

# Galileo as Believer

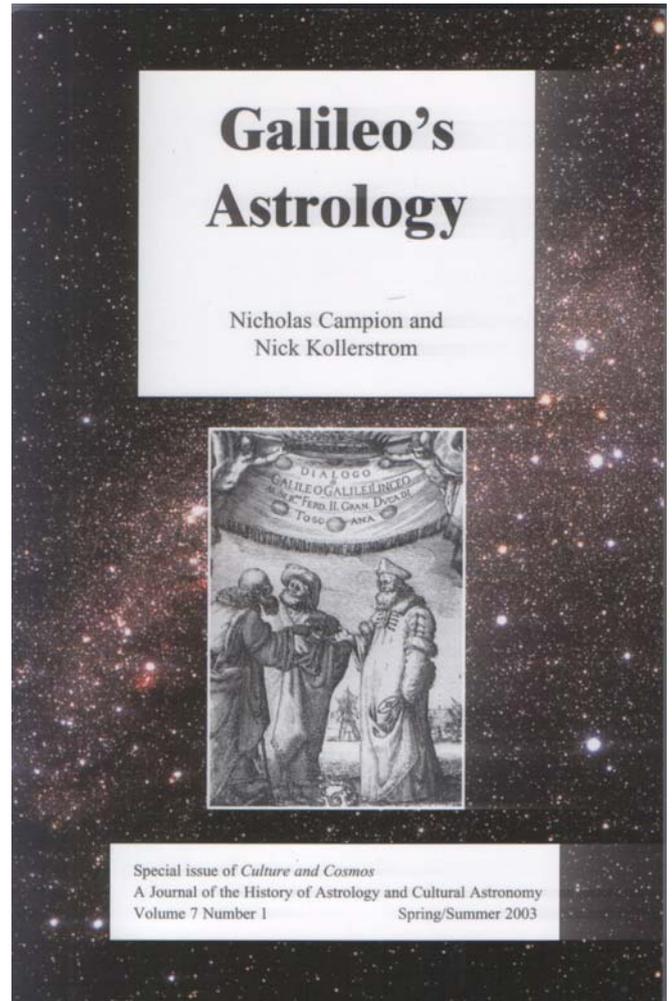
By Nick Kollerstrom

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In October of 1633, Galileo confided to his daughter that he felt 'as though his name had been stricken from the roll call of the living.' (1) This was in response to the severe judgement that pope Urbain VIII had pronounced against him on 22<sup>nd</sup> June, that he was 'vehemently suspected of heresy.' Dava Sobell's account has well brought out how Galileo would never accept or sign any charge brought against him of heresy. We may compare this well-known verdict with the earlier and well-forgotten charge which the Venetian Holy Office brought against him in 1604, of 'living as a heretic,' a charge more concerned with his lifestyle than beliefs. An English translation of this 1604 event is here published, for the first time.

Galileo is well-known for his deep scepticism, towards the Aristotelian philosophy and cosmology of his time. He attacked it with trenchant arguments. Maybe, he demolished it. This had led most science historians to misperceive him as being as sceptical as themselves over wider issues, as eg in Brecht's play or Arthur Koestler's account in *The Sleepwalkers* which found him 'wholly and frighteningly modern'. As an antidote to such, one could start off with the address which as a 24-year old still living in Pisa he gave before the Florentine Academy. He gave some lectures on 'The Shape, Place and Size of Dante's Inferno' in which he attempted 'to determine certain physical characteristics of Dante's Inferno.' While the heavens visible to the senses had all been mapped out, 'how much more wonderful should we consider the study and the description of the place and size of hell which lies in the bowels of the earth, hidden from all the senses and by experience known by no-one.' (2) In this early period Galileo still accepted the geocentric world-view. Having been expelled from the University of Pisa as a troublemaker without a degree he was scraping by on maths tuition work here and there. His lectures grappled with the dwelling-place of Lucifer and his fallen angels in the lower vortex of the Inferno, as well as computing how the opening to the underworld was covered with a vault of 404 15/22 miles in depth. Dante was the icon of Florentine culture, and this prestigious literary society was established by Cosimo I the Medici grand duke of Tuscany. Galileo described the eight levels of the inferno and computed the length of Lucifer's arm. We should be grateful to James Reston for bringing out in his fine



biography of Galileo that one finds no hint of irony or scepticism in these lectures on this topic.(3) Accompanied by diagrams of the underworld (4), they must have been a gripping experience.

