

SYSTEM OF OPHTHALMOLOGY

The scheme for the "System of Ophthalmology" is as follows, but its division into different volumes is liable to alteration.

- Vol. I. THE EYE IN EVOLUTION
- Vol. II. THE ANATOMY OF THE VISUAL SYSTEM
- Vol. III. NORMAL AND ABNORMAL DEVELOPMENT
 - Pt. I. EMBRYOLOGY
 - Pt. II. CONGENITAL DEFORMITIES
- Vol. IV. THE PHYSIOLOGY OF THE EYE AND OF VISION
- Vol. V. OPHTHALMIC OPTICS AND REFRACTION
- Vol. VI. OCULAR MOTILITY AND STRABISMUS
- Vol. VII. THE FOUNDATIONS OF OPHTHALMOLOGY
 - HEREDITY, PATHOLOGY, METHODS OF DIAGNOSIS,
GENERAL THERAPEUTICS
- Vol. VIII. DISEASES OF THE OUTER EYE
 - Pt. I. CONJUNCTIVA
 - Pt. II. CORNEA AND SCLERA
- Vol. IX. DISEASES OF THE UVEAL TRACT
- Vol. X. DISEASES OF THE RETINA
- Vol. XI. DISEASES OF THE LENS AND VITREOUS;
GLAUCOMA AND HYPOTONY
- Vol. XII. NEURO-OPHTHALMOLOGY
- Vol. XIII. THE OCULAR ADNEXA
 - LIDS, LACRIMAL APPARATUS, ORBIT AND PARA-
ORBITAL STRUCTURES
- Vol. XIV. INJURIES
- Vol. XV. INDEX OF GENERAL AND SYSTEMIC
OPHTHALMOLOGY

SYSTEM OF OPHTHALMOLOGY

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VOL. I

THE EYE IN EVOLUTION

BY

SIR STEWART DUKE-ELDER

*WITH 902 ILLUSTRATIONS, 15 COLOURED PLATES
AND 350 MARGINAL ILLUSTRATIONS*



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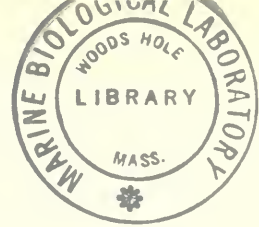
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PREFACE

THE reception accorded to my Textbook of Ophthalmology has persuaded me that there is a need for its continuation in a second edition. The seven volumes of the Textbook took almost a quarter of a century to write, a period unfortunately longer than it might have been owing to the exigencies of war. The first four volumes have long been out of print—and intentionally so because they have long been out of date. It is to be remembered that the second volume was written before the sulphonamides were introduced ; the third before the antibiotics revolutionized the therapeutics of infective diseases ; both of them before the role of viruses in ocular disease was adequately appreciated ; the physiology of the eye of yesterday is unrecognizable when compared with that of today ; even the anatomy has been transformed by more elaborate optical and chemical methods of investigation and the advent of the electron microscope. The re-writing of the whole work if its comprehensive nature were to be retained would be an immense task occupying more time than I could reasonably expect to have at my disposal. Moreover, tomorrow will be different from today, and if a work such as this is to be of any lasting value it would seem to me desirable that a new edition be published at least every fifteen or twenty years ; fortunately, ophthalmology is no static science.

It therefore seemed to me wise to share the task of re-writing the original Textbook with my colleagues at the Institute of Ophthalmology in London. I am grateful that they have accepted this burden. For this reason I have changed the name of the book to a “System of Ophthalmology” since it will necessarily be less personal.

This first volume in the new series is an extension of the first twenty pages of Volume I of the old Textbook ; this I have written myself, largely because it is a subject in which I am particularly interested—and I wished to write it. The subject-matter has never been gathered together in a single book before and it is my hope that it will interest ophthalmologists in so far as it forms the basis of the science of vision ; and it may be that it will be of value also to those whose interest is biological rather than clinical.

