

issue of *PHYSICS TODAY* (page 56), we are compelled to respond to certain misstatements and disparaging remarks.

After characterizing the book as “presumably” aimed more toward astronomers than historians, Steele dispenses with its usefulness to astronomers in a single paragraph, only to criticize the book for not including more extensive translation and contextual discussion that would have rendered it more useful to historians of science. In fact, we state explicitly that “the records have been specially chosen because of their potential to advance modern research in astronomy, astrophysics, and chronology.”

Patently false is Steele’s charge that “selective quotation by the authors, and their failure to provide any information about the various sources from which the records are taken, prevent[s]” guarding against pollution of the data set. In fact, we discuss the original sources and their usefulness at some length, both in the introduction and, more specifically, in the introductory discussion preceding each chapter. Furthermore, for the first time in a work of this kind, we provide appendixes that reproduce every translated record in classical Chinese, with detailed reference to the precise location in the original source.

As for “selective quotation,” Steele’s criticism is wrong on two counts. First, unlike most such compendia, we spell out in precise detail our selection criteria for each category of phenomena. It was not our purpose to verify every record, but the criteria were designed to eliminate clearly spurious or ambiguous observations. Whenever potentially significant variants occur, all are provided. Yet Steele conveys the impression that we simply lumped together observational records indiscriminately, with no effort to sort wheat from chaff. Second, the sources we searched, whose history and reliability are well known, generally provide no more data than we have translated.

Finally, there is the issue of the reliability of the observational records, and here Steele resorts to the timeworn red herring of “fakery” in the Chinese sources. This is a charge repeated in the West since the early days of Sinology, usually by those who have only a superficial familiarity with the sources. On the whole, the Chinese records are remarkably reliable, especially as regards the kinds of reports collected

in *East Asian Archaeoastronomy*. To take just one example, of the 37 solar eclipses recorded in *Zuo’s Commentary* for the period 721–481 BC, 32 are identifiable and verified by modern computation, 3 remain unidentified, and only 2 are considered “impossible.”¹ Given that the 5 misses could reasonably be attributed to other causes besides false reporting, Steele’s claim that “[m]any early eclipse records, for example, do not correspond to real events” is a gross exaggeration. Surviving records from the Han Dynasty (206 BC–AD 220) on are usually even more accurate.

We take for granted that no responsible astronomer or historian would approach these ancient records with the kind of naivete that Steele presumes in counseling “great caution” in using the book. Nevertheless, our own work with these records has reaffirmed Joseph Needham’s conclusion of nearly 50 years ago: “[I]f they [the Chinese records] were not more accurate than would appear from some of their severest critics, it would have been impossible to find known periodicities in them, as has in fact been done, e.g. in the case of the sun-spot cycle.”²

References

1. See, for example, J. Needham, *Science and Civilisation in China*, vol. 3, Cambridge U. Press, Cambridge, England (1959), page 418. As Needham’s discussion shows, study of apparent misses has helped correct mistaken assumptions about the calendar.
2. See ref. 1, page 419.

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STEELE REPLIES: The authors have missed the point of my criticism. In part precisely because the book is aimed toward astronomers, more extensive translations (where possible) and more contextual discussion would have been desirable. In translating only those parts of the original texts that apparently record observations, the authors have omitted astrological and other details that may accompany the record. Sometimes the accompanying information

provides additional clarification of the observational account.

The modern scholar needs to understand the contextual background of a record—whether it comes from a collection of portents or is used to test a calendar system, for example—to be able to use it in modern scientific studies. The dynastic histories are not just a collection for us to pillage for astronomical observations, but complex sources reflecting the compiler’s aims that go far beyond the cataloging of observations.

The authors also seem compelled to defend the verifiable historicity of all early Chinese astronomical records, despite compelling evidence to the contrary. For example, many Han records of solar eclipses do not relate to eclipses that could have been seen in China. They were either predicted in some way or “faked.”

Only a fairly small percentage of those eclipses that could have been seen—and those that might have been predicted—are recorded in the dynastic histories. As Wolfram Eberhard, Hans Bielenstein, and others have shown, there is a clear correlation between reports of a relatively high proportion of observable eclipses and the reign of an unpopular emperor. The only conclusion that can be drawn from this is that the astronomical records in the dynastic histories have been manipulated for nonastronomical (I believe political) reasons.

It is pointless to try to defend the historicity of all early Chinese astronomical records. That is the wrong question to ask. In its historical context, the manipulation of the astronomical record as written in the dynastic histories was perfectly acceptable. We should investigate it to try to understand why it was done, not pass judgment as if the histories were simply an observer’s logbook from which we want to decide whether the observer was good or bad.

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Correction

June 2002, page 41—Uri Haber-Schaim’s name was spelled incorrectly. ■