Looking through the list of books in Galileo's posthumous library (5), I could find none that one might interpret as sceptical towards astrology. Favaro in the classic (but widely-ignored) essay here reprinted implies that he in some degree lost his belief in the topic in later years, but in the pages that follow I don't think you will find any basis for that claim. After Descartes and after Newton, astronomy could be practiced with no reference to astrology, however let us be crystal-clear that in Galileo's day the purpose of doing astronomy was to prepare tables, for drawing up horoscopes, for one's patron, or for medical purposes or whatever. In France there was the sceptical Jesuit movement of Gassendi and Descartes against astrology in the 1630s, however there was nothing comparable in Italy in this period. In the excerpts of correspondence here translated for the first time, one can see how the *mathematici* of Italy discussed astronomical and astrological issues; when a prediction did not work they considered the principles involved: there was nothing unusual or out of line in the way Galileo practiced astrology, it was merely something shared and taken for granted by him and his colleagues. The question as to what scepticism meant in Italy at that time would be an interesting one, and one could focus on his pal Cremonini the philosophy lecturer at Padua, who was found guilty of teaching 'mortalism,' that the soul did not survive death. The April 1604 Inquisition judgement, whose quattrocentenary we here commemorate, found no trace of such heretical beliefs in Galileo. It merely heard some rather shocking details of his sex life and domestic quarrels (the bawdy Aretino volume alluded to has, one notes, just been reprinted).

More significantly, this year [2004] marks the quattrocentenary of the new star called 'Kepler's Star' which was the last *galactic supernova* ever visible in the sky (6): no other has been seen since. In October of 1604 Galileo gave some popular lectures on this topic which marked his first public appearance as an astronomer. Historians of science always omit his explanation of what produced it, namely that it had been generated by the Mars-Jupiter conjunction that took place a day or so before it was seen; the nova was only a few degrees away from this conjunction, in the sky. He then explained how the *qualities* of Mars and Jupiter had combined to produce the sparkling object then evident in the night sky.

The theological issue of freewill raises its head in this quattrocentenary event, with the Venetian Holy Office condemning in 1604 the cheerful way Galileo would give death predictions, or rather length-of-life predictions, to his clients. Later on the pope with whom Galileo was destined to clash, Urbain VIII, was personally addicted to astrology and was accustomed to acquiring horoscopes of his cardinals and informing them of their due death-dates. Clearly, this was an unstable situation.

Accounts of how Galileo discovered the four moons of Jupiter through his telescope tend to omit the fact that, according to Galileo, the Maker of Stars was over those nights a-whispering to him. Indeed, we can only read about this in French: Isabelle Pantin's commented on Galileo's Introduction to his *Sidereus Nuncius* of 1610: '*Galilée se présente ici comme l'interprète direct de la volonté du Créateur, comme une sorte de prophète auquel Dieu envoie des signes. Plusieurs allusions à la "grace divine" et au "destin" sont discrètement glissées dans le Sidereus*'. (7) The



Maker of Stars had convinced him by 'clear arguments,' Galileo there explained, framed in rather Neo-Platonic terms, about Jupiter, its attributes, and the horoscope of the young Cosimo II. Galileo experienced a destiny as present in this discovery, that he had been able to make it because of his connection with the Medici family, and this meant that the new stars really belonged to this dynasty and to the young Cosimo II in particular. Historians tend to describe this as a clever ploy whereby he obtained his highly prestigious employment as the Medici court philosopher; although it was that, it was also a process in which he truly believed. And, as he explained to the young Cosimo, for it to work properly it

was necessary that he, Cosimo, believed it too (8).

There is not very much remaining about Galileo's practice of and attitude towards astrology, highly censored as it has been down through the centuries, which is why we can be confident, that it is all gathered together in this short volume (9). What was distinctive about him was not that he believed or practiced astrology, but that, like Kepler, he combined this with his belief in the new, heliocentric universe.

