

The marginalization of astrology in early modern science and culture

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Abstracts

H. Darrel Rutkin: How to Accurately Account for Astrology's Marginalization in the History of Science and Culture: The Essential Importance of an Interpretive Framework

In my talk, I will pose three significant questions for the history of astrology: First, what are the differences (if any) between medieval and Renaissance astrology, or, perhaps better, between astrology in the Middle Ages and astrology in the Renaissance? Second, how much (if any) did Copernicus's problematic—its formulation, solution and reception—owe to astrology? Third, how, when and ultimately why was astrology removed and thus marginalized from its previously central places in premodern science and culture during the Scientific Revolution and beyond? These three big questions are all much more easily asked than answered, and they all benefit from being approached using an explicitly articulated interpretive framework. In my talk, I will first articulate what I think is a useful interpretive framework, then I will approach these three questions as case studies.

Kocku von Stuckrad: The occultation of astrology: conflicting systems of knowledge and the birth of the modern narrative

Luis Miguel Carolino: The marginalization of astrology in early modern Portugal: science, political power and society

At the turn of the eighteenth century, astrology had clearly lost its appeal among Portuguese people. The astrological almanacs, which for the larger part of the seventeenth century had furnished a variety of astrological prognostications, underwent a radical change in the last decades of the century. By the 1680s/90s, 'utilitarian' and entertainment information took progressively the place of astrological contents in these popular booklets. Yet, by that time (in 1702), the Jesuit Luís de Gonzaga, a professor of cosmography at the Colégio de Santo Antão, in Lisbon, delivered an entire course on astrology.

This paper aims at discussing this seeming paradox. Historians usually take for granted that whereas astrology lost its credibility in academic and scientific circles somewhere in the seventeenth century, it continued to appeal to larger sectors of society with less formal education. By focusing on the multi-layered character of astrology, this paper explores possible reasons that

paved the way for the demise of astrology in early modern Portugal. First, it will focus on the Counter-Reformation debate against astrology and relate its 'failure' with the practice of teaching astrology at the Lisbon Jesuit College. Secondly, it will contrast, on the one hand, the progressive absence of astrological discussion in the books dealing with astronomy as the seventeenth century progressed with, on the other hand, the persistence of the debate on the theory of celestial influence in the academic works of natural philosophy. Finally, the paper will focus on the political use of astrology in the seventeenth century. It will argue that the process of political centralization and state-making played a decisive role in the marginalization of astrology. Under the reign of Pedro II (1683-1706), king's authority ceased to be partially built upon the massive use of astrological propaganda. This contributed to reduce its role and consequently its importance in the public sphere.

Tayra MC Lanuza-Navarro: "Against the Holy Faith". Arguments for and against astrology and the role of the Spanish Inquisition during the seventeenth century.

The Holy Tribunal of the Inquisition was one of the distinctive institutions of the Iberian World during the seventeenth century. Inquisitorial activity not only affected religious issues, but also intellectual-scientific matters. Astrology, as a discipline that was somehow in a cross road between science and religious beliefs, was thus not studied and practiced in the same way in those territories where the Tribunal was active as in those where it was not. One may ask whether astrology declined faster or more drastically in Catholic countries where the Inquisition persecuted those who practiced judiciary astrology and censored books on the subject.

This paper aims to consider the role of religion, and more specifically of the Catholic Church in the context of early modern Spain, in the persecution of the practice of astrology, through the arguments set forth in inquisitorial trials. The persecution of practitioners of astrology must be considered not only under the light of the Inquisition's own rules and the assertions of its members about the discipline and their practitioners, which we could call the "ideal situation" for them, but also taking into account the reality of the application of this theory. In order to understand if and how the prohibition of certain practices and ideas by the Inquisition could have influenced the decline of astrology in this context, it is necessary to previously understand to what extent this prohibition and persecution were efficient in preventing the practice and study of the discipline.

Jane Ridder-Patrick: The Marginalization of Astrology in Seventeenth-century Scotland

Astrology was taught in Scotland's universities until at least the late 1670s, as part of the instruction in natural philosophy given in the final or magistrand year of the four-year Arts degree. Lists of acquisitions and purchases in academic libraries document a steady intake of astrology books with a peak at Edinburgh University in the 1670s. Just two decades later, however, by 1700, astrology's place in academia had been irrevocably lost.

