

BM 42282+42294 and the Goal-Year Method

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Introduction

Our research into Babylonian Astronomy is at the moment focussed on early texts. The far off goal of investigation is to understand how the elegant numerical mathematical (ACT) astronomy of the Seleucid era was developed. We hope that it will be possible to find a way from genuine Babylonian observations over their simple prediction rules and early formation of theory to the ACT astronomy. Therefore the so called atypical astronomical cuneiform texts and other texts classified as intermediate texts are in the focus of interest.¹

In this paper we shall concentrate on lunar phenomena and on the so called “Goal-Year” Method for the prediction of time intervals between risings and settings of sun and moon. Analysis of lunar data, of the kind collected on the Goal-Year tablets, had resulted in the construction of six, mutually similar, rules for the prediction of lunar phases. We called these proposed procedures the “Goal-Year Method”.² That the Babylonians, indeed, knew and used the (reconstructed) method, was proved by two passages in the procedure text TU 11.³

Section 14 and 16 of TU 11 give advice to how such data, as collected on the Goal-Year tables, can be used for finding time intervals between risings and settings of sun and moon for a month to come and for determining the length of that month. Section 14 and 16 of TU 11 are, however, written in a rather unclear and abbreviated form, and only three out of the six rules are attested. Now we are in the lucky position to have found another and much older⁴ text, BM 42282+42294, on which the Goal-Year method is presented much clearer and in every detail. (We thank Chr. Walker for drawing our attention to this text.) The text includes five of the

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¹A. Sachs introduced the term “intermediate astronomy”, explaining it as referring “to stages later than MUL.APIN and earlier than ACT. The boundaries in both directions are not sharp”. See Pinches et al. p. xxxv

²See Lis Brack-Bernsen 1997, pp. 115–133 and 1999

³Brack-Bernsen and Hunger 2002, pp. 44–46 and 63–64.

⁴Probably from the Achaemenid period, see Finkel 2000, p 140f.