## References

1. Dava Sobell, *Galileo's Daughter*, 1999, p.331.
2. *Opere*, of Galileo, Ed. A. Favaro, IX, 29-57.
3. James Reston, *Galileo a Life*, 1994, p.25
4. *Eurosymposium Galileo 2001* Eds J. Montesinos & C.Solis, Orotova, 2001, p.837
5. A. Favaro, *La Libreria di Galileo descritta ed illustrata*, Rome 1887.
6. The 1987 supernova (southern hemisphere) lit up in a daughter galaxy of the Milky Way and so was not 'galactic.' The Kepler star of 1604 in Ophiucus came from somewhere near to the galactic centre.
7. I.Pantin, *Galileo Galilei: Sidereus Nuncius le Messenger Celeste*, Paris, 1992, 53 n.22.
8. N.Kollerstrom, *How Galileo dedicated the moons of Jupiter to Cosimo II de Medici*, Insap 2003 Oxford.
9. Note (2009): A slight exaggeration! Darrel Rutkin's 'Galileo Astrologer: Astrology and Mathematical practice in the late-sixteenth and early-seventeenth centuries' published in *Galilaeana II* 2005, 107-143 had a few extra bits. That article came out shortly after ours, covering much similar ground. See also Noel Swerdlow, *Galileo's Horoscopes*, Journal for History of Astronomy 2004, 35.

## A SONNET BY GALILEO

*Galileo's Astrology* included a poem by Galileo, which I had noticed in his works (*Opere 9, p.226*). Mike Edwards did the translation of it, plus a commentary that explains it.

Shimmering flame, celestial torch  
With blazing lion on high arises;  
Each gentle breeze hushed, the world akindles  
In this southerly air, in this searing scorch.

Earth here below, heaven above, all ascorch,  
So their ardour redoubled sets air ablazing,  
And the fish, from the heat in the sea extending,  
To the deepest of deeps can hardly resort.

On high peaks wild beasts and flocks all exhausted  
Seek caverns and dens, shaded vales and dark graves  
That close their cool doors to the blazing rays.  
But you, my poor heart, by flames all engirdled,  
In my burning breast, who can do that which saves?  
In cold death alone have I faith, for the rest of my days

Fiamme vibrando, la celeste lampa  
Col leone infocato in alto ascende;  
Tace ogni aura suave, e 'l mondo incende  
Questa che muove d'Austro ardente vampa.  
La terra sotto, e sopra il cielo, avvampa,  
Tal che di doppio ardor l'aria s'accende;  
E il pesci dal calor, che in mar s'estende,  
L'altissimo profondo a pena scampa  
Gli augei, le fere, e 'l lasso gregge vinto  
Cercan antri, spelonche, valli oscure,  
Che agli infocati rai chiudan le porte.  
Ma te, misero cor, di fiamme cinto,  
Nel seno ardente chi fia che assicure?  
Altro non credo mai, che fredda morte.

### **Commentary by Mike Edwards**

Galileo's words 'Shimmering flames, the celestial torch with the blazing lion on high arising ... the heavenly body's ardent blaze' refers to his Leo ascendant while 'To the sea it spreads, and fish from the heat to the depths escape' talks of Pisces, where the Sun was at his birth, signifying 'you, poor heart, encircled by flames, in fiery breast...' The Sun was also in the 'dark and cavernous' eighth house, that of 'cold death' with which the poem ends.

Galileo's reference to herd animals and wild animals on high peaks also expresses his Moon in Aries (rams and sheep = flocks) at the peak of his horoscope, the Midheaven. We might also note the interplay of the four elements in their old descending order:

fire, air, water, earth, along with their concomitant qualities: hot and dry, hot and moist, cold and moist, and cold and dry. We also note the direct reference to 'Earth Below, Heaven Above' that echoes the Emerald tablet. Indeed, the whole sonnet traces a descent from the high, hot sun to the cold depths of the waters of mortal despair, from light to darkness, as did his life.

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### **Book Review**

Here is an extract from a review of *Galileo Astrologer* by Cambridge scholar Patrick T. Boner, (the expert on Kepler's astrology) in the 'Renaissance Quarterly'.