The numerous marginal sketches are not usual in a book of this type. To the student of natural history they may seem superfluous, but to the ophthalmologist some of the animals may be unfamiliar and the drawings may perchance add meaning to the zoological nomenclature and thus give the text more life and interest. It is to be noted, however, that they are drawn not to scale, but approximately to a standard size to fit into a 1-inch margin.

STEWART DUKE-ELDER.

INSTITUTE OF OPHTHALMOLOGY,
LONDON,
1957.

ACKNOWLEDGEMENTS

IN the preparation of this book I have incurred a considerable amount of indebtedness which is a pleasure to record.

Many of the illustrations are borrowed, and in each the source is acknowledged. There are, however, five sources from which I have liberally drawn, and these merit special thanks : Dr. Gordon Walls, for a number of his original drawings ; Masson et Cie of Paris, who have allowed me to use some illustrations from Rochon-Duvigneaud's classical work, *Les Yeux et la Vision des Vertébrés* ; Dr. Maurice Burton and his publishers, the Elsevier Publishing Co. of Holland, for some illustrations from *The Story of Animal Life* ; the Royal Society for permission to use a large number of Lindsay Johnson's illustrations published in their *Proceedings* ; and Macmillan & Co. for giving free permission to copy a large number of the illustrations of animals in the *Cambridge Natural History* in the form of marginal sketches.

In preparing the illustrations I have had the willing co-operation of Dr. Peter Hansell and the Department of Medical Illustration of the Institute of Ophthalmology, the assistance of which, particularly that of Mr. T. R. Tarrant, the Medical Artist, has been invaluable. The Zoological Society of London has lent me a number of photographs, as also has the Natural History Museum of London, together with specimens of various invertebrates. Professor Ida Mann has allowed me to use a large number of her illustrations of the eyes of animals, and Dr. Kevin O'Day of Melbourne has allowed me to use photographs and slides of the eyes of Monotremes and Marsupials which are unobtainable outside Australia ; while in this Institute Professor Norman Ashton and Dr. Katharine Tansley have provided me with sections and photographs of the eyes of a number of animals.

In several instances my knowledge of zoology has been brought up to date by the great kindness of Dr. Mary Whitear of the Zoology Department of University College, London, who has read the proofs of those sections dealing with zoological classification ; while Dr. Katharine Tansley and Dr. Robert Weale of this Institute have given me most helpful criticism in some aspects of the visual problems discussed. Miss M. H. T. Yuille, Mr. A. J. B. Goldsmith and my wife have shared with me the onerous task of proof-reading.

It is difficult for me to express my indebtedness to my secretary, Miss Rosamund Soley, who has borne much of the burden of the technical aspects of the production of this Volume. She has typed and prepared the manuscript, corrected the proofs, and undertaken the immense and somewhat thankless task of verifying the bibliographies, prepared the Zoological Glossary and the Index, and drawn the 350 marginal sketches.

Finally, my indebtedness to my publishers, Henry Kimpton, continues to be immense. They have assisted me in every possible way. Why Mr. G. E. Deed continues to put up with my moods and vagaries after thirty years is to me quite incomprehensible.

STEWART DUKE-ELDER.

CONTENTS

VOLUME I

THE EYE IN EVOLUTION

Part I. The Effect of Light on Living Organisms

CHAPTER I

INTRODUCTION

	PAGE
The Scope of the Subject	3
The Responses of Organisms to Light : Photosynthesis	4

CHAPTER II

THE EFFECT OF LIGHT ON METABOLISM : PHOTOPERIODISM

Metabolic Effects of Light	7
Photoperiodism in Plants	9
Photoperiodism in Animals	13
(a) Metabolic Activities	13
(b) Sexual Cycle of Animals	16
(c) Pigment Migration	19
(d) Bioluminescence	21
(e) Time-memory of Insects and Birds	22

