

The Practitioner Series

THE PRACTICE
OF
ENDOCRINOLOGY

Edited by

RAYMOND GREENE

M.A., D.M., M.R.C.P.

Published on behalf of

THE PRACTITIONER

by

EYRE & SPOTTISWOODE

1951

First Published 1948
Second (Revised) Edition 1951

THIS BOOK IS MADE AND PRINTED IN GREAT BRITAIN
FOR EYRE & SPOTTISWOODE LTD., (REVIEW PUBLICATIONS)
15 BEDFORD STREET, LONDON, W.2.

THE PRACTICE OF
ENDOCRINOLOGY

The Practitioner Series

EDITED BY SIR HENEAGE OGILVIE, K.B.E., D.M., M.Ch., F.R.C.S.,
AND WILLIAM A. R. THOMSON, M.D.

PRACTICAL PROCEDURES

MODERN ANÆSTHETIC PRACTICE

MODERN DIAGNOSIS

MINOR SURGERY

PSYCHOLOGY IN GENERAL PRACTICE

CHILD HEALTH

SKIN DISEASES IN GENERAL PRACTICE

TREATMENT BY MANIPULATION

PAIN AND ITS PROBLEMS

DISEASES OF THE HEART AND CIRCULATION

EARLY RECOGNITION OF DISEASE

PREFACE TO THE SECOND EDITION

Though I have been fortunate in receiving their advice, the original authors of this book have been content to leave the revision in my hands. Therefore, any deterioration must be debited to me and not to them.

In particular, I have attempted to bear in mind the people for whom the book was planned—the general practitioners in whose ranks I served for the first ten years of my professional life. I have omitted certain sections which, excellent though they may have been in themselves, attracted the adverse attention of reviewers because they were too theoretical or too detailed for this audience. I have added no new matter of which the practical application is not clear. Many of the references have been omitted for a similar reason. A multiplicity of references makes reading more difficult and it is unlikely that many readers of this book will wish to refer to the original papers on which the statements are based. Some references of more than ordinary historical interest have escaped pruning, together with very recent ones, but in general the principle has been followed that, if a statement made more than ten years ago is still regarded as sound, the general practitioner will rarely wish to examine the evidence for himself.

My thanks are due to so many that I cannot name them all. Especially, I would like to thank the reviewers whose kindly criticisms of the first edition I have tried to meet; a multitude of friends whose criticisms were often even more useful because less kindly; and finally, in point of time, Miss Ursula Matthews, whose technical experience has lifted from my shoulders many of the more boring of my editorial functions.

R. G.

June, 1950

PREFACE TO THE FIRST EDITION

This book is intended for general practitioners, most of whom are too busy to concern themselves with unproven hypothesis and academic detail. I have therefore given most space to diagnosis and treatment, including only enough anatomy and physiology to give the practice of endocrinology an intelligible background.

Endocrinology is probably the fastest growing-point in medicine to-day and any book is bound to grow out of date between manuscript and proof. But I have made no attempt to echo *le dernier cri*, which is too often that of a will-o'-the-wisp. New treatments should be tested under carefully controlled conditions in special clinics, not by clinical impressions in busy practices: therapy is often a poor test of theory.

I have taken the unusual course of recommending by name a number of proprietary preparations. The mention of a particular preparation does not necessarily imply that there is no equivalent; it does mean that it has been subjected to careful test by myself or one of my collaborators. The market is flooded with well-advertised "hormone" preparations which are of no value whatever, and at present the doctor who rarely uses hormones has no means of telling which are potent and which impotent or even fraudulent. A curious position has thus arisen in which reputable firms (who are, after all, commercial and not philanthropic organisations) have been forced by the mistaken demands of the medical profession to manufacture goods they frankly admit to be useless. Of these the best known examples are extracts of the pituitary and parathyroid glands for oral use (which are absolutely inactive by this route), and of testicles, ovaries and corpora lutea, which possess often a very slight activity and have been entirely replaced in expert practice by the pure synthetic androgens, oestrogens and progestational hormones. In a still lower category are extracts of prostate, thymus, breasts and brain, which should never be used by reputable doctors or made by reputable firms.

The reputation of endocrinology as a special branch of medicine has suffered much in past years not only from the dubious products of a few commercial houses but also from the ignorance of the basic facts of the science displayed by a large proportion of practising physicians. It is in the hope of helping the general practitioner to display in his treatment of endocrine disorder the high standard he has achieved in other branches of his profession that this book has been planned.

