

Jantar Mantar: Observatories of Jai Singh (with pop-up pages)

Biman Nath



Jantar Mantar: Observatories of Jai Singh

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Bilingual Edition: English and Kannada

Published by Bangalore Association for
Science Education, Price: ₹500

Most of us have looked at the giant structures of Jantar Mantar with a vague sense of admiration, and have probably made a plan to read up on what these structures meant after all. The medieval style observatories of Jantar Mantar built by the astronomer-king Jai Singh in the 18th century are impressive in many respects. Their very existence, and Jai Singh's plan to build such observatories in no less than five places (Mathura, Delhi, Jaipur, Ujjain and Varanasi), are in itself a curiosity, because this is a country where one is hard pressed to find tangible signs of science done in the past, particularly in the era before the British. Beyond that, they remain for most of us mere monuments, because although there

are some books that describe their workings, most readers are likely to lose their way in the subtleties of spherical geometry. The best way to demonstrate and explain the paths of celestial objects in the sky as seen from different places on earth is to have a three dimensional scale model.

This is precisely what this book does with the help of a few well-designed pop-up models. The instructions to set up the models are easy to follow, and there are diagrams, insets, and explanatory boxes that takes the reader through the main functions of the instruments. Although the models have been designed for a particular latitude (Bangalore), one can easily imagine the modifications in the case of other places.

The biggest of the instruments, the Samrat Yantra, is a gigantic sundial, in which the shadow is cast by a triangular wall, with its hypotenuse pointing towards the celestial north pole. This instrument, in the case of Jaipur, can record time with the accuracy of 2 seconds. The Digamsa Yantra can be used to measure the azimuth of the Sun or any star (with the help of a sighting tube).

The descriptions of some of the instruments could be more elaborate though to help lay readers. For example, in the opinion of the present reviewer, the explanation of the Nadivalaya, which tracks the change in the altitude of the midday Sun throughout the year, would have benefitted from some more explanation. However, given the pop-up model, the reader can play around with it in order to understand the basic idea behind the ingenious instrument.



The bilingual edition (in English and Kannada) makes the book accessible to a wide readership. It is hoped that the authors would consider publishing future editions in some other languages as well. In brief, this book fills a large gap in science communication in India, and the authors and publishers deserves to be congratulated for bringing it out, and es-

pecially applauded, for the innovative designs of the pop-up models.

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