Astrological Prognostications in Seventeenth-Century in Spain

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Both history and the history of science include as objects of study intellectual disciplines that were once considered scientific and that are not now held to be so. An important tendency of the historiography of the last few decades is to re-evaluate the utility of «erstwhile science», systems of knowledge that were once considered valid but have subsequently fallen from favor. Whether or not these rejected systems retain any ability to describe natural reality, they do give us a great deal of information about intellectual developments and beliefs that played an important role in early modern scientific activity. Astrology in seventeenth-century Spain is a paradigmatic example. The once traditional association of astrology with superstition and witchcraft —now outdated but still to be found in publications by a few Spanish historians of science— distorts the reality of seventeenth-century scientific practices, practices which included astrology, or at least parts of it.

Astrology presents the historian of science with a number of thorny questions, two being perhaps most salient. The first is whether the practice of astrology in Spain during the century of the Scientific Revolution was related to the slower advance of the Spanish science. Second, what was the cause of the change of attitude of scientists towards this discipline at the end of the seventeenth century, when it began to be deserted by the scientific world?

To attempt to answer these questions it is necessary to take into account who practiced or studied astrology, their training and motivations, as well as how it developed in different contexts, such as teaching institutions —particularly universities— the court and the popular realm. The historian must study the criticisms leveled at astrology, the aspects that were most criticized and, taking all that into account, reflect on the probable causes of the decline of astrology at the end of the century.

Practitioners of Astrology in the Academic Context

Thus, this paper initially undertakes to identify the people that practiced astrology in Spain during the seventeenth century. In the cases of authors of astrological works whose biographies are known, half who published during the seventeenth century were physicians or were somehow related to

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medical activity, and the other half were mathematicians and astronomers. Nearly all of them were university educated.

It seems a logical presupposition that every author who signed as a physician had studied at a university, because the authorities had regulated the medical profession long before. It is not a surprise that many authors of astrological works and prognostications were physicians, because of the inclusion of astrological knowledge in medicine during the Middle Ages, the Renaissance and the seventeenth century. In this list of Spanish physicians-astrologers there are, for instance, Diego Arias, Salvador Arias de Sanabria, who, according to the frontispiece of his works, was «physician of His Majesty» (i.e. Phillip IV), Diego Cisneros, who studied at the University of Alcalá de Henares, and Francisco Navarro, who studied medicine in the University of Valencia. There are also the astrological texts by Juan Bautista Cursá, who was also a medical doctor. Among the authors whose biography is not known, it is important to stress that three of them wrote works about medical astrology, therefore they must have been related somehow with the medical profession.

On the other hand, several of the mathematicians and astronomers who wrote about astrology had also studied at a university. Some of them held chairs in different universities. Apart from those, some others can be named, such as Vespasiano de Bargas, who had a degree in arts, Francisco Temudo, who signed as bachelor and master of mathematics in Valladolid, and the Portuguese cosmographer Antonio de Nájera, who undoubtedly had university training.

Proof that astrology was studied and or practiced in the academic world is the fact that, during the seventeenth century, there are authors of astrological works who taught at several Spanish universities, as well as in the Casa de Contratación or the Academia de Matemáticas. At least eight of the authors of prognostications or astrological treatises printed in Castile, Portugal or the Crown of Aragon, held a university chair. These were Cristóbal López de Cañete, Antonio Núñez de Zamora, Juan de Soto, and Bartolomé del Valle in Castilian universities, and Leonardo Ferrer at the University of Valencia.

Antonio Núñez de Zamora and Bartolomé del Valle, both followers of the well-known mathematician Jerónimo Muñoz, held chairs at the University of Salamanca. Núñez de Zamora held the chair of medicine, and afterwards the chair of astrology and mathematics. Del Valle was a medical doctor and master in arts, and he held the chair of mathematics. Before them, the last to occupy the chair during the sixteenth century was another disciple of Muñoz, Gabriel Serrano, who wrote several manuscripts in which he explicitly outlined the astrological content he taught in the classrooms of the university.

