

Introduction Agathe Keller, journée sur les calendriers

Auspicious time for a seminar on this topic?

Two general pool of questions provide me with an entry into the topics that will be treated today.

The first set of questions concerns the objects we are going to talk about:

What were the actor's categories for them? Did two different objects, calendars on the one side and almanacs on the others exist in our sources? Whether calendars or almanacs, or something with another name, they appear as incredible textual objects. More, of all texts, certainly calendars and almanacs are those that all would agree require a technical reading: they were not made to be read linearly from beginning to end, but required partial readings of different portions and sometimes computations. As we will see, they contain all sorts of numerical tables and specific ways of graphically articulating texts to numbers. How were these texts used can thus be declined as a question on how were these texts read? As a historian of mathematics, this could raise the following questions: what kind of numbers were used in these texts, what notations, bases? Where these numbers the same as those used in scholarly texts? How were such numbers read, and maybe computed with? Since questions on uses for texts always mirror back to the intentions of the authors, one can wonder how collective and how personal were the graphical devices used in calendars and almanacs, for numbers, for text and maybe for other sorts of diagrams as well.

My second set of questions is related to the project that has provided us funds to organize this workshop. One of the aims of the European ERC project SAW (for mathematical Sciences in the Ancient World) is to articulate mathematical texts and practitioners with specific social backgrounds. Today, then, the general question raised with this project in mind could be the following: were theoreticians of mathematical astronomy related socially to those who made calendars and almanacs? And another linked question would be: what were the specific mathematical tools mobilized to make such texts?

From these questions, others follow: What were the questions a user addressed to an almanac or a calendar? And in which way did such questions require specific mathematical algorithms? were the users of calendars and/or almanacs required to carry out computations with the informations contained in the texts? Did this give rise to specific mathematical questions?

In the context of India, of which M. Yano will speak more specifically and with much scholarly knowledge, most of the mathematical texts handed down to us in Sanskrit are chapters of texts dealing with astral science, *jyotiṣa*. In no way, can such chapters be restricted to the fact of being mathematical tools to make *pacāṅgas*, the Indian almanac, but still the question is raised: what were the specific mathematical tools mobilized to make such almanacs? How were they declined and interpreted and reclaimed by those almanac-makers? I do not know if we have the manuscript of ancient *pañcāṅgas*. But we certainly need to reflect on how close socially, in different times and places, those who wrote astronomical *siddhāntas*, theoretical treatises with mathematical chapters, were to those who made almanacs. I repeat, this must certainly have changed from time to place.

To come back to the first set of questions, and show how both are somewhat related: we know that today Indian almanacs reclaim themselves from ancient *siddhāntas*, how are such relations drawn out by almanac makers? How do they use astronomical texts, how do they quote them? How do they decline their algorithms according to these texts?

I know that I am doing something strange for people who work exclusively on these materials, because I am focussing on one topic, mathematics, and tracing it back into a complex text, that uses it in different modes. As an object of the history of Asian science, calendars and almanacs have

always been studied with uneasy hands, having to deal with the fact that such objects epitomize how both divinatory (taking astrology to be a form of astral divination) and exact science belong to a same system of knowledge, whose categories and systematic logic still needs in many cases to be articulated and uncovered.

How much then is the highlighting of mathematics, or the distinction of exact sciences and astrology a presentist attitude? How much actually exists in our sources? Jyotisa, astral science, had many branches, and its definition could vary according to author and place. Sanskrit texts then do distinguish mathematics, *gaṇita*, from what we would call astrology, probably regrouped in what is called *praśna* or *hora*. We will certainly have to keep this in mind as well as we tread these grounds today.