

## CAPITALIZING ON THE STARS: MEDIEVAL ALMANACS AS POPULAR SCIENCE

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*Summary: Late Medieval almanacs such as Andrés de Li's Reportorio de los tiempos provide an interesting insight into the interplay of public demand and text production. Li's multi-edition astronomical work would have been seen as part of medieval science, and yet by virtue of the demands faced by its printers, the Reportorio, which incorporated the lunar charts of the Catalan Bernat de Granollachs, was altered throughout the years until its scientific perception was weakened. This essay describes the situation faced by the printers of the Reportorio as well as how such a work would have been perceived by its public. In addition, the journey from scientific text to popular almanac in terms of reader perception will be explored.*

*Keywords: almanac, reportorio, Hurus, Granollachs, Li, printing.*

To the modern mind, almanacs are not seen as conveyors of absolute scientific truth but rather as works of interesting folklore better left to farmers and weathermen. In the era of early printing in the late fifteenth century, however, almanacs were seen as useful scientific works. Astronomy as a scientific discipline flourished as the advent of printing allowed for the more exact reproduction of celestial observations and calculations. Almanacs were often the vehicles for the dissemination of astronomical findings, sometimes being the first place a new discovery was reported to the public.

The popularization of astronomy began early on, but was expanded upon exponentially with the advent of the printing press. Book producers saw this interest and hurried to profitably supply the demand, producing such texts as the Catalan Bernat de Granollachs' *Lunari* and a later expanded almanac version of the work, the *Reportorio de los tiempos* by Andrés de Li. These works appeared during the early era of Iberian and their study gives a wonderful insight into the marvelous interplay of the public's thirst for astronomical works and the desire of book producers to turn a profit through the production of astronomically-based almanacs.

The first edition of the *Lunari* was in Catalan, and most likely appeared in Barcelona in 1485 (Chabàs, Roca, 1985, p. 17). It was written by Bernat de Granollachs, a member of a prominent family of Barcelona doctors. Granollachs, while also a doctor, was known to be a scientific thinker, a man of numbers, and a lover of astronomy. His *Lunari* was a series of charts of the months of the years 1485 to 1550; each chart included the times and degrees of the moon phases of each month, as well as eclipses, the minutes of the hours, and the moveable Church feasts of the *Quatre tempres*, *Auent*, and *Nupcias*. Chabàs and Roca believe that

the *Lunari* was the first astronomical work printed in Catalan (17). It was a very popular work and appeared in numerous editions in Catalan, Italian, Latin, and Castilian. It was in fact a best-seller, with Chabàs and Roca stating that Granollachs «ascendira al lloc 6è. d'autors més editats» (Chabàs, Roca, 1985, p. 42).

In 1492, Granollachs' *Lunari* entered another phase of its textual history, its incorporation, word-for-word, in Andrés de Li's almanac, the *Reportorio de los tiempos*. Li's work added six sections to the *Lunari*, including an introduction / prologue, a history of the ways in which time is divided (day, week, month, and year), an astrology section listing the signs of the zodiac and the four elements, a calendar of the year, a medical section, and a conclusion / colophon. Granollachs' original text appears between the medical section and the conclusion. The *lunari* section is introduced by Li as follows:

Dela muy noble arte & sciencia de astrologia ha feydo sacado el presente sumario por el egregio & muy sauio astrologo maestro Bernardo de Granollachs, maestro en artes & en medicina, dela noble ciudad de Barcelona. En el qual se contienen las conjunciones & oposiciones conuiene saber los girantes & los llenos dela luna... Esso mismo se contienen enel presente libro todos los eclipsis del sol & dela luna que seran enel dicho tiempo & las quantidades delos dichos eclipsis. (Delbrugge, 2000, p. 87)

Li's almanac was extremely eclectic, discussing everything from Greek and Roman gods to the proper procedures for bloodletting. The first of these expanded works appeared in Zaragoza in 1492, produced by Pablo Hurus. In this same year, Hurus oversaw the production of the first Castilian version of the *Lunari*. Another version of the *Reportorio* was produced in 1493 in Burgos by Fadrique de Basilea, and it is this version that serves as the *princeps* edition, the original 1492 being lost. Hurus produced another version of the *Reportorio* in 1495. There were many other editions from 1495 to 1550, and between the original *Lunari* and the expanded *Reportorio*, there would be over ninety editions produced.