Gabriel Serrano also taught medicine at the University of Alcalá de Henares, and after him so did other authors of astrological texts: Cristóbal Ponce de León, and Diego Pérez de Mesa, who had previously held the same chair at the University of Seville. Juan de Soto held the chair of medicine at
the University of Granada. Several teachers of the University of Valencia wrote astrological works, such as Antonio Juan Ripollés or Onofre Pelechá. The case of Friar Leonardo Ferrer merits special attention: he held the chair of mathematics in Valencia during more than thirty years and wrote at least ten prognostications. There is also the case of Fulgencio Vergel, who signed as «chair of mathematics in the University of Almagro», which probably means that he taught in the catholic convent-university of Nuestra Señora del Rosario, founded at the end of the sixteenth century in the Castilian town of Almagro.

That there was astrological activity in the Casa de Contratación, or at least the practice of astrology by some of the cosmographers at the end of the sixteenth century, is clear reading the several Repertorios de los tiempos by Jerónimo de Chaves and by Rodrigo Zamorano. These repertorios contained a great deal of astrological material and were very successful during the seventeenth century.

In the Academia de Matemáticas in Madrid the manuscripts written by Juan Cedillo Díaz show the presence of astrology. Among them there is a complete treatise on astrology. Even the curriculum in the Colegio Imperial established what part of the studies of mathematics should include prognostications. Probably the prognostications referred only to natural astrology, that is, those related to meteorology, medicine and navigation, but that was, in any case, still astrology.

Thus, far from being merely a popular «superstition», astrology was clearly a part of the activities of many Spanish scientists during the seventeenth century. The presence of astrology in academic life, practically in every teaching institution, is certainly beyond any doubt.

Natural vs. Judiciary Astrology

It is important to make a distinction between natural and judiciary astrology, because it is usually assumed that the astrology that was practiced and taught in the universities all around Europe was only natural astrology, and not judiciary astrology, which would be identified with divination. According to Bouché-Leclerc astrology would be a faith, explicitly an oriental religion moved to Greece, where it took the aspect of a science. Bouché-Leclerc considered astrology as a religion along all his work, and he often referred to it as «méthode divinatoire». With its 'aspect of science' and its scientific part, astrology went from the Greek to the Latin world, and from this to the Arab culture, from which it returned to the Western European culture through the translations of several European translators. Some of those translations, as it is well known, were made in Toledo in the court of the king Alfonso X el Sabio, as well as in Italy. This trajectory can be consid-

1 Bouché-Leclerc (1899), (1979 reprint of original), p. VI.
3 Bouché-Leclerc (1899), p. 70.
ered clear and indubitable for «wise» astrology, that is, the astrology practiced by the intellectual elite, the astrology studied by philosophers and astronomers, the one that would later be taught at the universities. However, the travel does not seem totally truth for the case of «popular» astrology. Beliefs in the influence of the stars would have been present in the popular culture of the lower classes, mixed with the ideas of magic and witchcraft.

Eugenio Garin insisted that classifications and precise distinctions between a ‘scientific astrology’ and a ‘religious astrology’ made no sense. Garin explained the traditional distinction between the religious or superstitious aspect and the critic-scientific one, a distinction that historians (particularly Ernst Cassirer) attributed to fifteenth and sixteenth century works. This distinction would have led to the separation between religious astrology or astrology as divination, which later developed into judiciary astrology, and scientific astrology, the branch of astrology that evolved into mathematical astronomy, or what Renaissance astrologers called natural astrology. The implication of that distinction, which was shared by several scholars, was that when astrology divided into astronomy and judiciary astrology, judiciary astrology became divination. But this implied that natural astrology, which was neither astronomy nor judiciary astrology, had no place in the definitions. And not taking into account natural astrology would mean that every astrology was judiciary, and thus, divinatory. Nevertheless, Renaissance astrologers would probably have denied that their discipline was divination.

During the seventeenth century, if the term «scientific» would have been used, scholars would have considered as «scientific astrology» not only the part that nowadays scholars understand as scientific, that is, the part referred to by Vernet as ‘spherical astrology’ (the branch of positional astronomy that allows the ‘casting’ of a celestial figure in order to know the position of the stars and planets in a certain moment). In Early Modern Europe, ‘scientific astrology’ would have also included «natural astrology», the branch of astrology that made predictions about meteorological or agricultural issues, and about medicine and navigation. Early Modern scholars considered the study of the astrology related to these matters as the study of natural causes (and therefore, as ‘science’).