R. G.

THE COLLABORATORS

- A. C. CROOKE, M.A., M.D. (Cantab).** Clinical Endocrinologist to the Birmingham United Hospital, the Birmingham and Midland Hospitals for Women, and the Children's Hospital, Birmingham; formerly Endocrinologist to the Medical and Endocrine Units of the London Hospital.
- RAYMOND GREENE, M.A., D.M. (Oxon), M.R.C.P. (Lond.).** Physician, the Metropolitan Hospital, the Royal Northern Hospital, Harrow Hospital, and the Thyroid Clinic, New End Hospital, Hampstead; formerly Hunterian Professor, Royal College of Surgeons of England.
- DONALD HUNTER, M.D., F.R.C.P. (Lond.).** Physician, the London Hospital.
- R. D. LAWRENCE, M.A., M.D. (Aberdeen), F.R.C.P. (Lond.).** Physician in charge of the Diabetic Department, King's College Hospital, London.
- J. M. ROBSON, M.D., D.Sc. (Leeds), F.R.S.E.** Professor of Pharmacology, Guy's Hospital Medical School, London.
- F. F. RUNDLE, M.D. (Sydney), F.R.C.S. (Eng.).** Assistant Surgeon and Assistant Director of the Surgical Professional Unit, St. Bartholomew's Hospital, London; formerly Hunterian Professor, Royal College of Surgeons of London.
- P. H. SANDIFER, F.R.C.P. (Lond.), D.P.M.** Assistant Physician, Maida Vale Hospital for Nervous Diseases, London; Neurological Physician, Royal National Orthopædic Hospital, London.

LIST OF ILLUSTRATIONS

1. Median Section through 3rd Ventricle of Human Brain	<i>facing page 8</i>
2. Anatomy of Normal Pituitary Gland	<i>between pages 8 & 9</i>
3. Normal Pituitary Cytology	<i>facing page 16</i>
4. The Cytology of Basophilism	<i>facing page 17</i>
5. Visual Fields in Cases of Pituitary Adenoma	<i>facing page 32</i>
6. Radiological Appearances of Normal Sella Turcica	<i>between pages 32 & 33</i>
7. Radiological Appearances of Sella in Cases of Pituitary Adenoma	
8. Relations of the Optic Chiasm	<i>facing page 33</i>
9. The Acromegalic Facies	<i>facing page 40</i>
10. The Acromegalic Giant	<i>between pages 40 & 41</i>
11. The Development of Acromegaly	
12. Acromegalic Hands and Feet	<i>facing page 41</i>
13. Basophilism in a Woman aged 33	<i>facing page 48</i>
14. Adrenocortical Basophilism in a Man aged 25	<i>between pages 48 & 49</i>
15. Adrenocortical Basophilism in a Girl aged 6	
16. Basophilism in a Woman aged 30	<i>facing page 49</i>
17. Simmonds' Disease	<i>facing page 64</i>
18. Anorexia Nervosa	<i>facing page 65</i>
19. Geoffrey Hudson, Pituitary Dwarf	<i>facing page 72</i>
20. Pituitary Dwarfism	<i>between pages 72 & 73</i>
21. Ateleiosis with Premature Ageing	
22. Ateleiosis with Premature Ageing	
23. The Laurence-Moon-Biedl Syndrome	<i>facing page 73</i>
24. St. Wilgefort	<i>facing page 88</i>
25. Adrenal Virilism	<i>between pages 88 & 89</i>
26. Perinephric Insufflation: Normal Adrenal	<i>facing page 104</i>
27. Perinephric Insufflation: Adrenal Tumour	<i>between pages 104 & 105</i>
28. Addison's Disease	<i>facing page 105</i>
29. Vaginal Smears	<i>facing page 136</i>

30. The Endometrium	<i>between pages 136 & 137</i>
31. Intersexuality due to Adrenal Hypertrophy	<i>facing page 168</i>
32. Intersexuality due to Ovotestis	<i>between pages 168 & 169</i>
33. Gigantism with Hypogonadism	
34. Precocious Puberty	
35. Primary Amenorrhœa	<i>facing page 169</i>
36. Mammary Hypertrophy	<i>facing page 200</i>
37. Gynæcomastia	<i>between pages 200 & 201</i>
38. Puberal Obesity	
39a. Simple Nodular Goitre without Eye Signs	<i>facing page 232</i>
39b. Toxic Nodular Goitre without Eye Signs	
40. Thyrotoxicosis with Lid Retraction, without Exophthalmos, before and after Operation	<i>facing page 232</i>
41. Thyrotoxicosis with (a) Exophthalmos and (b) Lid Retraction	<i>between pages 232 & 233</i>
42. Thyrotoxicosis ("burned out") "Malignant" Exophthalmos	
43. Localized Myxœdema	
44. Spastic Lid Retraction in Graves' Disease	
45. Paralytic Lid Retraction in Graves' Disease	<i>facing page 233</i>
46. Orbital Overfilling in Graves' Disease	
47. Cretinism	<i>facing page 264</i>
48. Infantile Myxœdema	<i>between pages 264 & 265</i>
49. Hyperparathyroidism	<i>facing page 312</i>
50. Hyperparathyroidism	<i>between pages 312 & 313</i>
51. Thyrotoxicosis with Myasthenia Gravis and Vitiligo	<i>facing page 328</i>
52. Congenital Myasthenia Gravis	<i>between pages 328 & 329</i>
53. Mr. Edward Bright	<i>facing page 344</i>
54. Obesity with Hypertrichosis	<i>between pages 344 & 345</i>
55. Obesity with Hypogonadism	
56. Obesity with Acromegaly	<i>facing page 345</i>