CHAPTER III

THE EFFECT OF LIGHT ON MOVEMENT

Historical Development	27
Types of Motorial Responses	31
(a) Photokinesis	33
(i) Orthokinesis	34
(ii) Klinokinesis	34
(b) Phototropism	38
(c) Phototaxis	42
(i) Klinotaxis	47
(ii) Tropotaxis	52
(iii) Telotaxis	55
(iv) Scototaxis	60
(v) Menotaxis	60
Light-compass Reaction, 61 ; Navigational Sense in Birds, 63 ; Orientation to Polarized Light, 66 ; Orientation of Insects Out-of-doors, 67 ; Orientation to a Visual Pat- tern, 73 ; Dorsal (Ventral) Light Reaction, 74	
(vi) Mnemotaxis	78

CONTENTS

CHAPTER IV

THE EFFECT OF LIGHT ON PIGMENTATION	PAGE
The Types of Colour Change	82
Mechanism of Colour Changes	85
Chromatophores	85
Types of Pigment	87
Types of Response	89
Primary, 89 ; Secondary, 91 ; Indirect, 92	
Central Organization of Pigmentary Changes, Nervous and Hormonal	92

CHAPTER V

THE EMERGENCE OF VISION

Light-sensitiveness, the Light Sense and Vision	102
---	-----

Part II. The Evolution of the Visual Apparatus

CHAPTER VI

THE MORPHOLOGY OF INVERTEBRATE EYES

I. The Genesis of the Eye	113
Dermal Photosensitivity	114
Specific Light-sensitive Cells	115
Pigments	117
Melanin, 118 ; Visual Pigments, 118 ; Ommochromes, 122	
II. The Structure of Invertebrate Eyes	125
1. Eye-spots : Stigmata	125
2. Light-sensitive Cells	127
3. The Simple Eye	129
(a) The Unicellular Eye	130
(b) The Multicellular Simple Eye	132
(i) The Subepithelial Eye	132
(ii) The Epithelial Invaginated Eye	135
The Flat Eye, 136; the Cupulate Eye, 137; the Vesicular Eye, 141	
(iii) The Inverted Retina	146
(c) Aggregate Eyes	151
(d) Composite Ocelli	152
4. The Compound Eye	154
(a) The Development of Ocelli and Compound Eyes	156
(b) The Structure of the Compound Eye	157
The Simple Ommatidial Eye, 159 ; the Composite Compound Eye, 160	
(i) The Compound Eyes of Arachnids	160
(ii) The Compound Eyes of Crustaceans	163
(iii) The Compound Eyes of Insects	166
(c) The Optical System of the Compound Eye	170
The Appositional Eye, 173 ; the Superpositional Eye, 174 ; the Analysis of Polarized Light, 174	

CHAPTER VII

THE SYSTEMATIC ANATOMY OF INVERTEBRATE EYES		PAGE
The Structural Variability of Invertebrate Eyes		178
I. Protozoa		180
II. Parazoa (Porifera : Sponges)		181
III. Invertebrate Metazoa		181
1. Cœlenterata		181
(a) Cnidaria		182
Hydrozoa ; Scyphozoa ; Anthozoa		182
(b) Acnidaria : Ctenophora		182
2. Echinodermata		183
Holothuroidea, 184 ; Echinoidea, 185 ; Asteroidea, 185		
3. Worms		186
(a) Unsegmented Worms		187
(i) Platyhelminthes		188
Turbellaria, 188 ; Trematoda, 189 ; Cestoda, 189		
(ii) Nemertea		189
(iii) Nematoda		190
(b) Segmented Worms : Annelida		190
(i) Oligochaeta		190
(ii) Polychæta		191
(iii) Archiannelida		193
(iv) Hirudinea : Leeches		193
4. Chætognatha : Arrow-worms		194
5. Rotifera		194
6. Polyzoa : Bryozoa		194
7. Brachiopoda : Lamp Shells		195
8. Mollusca		195
(a) Placophora		196
(b) Solenogastres		197
(c) Scaphopoda		197
(d) Gastropoda		197
(e) Lamellibranchiata		200
(f) Cephalopoda		201
9. Arthropoda		204
(a) Onychophora		204
(b) Crustacea		206
(c) Myriapoda		210
(d) Arachnida		211
Scorpionidea, 211 ; Xiphosura, 212 ; Araneida, 213 ;		
Pseudoscorpionidea, 214 ; Pedipalpi, 214 ; Phalangida,		
215 ; Solifugæ, 216 ; Acarina, 216 ; Pycnogonida, 217		
(e) Insecta		217
(i) The Stemmata of Larval or Pupal Forms		222
(ii) The Dorsal Ocelli of Adults		224
(iii) The Compound Eyes of Adults		224

