

J.L.E. DREYER

A HISTORY OF ASTRONOMY FROM THALES TO KEPLER

This is the only detailed history of early astronomy available in English. Formerly published under the title *History of the Planetary Systems from Thales to Kepler*, it is recognized as a masterpiece of both historical insight and scientific accuracy.

Beginning with the astronomical ideas of the ancient Egyptians, Babylonians, and pre-philosophic Greeks (Homer and Hesiod), it moves up through Thales, Anaximander, Anaximenes, Xenophanes, Parmenides, Heraclitus, Empedocles, Democritus, and other early Greek cosmologists. The Pythagoreans are considered next, with their occasionally remarkable anticipations of modernity, and then Plato's astronomical thought. The enormously important system of concentric spheres for planets, usually associated with Eudoxus, is described in detail, followed by a discussion of Aristotle, Heraclides, and Aristarchus. The theory of epicycles—which held for almost two thousand years—is then considered, with chapters on the dimensions of the world and the finished Ptolemaic system.

Medieval European and Islamic cosmologies are then described in detail. Nicolas of Cusa, Regiomontanus, Calcagnini and other transitional figures from middle ages to renaissance are then followed by detailed chapters on Copernicus, Tycho Brahe, and Kepler.

This enormously detailed, definitive work has been characterized as "Standard reference on Greek astronomy and the Copernican revolution," *Sky and Telescope*; "A classical book in the field of the history of astronomy," *Philosophy and Science*.

Unabridged republication of *History of the Planetary Systems from Thales to Kepler*.



See every Dover book in print at
www.doverpublications.com

\$19.95 USA

PRINTED IN THE USA

ISBN-13: 978-0-486-60079-6
ISBN-10: 0-486-60079-3



9 780486 600796



CONTENTS.

INTRODUCTION.

THE EARLIEST COSMOLOGICAL IDEAS. 1

CHAPTER I.

THE EARLY GREEK PHILOSOPHERS. 9

CHAPTER II.

THE PYTHAGOREAN SCHOOL. 35

CHAPTER III.

PLATO. 53

CHAPTER IV.

THE HOMOCENTRIC SPHERES OF EUDOXUS. 87

CHAPTER V.

ARISTOTLE. 108

CHAPTER VI.

HERAKLEIDES AND ARISTARCHUS. 123

CHAPTER VII.

THE THEORY OF EPICYCLES. 149

CHAPTER VIII.

THE DIMENSIONS OF THE WORLD. 171

Contents

CHAPTER IX.

THE PTOLEMAIC SYSTEM. 191

CHAPTER X.

MEDIEVAL COSMOLOGY. 207

CHAPTER XI.

ORIENTAL ASTRONOMERS. 240

CHAPTER XII.

THE REVIVAL OF ASTRONOMY IN EUROPE. 281

CHAPTER XIII.

COPERNICUS. 305

CHAPTER XIV.

TYCHO BRAHE AND HIS CONTEMPORARIES. 345

CHAPTER XV.

KEPLER. 372

CHAPTER XVI.

CONCLUSION. 413

SUPPLEMENTARY BIBLIOGRAPHY 425

INDEX 431