

HOLLAND AND BREWS MANUAL OF OBSTETRICS ROBERT PERCIVAL

CHURCHILL LIVINGSTONE

FOURTEENTH EDITION

Holland & Brews Manual of Obstetrics

Robert Percival

FRCS (Eng.), FRCOG

Consulting Obstetric and Gynaecological Surgeon, The London Hospital, King George Hospital, Ilford and the Forest Hospital, Buckhurst Hill; Lately Director of Obstetric and Gynaecological Unit, The London Hospital Medical College. Sometime Examiner in Obstetrics and Gynaecology, The Royal College of Obstetricians and Gynaecologists, the Universities of Birmingham, Cambridge, London and Trinity College, Dublin, the Society of Apothecaries of London, the Conjoint Examining Board in England and the Central Midwives Board.

FOURTEENTH EDITION



CHURCHILL LIVINGSTONE Medical Division of Longman Group Limited

Distributed in the United Stated of America by Churchill Livingstone Inc., 19 West 44th Street, New York, N.Y. 10036, and by associated companies, branches and representatives throughout the world.

© J & A Churchill Limited 1957, 1963, 1969 © Longman Group Limited 1980

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior permission of the publishers (Churchill Livingstone, Robert Stevenson House, 1-3 Baxter's Place, Leith Walk, Edinburgh, EH1 3AF).

First Edition 1906 Second Edition 1908 Third Edition 1911 Fourth Edition 1915 Fifth Edition 1919 Sixth Edition 1925 Seventh Edition 1931 Eighth Edition 1937 Reprinted 1940 Reprinted 1943 Ninth Edition (A.B.) 1948 Tenth Edition (A.B.) 1953 Eleventh Edition (A.B.) 1957 Twelfth Edition (A.B.) 1963 Thirteenth Edition (R.P.) 1969 ELBS Edition first published 1969 ELBS Edition reprinted 1973 ELBS Edition reprinted 1974 ELBS Edition reprinted 1976 Fourteenth Edition (R.P.) 1980 ELBS Edition of Fourteenth Edition 1980

ISBN 0 443 01604 6

British Library Cataloguing in Publication Data Holland and Brews' manual of obstetrics. — 14th ed.

1 Obstetrics

I. Holland, Sir Eardley II. Brews, Alan III. Percival, Robert IV. Manual of Obstetrics 618.2 RG524 78-40949

Manual of Obstetrics



Plate 1 SIR EARDLEY HOLLAND, MD(Lond.) Gold Medal, FRCP (Lond.), FRCS (Eng.), FRCOG, Hon. LLD (Birm. and Leeds), MD (Dub.), FRCS (Edin.), MMSA. Past President of the Royal College of Obstetriticians and Gynaecologists. The publication of this fourteenth edition commemorates his close affiliation of half a century with the textbook (see preface).

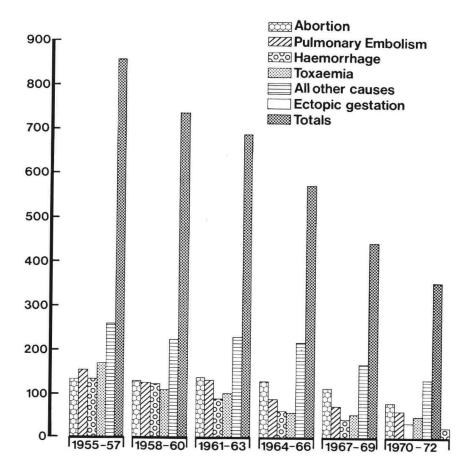


Plate 2 Main causes of maternal deaths directly due to pregancy and childbirth, 1955-1972 (Confidential Enquiries into Maternal Deaths, 1970-1972). It will be noted that ectopic gestation has displaced ante- and post-partum haemorrhage from the four leading causes of death — sepsis has long since been transferred. (With kind permission of HMSO.)

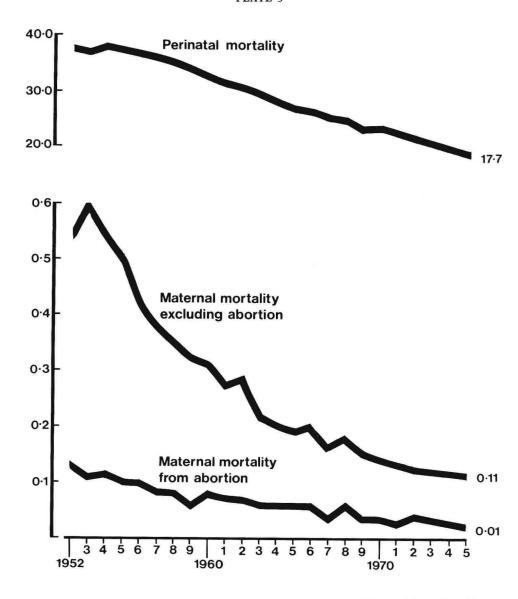


Plate 3 Perinatal and maternal mortality rates per 1000 total births, 1952-1972. (Confidential Enquiries into Maternal Deaths, 1952-1972). (With kind permission of the controller of HMSO.) More recent figures have been appended.