This paper will examine some of the reasons for that loss, using evidence from magistrand notebooks, library lists and allied sources. Until the early eighteenth century, lectures were read in Latin at dictation speed, to be transcribed verbatim by students. Extant notebooks, typically containing material taught over the course of one academic year, provide a day by day and often an hour by hour account of what was being taught. Magistrand notebooks, and the writings of university graduates, point to a number of factors that led to the major intellectual shift in the academic syllabus.

These include the gradual adoption of Cartesianism with its questioning of scholastic texts, the changing nature of natural philosophy through, inter alia, the introduction of the experimental method, and distaste for the religious and political factionalism that had been fanned by the use of astrology as propaganda during the Civil Wars. The changing identity of astrological practitioners also played a major role, as did the personal animosity of influential individuals like the Newtonian promoter David Gregory, who taught at the University of Edinburgh and later became Savilian Professor of Astronomy at Oxford University.

Rienk Vermij: Horoscopes, comets and theories of celestial influence in the Dutch Republic.

The paper discusses the connections between belief in comets as celestial portents, the casting of horoscopes, and ideas on celestial influence. These ideas or practices were all marginalized in the seventeenth century, but, at least in the Dutch Republic, at different moments and seemingly unrelated to each other. The teaching of astrology got into disuse at Dutch universities in the first quarter of the seventeenth century, for the moment without being overtly critical of astrological theory as such. The next generation of astronomers however would be outspokenly hostile to astrology. On the other hand, belief in celestial portents like comets was supported by religious authority and remained vital much longer. In the second half of the century, it would become the subject of violent controversy. Third, rejection of astrological predictions was not necessarily accompanied by the rejection of belief in celestial influences. Actually, the problems of Aristotelian philosophy created a growing interest in theories on such influences among natural philosophers. Even mechanical or mechanizing philosophers like Beeckman or Renerius initially tried to incorporate celestial influences into their views of the world. The paper will discuss these developments against the background of some more general tendencies, as the influence of humanist scholarship and the rise of mechanical natural philosophy.

Concetta Pennuto: The stars and the development of the foetus in the work of Giovanni Costeo

I would like to speak about the development of the foetus, since during the Middle Ages this development was explained through astrology, but there is a break during the 15th and the 16th centuries. In particular, I would like to study Giovanni Costeo's *De humani conceptus*

formatione, first published in 1596. This text speaks about astrology and medicine: astrology is the ancient tool used by physicians to explain the development of the foetus, Costeo tries to use hippocratic and galenic medicine in order to give a physiological explanation of the phenomenon: astrology is a matter of mathematici. This matter could be of interest of the physicians, but it seems to be a supporting knowledge, not a medical knowledge. As it seems to me, in medicine, astrology is transformed in a physical astronomy: the influences of the planets are dismissed and the physician looks at the position of the stars to have a calendar and a tool to measure the times of pregnancy.

Ivana Skuhala Karasman, Georgius Raguseus and criticism of astrology

Philosopher and physician Georgius Raguseus (Dubrovnik, after 1550–Padua, 1622) was professor of Aristotelian natural philosophy at the University of Padua. His letters, collected and published in book format under the title *Epistolae mathematicae seu de divinatione*, were written in the period from 1600 until 1619, the addressees being various influential contemporaries. In these letters, Raguseus argues against divinatory astrology, and also deals with the questions of the origin of astrology and relationship between astrology and medicine. He exemplifies a process of rationalization, which puts in question all superstitious elements of astrology that finally leads to putting in question astrology as such. However, he still retains *qualitates occultae* (hidden qualities) as basic astrology premises, by which he attempts to explain the occurrence of individual species on Earth. In my paper I will present Raguseus arguments against astrology.