Judiciary astrology, on the other hand, interpreted the stellar influences and made prognostications about other issues: individual, political and religious predictions. Early modern astrological texts show the distinction between natural and judiciary astrology, however, a more important distinction at the time was the difference between the astrology concerned with general predictions and the astrology concerned with particular or individual issues. The first was called ‘catholic’ or ‘universal astrology’, and its object were «those issues concerning everybody, or a whole province or region, such as rains, droughts, winds, sterility, wars, health or popular sicknesses

and other similar accidents». This astrology would include natural astrology, i.e., meteorological and medical issues, but also the prognostications about what was known as «universal accidents of the world». The other astrology was the one related to issues happening only to one person, including ‘genethliology’ or the casting of the figures of birth as well as the astrology known as ‘elections’.

Even if the traditional theories about astrology insist that only natural astrology was present in the academic world, manuscripts and printed works show that several professors at the universities taught catholic astrology, including natural astrology but also universal predictions about the countries. In some cases, it is possible to find even elections in the works by university professors, as in the case of Gabriel Serrano in Salamanca and Alcalá; as well as Arab theories such as the theory of the great conjunctions, including predictions about the destinies of religions or «the fortunes of Churches», as in the works by Antonio Núñez de Zamora.

**Astrology in the Court**

At the Spanish court, while the Habsburgs reigned, there was not a court astrologer, as in other European countries. This does not mean, however, that kings and nobles did not occasionally request astrological advice, nor that there were no astrologers at the court of Spain. Instead, astrologers occupied the position of physician or counselor, cosmographer or mathematician. It seems that the writing of prognostications addressed to kings, infants and members of the court was the result of occasional requests, in most cases inspired by a noteworthy astronomical event.

However, there were also people at court who were more frequently asked for political-astrological advice or a medical-astrological diagnosis. Phillip III, Phillip IV, and Charles II used some persons of the court as astrologers, even if that was not their principal profession. According to Mariano Esteban, many of the regular mathematicians in Spain, during the sixteenth and seventeenth centuries, served the king not only by fulfilling the duties established in the document of the creation of their post, but also through other kinds of activities. Among the most common of these other activities were astrological practices. This would have been the case, during the sixteenth century, of Alonso de Santa Cruz, Juan Bautista Gesio, Pedro Esquivel y Rodrigo Zamorano.

There are several texts of an astrological character that are addressed to people in the court or that circulated there during the seventeenth century.

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7 Pérez de Mesa (1595), Fol. 72r.
9 This was the case of the request by Phillip II to Jerónimo Muñoz in 1572: the king wanted a prognostication about the nova. Muñoz published, addressed to the king, the work _Libro del Nuevo Cometa_. See Navarro Brotons (1981).
Some of them are addressed to kings and queens. Examples are the prognostications by Micer Gerónimo Nadal de Lijarte, on the birth and life of Phillip III; an astrological discourse predicting events between 1624 and 1644 which is addressed to the Council of War, or the text titled On the use of astrology, written by Juan Bautista de Benedictis and authorized by the Jesuit Agustín de Castro in the Colegio Imperial in 1656.

Sources show that astrological ideas became deeply rooted in the collective mentality, such as the idea that comets meant deaths of kings or announced wars and illnesses. It is necessary to stress that it is very difficult to find sources that indicate in general terms the role of astrology in everyday life in the cities of the different kingdoms of the Spanish crown during the seventeenth century. In other countries, such as the United Kingdom, there are in the archives different kinds of resources rich in these data, such as diaries by the astrologers, letters between them, records of their daily activity, including the figures they made and the answers they gave. There are records of people who sought their assistance and even recorded proceedings of some astrological societies. In the case of Spain, such resources are lacking, so it is very difficult to reconstruct an astrologer's practice and the way the discipline took part in the life of people. Therefore, it has been necessary to look for hints concerning astrological practice and its presence in everyday life in other kinds of documents, written with other objectives, that in some way give information about this activity. This is the case of the «dietarios», very common in the kingdoms of the Crown of Aragon. They contain news about life in the city where they were written. And there is also a lot of information in Inquisitorial sources, which have abundant information about the way astrologers worked, how they promoted themselves, how they organized their trade, and how they answered questions made by people belonging to every social class. The Inquisitorial trials are particularly interesting because charges and defenses often include descriptions of daily activity.