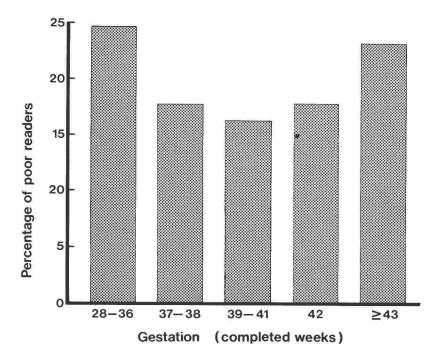


Plate 4 The influence of environment on intellect. Premature birth removes the fetus from a normally more favourable encompassment whilst genuine post-maturity retains the fetus in adverse surroundings because of diminishing placental competence. (After N. Butler and E. Albemarle with kind permission.)

Preface to the Fourteenth Edition

The appearance of the fourteenth edition of 'Holland and Brews' serves as a milestone in its history, for only recently the fiftieth anniversary of Eardley Holland's association with the publication has been passed — firstly as co-editor, then sole editor — but now, sadly in the title only. Even though great advances have been made in many fields, so much of his scholarly writing and wise counsel (couched in the simple, lucid English of his Churchillian style) can justifiably find a place in the book which has been thoroughly revised and in many parts re-written, that it must still remain 'Holland and Brews'.

Eardley Holland was very much ahead of his time in his thinking in obstetrics and was always striving to raise standards in the disciplines upon which midwifery depends. His professional life was fully occupied by the many demands made upon it, but in spite of a large and influential private practice he gave generously of his time to his hospital appointment in teaching, clinical work and in research. In the latter field one of his most outstanding contributions was original work on the causation of fetal death, the report on which was published in 1922 which can be regarded as a model in both writing and in research — a monograph which even today should be read as a classic.

As has been stated, this 14th edition has been extensively re-written to keep it in line with the many changes in practice and technique (most of which can be regarded as advances) that have taken place since the last, but only those that have proved themselves and become accepted practice have received mention or been described.

Fetal ecology, that most luxuriant growth in obstetric horticulture, has received the emphasis it has won for itself; and the various means by which the study may be pursued both in pregnancy and in labour have been fully described. Similarly the newer methods of stimulating the uterus either into activity or to stronger action by the use of prostaglandins or the oxytocin pump have received a full description; inhibition of uterine action too has been given attention. Although ultrasound had been under study for some time when the last edition was published it is really only in the interval since that its outstanding value in obstetrics has been proved and so a full description of its rationale is given as well as its uses, whenever appropriate, in the text.

Importance is attached to the Further Reading List that follows each chapter wherein relevant works of particular value are listed, those of former editions being retained only when meritorious or historical considerations justify it.

The immigrant population has brought its own special problems in obstetrics and so these have been brought together and discussed.

The incidence of puerperal sepsis has declined due to the greatly improved standards of midwifery throughout the land, and in consequence of this and the availability of effective antibiotics it no longer finds a place among the four main causes of maternal death. The chapter on puerperal infection has therefore been completely re-written and justifiably curtailed by the able pen of Professor David Williams, Head of the Department of Microbiology, one of whose main interests this particular study remains and to whom I am very grateful.

In consequence of the important changes that may take place in mental health in pregnancy and in the puerperium, this section has been re-written and enlarged and for this I am indebted to Dr Brice Pitt who has extensive experience in this field and works in close collaboration with our department.

