

Contents

Preface	7
---------	---

CHAPTER ONE

Introduction	8
--------------	---

The scale and contents of the universe: some fundamental concepts and explanations.

Practical sections

Telescopes for the Amateur Astronomer	18
Practical Observing	22

CHAPTER TWO

Motions of Celestial Bodies	26
-----------------------------	----

An explanation of Kepler's laws of planetary motion and of the forces that join celestial bodies.

Practical section

Astronomical Photography	30
--------------------------	----

Star Charts	34
-------------	----

CHAPTER THREE

The Stars	44
-----------	----

Classification, characteristics, energy sources and evolution.

Practical sections

Variable Stars	56
Double and Multiple Stars	68

CHAPTER FOUR

The Sun	76
---------	----

The nearest star; its composition and how it functions.

Practical section

Observing the Sun	82
-------------------	----

CHAPTER FIVE

The Solar System	92
------------------	----

Planets and satellites, planetoids, comets and other bodies that orbit the Sun.

Practical sections

Tracking Artificial Satellites	96
Aurorae	102
Observing the Moon	108
Watching the Planets	128
Watching Minor Planets	148
Comet Watching	150
Meteor Watching	162

CHAPTER SIX

The Galaxy	164
------------	-----

Its origin, structure and evolution.

Practical section

Observing the Galaxy	176
----------------------	-----

CHAPTER SEVEN

Extragalactic Astronomy	191
-------------------------	-----

Galaxies: types, structures and distribution. Radio galaxies, quasars, and other objects.

Practical section

Extragalactic Astronomy for the Amateur	212
---	-----

CHAPTER EIGHT

Theories of the Universe	216
--------------------------	-----

Einstein's theory and modern cosmologies.

CHAPTER NINE

Observing the Universe	229
------------------------	-----

Optical and radio telescopes and other equipment. Modern ground-based and space observational techniques.

Appendices	247
Glossary	249
Bibliography	251
Index	252
Acknowledgements	256