Reviews

**Johannes Kepler Gesammelte Werke, vol. 21.1, Manuscripta Astronomica III; De Calendario Gregoriano; Manuscripta Mathematica**


When the general contents of the volumes of *Johannes Kepler Gesammelte Werke* were established at least a generation ago, the editors set aside two volumes to contain selections from the massive assortment of surviving manuscripts [Caspar and List, 1968, 120–121]. As Kepler scholarship evolved, subsequent editors of the series have evidently strained under this restriction, wishing (for good reasons) to include more than two volumes’ worth of material. The result has been the expansion of vols. 20 and 21 into four half-volumes, of which the present book is the third. Even so, vol. 20.1, which was to have included (according to Bialas [1985, 15]) all the eclipse observations and all manuscripts relating to any of Kepler’s printed works, ended up being devoted to a complete transcription of the very large, and very important, “Mars Notebook,” consisting of preliminary work that would lead to the *Astronomia Nova* (1609). The eclipse observations, as well as a number of other astronomical manuscripts, were therefore pushed into vol. 21, which was originally to have been devoted to mathematics, astrology, and chronology. This volume accordingly was divided into two half-volumes, the first containing the rest of the selection from the astronomical manuscripts, the mathematical manuscripts, and various unpublished works on calendar reform (for which apparently no provision was made in the original plan). Presumably, vol. 21.2 will contain the astrological and chronological papers.

The resulting vol. 21.1 is therefore three distinct subvolumes, described by the general editor as “extremely heterogeneous,” each with its own editor and set of end-notes (Bialas for astronomy, Boockmann for the calendar, and Knobloch for mathematics), contained within a half-volume. It will therefore be in order to make a few comments about each part separately.

The astronomical section consists of two main divisions, one containing Kepler’s eclipse observations and computations (more than 200 pages), and the other consisting of 17 shorter writings relating to published works. For the eclipse records, Bialas has included a pair of tables (Übersicht 1 and Übersicht 2) that list all the eclipse-related manuscripts, giving their page numbers in the Kepler Manuscripts in St. Petersburg, and indicating the pages that were selected for inclusion. The order in which the manuscripts are bound often does not reflect their logical order, and so in the present selection they are rearranged so as to make better sense. However, there appears to be no table of contents showing the order of the manuscript pages in the printed text—a puzzling omission in an otherwise careful editing job. Among the shorter writings, especially interesting are Kepler’s account of his pinhole instrument for observing eclipses (the use of which was the original impetus for his optical work), some early notes on what later became known as Kepler’s Second Law, and Kepler’s records of his first look through a telescope, using an instrument provided by Galileo.
The Calendar section contains one relatively large work, *Ein Gespräch von der Reformation des alten Calenders*, and a number of shorter writings. Kepler approved of the new Gregorian calendar, which, however, could not be adopted for political and religious reasons, and so he strove to modify the Julian calendar in such a way as to emulate the Gregorian in most respects. The *Gespräch* is remarkable in that the issues are laid out in an imaginary discussion among representatives of different viewpoints.

The mathematical section contains mostly short writings on a wide variety of subjects, both theoretical and practical. They are divided into three groups, titled “Theoria,” “Arithmetica,” and “Geometria.” The first of these is especially interesting in that it consists of two parts of a projected three-part work, “De Quantitatibus.” This work was considered by Frisch to have been written in the last few years of Kepler’s life [Kepler, 1870, 145–146], though it was identified as an early work in 1997 [Barker, 1997]. In it we see the care with which Kepler read Aristotle and the way in which he understood the relationship between mathematics and the perceptible universe. The arithmetical section includes work on number theory, solutions of algebraic equations, and logarithms. The geometrical section has selections on elementary geometry, trigonometry, and the geometry of regular and quasi-regular solids.

As in the previous manuscript volumes, the diagrams and sketches are presented with great care. They were copied by Johanna Kurić, who also transcribed the figures in vol. 20.2, and final versions were produced by Inge Noegerrath and Fritz-Gert Weinrich. Most of the drawings are the same size as the originals, although some that are especially large or small have been adjusted. A list is given of the enlarged or diminished figures, with the amount of alteration. Letters are reproduced in modern fonts, but are placed as in the originals. The result is a very reliable and easy-to-read representation of what Kepler drew and will be a great help to those studying these manuscripts.

The editors were faced with the nearly impossible task of selecting the most important fragments from the huge and inchoate mass of the Kepler *Nachlass* and have done an admirable job of presenting at least a few examples of Kepler’s work on a variety of subjects. There is something for everyone here, and it will no doubt keep Kepler scholars busy for a long time.

References


