (March 1618, No. 1308).

4. This letter in the archive of Modena is here translated (October 1602, No. 87).
5. This nativity is, as Favaro observed, present in the *Astrologica Nonnulla* (pp. 35-36), making it the only page of the *Nonnulla* which can be dated.
6. No English-language text has mentioned what Favaro observed over a century ago, that in 1603 Galileo's domestic record-book listed fees received from consultations on astral divination. The matter is mentioned in Favaro's essay on the school of Padua (1883, 188), and Poppi mentions it in a footnote (1993, 51 n. 3, here translated). The phrase *per sortem* alluded to a horary interrogation (hour, hora, horizon) because 'sortes' meant 'lots,' as in 'drawing lots', for fate/fortune (this note from Mike Edwards).
7. For comparison, Galileo was selling his small military compasses for 35 lire each.
8. In this letter of March 1614, Campanella appears as having offered to perform a cure by magic: he had offered to perform a healing, for which he required Galileo's birth data. Galileo wanted no truck with magic and therefore did not reply - Campanella was a *mage*, Galileo a *mathematicus*. Campanella is here griping (from a dungeon of Castel S. Elmo – his utopian visions had displeased the authorities) and misunderstands Galileo's attitude.
9. Five letters remain from Morin to Galileo. Jean-Baptiste Morin de Villefranche (1583-1656) held the chair of *Doctore Medico atque Parisi Mathematicum Professore* (medical astrology) at the University of Paris. He was described as 'Respecte, admire, il est le dernier des grands savants astrologes' (M. Grenet, *La passion des Astres au XIIIe Siecle*, Paris 1994). Galileo's posthumous library (A. Favaro, *La Libreria di Galilei Galileo descritta ed illustrata*, Rome 1887, VI, pp. 42-44.) had three books by Morin.
10. Giorgio de Santillana, *Processo a Galileo*, trans. *The Crime of Galileo*, 1958, p. 3.