

RUDIMENTARY ASTRONOMY

Published @ 2017 Trieste Publishing Pty Ltd

ISBN 9780649696017

Rudimentary Astronomy by Robert Main

Except for use in any review, the reproduction or utilisation of this work in whole or in part in any form by any electronic, mechanical or other means, now known or hereafter invented, including xerography, photocopying and recording, or in any information storage or retrieval system, is forbidden without the permission of the publisher, Trieste Publishing Pty Ltd, PO Box 1576 Collingwood, Victoria 3066 Australia.

All rights reserved.

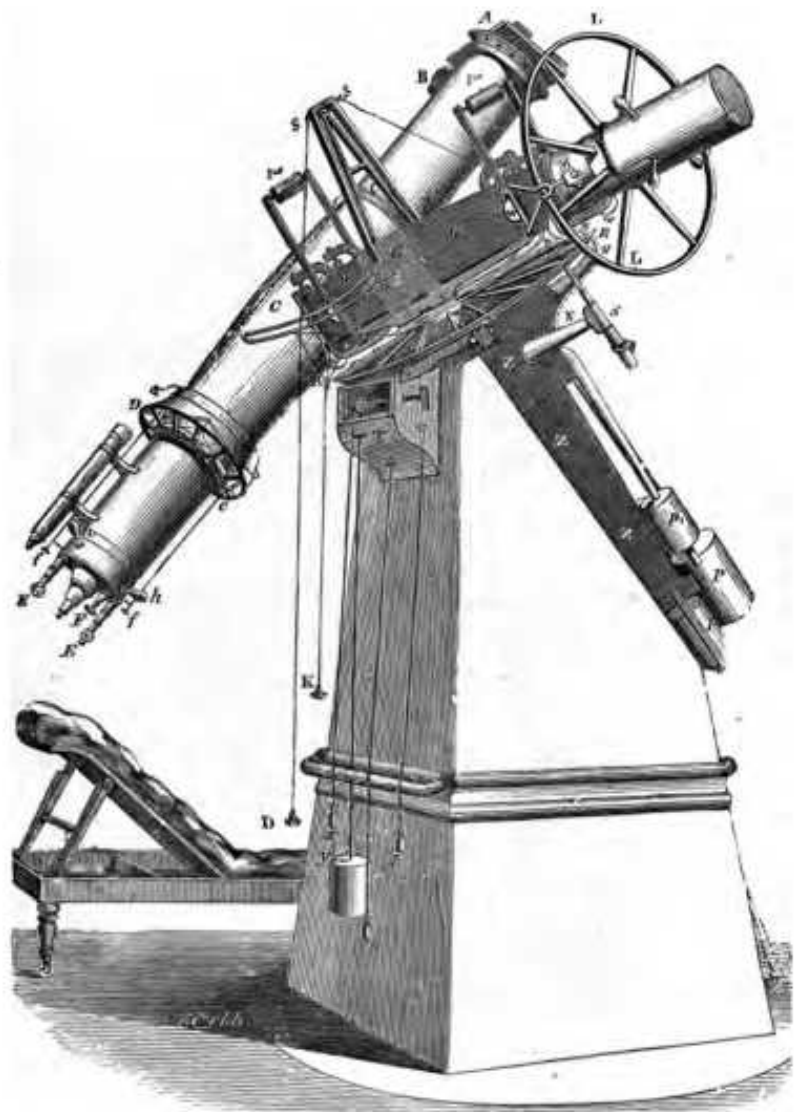
Edited by Trieste Publishing Pty Ltd.
Cover @ 2017

This book is sold subject to the condition that it shall not, by way of trade or otherwise, be lent, re-sold, hired out, or otherwise circulated without the publisher's prior consent in any form or binding or cover other than that in which it is published and without a similar condition including this condition being imposed on the subsequent purchaser.

www.triestepublishing.com

ROBERT MAIN

**RUDIMENTARY
ASTRONOMY**



View of the Oxford Heliometer, as given in Captain Smyth's "Ædes Hartwellianæ," or Description of Dr. Lee's Mansion at Hartwell, engraved from a drawing by Mrs. Smyth, and kindly put at the Publishers' disposal.

RUDIMENTARY ASTRONOMY

By THE REV. ROBERT MAIN, M.A., F.R.S., F.R.A.S.

