José Chabás (4.10.1948 – 9.6.2024)

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My friend José Chabás died quite unexpectedly on 9 June. I had had lunch with him a couple of months before. and he had seemed to be in excellent health. Unfortunately, in June, he needed to have bypass surgery which produced complications that caused his death. Here, in a few lines, I will try to summarize my thoughts about this brilliant scholar who dedicated all his life to research in the field of the history of medieval astronomy.

José Chabás had a degree and a doctorate in Physics. Early in his career he had been interested in the History of Science but he never had a job related to this area of research. He earned his living as a secondary school teacher of Mathematics and Physics (1974-1988), and later became a scientific translator at the European Commission in Brussels (1988-1998) and at the FAO in Rome (2006-2010). In 1998, he became Professor of translation of scientific and technical texts at the Universitat Pompeu Fabra in Barcelona until 2011, when he became Professor Emeritus of the same university.

In his PhD thesis, he began studying the tables of Jacob ben David Yomtov (= Bonjorn) of Perpignan (fl. 1361), which were the subject of several later contributions of his and led to an important discovery. Perpetual almanacs had been used in the Iberian Peninsula since the eleventh century. These almanacs used Ptolemaic goal-years, cycles which, in the case of the planets, comprise an entire number of Julian years in which the planet makes an entire number of revolutions in longitude and in anomaly. This meant that astrologers did not have to carry out laborious calculations of the position of each planet when casting a horoscope and could read it directly in an almanac. No specific cycle for the Moon was known, however, until Jacob ben David Yomtov used a new lunar cycle of 31 Egyptian years, 9 days, 23 hours, 34 minutes and 11 seconds, equivalent to 383.5 synodic months (767 consecutive syzygies), which solved the problem and was used in later almanacs. It

was Chabás who discovered Yomtov's innovation, and he also showed that the same cycle was used in the *Lunari* of Bernat de Granollachs (1485).

A look at his bibliography reveals a long list of titles signed by José Chabás himself and many others which were the result of his collaborations with Antoni Roca, Xavier Rodríguez, Anne Tihon (probably as a result of his stay in Brussels), Marie Madeleine Saby and Beatriz Porres. However, the most important of his collaborators was Bernard R. Goldstein with whom he wrote articles and books between 1991 onwards until the present year. I used to believe that I had introduced Chabás to Goldstein, during one of the latter's visits to Barcelona, but Goldstein himself corrects me and states that he met José in Paris in the spring of 1986 when Goldstein was associated with the École Pratique des Hautes Études; in addition, in 1987, he was a member of the commission that judged José's Ph.D. thesis. The collaboration between these two scholars produced impressive results and Goldstein[1] himself explains the reasons why they were so successful:

> José and I collaborated closely, mainly by email, exchanging messages often, sometimes on a daily basis. And, of course, we met many times over the years. For texts in Hebrew I would send José provisional translations and he would do likewise for texts in Latin. But much of our work concerned numerical tables where a transcription was all that was needed. The analysis was a joint effort in all cases. (email 13.10.2024)

> What made my work with José truly special was the way we found new topics to explore – José by looking at Latin MSS and I by looking at Hebrew MSS. And in many cases what we found was surprising or not previously appreciated. Often, when we had a topic, composing the paper was relatively straightforward – although on occasion the discovery of the procedures underlying a table required a lot of effort and ingenuity. I continue to work on medieval astronomy but, needless to say, it is not the same without José. (email 16.10.2024).

The research undertaken by the Chabás-Goldstein team focused mainly on an analysis of Iberian astronomical sources between the thirteenth and the fifteenth centuries and their repercussion in contemporary Europe. Only in one case do we find a thorough analysis of an earlier source: the tables of Ibn al-Kammād (fl. 1116), originally written in Arabic but only accessible in Latin translation. Three important

1. See also B.R. Goldstein's Obituary of José Chabás in Aestimatio DOI 33137/aestimatio.V4.44141.

papers published in 1994, 1996 and 2015 constitute the first comprehensive approach to the works of this Andalusī astronomer. Apart from this, Chabás and Goldstein also dedicated a great deal of effort to the study of the Alfonsine Tables, beginning with their edition and detailed study of the Castilian canons of what they named «The Alfonsine Tables of Toledo» (published 2003 and 2007). This was followed by many papers on the «Parisian Alfonsine Tables» with Latin headings of the tables and Latin canons authored by Parisian astronomers c. 1020-1030, like John Vimond (2003, 2004, 2023) John of Murs (2001, 2009, 2012), John of Saxony (2019 and two still unpublished papers), and John of Lignères (2019, 2022). To this I should add studies of fifteenth-century versions of these tables such as those of Giovanni Bianchini (2004, 2009, 2021, 2022), the *Tabulae Resolutae* (1997, 1998, 2002), and Abraham Zacut's *Almanach Perpetuum*, in which the planetary positions were calculated using the Alfonsine Tables (2000, 2009). This interest in the origin and the European repercussions of the Alfonsine Tables led to Chabás's participation in the European Research Council ALFA: *Shaping a European Scientific Scene, Alfonsine Astronomy*.

The Chabás-Goldstein team was also interested in the new techniques introduced in the presentation of astronomical tables in order to make them more «user-friendly»: for example, the use of displaced equations, the purpose of which is to save the computer from having to consider, in each case, whether the equation has a positive or negative value. Such modifications had been used by Islamic astronomers since the ninth century but did not appear in Latin Europe until the fourteenth (Chabás & Goldstein, 2013). All this experience accumulated by José Chabás, through many years of independent research or in collaboration with Goldstein or with other scholars, established him as the authority on European Medieval astronomical tables; his unparalleled knowledge is reflected in what can be considered his master work, his *Computational Astronomy in the Middle Ages: Sets of Astronomical Tables in Latin*. Madrid: Consejo Superior de Investigaciones Científicas (2019). Having a look at the hard disk of my computer has reminded me that I still have a copy of the whole set of chapters sent to me when José was writing the book.

I should not finish these lines without remembering that José was not only a brilliant scholar but also a dear friend of mine to whom I owe a debt of gratitude. During the period between 2013 and 2020, when I was writing my book *On both sides of the Strait of Gibraltar* (Brill, 2020), he read each and every one of its thousand pages as I finished each chapter, and offered me corrections and suggestions. I will never forget this.

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