Anna Jerratsch: The marginalization of astrology in the early-modern discourse on causation and meaning of comets

German vernacular pamphlets and broadsides on comets of the 16th and early 17th centuries offer a unique insight into a multifaceted discourse, in which natural philosophy, astrology and theology were closely interconnected. In what I call an “integrated image” of comets, astrology was crucial as a linking element bringing together natural and theological aspects. Observable parameters of comets (such as position, size, brightness, and the length of the tail, etc.) were interpreted using astrological techniques. Additionally, astrology dealt with celestial influences, as it was assumed that the origin, existence and effects of comets could be explained by natural causes. Moreover, in accordance with a long tradition interpreting them as harbingers of calamity and misfortune, comets were theologically conceptualized as divine signs. Therefore, astrology was also used to decipher the exact meaning of God’s message.

From the mid 17th century onwards this integrated image was dissolved through a gradual differentiation of the cometary discourse at a social and disciplinary level. The determination of the causes and of the meaning of comets became the exclusive but complementary competence of natural philosophy and theology, respectively. In this epistemological shift, astrology

progressively lost its function as a support to both dimensions and therefore was gradually marginalized.

In my talk, I will show some important reasons for this process of marginalization of astrology through a selection of German vernacular pamphlets on comets (as indicated below). In the 16th century, the astrological view that comets are causes of negative effects was seen as compatible with their understanding as divine signs indicating these events. Later, the causal viewpoint to which astrology was linked was gradually dismissed. In particular, protestant theologians restricted the meaning of prodigial phenomena such as comets solely to a framework of theological reasoning. In addition, the legitimacy of astrology was casted into doubt from a natural-philosophical perspective.

Robert A. Hatch: Between astrology and Copernicanism: Morin, Gassendi & Boulliau

By the middle decades of the 17th century, the Science of the Stars witnessed a growing adherence to the Copernican hypothesis—and as if somehow connected—a decline in astrological belief. While it seems curious that questions still linger about the very soul of the New Science—about paths taken and not taken—historians wisely revisit old questions anew. Seemingly simple: Why was Copernicanism finally accepted? Why did the earth-centered cosmos finally lose favor? Why did astrology die out among the learned? And not least, how were these changes connected? As a case study, this brief presentation examines the final stages of the troubled relationship between astrology and Copernicanism. Focusing on a dramatic series of disputes between longstanding friends, I argue that no controversy during this period (1625-1650) better illustrates the complexities and human drama of astrological belief and Copernican commitment.

The telling historical conjunction presented here aligns astrology, Copernicanism, and skepticism through three noted French astronomers: Jean-Baptiste Morin (1583-1656), Pierre Gassendi (1592-1655), and Ismaël Boulliau (1605-1694). Their public disputes, extending over several decades, grew increasingly heated and personal. Capturing the attention of Learned Europe, the controversy featured a fractured friendship, and importantly, an ongoing forum for rethinking the Science of the Stars. These quarrels, I suggest, signal a turning point in the acceptance of Copernicanism, the demise of geocentrism, and the decline of astrology.

The controversy is well known but largely overlooked. Here scholars agree that Morin – Gassendi – Boulliau played a pivotal role in astrology – Copernicanism - skepticism. Indeed, each figure is famous for representing a classic position along each contested continuum. Regarding astrology: Morin was the “last official court astrologer” (W. Hine); Boulliau was “one of the last reputable scholars to maintain confidence in astrology” (C. Boyer); and Gassendi (the archetypical mitigated skeptic) was one of the most quoted astrological adversaries of the ‘scurrilous and empirically intolerable practice of astrology’ (S. Fisher).

But each of our heroes also represents a classic position on the contested continuum of Copernicanism. Here scholars again agree: Morin, for his part, was stridently anti-Copernican;

Gassendi, taking the *via media*, maintained a prudent position in public but eagerly embraced Copernicanism in private; and Boulliau—who had championed Copernicanism in the wake of Galileo’s condemnation—remained avid all his life. But some questions remain unclear. How did Copernicanism—now four generations after its namesake—affect belief in astrology? Specifically, what role did skepticism play (across that complex epistemological continuum) in the wake of Super Novæ, comets, the telescope, the phases of Venus, new theories of motion, and more generally, the seductions and symmetries of the Tychonic model and the Copernican system?

