

## **Salvo De Meis, *Heliacal Phenomena and Astronomical Introduction for Humanists***

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The author, Salvo De Meis, tells us in that the aim of his book is to give humanists “a general view on the importance of these [astronomical] phenomena from the points of view of history, literature, astronomy, that in the past were diffused in histories, poems, and treatises now often unavailable” (in the Note to Reader). He stresses that the focus of the book is to provide a compendium of information that humanists can use in order to appreciate the role of astronomy in cultures of antiquity. The reader needs to be aware, however, that De Meis assumes familiarity with Latin, although he does offer translations of the Greek texts.

The work begins with a section titled “General Information” (pp. 1–28), in which De Meis presents eight different types of solar/star events, known as star phases. Such phases are the astronomical phenomena to which the title of the book refers and thus their definition is vital. There are, in fact, four Sun/star/horizon events – Sun rising/setting and a star rising/setting – and any combination of these Sun and star positions produces a different stage of a star’s phase; stages that all need to be clearly defined. In this regard, De Meis introduces the term “heliacal” and uses it for a star returning to visibility by rising before the Sun (heliacal rising) as well as for when a star is the first star setting after the setting Sun (heliacal setting). The reader thus understands that De Meis is using the term “heliacal” to denote phase events for when the star in question is close to the Sun, rising before or setting after the Sun. De Meis then logically introduces the term “true”, or “true cosmical”, to distinguish when a star is exactly rising or setting with the Sun versus “apparent”, which is when a star has a sufficient distance from the Sun to allow it to be just on the edge of visibility in its rising or setting.

However, De Meis is not consistent when using the term “acronychal”. Different authors use this term in different ways. The approaches of Ruggles (2005, 180), Schaefer

(1987, 19) and, earlier, of Lockyer (1892) use the term “acronychal” for events when the Sun and star are on opposite sides of the horizon, one rising while the other is setting. Alternatively, another set of authors – Mitton (2007), Kelley and Milone (2005, 40) and Davidson (1993, 160) – tend to use the term “heliacal” for a star which is rising or setting at *sunrise* and the term “acronychal” if the star is rising or setting at *sunset*. It should be noted, however, that the term “heliacal setting” is an exception, with both groups of authors tending to use it for a star setting in the evening (sunset and star set), thus in a similar way to how the term “acronychal setting” could be used.

De Meis follows this pattern of mixing the term “heliacal setting” (p. 7) with what he also defines “true acronychal setting” (p. 6) as being: “The geometric setting of a star when the Sun sets.” So, a star setting at sunset is the “heliacal setting” unless it is geometric or “true”, when it is called the “acronychal setting”. He then defines “*apparent* acronychal setting” as “the first visible (morning) setting of a star when the Sun is rising” (p. 6). Thus, with the introduction of the idea of “apparent”, he switches the meaning of an acronychal event to a sunrise event. To this mix, he then adds a third set of terms: that of “true cosmical rising” (pp. 7–8), which he seems to use in the same way as “true” or “geometrical heliacal rising” and then “true cosmic setting”, which might be best defined as “true geometrical” or “true cosmical acronychal setting”. To be fair, such confusion is endemic within the scholarship in this area, and I have written about this elsewhere (Brady 2015). However, given that this is the central topic of the book and De Meis’ aim is to introduce the humanist to a new field of study, he needed then to give his reader a set of clear unambiguous terms.

Additionally, given that the book is endeavouring to make a contribution to cultural astronomy, De Meis needed to share with his readers that the star phases fall into two types. These two types were discussed by Claudius Ptolemy in the second century BC in *The Phases of the Fixed Stars* (Schmidt 1993) and are based on the location of a star in relationship to the observer, either north or south of the ecliptic. For an observer in the northern hemisphere, any star that is north of the ecliptic undergoes what Ptolemy called a phase of Curtailed Passage (CP), by which he meant that, in its seasonal movement, it was never absent from the night sky, sometimes seen to rise and/or set, while at other times acting as a circumpolar star. The other phase type Ptolemy defined was Arising and Laying Hidden (ALH), which was the type of seasonal movement of a star south of the ecliptic which spent time – weeks or months – absent from the night sky, returning to visibility by rising before the Sun; the definition of the heliacal rising star. Such distinction is not only valuable in understanding star phases, but also essential for considering the actual cultural significance of the phenomena of star/Sun events. To cite just one example, for the Egyptians of the Middle and New Kingdoms, the evidence suggests that these two phase types divided the stars into two zones; the stars which were under the body of Nut, and which made up the decans and descended into the netherworld (ALH), and those that were not (CP).