There are examples of trials of this kind of popular astrologers, accused of making nativities and using astrological divination, in Valencia, in Madrid, in Barcelona, in Cordoba, Osuna, Antequera, Granada. Many of the accused men declared that they had studied in universities, not only in Spain but also in Germany, France and Italy. These studies were probably con-
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considered to be a proof of the licit nature of astrological activity. For instance, Novello de Sentelles said that he «had studied astrology and law in Toulouse, and he graduated as a doctor in Valencia».18 The analysis of these Inquisitorial trials shows that, even if certain aspects of judiciary astrology were forbidden and its practice could be prosecuted by the Inquisition, the practice of academic astrology—the «scientific» kind that included meteorological and medical questions, as well as general predictions—was considered very differently. It was taught in the universities and it is likely that it was a respected practice. It is important to remember that a third of the authors whose biographies we know were theologians or members of religious orders (Aldrete, Anglesola, Arias de Sanabria, Casellas, Ferrer, López de Cañete, Montalvo, Pedro). Furthermore, when deciding if a person had committed crime in the practice of astrology, the Inquisition appealed to experts in the matter, many of whom had a great knowledge of astrology and practiced it themselves. Taken altogether, these findings indicate that not every astrological activity was considered part of superstition and witchcraft, and that the Church did not persecute it indiscriminately.

Judiciary astrology was not only successful in the popular realm and among the laity. Some trials prove that members of the high classes, nobles and clerics, also turned to the services of astrologers.

Astrology had several functions in early modern European societies. It provided a tool to explain political events and the course of history. Astrological knowledge had, as one of its aims, the structuring of the events of the past and the organizing, in a «rational» way, the changes that nations and societies experienced. At least from the thirteenth century onward, astronomical phenomena were used as a guide for history,19 and even considered as history's natural structure. This way of writing history had a long tradition in some European countries, including England, Italy, and Spain.

The authors of astrological texts often referred to the reasons that made them write their works. Most of them, as was usual from the fifteenth century on, affirmed that they were answering other people's requests. The fact that this had become a rhetorical convention justifying the writing of astrological works does not mean, of course, that people did not actually request astrologers' explanations of extraordinary celestial events.

Authors also argued that one purpose of their works was to soothe concerns provoked by comets or conjunctions. In this way the astrologer was accomplishing a social function. Astrologers understood they had the responsibility of calming down the population and informing everybody of the effects that could be expected from comets and other «meteorological phenomena».

Some of the general predictions about the victories of Spain over its political rivals (France, England) and religious enemies (the Turks) hide, behind the ostensible motivations of the authors, astrological conventions with a long tradition. The fact that their predictions so frequently foretold the suc-

18 AHN, Secc. Inq, Libro 732, fol 23.
19 Thorndike (1950).
cess of their own kings did not mean that astrologers were merely syco-
phants. Prophesies of the victory of one religion over all others surpassed
the simple necessity of good relations with the Church. Neither was it the sim-
ple result of a personal and collective yearning for proof that one's own reli-
gion was the true one. As Bernard Capp explains, conventional political
arguments had only a secondary role in almanacs, the main purpose of which
was to prove 'scientifically' that the stars guaranteed the success of the
cause and the ruin of the enemy. Astrologers offered an interpretation of
historical events in terms of astrological doctrines, which by that point had
become commonplace.

Social Considerations

Beyond personal motivations of individual astrologers, it is necessary to con-
sider the processes by which astrology legitimized itself to the general pub-
lic. Patronage, as Biagioli points out, is central this question. In other
words, one must take into account how astrologers made use of their own
practices as a social and economic tool. Furthermore, when taken as a pure-
ly intellectual discipline, apart from social considerations, it is important
to note the interrelatedness of astrology and other fields. Intellectually,
astrology existed between art and science; socially, it was an established
activity, in the sense that Biagioli uses when referring to science.

During the sixteenth century, astronomy, for its part, had often been in the
service of many other disciplines, most notably astrology. In Spain, the
practice and study of astronomy was firmly related to astrology and its appli-
cations: calendars, meteorology, agriculture, navigation, horoscopes and so
on. Not surprisingly, the change of status of astronomy as a discipline and
the changes in the social role of the astronomer at the end of the sixteenth
century, explained by Victor Navarro, affected astrology. There were several
factors responsible for this change of status, among them: the appear-
ance of the court astronomer, the debilitation of Aristotelianism, and the
impact of the observational techniques. Those factors had undoubtedly a role
in the future change of status of astronomy, as well. The last two, which con-
tributed to make of astronomy a well defined activity with its own objec-
tives, would have begun to change the traditional propedeutic view of astron-
omy. Thus it began to be an autonomous discipline. It was no longer sim-
ply a tool used to make a calendar or for geography or cartography. It was no
longer the theoretical part of the execution of prognostications or horoscopes
that were themselves a tool for medicine. Towards the end of the seven-

