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Hipparque de Nicée et l'astronomie en Grèce ancienne

Germaine Aujac, *Hipparque de Nicée et l'astronomie en Grèce ancienne*. *Biblioteca di Geographia antiqua*, 6. Firenze: Leo S. Olschki, 2020. xiv, 122 p.. ISBN 9788822266873 €30,00.

Review by

Wolfgang Hübner, Universität Münster. huebner@uni-muenster.de

After a long period of exploration during a brilliant career of itinerant teaching across numerous secondary schools and universities, finally at Cairo and, in a difficult period, at Algiers,^[1] Germaine Aujac defended her doctoral thesis at Paris in 1966 on the extended work of the geographer Strabo. Her thesis already included specific chapters on Eratosthenes, “le génial dilettante” (studied in a monograph in 2001^[2]), Poseidonios, “le contemplateur”,^[3] and finally on Hipparchus, “le calculateur”, whom she calls now “un savant génial” (cover-text), praising his “esprit géométrique” (96 rendering Strabo’s γεωμετρικῶς [2,1,34]). Hipparchus is esteemed as the greatest astronomer of antiquity (IX), the closest equivalent of a modern natural scientist in his meticulous scrutiny, a scholar who represents the apogee of hellenistic natural investigation.

We know only one (early) item of his prolific work: the critical commentary on Aratus’ Φαινόμενα, which survived thanks to the enormous success of Aratus’ poem. The nucleus of Aujac’s book is thus represented by a French translation of this work (1-88), so far as I know the only translation in a modern language after the rare bilingual Greek-German edition of K. Manitius (1894). The text is augmented by clarifying subtitles of the chapters and/or paragraphs^[4] and some sparse notes informing the intended larger readership, in the spirit of Geminus’ Εἰσαγωγή, which the author edited in 1975 and quotes extensively in the present book. Special attention is paid to the preceding (= western) and following (= eastern) constellations, which make manifest Aujac’s lively acquaintance with the complex matter of the celestial movements.

The translation^[5] is not accompanied by the original Greek text, as it was in her previous editions for the CUF: Strabo, book 1-2 (1969), Geminus (1975), or Dionysius of Halicarnassus (1978-1992). Aujac provides an informative introduction (V-XIV) on the constellations and the planets, including the theories of their movement, as well as material on Eudoxus and Aratus. She also provides an introduction to Hipparchus’ life and activities, a survey of the commentary’s contents with special attention to the simultaneous risings and settings of the constellations (a topic upon which she already touched in a preliminary study in 1979), and finally a discussion of what we know about

the other achievements and works of Hipparchus.^[6] Even if Hipparchus did not discover the precession of the equinoxes (as the author claims, following the common opinion), since the Babylonians were already aware of them,^[7] he was at least the first one to measure it; his value for the precession of one degree in a hundred years, although it is actually too slow, nevertheless prevailed down to late antiquity. For such a measurement to be accurate, one needs generations of observers comparing data collected during the centuries.

The translation is followed by many supplementary “textes à l’appui” (89-117), presented in the isagogic manner that she also employed in her later booklets on Ptolemy (1993 and 1998) and Eratosthenes (2001), bringing together the main translated passages. The corpus of these texts is divided into geography and astronomy (XIV). Her central metaphor (p. 90), “La géographie est fille de l’astronomie” enriches the ancient conception of sciences as ‘sisters’ or ‘cousins’^[8] in the right direction, since the terrestrial globe (more familiar to our modern ‘geocentric’ view and life) is only a descendant of the heavenly “sphaera solida”. Ancient people knew the sky far better than the earth, since only a very small sector of the latter was accessible. Not long before Eratosthenes and Hipparchus, Alexander had extended current geographical knowledge by his expedition down to India, and Eratosthenes had employed the king’s pedometers (βηματισταί) for measuring the distance between Syene and Alexandria along the Nile, and, by extrapolation he had succeeded in calculating the circumference of the terrestrial globe almost exactly.

We owe to Strabo the fragments of Hipparchus’ three books against Eratosthenes’ *Geography* (as critical as the three books against Eudoxus and Aratus).^[9] Aujac’s commentary provides a special insight (95-98 and fig. 4-5) into the “seals” (σφραγιδες). The second section of supplementary texts (that on astronomy) is transmitted by the *Syntaxis* of Ptolemy. Here the author enters into the highly sophisticated realms of spherical geometry that can be understood only by advanced specialists, although some explanations had already been given by the French translator N. Halma (1813-1816).