CHAPTER VIII

THE EYES OF PROTO-CHORDATES

1. Hemichordata	227
2. Tunicata : Urochordata	228
3. Cephalochordata : Lancelets	228

CONTENTS

CHAPTER IX

THE EVOLUTION OF THE VERTEBRATE EYE

PAGE

The Vertebrate Phylum	233
1. The Phylogeny of the Vertebrate Eye	237
2. The Ontogeny of the Vertebrate Eye	239
3. The Emergence of the Vertebrate Eye	242
4. The General Structure of the Vertebrate Eye	248

CHAPTER X

THE EYES OF CYCLOSTOMES

The Class of Cyclostomes	259
1. The Ammocete Eye	261
Light-sensitive Cells	263
2. The Lamprey Eye	263

CHAPTER XI

THE EYES OF FISHES

General Configuration of the Eye.	273
The Class of Fishes	278
1. The Selachian Eye	279
2. The Holocephalian Eye	290
3. The Teleostean Eye	291
4. The Dipnoan Eye	312
5. The Coelacanth Eye	314
6. The Chondrosteian Eye	315
7. The Holostean Eye	321
Anomalies in the Eyes of Fishes	322
(a) The Tubular (Telescopic) Eye	322
(b) The Amphibious Eye	324
(c) Stalked Eyes	326
(d) The Migratory Eye	328

CHAPTER XII

THE EYES OF AMPHIBIANS

The Class of Amphibians	333
General Configuration of the Eye.	334
1. The Anuran Eye	334
2. The Urodelan Eye	346

CHAPTER XIII

THE EYES OF REPTILES

The Class of Reptiles	353
General Configuration of the Eye.	353
1. The Lacertilian Eye	355
2. The Chelonian Eye	368
3. The Crocodilian Eye	375
4. The Rhynchocephalian Eye	379
5. The Ophidian Eye	383

CONTENTS

xiii

CHAPTER XIV

THE EYES OF BIRDS

PAGE

The Class of Birds	397
General Configuration of the Eye.	401
The Avian Eye	401

CHAPTER XV

THE EYES OF MAMMALS

The Class of Mammals	429
1. The Monotreme Eye	431
2. The Marsupial Eye	437
The Sub-class of Placentals	441
3. The Placental Eye	446
Aquatic Adaptations	501

CHAPTER XVI

THE CENTRAL ORGANIZATION OF VISION

General Principles	509
I. The Nervous Control	511
1. The Nerve-net	514
2. Trunk-pathways	516
3. The Ganglionic Nervous System	517
(a) The Nervous System of Worms	518
(b) The Nervous System of Arthropods.	521
(c) The Nervous System of Molluscs	527
4. The Central Nervous System of Vertebrates	530
Hind-brain, 533 ; Mid-brain, 534 ; Diencephalon, 537 ; Optic Thalamus, 538 ; Telencephalon, 542	
Evolution of the Visual Pathways and Centres	543
II. The Hormonal Control	547
Hormones and Neuro-secretory Cells	550
(a) The Neuro-endocrine System of Crustaceans	552
(b) The Neuro-endocrine System of Insects	555
(c) The Neuro-endocrine System of Vertebrates	556