21 North (1980). p. 181–211, explained it this way referring, as an example, to the assertions
by Cardano on the breach of Henry VIII with Rome, p. 181.
23 Biagioli (1989), 41–95.
24 Navarro Brotóns (1992). p. 188.
teenth century, astronomers would practice their science without having to work as astrologers, as they had to do formerly. They did not consider astronomy a part of that traditional discipline *astrologia* which included both aspects, theoretical and practical. But this situation was only true at the end of the seventeenth century. During the course of the seventeenth century astrology was practiced with intensity in Spain, as it was in most countries in Europe. This was the case even though it caused controversy and could not be considered a purely academic discipline. Astrology occupied the middle ground between academic and popular knowledge; therefore it is likely that its practitioners were in several different social positions, in nearly every social class.

Astrologers were not merely astrologers; they were physicians, astronomers, cosmographers, and sailors, too. The social approval of some these professions gave legitimacy to astrology, although, for the popular classes, it was sometimes quite the opposite: if someone was a mathematician or astronomer, it only made sense if those activities were useful to make the astrological calculations and prognostications. Even in the academic realm this was sometimes the case. For instance, when the Mexican professor Sigüenza y Góngora wrote some satirical passages about astrology, the Inquisition reacted by telling him that, considering that he was the professor of mathematics at the university, he «should esteem and commend [astrology]». An important factor in the practice of astrology was the fact that by writing prognostications one could curry the favor of nobles or high ecclesiastics, and, no less importantly, earn a living.

In the popular realm there were astrologers who mixed astral divination with magic and witchcraft. These drew the censure of «academic astrologers» and were usually referred to as quacks that used astrology fraudulently, for purely economic ends. It is, however, absurd to imagine that all its practitioners were knowingly frauds, though a large number of charlatans certainly existed. There is no reason, notes Capp, to doubt astrologers' belief in their own science.

**Astrology at the End of the Seventeenth-Century**

To explain the causes of the decline of astrology towards the end of the seventeenth century, one must reckon with the fact that astrology, after more than four thousand years of vigorous practice, arrived at the Renaissance in excellent health. In other words, when considering the decline of astrology, one should also keep in mind its longevity. Astrology’s obstinate survival, according to Paola Zambelli, was due in part to its mathematical apparatus and to the systematic way in which it could be expounded. Other authors insist that astrology existed for so long because it fulfilled a psy-

26 See Navarro Brotóns (1999).
27 Capp (1979), p. 56.
28 Zambelli, ed. (1986).
People needed systems to explain the world; the astrology systematized by Ptolemy was not only one of those systems but it also gave, through horoscopes, answers to individuals and groups alike. In this vein, René Guy-Guérin considers that astrology actually became a symbolic system that answered man's questions about his own individual future and on the collective future, and that horoscopes were an expression of humankind's eternal, existential questions. Thorndike, too, insisted that before Newton promulgated the universal law of gravitation there existed another generally recognized and accepted universal natural law, and that universal natural law was astrological.

Several scholars consider that the necessity of finding a rational order in the cosmos was, during the Renaissance, directly related to the belief in the astrological influences on human behavior and human politics. Belief in those influences supported the idea that the universe exhibited a divine order and was itself a Creation «both perfect and harmonious», as Saavedra remarks. Some authors defended astrology by using the argument that it guaranteed a place for humanity in a secure and ordered cosmos, and that it demonstrated God's concern for men and women. A world without astrology would imply a certain chaos and abandonment, and few men during the Early Modern period (even if there were some) could imagine a world in which society and the state were the products of human artifice.

At this point, it will be helpful to examine the attitudes toward astrology of scientific reformers of the Iberian world. Some reformers completely rejected it; one famous example of this is the mathematician and astronomer José Zaragozà's Discourse against astrologers. Other reactions were more mixed, criticizing aspects of natural astrology, but accepting others. Typical of this attitude are the works of two of the Valencian novatores Tomás Vicente Tosca and Juan Bautista Corachán. Given even the severity of the criticisms of Zaragozà, it should not be imagined that the attacks on astrology constitute an early modern development or are in and of themselves upshots of the Scientific Revolution. There was a long tradition of criticism of astrology, dating from the Middle Ages and before. Some scholars have studied criticisms in Ancient Greece, such as that of Carneades, and the criticisms made by the first Fathers of the Church, including Augustine. There are also critics of Arab astrologers. Tellingly, there are as many texts written to criticize astrology during the fifteenth and sixteenth centuries respectively as during the seventeenth century.

