

**Studies
in the History of Mathematics and
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13

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Bruce Stephenson

Kepler's Physical Astronomy



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Preface

This book began more than 10 years ago as a modest attempt to understand some of the technical details of the physical theories in Kepler's *Epitome*. As I expanded the study into a doctoral thesis, and particularly as I grappled with the *Astronomia nova*, I found that I could not explain the physics to my satisfaction without adopting a more comprehensive attitude, and treating the *Astronomia nova* as a single extended argument. Kepler believed his argument to be ultimately about the design of Creation; but in the *Astronomia nova*, he presented it as physical astronomy—a new science.

In these pages, I try to explain how the physical astronomy works, for surprisingly little of it has been explained before. I also try to show how Kepler's detailed investigations were always directed at the larger goal of understanding the true design of the heavens. I hope that readers who have hitherto regarded Kepler as a diligent condenser of data, or as a numerically inclined mystic, will learn here to appreciate the intelligence and integrity with which he pursued scientific truth.

Noel Swerdlow awakened my interest in the history of science over a decade ago. He has taught me everything I have learned about the history of the exact sciences. During the years I struggled to understand Kepler, he spent uncounted hours with me reading and discussing my rough drafts. I can see the influence of Swerdlow's understanding of ancient astronomy on every page of this book. Its completion is due in no small part to his intellectual support and to the emotional support implicit therein.

I also thank my friends who encouraged me as I worked for years on what most of them must have thought a terribly obscure subject. I will not name them all here. They know who they are and I hope they know how much they helped. My parents, Charles V. and Luellen H. Stephenson, have consistently amazed me with their ability to encourage without applying pressure. I dedicate this book to them and to my wife Marija.

Bruce Stephenson

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