In the end, each of our figures represents a classic yet distinct position regarding astrology and Copernicanism. But what do those differences tell us? Arguably, when the complexities are taken together, a key connecting link involves skepticism. Certainly skepticism—always cutting both ways—shapes knowledge and belief. But why, for example, did Morin (intelligent and informed) maintain belief in astrology yet remain stridently skeptical about a moving earth? Similarly, why did Gassendi, the epitome of Epicurean skepticism, confidently reject astrology while privately embracing Copernicanism? And finally, how could Boulliau, an early Copernican and influential Keplerian, practice astrology privately without fear of contradiction or contempt?

Clearly, this modest study will not resolve these issues. But by way of conclusion, I offer some possibilities. First, I argue that accepting or rejecting either astrology or Copernicanism had now become a question of theory choice. Second, those choices—viewed in that context—seem less difficult than some might suggest.

Aaron Spink: The mechanical resilience of astrology

When Descartes first made his scientific work public, with the publication of the *Discourse on Method* in 1637, he ushered in a worldview based almost entirely on mechanical motion. Along with this, as is well-known, came a complete rejection of occult forces as viable explanatory tools. Thus, many seemingly occult phenomena, such as those allegedly incorporated into astrology, were rather vehemently rejected for inclusion into Descartes’ philosophy. As an explanation of the marginalization of astrology, the adoption of a mechanical worldview seems, *prima facie*, to work rather well. However, when looking at the history of the reception of Cartesian philosophy, we can find Descartes’ system being adopted to serve a wide variety of subjects, astrology included. In this paper, I will take a close look at the curious case of Claude Gadoys, whose primary work, *Discours sur les influences des astres* (1671, second edition 1674), defends a mechanical account of astrology that accords with Descartes’ principles.

We find in Gadoys’ *Discours* a fairly sophisticated strategy to rehabilitate the admittedly beleaguered astrology of the seventeenth century against Pico della Mirandola, “the bane of astrologers”, among other critics. Gadoys’ theory rebuts much of classical astrology and incorporates a great deal of the modern philosophy, including Descartes’ discovery, *contra* the scholastics, that the sublunary and celestial spheres do not differ in kind. Surprisingly, Gadroy

uses Descartes' discovery further to substantiate the plausibility of the stars influencing the earth, whereas earlier astrologers relied on just such a distinction. Gadroy's adoption of Cartesian philosophy highlights two major theses. First, the advent of the mechanical philosophy in no way necessitated the downfall of astrology; instead, it merely changed the direction of astrological explanation for those that were keen to stay up to date with current science. Second, it shows that Descartes' own rejection of astrology is not as principled as one might imagine. Indeed, what Descartes chose to explain (many phenomena that we would now deem as occult) seems more of a function of taste rather than reason.

Mike A. Zuber: Contesting the legitimacy of astrology around 1700. The controversy between Leonhard Christoph Sturm and Johann Ludwig Hannemann.

At the turn of the century, a heated exchange on the legitimacy of astrology took place in Lutheran Germany (1699-1701). Described as "the last great controversy on astrology" in Lutheran lands (William Clark), but hitherto never discussed in any depth, it was launched by a young professor of mathematics in Wolfenbüttel who would eventually leave his mark on the domain of architecture. Leonhard Christoph Sturm (1669-1719) noted that astrologers and proponents of other mantic arts had not yet been overcome and wanted finally to vanquish them. In order to accomplish this goal through a controversial exchange in which the republic of letters would act as the jury, he called for a learned opponent and found him in Johann Ludwig Hannemann (1640-1724), professor of medicine in Kiel. The original plan was to move on to philosophical, mathematical and historical considerations after first settling the theological question of what the Bible taught on astrology, which in this particular exchange figured alongside practices (chiromancy, geomancy and so on) usually considered less respectable. Throughout an alternating exchange of six treatises, Sturm and Hannemann consistently discussed a small set of biblical passages, including Balaam and the three magi. Yet even as the conflict ostensibly stalled even before entering into arenas other than theology, they touched on other issues such as mathematical accuracy as well as addressing the question of which mantic arts were legitimate and which were not. While providing an account of the entire controversy, this paper aims to trace how Sturm and Hannemann differ on drawing the boundaries between science, religion, and superstition, and how astrology fits into the resulting pictures.