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978-1-107-49301-8 - The Theory of Optical Instruments

E. T. Whittaker

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THE THEORY
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OPTICAL INSTRUMENTS

by

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PREFACE.

STUDENTS of Astronomy, Photography, and Spectroscopy, have frequently expressed the desire for a simple theoretical account of those defects of performance of optical instruments to which the names *coma*, *curvature of field*, *astigmatism*, *distortion*, *secondary spectrum*, *want of resolving power*, etc., are given : it is hoped that the need will to some extent be met by this little work, in which the endeavour is made to lead up directly from the first elements of Optics to those parts of the subject which are of greatest importance to workers with optical instruments. A short account of the principal instruments has been added.

While the tract is primarily written with this practical aim, the writer ventures to hope that it may be useful in drawing the attention of Pure Mathematicians to some attractive theorems : of special interest is Klein's application of the imaginary circle at infinity to establish the result (§ 30) that no optical instrument can possibly be constructed, other than the plane mirror, so as to be capable of transforming all the points of the object-space into points of the image-space.

The writer moreover believes that the customary course of Geometrical Optics presented to mathematical students in Universities might with advantage be modified : and offers the present tract as a suggestion to this end.

E. T. W.

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[More information](#)

CONTENTS.

CHAPTER I. THE POSITION AND SIZE OF THE IMAGE.

	PAGE
Sect. 1. Rays and waves of light	1
2. Reflexion	3
3. Refraction: Fermat's principle	3
4. Object and image	5
5. Image-formation by direct refraction at the spherical interface between two media	6
6. Image-formation by direct refraction at any number of spherical surfaces on the same axis	7
7. The Helmholtz-Clausius equation	9
8. The transformation of the object-space into the image-space	10
9. The measure of convergence of a pencil	12
10. The lens	12
11. The thin lens	15
12. The spherical mirror	16
13. Astigmatism	17
14. Primary and secondary foci	19
15. Oblique refraction of a thin pencil at a single spherical surface	20
16. The entrance-pupil and the field of view	22
17. The magnifying power of a visual instrument	23

CHAPTER II. THE DEFECTS OF THE IMAGE.

Sect. 18. The removal of astigmatism from an optical instrument with a narrow stop	24
19. The removal of astigmatism from an optical instrument used at full aperture	26
20. Seidel's first condition: the removal of spherical aberration	28
21. Evaluation of the spherical aberration in uncorrected instruments	29

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978-1-107-49301-8 - The Theory of Optical Instruments

E. T. Whittaker

Frontmatter

[More information](#)

viii

CONTENTS

	PAGE
Sect. 22. Coma and its removal: the Fraunhofer condition	32
23. The sine condition	34
24. Aplanatism	35
25. Derivation of the Fraunhofer condition from the sine- condition	37
26. Astigmatism and Seidel's third condition	39
27. Petzval's condition for flatness of field	39
28. The condition for absence of distortion	41
29. Herschel's condition	45
30. The impossibility of a perfect optical instrument	47
31. Removal of the primary spectrum	48
32. Achromatism of the focal length	50
33. The higher chromatic corrections	52
34. The resolving power of a telescope objective	52
35. The resolving power of spectroscopes	54
 CHAPTER III. SKETCH OF THE CHIEF OPTICAL INSTRUMENTS.	
Sect. 36. The photographic objective	56
37. Telephotography	58
38. The telescope objective	58
39. Magnifying glasses and eyepieces	61
40. The visual astronomical refractor	63
41. The astronomical reflector	64
42. Field, marine, and opera glasses	65
43. The Microscope	67
44. The Prism Spectroscope	70