

ELEMENTARY OPHTHALMIC OPTICS

Published @ 2017 Trieste Publishing Pty Ltd

ISBN 9780649485055

Elementary Ophthalmic Optics by Freeland Fergus

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

FREELAND FERGUS

**ELEMENTARY
OPHTHALMIC
OPTICS**

6

ELEMENTARY OPHTHALMIC OPTICS

BY

FREELAND FERGUS, M.D., F.R.S.E.

*Surgeon to the Glasgow Eye Infirmary
Examiner in Physics to the Faculty of Physicians and Surgeons of Glasgow*

LONDON

BLACKIE & SON, Limited, 50 OLD BAILEY, E.C.
GLASGOW AND DUBLIN

1903

Recd 2740.8
✓



B. O. Peirce fund

TO

JOHN GRAY M'KENDRICK, M.D., F.R.S.

PROFESSOR OF PHYSIOLOGY IN
THE UNIVERSITY OF GLASGOW

PREFACE

The aim of this book is to set forth, in a clear and simple manner, those portions of Physical and Geometrical Optics which I consider essential to the medical student beginning his ophthalmic studies. No one recognizes more fully than I do that the proper province of the ophthalmic surgeon is to treat diseases of the eye; but in order that he may do so with success it is necessary that he should have a competent knowledge of the organ of vision from a physical stand-point.

It is hoped that this small manual will form a suitable and easy introduction to such knowledge. The subject of Physiological Optics is not discussed, since that branch of ophthalmic study is, as a rule, sufficiently explained in text-books dealing with diseases of the eye. My endeavour has been to give in one volume all the information necessary for the beginner, and therefore I have placed in the introduction those parts of plane trigonometry which he requires.

The works of Landolt, Tscherning, Glazebrook, Preston, and others have been freely consulted, and have been of much service.

Acknowledgment of indebtedness is due to Dr. W. Inglis Pollock, who did the work of amanuensis, to Principal M'Lean of the Paisley Technical College, and to Professor Peter Bennett, for much assistance in reading proofs.

22 BLYTHSWOOD SQUARE,
GLASGOW, *March*, 1903.

CONTENTS

CHAP.	Page
INTRODUCTION	1
I. PROPERTIES OF LIGHT: REFLECTION	8
II. REFRACTION	35
III. LENSES	60
APPENDIX--THE SPECTROMETER	103



ELEMENTARY OPHTHALMIC OPTICS

INTRODUCTION

The pages which follow are an attempt to place before the student of Ophthalmology a clear account of those parts of physical and geometrical optics which are of use to him in his studies. In a text-book which is intended to contain only such elements of the subject as are required by the everyday student, the information given can at best be but rudimentary.

As a preliminary, it may be well to define here those functions of an angle which are met with even in the most elementary investigations.

Let ABC be a right-angled triangle, of which the angle at B is the right angle. The sine of the angle at A is defined to be the ratio of the length of the right line BC to that of the right line AC . In like manner the cosine of A is the ratio of AB to AC , and the tangent of the angle at A is the ratio of BC to AB .