Part III. The Function of the Eyes of Animals

CHAPTER XVII

THE VISION OF INVERTEBRATES

Methods of Investigation	567
1. The Reactions of the Lower Invertebrates to Light	570
(a) Protozoa	570
(b) Coelenterata	571
(c) Echinodermata	571

	PAGE
2. The Vision of Worms	572
(a) Unsegmented Worms	572
(b) Segmented Worms	572
3. The Vision of Molluscs	574
(a) Gastropods and Lamellibranchs	574
(b) Cephalopods	575
4. The Vision of Arthropods	577
(a) Onychophora	578
(b) Myriapods	578
(c) Crustaceans	578
(d) Arachnids	579
5. The Vision of Insects	581
(a) The Larvæ of Insects	582
(b) The Dorsal Ocelli of Adults	582
(c) The Compound Eyes of Insects	583
(i) Behavioural Experiments	583
(ii) Electro-physiological Characteristics	584
(iii) Spectral Sensitivity	584
(iv) Discrimination of Luminosity-differences	585
(v) Perception of Colour	586
(vi) Perception of Form	588
(vii) Perception of Distance	589
(viii) Spatial Appreciation and Localization	589
Accommodation in Invertebrates	590

CHAPTER XVIII

THE VISION OF VERTEBRATES

The Role of Vision in Vertebrate Life	597
(a) Cyclostomes	598
(b) Fishes	598
(c) Amphibians	599
(d) Reptiles	599
(e) Birds	600
(f) Mammals	600
I. The Perception of Light	602
1. The Nocturnal Eye	605
(a) The Optical System	605
The Tapetum Lucidum	606
(b) The Organization of the Retina	609
2. The Diurnal Eye	611
3. The Arrhythmic Eye	612
(a) Contractile Pupils	612
(b) Oclusable Tapeta	612
(c) Photo-mechanical Changes in the Retina	614
(d) The Static Organization of the Retina	616
4. Absolute Sensitivity to Light	616
5. Discrimination of Variations in Intensity	617

CONTENTS

xv

	PAGE
II. The Perception of Colour	619
Objective Methods of Investigation	621
Subjective Methods of Investigation	623
1. The Colour Vision of Cyclostomes	624
2. The Colour Vision of Fishes	624
3. The Colour Vision of Amphibians	627
4. The Colour Vision of Reptiles	628
5. The Colour Vision of Birds	629
6. The Colour Vision of Mammals	632
III. The Perception of Form	637
1. Optical Factors	638
(a) The Refraction of Vertebrates	638
(b) Accommodation in Vertebrates	640
(i) Static Devices	640
Stenopœic Pupil, 641 ; Duplicated Optical System,	
641 ; Interposition of Nictitating Membrane, 643 ;	
Duplicated Retina, 643 ; Ramp-retina, 643 ; Cor-	
rugated Retina, 643 ; Length of Receptor Elements,	
643	
(ii) Dynamic Devices	644
(a) Movement of Lens as a Whole	644
Backward Movement, 644 ; Forward Movement,	
647	
(β) Deformation of Lens	649
By Direct Ciliary Pressure, 649 ; by Capsular	
Elasticity, 652	
(iii) Accommodation in Amphibious Vertebrates	654
(c) Other Optical Factors determining Visual Acuity	655
2. The Structure of the Retina	656
(a) The Area Centralis	657
(b) The Fovea	658
(c) The Degree of Summation	659
3. The Visual Acuity of Vertebrates	660
(a) The Visual Acuity of Fishes	660
(b) The Visual Acuity of Amphibians	661
(c) The Visual Acuity of Reptiles	661
(d) The Visual Acuity of Birds	662
(e) The Visual Acuity of Mammals	663
IV. The Perception of Space	666
1. The Visual Fields of Vertebrates	669
(a) The Unioocular Field	669
(b) The Binocular Field	672
Cyclostomes, 678 ; Fishes, 678 ; Amphibians, 682 ; Reptiles,	
682 ; Birds, 684 ; Mammals, 687	
2. The Ocular Movements	689
(a) Involuntary Ocular Movements	690
(b) Voluntary Ocular Movements	692
Fishes, 693 ; Amphibians, 694 ; Reptiles, 694 ; Birds, 695 ;	
Mammals, 696	

