

mutually exist, but negations exist not.”

The author’s wide interests and his ability to lead the reader modestly and briefly past high ideas are exceptional. *JHA* readers will find much here for themselves, but the book will delight their friends young and old, far from the domain of manuscripts, instruments, and priority. The uncoated paper and the printing lead to a rather greyed appearance for many of the 150 figures here. Yet they remain fully useful, especially the night sky photos and those of many artifacts, including a Balinese beer-can that bore a timely image of the island’s eclipse demon.

Massachusetts Institute of Technology

PHILIP MORRISON

MORE PAPYRUS HOROSCOPES

Oroscopi Greci: Documentazione Papirologica. Donata Baccani (Ricerca papirologica 1; Sicania, Messina, 1992). Pp. 192.

The book under review, a revision of the author’s doctoral dissertation and a first-rate piece of work, is intended to supplement the collection of *Greek horoscopes* (henceforth *GH*) by Neugebauer and H. B. van Hoesen. *GH* assembled all the ancient horoscopes in Greek that had come to light up to 1959, whether from medieval manuscripts or archaeologically recovered documents; the latter category consisted chiefly of 47 papyri (plus one ostrakon and one parchment fragment) from Roman Egypt. Since *GH* appeared, only a small number of so-called ‘literary’ horoscopes have been identified (nine are mentioned in the inventory of astrological papyri by the same authors, *Proceedings of the American Philosophical Society*, cviii (1964), 66–67). Meanwhile the corpus of papyrus horoscopes has grown steadily. The core of Baccani’s book is a re-edition of eighteen texts that first appeared in scattered papyrological journals and catalogues up to 1990. A third collection of 69 new papyri bearing horoscopes, all excavated at Oxyrhynchus, will be included in the reviewer’s forthcoming *Astronomical papyri from Oxyrhynchus*. If we include the horoscopes in Demotic Egyptian and the two or three Greek ones published since 1990, the corpus of original horoscopic documents from Egypt now numbers close to 150.

Baccani’s new editions of the papyri supersede the original publications in nearly every respect, and incorporate new or corrected readings; in one instance a revision of one letter has pushed back the date of a horoscope by two centuries. It was an excellent idea to have photographs of all the papyri on the same pages as the texts. On the other hand, one regrets the lack of translations, although the contents of the horoscopes are summarized in the very full notes. For this part alone Baccani’s book is an indispensable addition to the body of basic resources for Greek astronomy

and astrology. But it is almost equally valuable for the extended, technically competent, and interesting general study of the horoscopic documents, which complements the appendices of *GH*.

A word is in order about the character of these documents and their historical value, especially for Greek astronomy. The horoscope was essentially an astronomical document with an astrological application. The basic contents of a documentary horoscope almost invariably included the name of the so-called native, the date and time of birth (usually in the civil "Alexandrian" calendar, sometimes in the older Egyptian calendar which remained the chronological basis of many astronomical tables), and the longitudes of the Sun, Moon, five planets, and rising point of the ecliptic. In about five-sixths of the horoscopes this is all that was recorded, and the longitudes are normally only specified by the zodiacal sign, without degrees. In the remaining minority, the longitudes are supplemented by astrologically significant data such as the planetary lords of the occupied sign and 'terms'. Astrological interpretations pertaining to the native are exceedingly rare.

Working primarily with those horoscopes that give longitudes in degrees, Neugebauer succeeded in demonstrating some general characteristics of the astronomical theory underlying the horoscopes as a statistical whole. In particular, he found that the tables used by the astrologers mostly used sidereal longitudes, and that the deviations with respect to modern theory tend to be most pronounced in the retrogradations, which is symptomatic of arithmetical modelling. But by now there is perhaps not much that we can hope to deduce through analysis of the longitudes in the horoscopes that we cannot learn more directly from other kinds of astronomical papyri. We need to look harder at the horoscopes, not just as accidental clues to the nature of the technical astronomy of the Roman period, but as its deliberate products. The chronological distribution of the papyrus horoscopes, a meaningless statistic in isolation, becomes more significant when compared with that of the datable fragments of astronomical tables and with the whole corpus of surviving papyri, especially when (as in the case of Oxyrhynchus) we can isolate a large mass of documents excavated uniformly from a single site. Handwriting, orthography, even the quality of the papyrus and whether it was a fresh piece or reused, might tell us something about the astrologers and their clients. The research that awaits is not easy, but promises to cast light on a very poorly understood facet of ancient science.

University of Toronto

ALEXANDER JONES