29 Capp (1979); Thomas (1973).
34 According to Stephen Collins and Abel Alves, during the English Renaissance there was an intense debate between envisioning society and the cosmos as a product of divine order and the view of them as depending only on men: Collins (1989), p. 14-39; Alves (1994), p. 66.
Despite all that, it is true that the status of astrology at the end of the seventeenth century in academia began to decline, if not in an absolute way, at least among some groups interested in mathematics and astronomy. Upon examining the opinion of some of the Valencian novatores in their printed texts and manuscripts, and of Captain Vicente Montano, it is possible to observe two main features. First, excepting Juan Bautista Corachán and only during his first years at the university, all of them rejected astrology, citing several arguments. These arguments, significantly, are of a scientific character and are not coupled with religious arguments, as was the tendency in earlier polemics. Although most objections to astrology pointed out by Tosca, Zaragozá, and Montano adhere to the older conventions—similar arguments could be easily found in the work of Pico della Mirandola, for example—they are expressed from a more mathematical or more astronomical point of view. This is a departure from the way traditional natural philosophy had expressed such arguments in previous centuries. On the other hand, it must be noted that, although they rejected astrology, none of them considered that the astral influences did not exist. The idea that the stars influenced meteorology and agriculture, for example, was never abandoned.

Tosca, Montano, and especially Zaragozá, insisted that predictions were never exact and that it was impossible to make them so. This did not mean that the stars exerted no influence, but instead that prediction could never been an exact science. Tosca even admitted that astrological influences governed some individual inclinations, although he always emphasized that it was not possible to prognosticate with any certainty.

Theories about the Decline of Astrology

Traditionally, historians have explained the decline of astrology by arguing that superstitious practices were swept away through the triumph of rational science. According to this version of the story, astrology and the New Philosophy represent diametrically opposed, mutually incompatible ways of thinking. A very brief sketch of the details of this theory is as follows: astrology, dependent on the geocentric view of the cosmos, could no longer be reasonably defended once heliocentrism gained currency; thus copernicanism and the advances of the new astronomy doomed astrology. This was due to the fact that Hellenistic astrology, renewed during the Renaissance, was based on a geocentric view of a finite universe. This version of the decline of astrology may be attractive, but it does not seem to fit the historical record particularly well. As Eugenio Garin explains, astrology does not necessarily depend on a geocentric and finite universe to exist. As early as 1954, George Sarton was stressing that astrology's postulates were independent of the location of Earth and the Sun, and that astrology did not disappear after the acceptance of the Copernican system but continued to develop healthily.

Keith Thomas, for his part, categorically denies that astrology lost its validity because of heliocentrism. This, he wrote, did not make astrology impossible, it only required new calculations. In Thomas' opinion 'scientific' astrology was destroyed by the abandonment of the Aristotelian distinction between celestial and terrestrial bodies. In the Aristotelian understanding of the cosmos, human beings and essentially all sublunary life are subordinated to the celestial spheres. The celestial spheres pertain to a superior and more perfect world, one that governs the universe in a causal way. Thomas maintains that the superiority of the superlunary bodies constituted the foundation of astrology, and its disappearance made untenable the whole astrological enterprise.

Thomas' explanation constitutes an important stage in the interpretation of the decline of astrology; however, several later works refute this theory. Notable among these is T. van Nouhuys (1998), study of the Netherlands. Van Nouhuys, building on the initial findings of others (such as R. Ariew), insists that a more typical reaction to the recognition that comets were superlunary was not to abandon Aristotelian cosmology, but rather to modify it as little as possible. She furthermore holds that the former positivistic view built a distorted account of historical reality. In her work, Van Nouhuys outlines several systems through which the new scientific discoveries of the Renaissance joined the old Aristotelianism, without destroying it.

Ann Geneva suggests that the cause of the decline of astrology was not its link with the Aristotelian cosmos, but its link with the Neo-Platonic cosmology of a universe made of interconnected elements. Geneva's opinion is that the abandonment of this Neo-Platonic universe was what caused astrology to fail as a universal, explicative system.

