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In memoriam Olaf Schmidt
whose gentle ways were on my
mind while this was written

This volume contains the proceedings of a symposium organized in honour of Ernst Weidner (7.10.1891–8.2.1976) on occasion of his centennial. Among the favourite topics of Weidner, astronomy was chosen – and since both Weidner and the organizers were Orientalists, *the role of astronomy in the cultures of Mesopotamia* and not astronomy *simpliciter* became the heading. Beyond Kurt Jaritz's biography of Weidner (pp. 11–20) and a bibliography on Babylonian astronomy and astrology (pp. 407–449; “compiled by Christopher Walker at the British Museum as a basic reference source for his own use”), the volume contains 23 contributions.

As always on such occasions, some contributions respect the heading and others not – mostly because they deal with the technical aspects of Mesopotamian astronomy. In the present case, this is fully acceptable, not only because astronomy+astrology was *in itself* a major ingredient of Mesopotamian culture but also because discussions of the cultural role is easily empty if not supported by the insights provided by *Realphilologie* as well as philology. Cuneiform studies remain a field where the meaning of technical terms has to be extricated from the complex of technical use (itself fully understandable only if we grasp the terminology) and links to everyday denotations.

Since the names of many constellations are originally Sumerian (Larissa Bobrova & Alexander Militarev, pp. 307–329), not merely Sumerograms for Akkadian (Babylonian and Assyrian) words, an unbroken astronomical tradition must go back at least to the third millennium BC. Some celestial omnia refer to 23d-c. events, and at least since the Old Babylonian period (earlier second millennium) astromancy was an accepted part of divination though until the Neo-Assyrian earlier first millennium less important than extispicy. David Pingree (pp. 259–273) discusses the various strata of Venus omnia in the series *Enūma Anu Enlil* (EAE), and in particular the character of the phenomena observed in Old Babylonian omnia contained in the “Venus tablet of Ammisaduqa”. He points to a discontinuity in the tradition at some moment after 1600 BC, probably in Kassite times (1600 BC to 1200 BC).

Walter Farber (pp. 247–257) analyses the queer orthography of EAE, tablet 22/I, which corroborates the existence of this break: the spellings suggest, indeed, that the remains of Old Babylonian astromancy were not transmitted to the Neo-Assyrian scholars directly but via peripheral cultures, where the ascent of astrology may have

begun. How the theological foundations of the field could be reinterpreted in such a culture (*viz* among the Hittites) is investigated from different perspectives but with compatible outcome by Gerd Steiner (pp. 221–230) and Ulla Koch Westenholz (pp. 231–246).

Several contributions deal with the environment of astrologer-scholars which brought the tradition to a high point – first as privileged advisors to the Neo-Assyrian and (sixth-c.) Neo-Babylonian kings, next as creators of mathematical astronomy – and which in the end continued the tradition within the temple as long as this institution was able to keep alive the last remnants of Babylonian culture: Simo Parpola (pp. 47–59) shows that there was no professional split between astrology and mathematical astronomy, and that both were part of the esoteric “wisdom” carried by “Enūma-Anu-Enlil scribes”, exorcists and lamentation priests in interdisciplinary cooperation; Al Wolters (pp. 291–306) analyses Daniel 5 and shows that more than a general reference to the role (and failure) of the king’s magi, astrologers and diviners is involved, demonstrating (via solid arguments that the “scales” where the king is weighed are Libra, just rising in the critical days) that Daniel’s prophecy is “a mocking parody of the whole astrological project of reading the will of the gods in the writing of heaven”. The insider’s perspective on the very same Babylonian court (no different as far as the importance of astrology is concerned) is presented by Paul-Richard Berger (pp. 275–289), who discusses texts telling the interpretation of the astrological dreams of the king and a subject of his. The role of the temple as the “cultural locus” of astronomy from Achaemenid through Arsacid times – the period when mathematical astronomy unfolded and flourished, still interrelated with divination and magic – is analyzed by Francesca Rochberg (pp. 31–45).

