

Antonino Forte, *Mingtang and Buddhist Utopias in the History of the Astronomical Clock*. Sene Orientale Roma, Vol. LIX, and Publications de L'É.F.E.O., Vol. CXLV (1988). pp. 333, 8 plates.

The present work is yet another contribution by Antonino Forte to our understanding of the environment of religious and political symbolism with which Empress Wu (r. 684–704) sought to embellish and underline the spiritual authority of her reign. In many ways *Mingtang and Buddhist Utopias in the History of the Astronomical Clock* is a continuation of the work which he initiated in his classic study on the *Mahāmegha Sūtra* from 1976.¹

The book is divided into four chapters with a lengthy introductory essay and a extensive conclusion. In addition it contains six appendixes, a bibliography, and an index. The introduction discusses the Chinese clock and the European clock, Wu Zhao's Dayi (Great Regulator), and the importance of time in Chinese Buddhism. It is concluded with a appendix treating the Buddhist monk Daoxuan's text on the Jetavāna Monastery.

Chapter 1 is devoted to a detailed historical presentation of Wu Zhao's Dayi, the Tiantang, and the Great Statue located inside the Tiantang. The chapter ends with an appendix discussing Matsumoto Bunzaburō's (mistaken) views as regards the Great Statue. Chapter 2 treats the origin of the mechanical clock in China, the significance of the Tiantang and its relation to the Mingtang, the function, construction and use of the Dayi, including a discussion of whether it was a sound-producing instrument. A commentary on the *Mahāmegha Sūtra* from Dunhuang is used as evidence. Two appendixes follow this chapter, one discussing great towers prior to the *tiantang*, the other recounting Yamada Keiji's views on the meaning of *dayi*.

Chapter 3 treats the two Mingtang in Luoyang, i.e. the one burned in AD 686 and the new building erected shortly after, their respective sizes, dates of construction, architectural characteristics, relation to the pagoda, the abortive attempt to reconstruct the Mingtang after the fire, a hypothesis in regard to the first Mingtang including a discussion of measurements. Two appendixes follow: one presents the views of traditional historians in which the Tiantang is disconnected from the Mingtang, the other, with a missing passage from one of the important sources, the *Zizhi tongjian*.

¹ Cf. Antonino Forte, *Political Propaganda and Ideology in China at the End of the Seventh Century: An Inquiry into the Nature, Authors and Function of the Tun-huang Document S. 6502, Followed by an Annotated Translation*, Napoli: Institute Universitario Orientale, Sem. di Studi As., 1976.

Chapter 4 focusses on the social and religious context of Luoyang in late 7th century China, and includes a discussion of Maitreya utopianism, the pagodas in Baima Temple, political issues and Buddhism, Confucian criticism of the Mingtang and the Empress, the religious significance of the Tiantang, the destruction of the Maitreya temples by the Uighur at the close of the An Lushan Rebellion in AD 762, and finally the connection between the Mingtang and Buddhism from the point of view of the *taiping* ideology. The concluding part of this chapter is devoted to a discussion of several sources. Following this comes the conclusion and a long summary discussing the three attempts at constructing the Mingtang in Luoyang.

One of the significant aspects of the present study is Forte's discussion of the intimate details in the Buddhist legitimization of Empress Wu's rule. In previous studies on her rule, including the contributions by Stanley Weinstein and others, we have been told that she made Buddhism the national and imperial creed, and installed Buddhist monks in high offices to the chagrin of the Confucian ministers. However, we have not learned previously exactly how this was done, and why the affront to the established imperial cult was as serious as it was. Of course Forte, in his study of the *Mahāmegha Sūtra* from 1976, centred his discussion around this issue by directing most of his efforts to the historical circumstances surrounding the prophesy of the *sūtra* concerning a female Cakravartin. However, in the case of Empress Wu, the details on ceremony, and indeed, on the symbols and instruments of divine authority, which played (and still plays) such an important part in dynastic legitimization in China, have not been dealt with in such great detail previously. Forte's obsession with minute details, although sometimes cumbersome for the reader to plow through, often yields surprisingly concrete results, such as when he discusses the circumstances surrounding the fire of the Tiantang (pp. 60–74). Consequently one can only admire the thoroughness with which he treats his subject. Another interesting aspect of Forte's writing is his enthusiasm, which gives the reader the impression of being on an expedition with the author. This feature is further strengthened by Forte's general discursive style, in which he gives his thoughts free reign while exploring his own theories.