FIGURES IN TEXT

	PAGE
1. Organization Diagram	XXIV
2. Weights of Adrenal Glands in Fœtal and Early Life	84
3. Structural Formulæ of Steroids	87
4. The Mortality Rate of Addison's Disease	113
5. Blood Pressure in Paroxysmal Hypertension	121
6. The Adaptation Syndrome	127
7. Normal Basal Temperature Curve	159
8. Structural Formulæ of Synthetic Œstrogens	164
9. Life History of Secreting Thyroid Adenoma	229
10. Hormonic Relationships in Graves' Disease	229
11. The Galactose Tolerance Test	240
12. Curves of Development and Remission of Ophthalmoplegia	248
13. Effect of Thyrotrophic Hormone on Temperature and Pulse	261
14a, b, c, Alternative Theories of Diabetes	273
15. Blood Sugar Curves, Normal and Abnormal	280
16, 17, 18. Blood Sugar Curves of Treated Diabetes	286, 292, 293
19. Hyperinsulinism	307
20. Blood Sugar Curves after Protein, Fat and Carbohydrate Meals	308
21. Biochemistry of Calcium	311
22. Calcium Balance in Osteitis Fibrosa	319
23. Hyperparathyroidism: Blood Chemistry	320
24. Anderson's Nomogram	337
25. Effect of Water Retention on Weight Loss	347

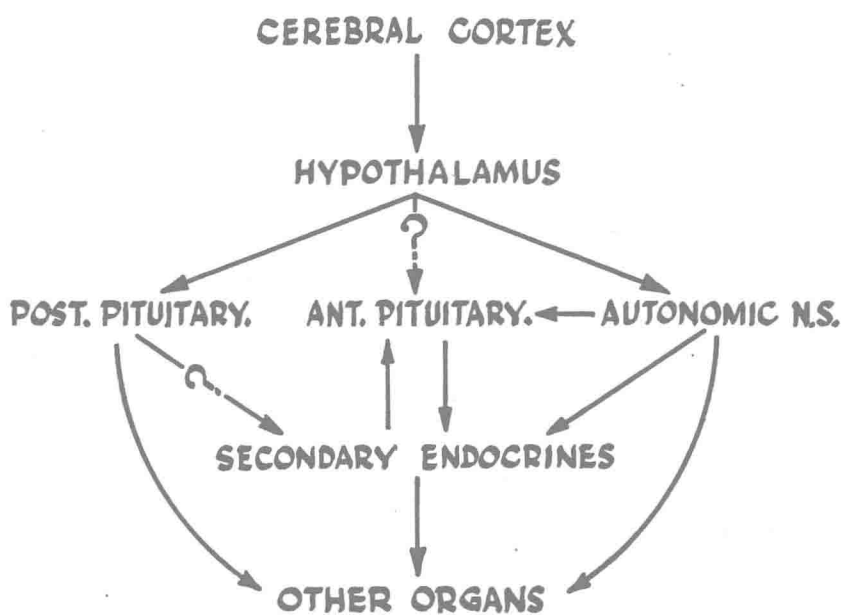


FIG. 1.

CONTENTS

	PAGE
PREFACE TO THE FIRST EDITION	v
PREFACE TO THE SECOND EDITION	vii
CHAPTER I. INTRODUCTION	I
CHAPTER II. THE HYPOTHALAMUS	3
ANATOMY	3
PHYSIOLOGY	3
Autonomic-Endocrine Functions	4
Response to cold	4
Response to heat	5
Emotional responses	5
Sleep	5
Endocrine Functions	5
Pigmentation	6
Water balance	6
Carbohydrate metabolism	6
Fat metabolism	7
HYPOTHALAMIC DISORDERS	7
Metabolic	7
Autonomic	7
Endocrine	7
General	8
Tumours of the Hypothalamus	8
Encephalitis Lethargica	8
Miscellaneous Disorders	8
SUMMARY	9
CHAPTER III. THE PITUITARY GLAND	10
INTRODUCTION	10
ANATOMY	10
Development	11
Cytology	11
Blood supply	13
Nerve supply	13