'Introduced as "a collection of stand-alone papers on a single theme" (v), *Galileo's Astrology* sets out to explore the significance of astrology in Galileo's personal practice and sociocultural context. The volume contains primary sources, taken from Galileo's scant collection of extant astrological writings, which are arranged into individual chapters together with works of original secondary scholarship. The volume is designed to explore astrological episodes from Galileo's career, including his summons to a Paduan court in 1604 under charges of "astral determinism" (39); his naming of the four moons of Jupiter discovered in 1610 after members of the Medici family; and the birth charts he drew up for various patrons. Each section similarly aims to offer insight into the efforts of one of "the last of the great medieval astrologers" (5). Easing transitions between chapters through introductions, supplementary notes, and concluding comments, *Galileo's Astrology* conveys an engaging account of a once-obscure side of the celebrated scientific figure. While the work does little to situate astrology in Galileo's broader worldview, it does take crucial steps beyond his mere acceptance of astrology. Greater priority is given to glimpsing ways in which astrology can eventually be integrated into a richer understanding of Galileo's perceived and projected persona, showing, for example, how the "astrological logic" in which he "truly believed" (13, 65) not only provided a source of personal interest, but won him widespread recognition as a skilled astrological practitioner.'

And here's another one:

'*Galileo's Astrology* combines contributions from historians of science and professional astrologers, beginning with the "trail blazing essay" (9) of Antonio Favaro, considered one of the subject's first, and still few, historical investigators. Observations by Nick Kollerstrom on the "astrologico-dynastic" (65) nature of Galileo's discovery of Jupiter's new moons (made in the form of notes to excerpts taken from Mario Biagioli's book, *Galileo Courtier*), make clear that Biagioli's interpretation of the "awesomely successful" (42) dedication of the new moons to Cosimo II can be better understood by reading it partly in terms of the Grand Duke's birth horoscope. The ambiguity between what Kollerstrom describes as "a clever ploy" (3) and what Biagioli refers to as an "astrological logic" in which, "as a practicing astrologer", "he totally believed" (65), is made further obscure, however, by Germana Ernst's account of Tommaso Campanella's disapproval of Galileo's astrological "incredulity" (29).

And then:

'In capturing much of what has been written on the subject, *Galileo's Astrology* is a helpful historiographical reference and a stark reminder of how sparse the secondary literature actually is. References to astrologically inclined contemporaries are few and tellingly brief: the names of Johannes Kepler and Jean Baptiste Morin, two additional examples of how early modern astrology has been overlooked in historical scholarship, surface several times without showing how "the question of Galileo's technical astrology" (5) might have been any different from contemporary notions. As the editors underscore, astrology was "something shared and taken for granted by [Galileo] and his contemporaries" (2), and the losses suffered by Galileo's astrological manuscripts have only further concealed an essential element of his personal and professional experience. With its abundance of articles and primary sources, many of which are translated into English for the first time, *Galileo's Astrology* anticipates ways in which a more complete picture of Galileo might emerge. In doing so, the work raises more questions than it answers, with the intention that scholars have more than enough fodder for future study.'

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Note: Two years after this book was published, Darrell Rutkin published his 'Galileo Astrologer' in *Galilaeana* (II, 2005, 107-143) covering a huge amount of similar material. There are a couple of relevant letters by Galileo he found, which I had missed, but also (p.136) an important preface which Galileo wrote in 1626, to a polemical astrological-political document, (concerning Spanish rule in Portugal) in which Galileo was praising its astrological message! That looks like one more nail in the coffin of the prejudice that Galileo's belief in astrology somehow 'faded away' in his later years.

#### **Other articles by Nick Kollerstrom on this topic:**

'Galileo's Astrology'

[www.skyscript.co.uk/galast.html](http://www.skyscript.co.uk/galast.html)

From: *Eurosymposium Galileo 2001*, Orotava 2001, 421-431.

'How Galileo Dedicated the Moons of Jupiter to Cosimo II de Medici'

[www.dioi.org/kn/galileo/index.htm](http://www.dioi.org/kn/galileo/index.htm)

From: *The Inspiration of Astronomical Phenomena*, Oxford, Ed. N. Campion, Bristol 2004, pp. 165-181.

'Galileo's first Trial:' *Astronomy Now*, July 2004.

[www.dioi.org/kn/Galileo%27sFirstTrial.pdf](http://www.dioi.org/kn/Galileo%27sFirstTrial.pdf)

'Galileo and the New Star:' *Astronomy Now*, October 2004

[www.dioi.org/kn/NewStar.pdf](http://www.dioi.org/kn/NewStar.pdf)