The very complex matter of astronomy is clarified by nine tables showing the constellations, partly taken from earlier publications, or by schematic diagrams, in particular on the “seals”. The images of the *Atlas Farnese* are splendid, but one has to recognize that this statue can only represent an ornamental globe, as it does not contain all constellations—some of them are hidden under Atlas’ hand. A few years ago two scientific and more exact globes appeared, representing the entire sphere.^[10]

The concluding “bibliographie sommaire” lists six textual editions and two articles by the author herself. Some more information would have been welcomed by the intended lay readership, as for example the very detailed article “Sterne und Sternbilder” in “Roscher’s Mythologisches Lexikon” written by F. Boll and W. Gundel (1937), but almost completely neglected in modern scholarship.^[11]

In conclusion, the book gives a welcome and deeply competent introduction into the history of hellenistic science, in particular into the largely unknown constellations, their risings and settings including the planets, relying principally on primary sources. With

this volume G. Aujac sets a crown on her lifelong and productive work, so that she could be called, as she herself says with reference to François Peyard (1760-1822), the editor of Euclide: “ce travailleur infatigable”.^[12] What she says estimating the complete work of Hipparchus can be transferred to her own final book (XII): “le bilan d’une longue vie de travail.”

Notes

^[1] See the lucid preface written by M. Armisen Marchetti, *Le monde et les mots* = *Mélanges Germaine Aujac*, *Pallas* 72 (2006), 11-17, including a bibliography of G. Aujac until 2006. One might also compare the work of her compatriot, Michel Butor (1926-2016), whose stay in Minje (Upper Egypt) inspired his first novel, ambiguously entitled *Passage de Milan* (1954), and his stay in Saloniki, which inspired the series “Le génie du lieu” (1958-1996): it starts from the “méditerranée” and grew to include the whole modern world.

^[2] One year before the monograph written by K. Geus (2002).

^[3] Although she was “née au bord de l’océan”, she did not devote any volume to the author of *Περὶ ὠκεανοῦ*, who was eagerly discussed once in German philology, ceding this to M. Laffranque (1964). Among her papers, however, we find one that deals with the ancient studies on the ocean (1972), and another on Poseidonius’ failing system of the terrestrial zones (1976).

^[4] On 2,6,9 (p. 64) we read “Cacaotée” for “Cassiopée” (37 instances); is this a *lapsus calami* or is it a pun, like the architectural jokes in medieval cathedrals?

^[5] Textual supplements are not indicated everywhere by <>; they are lacking, e.g. in 2,6,6 on p. 63 (p. 206,2 Manitius) or in 2,6,8 p. 64 (p. 20,28 Manitius), and so on.

^[6] As for the catalogue of the fixed stars, one may add that there exists an edition by F. Boll (2001) with supplements contributed by St. Weinstock (1951).

^[7] P. Schnabel, *Berosos und die babylonisch-hellenistische Literatur*, Leipzig 1923 (repr. Hildesheim 1968), 227.

^[8] See W. Hübner, *Die Begriffe “Astrologie” und “Astronomie” in der Antike* (1989), 49-51.

^[9] She gathered similar texts in her monograph on Eratosthenes (2001), 145-206. Just five years ago a new English and likewise introductory edition of the fragments of Eratosthenes was published by D.W. Roller (2010).

^[10] See E. Dekker, *Illustrating the Phaenomena. Celestial Cartography in Antiquity and the Middle Ages* (2013) with splendid illustrations.

^[11] P. XII n. 22: F. Hultsch’s original edition of Pappus was published at Berlin 1875-1878; p. 110 n. 42 on the eclipses see the catalogue “Finsternisse” composed by F. Boll (1909); p. 112 n. 47 cit. Halma: the reference is on p. 107; p. 114 n. 50 “Thraylle (c. 30 AD)”: even with correction into “Thra<s>yлле” is a mistake for Ptol. Synt. II p. 3,3 Heiberg

Ἀριστύλλου (ca. 300 BC). Some formalities: fractions are given interchangeably as $\frac{1}{2}$ or $\frac{1}{2}$, $\frac{3}{4}$ or $\frac{3}{4}$, etc.. From p. 89 onwards Roman numerals of equal type designate two different levels, the reader finally finds out that the following dot refers to the higher, the following comma to the lower level.

[12] G. Aujac, “La science grecque revisitée aux environs de la Révolution”, in: *Les Autorités. Dynamiques et mutations d’une figure de référence à l’Antiquité*, ed. D. Foucault et P. Payen, Grenoble 2007, 227-250, in particular 234sq.