Erle Leichty (pp. 21–29) sees the Old Babylonian beginnings of systematic divination science as a cumulative continuation of the Sumerian tradition of *Listenwissenschaft*, which was only pushed to become innovative because linguistic change had forced scribes to “reassess their corpus of written knowledge and to expand it”. Even though the production of omnia for impossible situations matches the invention of non-existing forms in the grammatical lists, the reviewer would object that the emergence of the other “new science” of the epoch – mathematics – certainly does not fit the model; the further provocative claim of Leichty – that the death of the Akkadian language made it impossible to understand the inherited corpus of celestial omnia and thus created the need not only for extensive commentaries but also for *Realphilologie* in the shape of mathematical astronomy – also seems bolder than warranted by the details of the emergence process; as observed by Hermann Hunger (p. 147), the precision of the technique goes far beyond the needs of divination – not to speak of what could serve the interpretation of omnia which much simpler methods would show never to occur naturally (e.g., moon eclipse after the 21st day of the month!).

The emergence process, as far as the record allows us to approach it, is described by John Britton (pp. 61–76). In short: the Saros cycle (and probably the 19-year cycle) were known before –525, but revised between –525 and –475. Prior to –525, simple

period relations and rudimentary zig-zag functions seem to have been used to predict effectively eclipses, eclipse possibilities and certain planetary phenomena; by -450, the successful use of complex functions had begun; by -375, some of the characteristic features of Systems A and B appear; by 315, finally, the full lunar System A is attested. Hermann Hunger (pp. 139–147) gives a useful survey of the kinds of observation contained in the “diaries” (7th to 1st c. BC).

Lis Brack-Bernsen (pp. 331–358) investigates column Φ from Lunar System A (which represents the variable velocity of the Moon) and argues strongly against the earlier view that it was derived from the slight phase shifting of this velocity after a Saros period. Instead, as she shows convincingly, the function is derived from the sum of four of the lunar phenomena listed in the diaries (the time between Sun- and Moonrise and between Sun- and Moonset just before and just after opposition); that this summation eliminates irregularities stemming from the oblique ascension and from the hour of opposition is likely to have been understood heuristically by the Babylonians, even though exact proof presupposes that spherical geometry which they did not possess.

Wayne Horowitz (pp. 149–159) suggests that the (badly conserved) reverse of the Neo-Assyrian planisphere CT 33,11 may contain a parallel to the pseudo-empirical “Hilprecht text” HS 245 (formerly 229) on stellar distances, which could then represent an exception to the break argued by Pingree and Farber. Jöran Friberg (pp. 383–405) presents the corpus of metrological table texts from the first millennium BC – a topic whose connection to the theme of the volume is constituted by the fact that such texts were copied and owned by the astronomer-astrologer priests.

Alexander Jones (pp. 77–94), Jozef de Kuyper (pp. 135–138) and Bobrova and Militarev (pp. 307–329) look at the legacy of Babylonian astronomy from three different angles: the use of Babylonian arithmetical schemes in Greek astronomy; the Greek view of Mesopotamian stellar lore and ritual as reflected in the notion of *Chaldaioi*; and the translation – sometimes correct, sometimes by folk etymology – of Sumerian and Akkadian names of stars and constellations. Slightly connected to the same theme is Gerd Graßhoff’s analysis (pp. 95–134) of Ptolemy’s *Book on the Phases of the Fixed Stars*. This work is shown to be later than the *Almagest*, which on the topic in question is closer to Babylonian methods; the method which according to Graßhoff’s analysis was used in *Phaseis* turns out to be described by Thābit.

Robert Chadwick (pp. 161–184) lists the terms used for comets and meteors, discussing ambiguities and uncertainties. Alice L. Slotsky (pp. 359–365) shows that the correction of the “Uruk solstice scheme” supposed by Neugebauer and Sachs to have been made after 199/8 BC was also made earlier. Vladimir S. Tuman (pp. 199–209) points out that computer analysis suggests that observations on the astrolabe V R 46 may have been made in 1823 BC. Johannes Koch (pp. 185–198) argues that the Babylonian “Small Gemini” (^{mul}maš.tab.ba.tur) must be Procyon (α Canis minoris) and β Canis Minoris.

Robert Bremner (pp. 367–382) compares the shadow length table in ^{mul}apin with fits involving atmospheric refraction and the slightly changing obliquity of the ecliptic,

but overlooks that the data are not empirical but copied from the table of reciprocals (directly for Summer Solstice, multiplied by 1;15 and 1;30, respectively, for Equinox and Winter Solstice). This is the reason that the shadow length 7 is lacking, and that the Winter Solstice table seems to presuppose an impossible culmination of the Sun – features of the table that puzzle the author.

Apart from this last-mentioned fancy, the articles in the volume are well-argued. They are also informative: some regarding details which will only interest the absolute specialist, others on questions that will immediately interest the somewhat broader public of historians of early science or Mesopotamian culture.

Jens Høyrup