The Perception of Space— <i>contd.</i>	PAGE
3. Unocular and Binocular Vision	697
Spatial Judgments	700
Fishes, 701 ; Amphibians and Reptiles, 702 ; Birds, 702 ;	
Mammals, 704	
V. The Perception of Movement	705

Part IV. Evolutionary By-ways

CHAPTER XIX

MEDIAN EYES

1. Pineal and Parietal Organs	711
Cyclostomes, 713 ; Fishes, 713 ; Amphibians, 714 ; Reptiles, 715	
(a) The Median Eye of the Lamprey	716
(b) The Median Eyes of Lizards and <i>Sphenodon</i>	716
2. The Function of the Pineal and Parietal Organs	718

CHAPTER XX

RUDIMENTARY EYES

Habit and Regression	721
1. The Sedentary Habit	722
Molluscs, 722 ; Crustaceans, 722	
2. The Abyssal Habit	722
Molluscs, 723 ; Crustaceans, 723 ; Fishes, 723	
3. The Cavernicolous or Limicoline Habit	724
Invertebrates, 724 ; Cave-fishes, 725 ; Amphibians, 726	
4. The Fossorial or Burrowing Habit	728
Invertebrates, 728 ; Amphibians, 730 ; Reptiles, 731 ; Mammals, 733	
5. The Parasitic Habit	733
Invertebrates, 733 ; Cyclostomes, 734 ; Fishes, 734	

CHAPTER XXI

LUMINOUS ORGANS

Bioluminescence	736
1. The Occurrence of Bioluminescence	737
The Biological Purpose of Bioluminescence	741
2. The Biological Mechanism of Bioluminescence	744
Extracellular Bioluminescence	745
Intracellular Production of Bioluminescence	746
3. The Chemical Mechanism of Bioluminescence	747

CHAPTER XXII

ELECTRIC ORGANS

The Electric Organs of Fishes : <i>Astroscopus</i>	751
--	-----

EPILOGUE	753
--------------------	-----

APPENDIX. Palæontological Table	754
---	-----

Zoological Glossary	756
-------------------------------	-----

Index	779
-----------------	-----

PART I
THE EFFECT OF LIGHT ON LIVING ORGANISMS

INTRODUCTION

THE EFFECT OF LIGHT ON METABOLISM

THE EFFECT OF LIGHT ON MOVEMENT

THE EFFECT OF LIGHT ON PIGMENTATION

THE EMERGENCE OF VISION

PART II

THE EVOLUTION OF THE VISUAL APPARATUS

THE MORPHOLOGY OF INVERTEBRATE EYES

THE SYSTEMATIC ANATOMY OF INVERTEBRATE EYES

THE EYES OF PROTOCHORDATES

THE EVOLUTION OF THE VERTEBRATE EYE

THE EYES OF CYCLOSTOMES

THE EYES OF FISHES

THE EYES OF AMPHIBIANS

THE EYES OF REPTILES

THE EYES OF BIRDS

THE EYES OF MAMMALS

THE CENTRAL ORGANIZATION OF VISION

PART III

THE FUNCTION OF THE EYES OF ANIMALS

THE VISION OF INVERTEBRATES

THE VISION OF VERTEBRATES

PART IV
EVOLUTIONARY BY-WAYS

MEDIAN EYES

RUDIMENTARY EYES

LUMINOUS ORGANS

ELECTRIC ORGANS