	CONTENTS	раge
I.	RADIATION IN THE VISIBLE SPECTRUM: ITS EMISSION, ABSORPTION AND REFLECTION	I
	The nature of light—Light sources in colorimetry—The absorption of light—The reflection of light	
2.	THE PERCEPTION OF LIGHT AND COLOUR	30
	The functions of the eye—The optical system of the eye—The retina—The relation between spectral composition and visual sensation—The geometrical representation of surface colours—Adaptation and contrast—Variation of colour perception across the retina and among individuals—Defective colour vision	
3.	THE PRINCIPLES OF PHOTOMETRY AND COLORIMETRY	63
	The concepts and conventions of photometry—Light flux, luminance and luminance factor—The experimental basis of trichromatic colorimetry—The algebra and geometry of colorimetry	
4.	THE C.I.E. SYSTEM OF COLOUR MEASUREMENT	102
	The definition of the 1931 standard observer—The definition of the 1964 standard observer—The 1931 co-ordinates, chromaticity chart and distribution curves—The 1964 co-ordinates, chromaticity chart and distribution curves—The calculation of tristimulus specifications from spectrophotometric data—Colour specification in terms of dominant wavelength and purity	L
5.	METAMERISM	138
	Metameric colour matches—A physiological assessment of metamerism—Metameric pairs of surface colours—Illuminant manifestation of metamerism—Observer manifestation of metamerism—Field-size manifestation of metamerism—Colour match breakdown due to surface texture—Metamerism and colour constancy	
6.	COLOUR DIFFERENCE METROLOGY	154
	The limited precision of colour matching and colour measure- ment—The just noticeable difference—Colour discrimination through the spectrum and in the chromaticity chart—Uniform colour scales—Colour difference formulae and colour tolerances	
7.	THE COLOUR SOLID AND THE COLOUR ATLAS	173
-	Subjective judgements of colour appearance and colour interval—The construction of a colour atlas—Colour atlases	

CONTENTS

8.	COLOUR MIXTURE DATA APPLIED TO THREE-COLOUR REPRODUCTION	194
	The principles of three-colour reproduction—Subtractive colour photography and printing—Colour television—The assessment of a colour picture	
9.	COLORIMETERS AND SPECTROPHOTOMETERS	223
	Practical methods of colour measurement—Additive colori- meters—Subtractive colorimeters—Photoelectric colorimeters— Visual spectrophotometers—Photoelectric spectrophotometers	
10.	PRACTICAL APPLICATIONS OF COLORIMETRY	256
	The classification of colour problems—Colour standards in industry—The dyeing industry—Lighting—Agriculture and food—Chemical tests: indicators—The pulp and paper industry—The paint industry—Signal glasses and road signs—The analysis of optical and visual phenomena—Meteorology and astronomy—Dichroism	
	APPENDIXES	309
	Appendix I—Part 1 Illuminants: Tables of energy distribution of the illuminants S_A , S_B and S_C ; D_{5500} , D_{6500} and D_{7500}	309
	Appendix I—Part I Illuminants: Tables of energy distribution of the illuminants SA, SB and SC; D ₅₅₀₀ , D ₆₅₀₀ and D ₇₅₀₀ —Part 2	309
	Appendix I—Part 1 Illuminants: Tables of energy distribution of the illuminants S_A , S_B and S_C ; D_{5500} , D_{6500} and D_{7500}	309
ı	Appendix I—Part I Illuminants: Tables of energy distribution of the illuminants SA, SB and SC; D ₅₅₀₀ , D ₆₅₀₀ and D ₇₅₀₀ —Part 2 Illuminating and viewing conditions Appendix II—The 1931 C.I.E. system of colour specification: tables of the chromaticity co-ordinates of the spectrum and of the distribution coefficients Appendix III—Condensed tables for the 1931 C.I.E. System Appendix IV—Wavelengths for the calculation of the tristimulus	309
•	Appendix I—Part I Illuminants: Tables of energy distribution of the illuminants SA, SB and SC; D ₅₅₀₀ , D ₆₅₀₀ and D ₇₅₀₀ —Part 2 Illuminating and viewing conditions Appendix II—The 1931 C.I.E. system of colour specification: tables of the chromaticity co-ordinates of the spectrum and of the distribution coefficients Appendix III—Condensed tables for the 1931 C.I.E. System	309
•	Appendix I—Part I Illuminants: Tables of energy distribution of the illuminants SA, SB and SC; D ₅₅₀₀ , D ₆₅₀₀ and D ₇₅₀₀ —Part 2 Illuminating and viewing conditions Appendix II—The 1931 C.I.E. system of colour specification: tables of the chromaticity co-ordinates of the spectrum and of the distribution coefficients Appendix III—Condensed tables for the 1931 C.I.E. System Appendix IV—Wavelengths for the calculation of the tristimulus values by the selected ordinate method	309