

**ELEMENTS OF OPTICS FOR
THE USE OF SCHOOLS
AND COLLEGES**

Published @ 2017 Trieste Publishing Pty Ltd

ISBN 9780649572083

Elements of Optics for the Use of Schools and Colleges by George W. Parker

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

GEORGE W. PARKER

**ELEMENTS OF OPTICS FOR
THE USE OF SCHOOLS
AND COLLEGES**

QC
355
P24

ELEMENTS OF OPTICS.

BY THE SAME AUTHOR.
ELEMENTS OF ASTRONOMY.
WITH
NUMEROUS EXAMPLES AND EXAMINATION
PAPERS.

Demy 8vo. 232 + 20 pp. Fourth Edition. 5s. 6d. net.

ELEMENTS OF MECHANICS.
With Numerous Examples.

FOR THE USE OF SCHOOLS AND COLLEGES.

Demy 8vo. 246 + 12 pp. Price 4s. 6d.

ELEMENTS OF HYDROSTATICS.

With Numerous Examples.

FOR THE USE OF SCHOOLS AND COLLEGES.

Crown 8vo. 150 + 3 pp. Price 2s. 6d.

ELEMENTS
OF
OPTICS

FOR THE USE OF SCHOOLS AND COLLEGES

BY

GEORGE W. PARKER, M.A.

OF TRINITY COLLEGE, DUBLIN

LONGMANS, GREEN, AND CO.

LONDON, NEW YORK, AND BOMBAY

1915



PRINTED BY POMEROY AND GIBBS
AT THE UNIVERSITY PRESS,
DUBLIN.

copy, 1, 16. M.A.J.

PREFACE.

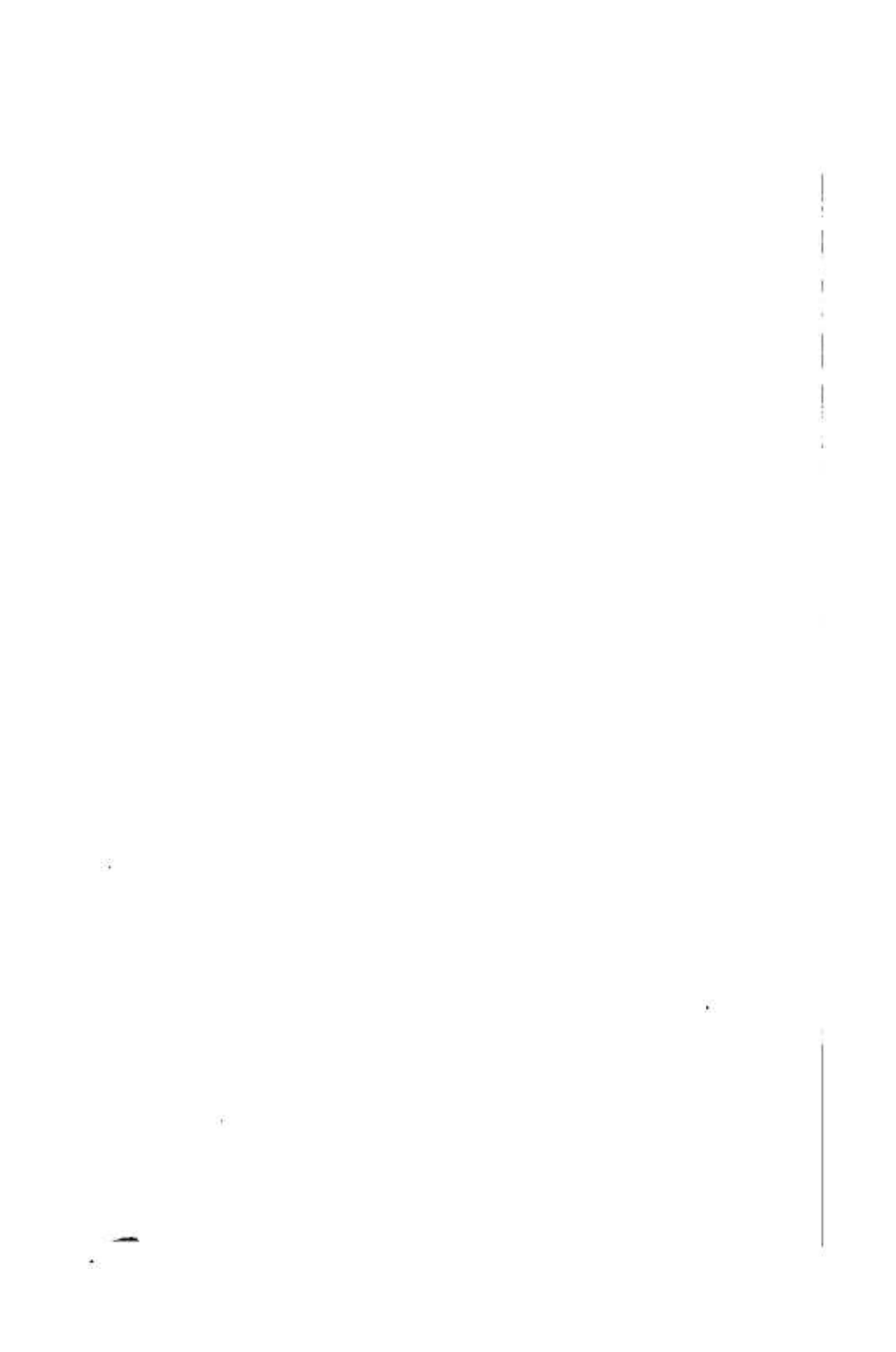
THIS little book is intended for those students whose knowledge of Mathematics is limited to an acquaintance with Elementary Geometry, the solution of Simple Algebraic Equations, and a few fundamental propositions in Trigonometry. It is therefore of a strictly elementary character.

The numerous examples which illustrate the text have been, to a large extent, selected from University and College Examination Papers.

The method of treatment is identical with that pursued in the text-books already written by the Author, in which his object has been to make the subject as attractive as possible to the student.

13, TRINITY COLLEGE,
DUBLIN,
March 22nd, 1915.

290915



CONTENTS.

CHAP.	PAGE
I. REFLECTION OF LIGHT :	
Rectilinear propagation of Light. Laws of Reflection. Reflection from Plane Mirrors. Conjugate Foci. Real and Virtual Images. Images in Plane Mirrors inclined at any Angle. The Kaleidoscope. Deviation of a Ray. Hadley's Sextant. Reflection from Spherical Mirrors. Principal Focus. Images in Concave and Convex Mirrors. Magnitude of Images. Advantages of Parabolic Mirrors,	1
II. REFRACTION OF LIGHT :	
Laws of Refraction. Index of Refraction. Transparent Plate with parallel faces. Real and Apparent Depths in a Liquid. Total Reflection of Light; Critical Angle. Deviation of a Ray through a Thin Prism. Lenses, Converging and Diverging. Deviation of a Ray through a Lens. Conjugate Foci of Lenses. Principal Focus; Focal Length, Centre of a Lens. Images in Convex and Concave Lenses,	36
III. THE EYE AND OPTICAL INSTRUMENTS :	
Description of the Eye. Power of Accommodation. Binocular Vision and its Advantages. Short and Long Sight. Simple Microscope or Pocket-Lens and its Magnifying Power. Compound Microscope and its Magnifying Power. Opera-Glass and various Astronomical Telescopes,	82
IV. DISPERSION OF LIGHT :	
Decomposition of White Light. Newton's Experiment. Dispersion and Dispersive Power. Dispersion of a Lens; Chromatic Aberration. Achromatic Lenses; Newton's Mistake,	112
ANSWERS,	120