It must be remembered that early book producers, unlike their modern counterparts, were not concerned with the concept of copyright. Textual borrowing, or even total incorporation, as in the case of the *Lunari* and the *Reportorio de los tiempos*, was common practice. In fact, it was considered desirable to include previously produced works in later texts in order to demonstrate the unity of all things in Creation. Cynthia Brown notes the following:

Medieval writers participated in an extensive network of intertextual relations, resulting in a more or less free exchange and appropriation of literary ideas, which anyone could adapt and rework. These authors did not strive to be «original» in the modern sense of the term: originality consisted of adapting, imitating, or representing well. Since intervention was not dependent on a single author's originality, medieval writers and readers did not consider the re-creation of a text to be a deformation of an original: rather, it was an attempt to expand the volume and meaning of an earlier work (Brown, 1995, p. 29).

Brown concludes that «interest lay less in the author and his identity than in his work and the intertextual web of which it was a part» (1995, p. 29).

So, if it wasn't the allure of the Granollachs' intellectual authority that prompted the incorporation of the *Lunari* into Li's *Reportorio de los tiempos*, what was it about the *Lunari* that made it so attractive to its early publishers, especially Hurus? What was the motivation for expanding Granollachs' astronomical work? Early book producers, much like their modern counterparts, were first and foremost concerned with making a profit. Many publishers operated on the edge of ruin; countless went bankrupt every year. Much of the success of a chosen work depended on the type of work it was; in other words, the work had to appeal to the buying public. Febvre and Martin note that:

The first Parisian printers were led to publish works for which there was most demand by the need to obtain high sales, in order to put their business on a firm footing and make profits. This proved to be the classic situation in the book trade: in every age thereafter the biggest firms have been obliged sooner or later to produce books not just for a restricted academic market, but also for a popular market. (Febvre, Martin, 1976, p. 175).

This description most certainly applies to the *Reportorio de los tiempos*. Its first printer, Pablo Hurus, saw a market for almanacs, and in fact saw a specific market for almanacs containing astronomical information. As he had already produced Granollachs' *Lunari* in that same year, Hurus must have seen the advantage of expanding upon it. It must be remembered that the original edition of the *Lunari* was in Catalan, someone was responsible for its translation into Castilian prior to the 1492 Hurus edition. It is quite possible that Li served as the translator of the *Lunari* during its initial printing, and from there was inspired to include it in his own work, the *Reportorio*. Another of Li's works, the *Tesoro de la pasión*, also produced by Hurus, suggests that many works were published because of other texts already in circulation:

Ocurrióme aquello que muchas vezes havia oido a Pablo Hurus, alemán de Constançia, empretador famosíssimo en aquesta vuestra fidelíssima y muy noble ciudad, el qual dezía estava maravillado cómo a sus manos hoviessen llegado libros e obras sin cuento para imprimir y jamás en romance havia visto que nadi se hoviesse acordado de pregonar el sagrado misterio de la pasión del redemptor glorioso (Li, 1494).

In order to understand fully the market created for the *Lunari* by its incorporation into an almanac like the *Reportorio de los tiempos*, one must examine the role of the almanac, and the perception of the many astronomical and in fact astrological elements contained therein. Jim Tester, in his book *A History of Western Astrology* describes how almanacs came to contain the methods for calculating the dates of moveable Church feasts such as Easter. «Time was natural, months and seasons fitted into agricultural life; the calendar superimposed on this pattern was that of the Church, the succession of feasts and fasts that made the liturgical and working year» (1987, p. 128). Tester goes on to say that the fixing of the dates for these the moveable feasts was essential for all clergy, and so the *computus*, or science of date calculation, became part of liturgical training.