Moving on but still in the General Information section, De Meis next provides a brief history of the *parapegmata*, a form of star calendar, and introduces the idea of the *synanattellonta* and *paranattellonta*, stars or constellations that share risings and settings. His

approach, however, is to name the different scholars who have worked in this area rather than to discuss their ideas or findings. In this way, the book becomes a bibliographical listing with little attempt to try and pull the material into a cohesive shape for the reader. For example, with regard to the *synanattellonta* and *paranattellonta*, the reader is informed:

The most comprehensive treatments on the subject are due to A. Rehm and W. Gundel, besides the fundamental works of E. Foll and W. Gundel on Decans, while for Babylonia the early study of Kugler is interesting for the methodology and the information, the recent works of H. Hunger and D. Pingree on MUL.APIN are a key reference. (p. 29)

Granted, the aim of the book is to give a compendium of information, but this leaves the reader wondering: What was Kugler's methodology? or, How was E. Foll's and W. Gundel's work on decans fundamental? Additionally, at the time of writing (in 2012), De Meis informs the reader that these sources are the most comprehensive treatments on the subject – yet Gundel is from 1949, Rehm from 1941 and Kugler from 1913. Hunger and Pingree are current, with their work published in 1999 but there are also other voices now in these discussions.

The work then turns to the primary sources for star phases and their use in antiquity, in a section titled "Data and Quotations from Ancient Literary and Astronomical Texts" (pp. 31–132). The sources are selected from Babylonian texts, Homer, Hesiodos, Sappho, Aeschylus, Aratos Varro, Horace, Cicero, Geminus Ovid and Avienus; this is potentially a good section in the book, as it presents a wide collection of poems and fragments from different times and cultures which make reference to a single or set of star phases. However, De Meis only translates the Greek sources, leaving the reader to translate the Latin texts. From this collection, he then moves onto other texts selected to represent a geographical region rather than an author, including those from Oxyrhynchus, India, Polynesia (Maori), Australia, American Indians and Greenland. The latter part of this section struggles to be relevant as it is a random selection of pieces in which De Meis disregards the complexity of cultural astronomy within any single community. For example, the section on Australia (p. 132) is just two sentences long and implies that the first Australians are a single cultural group, while the "American Indians" (p. 132) fare little better. Here De Meis has ignored the large body of ethnographical work that has been conducted on sky mythology in these communities. Even William Jones' *Fox Texts* (1907) is available online and would have provided De Meis with a wide collection of Native American sky stories which refer to star and planet phases.

De Meis then considers heliacal phenomena in architecture, in the section so titled (pp. 135–168). Here, he moves through the megalithic epoch, Egypt, Greece, Germany, China, Maya civilisation, Islamic culture and medicine wheels. Once again, the work fails to be significant. The Sun and the stars and their relationship to megalithic tombs is dealt with in a few pages and, given the book was written in 2012, it is curious that De Meis makes the statement that Alexander Thom was the "best investigator on megalithic culture" (p. 136), because it implies that he has not considered the last 30 years of publications in this area.

The work concludes, however, with a stronger section on “Planetary Phases” (pp. 169–203), in which De Meis produces some useful information on the phasing of the inferior and superior planets. In this section, he takes a large number of Assyrian and Babylonian texts as translated by Simo Parpola (1970) and later by Herman Hunger (1992) and comments on their dating. Here, De Meis produces some useful work by challenging or agreeing with Parpola’s or Hunger’s datings of texts based on a reconstruction of the phases of the planets, with consideration of matters relating to visibility. This is the best section of the book, evidencing De Meis’ years of work in planetary phases, but, in keeping with the idea of a compendium, this section could have been expanded with astrological texts on planetary phases. For example, the Greek notion of spear bearers, which is present in the term “doryphory” (Ashmand 1822, 114, derived from Ptolemy, *Tetrabiblos*, 3.5), is also planetary phase material of the period.

Altogether, De Meis has done a great deal of work in pulling together a wide collection of primary sources. However, although intended for the humanist scholar, this book does not fulfil its brief, for such scholars would already be aware of many of the primary sources and would also be alert to more recent scholarship. It is, instead, a book which could appeal to an astronomer who has never considered the cultural implications of astronomy. Finally, the text would have benefited from editing for English grammar and also would have been greatly helped by an independent editor – De Meis himself is listed as the editor. It is a noble attempt at a worthy subject, but, without the strong hand of an editor, it fails to fulfil the brief of the author which was to provide a bridge between humanists and astronomers.

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