The most interesting part of the book is in my opinion the third chapter, in which Forte gives a highly interesting account of the cultural and social context of the Mingtang and its scientific devices, i.e. the Dayi, bell, etc. Here the author emphasises the importance of the coalescence of the imperial cult and the Maitreya cult, which is seen as constituting the basis of the spiritual legitimization of Wu Zhou's reign. From this point of view the political and symbolic import of the Mingtang is shifted to a purely Buddhist context. Directly related to this is Forte's discussion of the Mingtang as the Axis of the Sky, and as an example of Buddhist pacifism under Empress Wu. Here he argues that its non-violence as expressed in its *taiping* concept conflicted with the general imperialistic and aggressive policy of the Tang (pp. 229–49).

When dealing with a subject pertaining to the history of science in China, such as is clearly the case in the present study, it is inevitable not to kowtow to the work done by Joseph Needham in his monumental *Science and Civilisation in China*. Actually, Forte invokes Needham several times as his study progresses, and always in an absolutely reverent manner. Be that as it may, this reviewer, however, feels that Forte could have used more space on a general reappraisal of Buddhism's contribution to the development of science in China. This would have provided a good opportunity to meet Needham's overly negative attitude to Buddhist science. Especially *in lieu* of the material brought forth and discussed by Forte, it would have been a relatively easy task for him to correct Needham's misconceptions.

Here and there in the book Forte makes suggestions and hypotheses which are a trifle hard to accept despite the seemingly copious evidence produced. For a study which is so full of numbers and calculations, one of the problems that immediately sprang to my mind is that relating to the sizes of the buildings and their contents. Although Forte refers to historical sources when establishing the sizes of the Tiantang, it is stretching credulity to be presented with a 300 metre high wooden building containing a dry lacquer Buddha statue c.150 metres high (pp. 74–82, 153–5)! The figure for the statue is arrived at by multiplying the size of the head, given by Forte as 24 metres, by six. Such a size, even for a hollow dry-lacquer statue, is quite unrealistic (pp. 82–6). I should think that even the artisans of the mighty Tang with all their skills would be hard pressed to complete such a gigantic project in less than ten years, and this is without calculating the cost, which in any case would be absolutely astronomical. Even if the statue were only half that size, it would still be a near impossible task. In order to get some idea of what a wooden building of the size of the Tiantang is said to be like, we may compare it with the Empire State Building in New York, which is 462 meters high. The problem of size is furthermore compounded when seen in relation to the time-span involved, for we are told that the construction of the Tiantang and the giant statue took only two years to complete (pp. 142–52). To my mind this sounds too fantastic to be accepted at face value, and I believe that the figures in the sources should either be taken as pious embellishments, i.e. as not indicating real figures, or else the measurement used was different from that calculated by Forte.

As is usual in Forte's other studies the present work is packed with information of every conceivable kind, and the amount of sources which the author has been through in the process of his research is staggering. Sometimes one feels rather overwhelmed by all this information, which, although never redundant, often takes the author on a detour into other subjects, as is often seen in his highly elaborate annotation (cf. pp. 62–76, 85, 89, 100–1, 103–5, etc.). In some of these cases the reader would have been better served had the author attempted to integrate the notes into the main text.

Seen as a whole Forte's book has more the form of a compilation of essays

and research notes than of a complete and fully integrated work. I am well aware that the very nature of the sources, and the painstakingly minute way the information they yield is treated by the author, make it hard to produce a systematic and progressive presentation. However, this has caused overlappings and redundant repetitions, which somehow complicate one's comprehension of the author's presentation. Despite his obvious attempt at making the present work a general historical study on religio-political issues in late 7th century Tang China, it is in fact highly specialized. Hence, in order to benefit from this book, it requires that the potential reader has a firm grounding, not only in early Tang history, but also in its material culture, as well as in the religious and political institutions of Tang China. This is something which cannot be expected from the average course-work student. Although Forte's study in my opinion is not suited for undergraduate courses, it certainly is essential for the serious researcher working with science, the legitimation of government, and imperial and Buddhist architecture during late 7th century Tang. As such it is an important contribution to the reappraisal of traditional science in medieval China.

(HHS)