In addition to supplying *computus* calculation data, early almanacs usually con-

tained many other diverse types of information. Almanacs were seen as readily available reference works, overlapping into the branch of medieval science known as the «books of secrets». The public demand for the type of cultural information found in almanacs became more and more insatiable, and this did not go unnoticed by early printers. They rushed to provide what the public wanted in such highly illustrated works as the *Reportorio de los tiempos*. Deriving validity from the inclusion of the highly mathematical *Lunari*, the *Reportorio* appealed to the public desire for the secrets thought to be unlocked by the movements of the heavenly bodies. Almanacs and calendars, often containing astrological predictions, were exceedingly marketable. Capp notes that «in the process by which simple moon-lore developed into a pattern of astrological beliefs more elaborate and of far wider application, nothing was to have so great a role as the annual almanac» (1979: 22).

Especially important to the success of almanacs, including the *Reportorio de los tiempos*, was illustration. The information contained in almanacs was well-suited for pictorial representation, most notably the months of the year personified as planets, the depictions of agricultural labors, and medical diagrams. The inclusion of woodcuts such as these greatly enhanced the marketability of a work, and probably even appealed to illiterate buyers. Many of the editions of the *Reportorio de los tiempos* were highly illustrated, most notably the Zaragoza: Hurus, 1495 and the Sevilla: Cromberger, 1510, both of which survive today and appear to have been extremely successful. In the Zaragoza: Hurus, 1495 edition, there are over fifty-five woodcuts. The rich paratextual layout of the *Reportorio* was intended to draw viewers into the work, and the marketability of the astronomical information originally penned by Granollachs, although still useful in its mathematical purity, would have been enhanced by both the woodcuts and Li's textual additions.

As is evident in the case of the *Reportorio de los tiempos*, the advent of printing dramatically changed the way in which scientific information was conveyed, and ultimately how science itself was perceived. Elizabeth Eisenstein in her book *The Printing Revolution in Early Modern Europe* believes that «that advent of printing ought to be featured more prominently by historians of science when they set the stage for the downfall of Ptolemaic astronomy, Galenic anatomy, or Aristotelian physics» (1983, p. 187). With relation to astronomy, Eisenstein cites the power printing had in the dissemination of information, including «powers which enabled astronomers to detect anomalies in old records, to pinpoint more precisely and register in catalogues the location of each star, to enlist collaborators in many regions, fix each fresh observation in permanent form, and make necessary corrections in successive editions» (1983, p. 216).

How did the incorporation of the strictly mathematical *Lunari* into the eclectic *Reportorio de los tiempos* affect Granollachs' original work? First and foremost, it set the original text on the road to popularization. The astronomical *Lunari* would have been used by those readers interested in precise calculations of the movements of the heavenly bodies through celestial houses, as well as lunar and solar eclipses, whereas the readers of the *Reportorio de los tiempos* were interested in the work for a variety of reasons, some scientific, and some not. The repackaging of the *Lunari* in the *Reportorio* also led to another, probably unexpected consequence for the text: a reduction in its scientific status. The *Lunari* would have been perceived not in its original mathematical purity, but as part of a larger, more popular work. As the years passed, successive editions would show additions to the lunar charts, compromising their accuracy. In fact, beginning with the Valencia: Castilla, 1506 edition, the *Re-*

*portorio* itself would undergo numerous alterations and revisions, and would eventually include discussions of the four winds, additional phlebotomy diagrams, and in some Catalan versions, astrological charts, Paschal and zodiac tables, and even a fable about «un ermità que va trobar una rata que es transformà en donzella» (Chabás, Roca, 1985, p. 18). It seemed that printers added whatever text and illustration they thought would prolong the life of the already hugely successful *Reportorio de los tiempos*.

Thus, the interplay of text type and its presentation by printers was responsible for the success or failure of any given work. In the case of Granollachs' *Lunari*, a strictly astronomical work was repackaged in a more popular form, an almanac, which boasted a more universal appeal and increased marketability. This incorporation changed the *Lunari* forever. It made it available to many more readers, and prompted the expansions seen in later editions. In other words, the inclusion of the *Lunari* into the *Reportorio* more than likely extended the life of Granollachs' work, as the lunar charts were updated as subsequent editions were printed, keeping the work in circulation until the end of the sixteenth century. Such was the nature of medieval and Early modern printing, and such was the fate of a small astronomical work the *Lunari*: to be recast in another way, to be perceived as different type of scientific work, but to survive and flourish for over a century as one of the most reprinted of European almanacs, the *Reportorio de los tiempos*.

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