THE *DṚKPAKṢASĀRAṆĪ*: A SANSKRIT VERSION OF DE LA HIRE'S *TABULAE ASTRONOMICAE*

DAVID PINGREE
Brown University

In November of 1730 the Portuguese astronomer Pedro da Silva arrived in Jayasiṃha's court bearing, among other books, a copy of the second edition of Philippe de La Hire's *Tabulae Astronomicae*, published in Paris in 1727. The choice of this text as the representative of contemporary European astronomy being sent to the Mahārāja was apparently due to the fact that de La Hire, finding fault with the Rudolphine Tables, whose alleged errors he attributes to Kepler's hypotheses, claims: Quamobrem id statui Tabulas meas nulli hypothesi, sed observationibus tantummodò superstruere, nullâ cuius vis Systematis habitâ ratione. This abjuring of adhesion to an "heretical" astronomy must have pleased the Jesuits who chose the book. This aspect of the *Tabulae Astronomicae* (though in fact de La Hire does adhere to an astronomical hypothesis, the heliocentric) appealed also to Jospeh Dubois, who wrote at the beginning of the Jayapura copy on September 1732: Tabulae Astronomicae in quibus Solis, Lunae, reliquorum planetarum motus ex ipsis observationibus nulla adhibita hypotesi traduntur. This same propaganda explains the title, *Dṛkpakṣasāraṇī*, given to the adaption of the *Tabulae Astronomicae* written in Sanskrit verse by Kevalarāma, Jayasiṃha's jyotiṣarāja, in or after 1733 when the new city of Jayapura, to which he refers, began to be occupied, and the astonishing fact that Kevalrarāma nowhere in this work mentions the heliocentric theory though the computations that he prescribes are based upon it.

de La Hire's mathematics was far in advance of anything available in the Indian tradition. Among other elements are what de La Hire calls the Tangens, which is really the logarithm of the tangent of an arc (Kevalarāma calls it the "shadow") and the logarithm of a number (Kevalarāma calls it the "false Sine" or the "proportional"). In order to make it possible for Indian astronomers to use these functions, Kevalarāma provided tables of the logarithms of sines and tangents and of the logarithms of integer numbers from 1 to 10,000.

But in transforming de La Hire's mean motion tables into a Sanskrit form Kevalarāma has committed numerous blunders, the basic one being that he tries to substitute the Indian calendar, which has a sideral year, for the Gregorian calendar of de La Hire without changing the entries for mean motions in a year and in multiples of years. More disastrous even than this is that his rules for using the tables can be understood only if they are compared with de La Hire's Latin text; by themselves they are obscure, repetitive, incomplete, and incorrect. Moreover, instead of following the logical order of the Latin text which is imposed by geometry, Kevalarāma rearranges the order of the steps so that it becomes impossible to apply his rules.

This unique Sanskrit translation of a Latin text, then, must be judged a failure. At a time when Kevalarāma's Mulsim colleagues were succesfully adapting de La Hire's tables for use in the Persian *Zīj-i Muḥammad Shāh*, the jyotiṣarāja showed himself to be incapable of presenting the same material in Sanskrit. Perhaps he simply couldn't understand; perhaps he didn't consult with his colleagues; or perhaps, as a fervid defender of the *Sūryasiddhānta*, he deliberately sabotaged the project assigned to him by Jayasiṃha.

J. Andersen (ed.), Highlights of Astronomy, Volume 11B, 729.