Another element of the traditional explanation of the disappearance of astrology—in addition to the idea that it was incompatible with heliocentrism—was that new experimental methods invalidated astrology. However, several authors have concluded, after the examination of works such as those of Gadbury in England or Morin in France, that astrology adapted itself easily to the principles of the verification of knowledge through experience, organizing itself as a discipline based in observation. It is true that during the seventeenth century there were criticisms of some of the technical difficulties facing astrology. For example, it did not escape notice that the precession of the equinoxes placed the constellations in locations different that those they had occupied at the beginning of astrology; this meant that the stars of the Zodiac were not in the same celestial place were the signs were located. However, these same criticisms can be found in medieval and even ancient works and astrologers had found a solution to maintain the astrological principles despite precession centuries earlier. In short, astrology had a long history of relative invulnerability to this kind of attack.

38 See Curry (1989); Curry, ed., (1987); Willis; Curry, eds. (2004).

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Another possibility considered was that the cause of the decline of astrology could be found in the attitude of the Church toward it. Despite the criticisms and prohibitions established by the ecclesiastical authorities since the first centuries, the Church actually approved some aspects of astrology, such as natural astrology and many general predictions. Medieval theologians were not systematically hostile to astrology, not even during the Golden Age of medieval scholasticism, the thirteenth and fourteenth centuries.\(^{40}\) Tester remarks that astrology fared extremely well during the Middle Ages, despite the opposition to it from various religious and philosophical systems that were being developed in the West, including Christianity.\(^{41}\) Several historians have considered the possibility that the Church opposed astrology more vigorously from the seventeenth century on, that the Inquisition prosecuted its practitioners more effectively, and that this change of attitude could have had a role in the decline of the discipline.

Recently, Patrick Curry has developed a new theory to explain the disappearance of astrology from the scientific world. According to him, the decline of astrology was caused neither by the Scientific Revolution nor by the hostility of the Church, but due to social changes: the social break between the popular and elite culture.

It is difficult to know whether it would be possible to apply Curry's theory to the case of Spain for two reasons: first, because the relationship between politics and astrology was different in England and on the Peninsula; and second, because the English and Spanish crowns themselves differed in fundamental ways. English astrologers traversed a stage of deep political compromise, and socially the astrological systems they defended were associated with royalism or parliamentarism according to the prophecies they made in favor of one or the other party. In Castile and Aragon, at least according to the sources available, no analogous situation existed. However, a comparative study of astrology in different European countries during the early modern period, particularly comparing England and Spain, should be the object of further research.

It might seem that an answer to the question 'did astrology play a role in the backwardness of the Spanish Science?' could be found in the notion that the criticisms of astrology in the kingdoms of the Spanish Crown were not as radical or as absolute as in other countries, such as France or England. But doubts about the truth of this assertion arise because among the Spanish works of anti-astrological literature it is possible to find satires, jokes and sentences making fun of astrology, just as in other countries. Physicians, mathematicians and astronomers wrote these kinds of criticisms, and there are also literary works ridiculing it, such as *El astrólogo fingido* by Calderón de la Barca. Certainly, no one in Spain disdained astrology as utterly as did Descartes. However, more developed criticisms, such as Mersenne's, are comparable to many of those written by Spanish authors of the end of the seventeenth century. Nevertheless, a comparison of French and Spanish early

\(^{40}\) Tester (1987).

modern astrological and anti-astrological literature has yet to be done. On the other hand, it is necessary to recall that the attitude of Jesuits toward astrology seems to have been coherent and similar in Italy and in Spain: criticizing judiciary astrology and slightly recognizing several aspects of natural astrology. All of this is by way of saying that if the «backwardness» of its science sets Spain apart from other European countries, its attitudes toward astrology do not. For this reason it is doubtful that the blame for the decline of Spanish science can be laid at astrology's door.

Obviously it is not possible to find a simple explanation for the causes that moved the academic world to abandon astrology. No discrete set of circumstances, no single attitude or movement can explain how, after millennia of study and practice, astrology fell from public favor. The answer will necessarily be complex. Despite the differences in the social and political realms, it does not seem that astrology had a radically different status in Spain and in France or England during the final decades of the seventeenth century. However, comparative research is needed to make certain assertions regarding all these questions, and this comparative research is still to be done.