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Edward Grant

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EDWARD GRANT

*Department of History and Philosophy of Science  
Indiana University*



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*To Robyn, Marshall, and Jonathan*

## Series Preface

THE SCIENCES CLAIM an increasingly large share of the intellectual effort of the Western world. Whether pursued for their own sake, in conjunction with religious or philosophical ambitions, or in hopes of technological innovation and new bases for economic enterprise, the sciences have created distinctive conceptual principles, articulated standards for professional training and practice, and brought into being characteristic social organization and institutions for research. The history of the sciences—astronomy; physics and associated mathematical methods; chemistry; geology; biology and various aspects of medicine and the study of man—consequently exhibits both great interest and exceptional complexity and presents numerous difficulties for investigation and interpretation.

For over half a century an international group of scholars have been studying the historical development of the sciences. Such studies have often called for an advanced level of scientific competence on the part of the reader. Furthermore, these scholars have tended to write for a small specialist audience within the history of science. Thus it is paradoxical that the ideas of men who are professionally committed to elucidating the conceptual development and social impact of science are not readily available to the modern educated man who is concerned about science and technology and their place in his life and culture.

The editors and authors of the *History of Science Series* are all dedicated to bringing the history of science to a wider audience. The books comprising the series are written by men who are fully familiar with the scholarly literature of their subject. Their task, and it is not an easy one, is to synthesize the discoveries and conclusions of recent scholarship in history of science and present the general reader with an accurate, short narrative and analysis of the scientific activity of major periods in Western history. While each volume is complete in itself, the several volumes taken together will offer a comprehensive general view of the Western scientific tradition. Each volume, furthermore, includes an extensive critical bibliography of materials pertaining to its topics.

*George Basalla*  
*William Coleman*

## Preface

**I**N ITS MOST MEANINGFUL SENSE, the history of medieval science is the history of the dissemination, assimilation, and reaction to ancient Greek science as it passed from the Byzantine Empire to Islam and subsequently to Western Europe. Although I am fully cognizant of the enormous scientific debt owed by medieval Europe to Arab and, to a lesser extent, Byzantine civilization, my aim here is to describe briefly the significant scientific developments and interpretations formulated in Western Europe from the period of the Late Roman Empire to approximately 1500 A.D. To describe these developments comprehensively over the whole range of the particular sciences would require a volume—more likely volumes—of far greater scope than envisioned here. Fortunately, the content and concepts that came to dominate medieval science from the late twelfth century on were powerfully shaped and dominated by the science and philosophy of Aristotle (384–322 B.C.). His explanations and interpretations of the structure of the world and its physical operations were so pervasive that an understanding and grasp of the range of problems and solutions to which his writings gave rise would provide the reader with a genuine insight into the nature, achievements, and failures of medieval science. For this compelling reason, after characterizing early medieval science in the first two chapters, I have focused attention on problems and controversies associated with Aristotelian physical science in the Later Middle Ages.

Aristotle, or members of his school, had something to say, either superficially or in depth, on virtually all the sciences studied in the Middle Ages. A large body of technical and specialized scientific literature was also elaborated in late antiquity after the time of Aristotle

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[More information](#)

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## **x** PREFACE

but many centuries before it reached Western Europe. A detailed description of these developments would be beyond the scope of this volume. However, where appropriate and relevant, I have included essential features and ideas from this large body of scientific literature that were either incorporated into medieval Aristotelian science or rejected in the controversies that raged incessantly in the medieval universities. Hopefully, this procedure will also allow some larger sense of the history of medieval science to emerge. My primary objective, however, is to convey a proper sense of the general impact of Aristotelian thought and the medieval reaction to a few of the major physical and cosmological problems that emerged from the works of Aristotle. The medieval preoccupation with Aristotle's physics and cosmology and their centrality in shaping the medieval world view amply justify this approach.

*Edward Grant*



## Contents

I. The State of Science from 500 A.D. to 1000 A.D.	1
II. The Beginning of the Beginning and the Age of Translation, 1000 A.D. to 1200 A.D.	13
III. The Medieval University and the Impact of Aristotelian Thought	20
IV. The Physics of Motion	36
V. Earth, Heavens, and Beyond	60
VI. Conclusion	83
Bibliographical Essay	91
Index	117

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