RADCLIFFE OBSERVER AT OXFORD

NEW AND ENLARGED EDITION

WITH AN APPENDIX ON SPECTRUM ANALYSIS



Solar Eclipse of 1861, July 28, (see p. 88)

STRAHAN AND CO., PUBLISHERS

66, LUDGATE HILL, LONDON

1869

184. 9. 24.

ADVERTISEMENT TO THE SECOND EDITION.

THIS book has been thoroughly revised by the Author, and it is hoped that no discovery of importance, which has been made in Astronomy since 1852, the date of the First Edition, has been left unnoticed. On account of the interest which has been excited by the brilliant discoveries recently made by means of spectrum analysis, an Appendix has been added, giving a detailed account of the most important of them, and of the nature of the processes by which they have been made. It is hoped that, by the pains which have been bestowed on the revision, the treatise may prove additionally useful to the class of students who have used it in the First Edition, and its circulation be still more extensive.

RADCLIFFE OBSERVATORY, OXFORD,

August 30, 1869.

PREFACE.

It might with propriety be asked, what is the need of a new book on Astronomy, when so many excellent treatises already exist in the English language, of every class, both such as are familiar and rudimentary and such as exhaust the mathematical theories of the subject?

As far as the publisher of this little book is concerned, it may be sufficient to reply that a treatise was necessary to harmonise with his other "Rudimentary Treatises" on scientific subjects. The author also, when he was requested to write a work on the subject, felt convinced, after some investigation, that there did not at the time exist a book which, in small compass, and in a cheap form, would give the student a sketch of the processes pursued at present in modern observatories, together with the explanations of the leading phenomena of the science, and the most recent results of modern discovery.

There are many catechisms and treatises on Astronomy, some of which form only the introductions to other of the sciences, such as Geography, while others confine themselves to some special branch of the subject. Such treatises are generally descriptive, and confine themselves chiefly to brie

explanations of some of the most striking phenomena, and to the details of the chief facts relating to the solar system and to elementary and sidereal astronomy. More systematic treatises, such as the admirable "Outlines" of Sir John Herschel, are necessarily published at a high price, and are out of the reach of the great mass of the people whom these Rudimentary Treatises are intended to benefit.

Being on these grounds impressed with the conviction that a book which should embrace in small compass the chief *facts* of the science of Astronomy, and which should at the same time familiarise the mind of the student with the *reasonings and processes* by means of which the facts are arrived at, would be likely to prove useful, the author was willing to undertake the task of the compilation, though, from the small space allotted him, he was afraid that it would prove difficult, and perhaps embarrassing. He was, however, on proceeding with the work, agreeably surprised to find that much more matter could be compressed into the space than seemed at first to be practicable, by confining himself strictly to the leading features of the science, and by omitting, or passing over with short notice, such casual phenomena as are mere consequences of the general laws that are developed. It is hoped that even in this respect the reader will in general not be disappointed, but that he will meet with an explanation of the greater number of those phenomena which he has been accustomed to find in books more exclusively descriptive; but, if he should find omissions, it is hoped that the expressed object of the author, to deal only with the leading reasonings and facts of the science, will be a sufficient excuse.

The printing of the book had commenced before the *author was aware that a treatise by Mr. Hind on the Solar*

System in a cheap form was nearly ready for publication, and it is gratifying to find that the plan of that work does not interfere materially with the present Rudimentary Treatise. Mr. Hind's object, as explained in his Preface, has been to write a *descriptive* work, and "to present the reader with the latest information on all points connected with the solar system." The author's object, on the contrary, has been to write an *explanatory* work, which should at the same time contain the leading facts of the science, to serve for the purposes of illustration, and to make it acceptable to those who seek only for popular information.

It is hoped that the chapter that has been introduced on Astronomical Instruments, and their mode of use, will prove serviceable both to the general reader and to the student who is preparing to study Astronomy more systematically. The explanation also which it has been found practicable to insert concerning the theory of gravitation, and of some of the leading features of lunar and planetary perturbations, will also, it is hoped, induce the reader to seek for fuller and more philosophical knowledge in Airy's "Gravitation," to which reference has been made more than once, and which, together with the "Ipswich Lectures" by the same eminent astronomer, should be in the hands of every young student who hopes to proceed to the severer reasonings and investigations connected with the mathematical theories of Astronomy.

R. M.

GREENWICH,
March, 1852.