

Book Reviews

MEETING OF IDEAS

A History of Japanese Astronomy
Chinese Background and Western Impact. By Shigeru Nakayama. (Harvard-Yenching Institute Monograph Series, Vol. 18.) Pp. xiii + 329. (Harvard University Press: Cambridge, Massachusetts; Oxford University Press: London, July 1969.) 95s.

THE author states at the outset that his main objectives in writing this book are to describe Japanese adaptation of traditional Chinese astronomy and to examine Japanese reception of the astronomical ideas and techniques of the West about the time of the scientific revolution. These objectives appear to have been reached in an elegant and scholarly manner.

The book is divided into three parts. Part one deals with the period before 1600, when Japanese astronomy was thoroughly Chinese in character. Part two deals with the first tentative contacts with Western science in the 17th century—tentative because there existed at that time an official ban on foreign treatises of all kinds. Part three covers the period 1720–1880, that is, from the time when the ban was lifted to that dramatic change of heart which made Japan the most westernized of all Asian countries. There are a number of appendices of a more mathematical nature.

Throughout the book, a prominent place is given to the calendrical science of the Far East. This is proper, for calendar making certainly absorbed the greater part of the energy of the astronomers there, and the result of their endeavour is only too little known in the West. This matter is especially well treated in chapter six, which contains a telling diagram showing the frequency of calendar reforms in China and Japan. The purely arithmetical character of the Chinese calendar making, however, as opposed to the Western delight in the devising of geometrical models, seems to find disfavour with the author, and the dissatisfaction is reflected in the rather sweeping remark at the conclusion of chapter ten to the effect that the Far Eastern calendars never surpassed the standard of Ptolemy's *Almagest*. To be sure, geometrical models are nice things to have, but they are something of a luxury from a positivist standpoint, while the insistence on calendrical arithmetic had its compensations: for example, it stimulated the invention and perfection of the interpolation technique.

The other part of Far Eastern astronomy—that dealing with the observation of celestial phenomena—is dealt with summarily, for the author thinks that too much emphasis was put on the irregular and the extraordinary, and too little done in the way of routine observations. This is a little unfair. Apart from the fact that people like Chang Heng, Tsu Ch'ung-Chih and I-Hsing did undertake long series of regular observations, one should not underrate the contribution made by the Chinese, Japanese and Korean astronomers in their records of the extraordinary. These records are the more valuable for being completely uncluttered with any astronomical theory—witness the current interest in the possible identification of “guest-stars” with radio-sources and pulsars.

The story of the slow penetration into Japan's consciousness during the Tokugawa Period (1600–1867) of Western astronomy is told with fine detail and many delightful quotations. But, alas, contrary to what is said near the beginning of the book, the recorded impressions of the Japanese astronomers do not seem to lead to definite answers to the interesting question as to which aspects of Western astronomy are local and which universal. Possibly the question cannot be answered in this way. The impressions are made by people who had a definite background, with a particular set of prejudices, implanted in them through centuries of the Chinese classicist tradition. The meeting of ideas depends on the new as well as the old, and the outcome cannot be more than a relative comparison between “those who write vertically and eat with chopsticks” and “those who write horizontally and eat with bare hands”.

The author is certainly free from any nationalistic bias, and, if anything, errs a little in another direction in not giving enough credit to the ancients here and there.

The physical appearance of the book is very attractive indeed; it is beautifully printed and bound, and the almost perfect balance between the English alphabet and the Chinese characters is a rare achievement. T. KIANG

QUESTIONS AND ANSWERS

Astronomical Problems

An Introductory Course in Astronomy. By B. A. Vorontsov-Vel'Yaminov. Translated by P. M. Rabbitt. Translation edited by Arthur Beer and John B. Hutchings. Pp. xi + 314 + 19 plates. (Pergamon: Oxford, London and New York, July 1969.) 80s; \$10.

I WAS very pleased some years ago when I managed to pick up a copy of the original Russian edition of this book, for compilations of the question and answer type are a normal and highly developed form of Russian pedagogy, whereas in this country and in the United States they seem to be much rarer. Yet some parts of the subject can only be clearly understood via a basic skill in numerical manipulations.

The Russian compendia come at all levels of difficulty: the questions in this one (although they are graded into two degrees of hardness) are fairly elementary. The standard is, perhaps, equivalent to sixth-form level, although, because astronomy is not a school subject, the questions would provide useful initial practice for a first-year astronomy course at university. In spite of the length of time between the original and the translation, problems of this elementary nature date very little. A more up to date collection would, however, almost certainly include a larger number of problems on artificial satellites. As it is, the author has provided twelve extra questions in this area (to the original total of 1,200) during the proof stage of the book.

A major criticism of the book, both in the original and in this translation, is the quality of the plates. Russian photographs always give the impression that they are relics from some earlier and more primitive age: the ones in this book are no exception. It seems that the text diagrams have been redrawn for the translation and it would have been well worthwhile substituting new photographs at the same time.

One or two minor points might be taken up in the translation. For example, question 987 speaks of the “compression” of the solar sphere, whereas the word in this context should clearly be translated as “shrinkage”. Again, “Ciolkovski” is better known to Western readers as “Tsiolkovski”. The general standard of both the translation and the editing is, however, high. As an introduction to simple astronomical calculations this book can be recommended. A. J. MEADOWS