CHAPTER III.—*continued*

	PAGE
PHYSIOLOGY	14
Anterior Pituitary Gland	15
Gonadotrophic hormone	15
Lactogenic hormone	16
Corticotrophic hormone	16
Thyrotrophic hormone	16
Growth hormone	17
Other metabolic hormones	17
Posterior Pituitary Gland and Infundibulum	18
TUMOURS OF THE PITUITARY GLAND	20
Tumours of the Anterior Lobe	20
Pathological anatomy	21
Ætiology	22
Symptoms and signs	23
Differential diagnosis	29
Treatment	30
Prognosis	32
Craniopharyngiomata	33
Pathological anatomy	33
Ætiology	33
Symptoms and signs	34
Differential diagnosis	35
Treatment	36
Prognosis	36
HYPERPITUITARISM, ACROMEGALY AND GIGANTISM	36
Introduction	36
Acromegaly	37
Pathology	37
Ætiology	39
Symptoms and signs	40
Carbohydrate metabolism	44
Thyroid changes	44
The heart	44
Gigantism	45
Pathology	45
Ætiology	45
Symptoms and signs	45
Treatment of acromegaly and gigantism	46
Prognosis	47

CHAPTER III.—*continued*

PAGE

HYPERPITUITARISM. BASOPHILISM

Introduction	47
Pathology	48
Ætiology	52
Symptoms and signs	52
Differential diagnosis	56
Treatment	57
Prognosis	59

PITUITARY INSUFFICIENCY

Simmonds' Disease	59
Pathology	60
Ætiology	61
Symptoms and signs	62
Differential diagnosis	66
Treatment	66
Prognosis	67
The Pituitary Dwarf	67
Pathology	68
Ætiology	69
Symptoms and signs	69
Differential diagnosis	71
Treatment	73
Prognosis	73

POSTERIOR PITUITARY AND HYPOTHALAMIC SYNDROMES 73

Diabetes Insipidus	74
Pathology	74
Ætiology	74
Symptoms and signs	75
Differential diagnosis	75
Treatment	76
Prognosis	77
Fröhlich's Syndrome	77
The Laurence-Moon-Biedl Syndrome	78
Pathology	78
Ætiology	78
Symptoms and signs	79
Diagnosis	79
Treatment	80
Prognosis	80

	PAGE
CHAPTER IV. THE ADRENAL GLANDS	82
ANATOMY	82
DEVELOPMENT	83
PHYSIOLOGY	85
The cortex	85
The medulla	89
ADRENAL CORTICAL HYPERPLASIA AND NEOPLASIA	91
Pathology	92
Ætiology	93
Symptoms and signs	95
Onset in Adult Life	95
Onset in childhood	96
Onset in foetal life	96
Diagnosis	98
Treatment	100
Prognosis	101
ADRENAL CORTICAL INSUFFICIENCY	101
Addison's Disease	101
Pathology	102
Ætiology	103
Symptoms and signs	103
Differential diagnosis	107
Treatment	108
Prognosis	113
Adrenal Apoplexy	113
Pathology	114
Ætiology	115
Symptoms and signs	115
Diagnosis	117
Treatment	117
Prognosis	117
DISEASES OF THE ADRENAL MEDULLA	117
Pathology	118
Neuroblastoma	119
Ætiology	119
Symptoms and signs	120
Differential diagnosis	120

CHAPTER IV.— <i>continued</i>	PAGE
Treatment	120
Prognosis	120
Ganglioneuroma	120
Phæochromocytoma	120
Ætiology	120
Symptoms and signs	121
Differential diagnosis	122
Treatment	123
Prognosis	123
CHAPTER V. DISEASES OF ADAPTATION	126
THE GENERAL ADAPTATION SYNDROME	126
RHEUMATOID ARTHRITIS	129
OTHER DISEASES OF ADAPTATION	131
CHAPTER VI. SEX AND REPRODUCTION	133
PHYSIOLOGY	133
The Rôle of the Hypothalamus	133
The Rôle of the Anterior Pituitary Gland	133
The Rôle of the Ovaries	135
Œstradiol	135
Progesterone	137
Relaxin	139
The Menstrual Cycle	139
Pregnancy	143
The Mammary Glands	144
The influence of the ovarian hormones	144
Œstradiol	144
Progesterone	146
The anterior pituitary	147
The adrenal cortex	147
The thyroid gland	148
Androgens	148
Lactation	148
The Rôle of the Testicles	151
Testosterone	151
The hormone of the germinal epithelium	152
METHODS OF DIAGNOSIS	153
Hormone Assay	153
Gonadotrophic hormones	153