Professor Rae Johnson has revised the anatomy of normal pregnancy and Professor Kenneth Cross its physiology. To both colleagues, I am more than grateful. The subject of the possible effects on the fetus and neonate from medication to the mother has justifiably received more attention in recent years and Professor of Therapeutics, Dr Duncan Vere, has kindly written a concise piece on this important subject. Pulmonary embolism is still one of the four main causes of maternal death and I am indebted to Dr Adam Turnbull and Mr Douglas Eadie for contributions to the medical and surgical management of thrombosis. Although labour can, and often still does with modest success, take place naturally and unaided, today there is an ever-increasing tendency to proffer unsolicited patronage under the guise of the 'active management of labour'. Like almost all endeavours, as long as it is pursued with knowledge and skill, with suitable surroundings and staff, favourable reports will no doubt continue to be made and perhaps the undoubted tedium and dangers of prolonged labour will disappear. Miss Christine Tuck, now Consultant Obstetrician at York, has had valuable experience in its technology and management and to her I give thanks for an able and crisp account. I am most grateful too to Dr Colin Blogg for re-writing the section on control of pain and for reviewing that on resuscitation and anaesthesia in obstetrics. I have received much help from the following colleagues both in advice, and in many cases, re-writing work connected with their own discipline: Dr Stuart Mason — endocrinology, Dr George Jenkins — haematology, Dr Stanley Murray and Dr Bill Hately — radiology and sonography, Dr Joe Pegum - dermatology, Dr David Hughes - thoracic medicine, Dr Frank Marsh nephrology, Dr Michael Swash - neurology, and Dr Alistair McDonald cardiology. To all I wish to record my warm appreciation and thanks.

So complicated has become the subject of sexually transmitted disease for a number of reasons — its increases (linked with that of the immigrant population), its complexity (for the same reason), the emergence of resistant organisms, the availability of more effective drugs and the development of allergy both to these and to ones in former use, to name the majority — that this subject has been completely re-written by Dr Eric Dunlop, Senior Physician to the Department of Veneriology and to him I am truly grateful.

Dr Anthony Jackson has become responsible for Chapter 8 which deals with the neonate. I am indebted to him for this but the mantle naturally fell upon him on the retirement of Dr Richard Dobbs.

Because this text-book is read widely, including the developing countries, it is thought apposite to include a succinct review of the special obstetric problems found in those lands. No one could be in a better position to write on this subject than Mr John Lawson who gained vast experience in Ibadan, Nigeria, where he occupied the Chair in Obstetrics and Gynaecology with distinction — my warm thanks to him.

No textbook for the obstetric scene in the United Kingdom today would be complete without including something on the special problems affecting the immigrant woman, especially the one with a dark skin and from a developing country. It might be thought redundant to include such a piece in a textbook that has already introduced a section on tropical obstetrics but the two situations are somewhat different. The problems within developing countries are known about and to be expected, whereas when encountered in an environment in which the majority of the population is white the special problems and accompanying risks are apt to be overlooked — hence the decision to include 'obstetrics relating to the immigrant woman'.

I have received the greatest co-operation and help too, for which I am most thankful, from Miss J.M. Piercy, Principal of the School of Physiotherapy; Miss P.L. Humpherson, Group Chief Dietitian and from Miss M.J.M. Hendrie, Group Dietitian of the Edgware General Hospital who devised the important section on 'nourishment in labour'; Miss D.G. Dedman, Principal Social Worker; Mrs M. Ellis, Head of the Department of Occupational Therapy; Mr C.W. Barratt, Area Pharmacist. From members of the Department of Obstetrics itself I have received much helpful advice (but in particular from Miss J. Piggford, Principal Nursing Officer, Midwifery), to all of whom I extend my warm appreciation. For help with many new photographs, and graphs I am grateful to Mr R.F. Ruddock, Head of the Photographic Department and Miss J. Abbot, Medical Artist to the Medical College. I wish to acknowledge the courtesy shown by the following for allowing me to borrow from their publications: W.B. Saunders & Co., Boston and London; British Journal of Hospital Medicine, London; Churchill Livingstone, Edinburgh, London and New York; Harty Press Inc., Newhaven, Conn. (or Corometrics Medical Systems Inc., Newhaven Conn.); British Medical Journal; Controller of H.M. Stationery Office, Department of Health and Social Security and Nuclear Enterprises Ltd., Edinburgh.

I am very conscious of the help in every way received from the publishers — Churchill Livingstone — especially from Mr Timothy Hailstone, Mr Richard Zorab, Ms Lynn Baxter and Mrs Sylvia Hull. Finally I must again record by grateful thanks to my secretary, Mrs C. Rapp, and also to Mrs M. Bowering for dealing with much of that side of the work.

London, 1980 R.P.

List of Plates

Colour plates and black and white plates are placed at the latter part of the book. The frontispiece shows plates 1-4.

- 1. Sir Eardley Holland
- 2. Main causes of maternal deaths directly due to pregnancy and childbirth, 1955 1972
- 3. Perinatal and maternal mortality rates per 1000 total births, 1955 1972
- 4. The influence of environment on intellect
- 5. Nuclear divisions of somatic and sex cells (colour)
- 6. (A) Placenta Spanner 1935 schematic (B) Placenta Diffuse superficial white infarction (colour)
- 7. Circulation of maternal blood in the placenta (schematic, colour)
- 8. Fetal circulation. Diagrammatic (colour)
- 9. Fetal circulation. Diagrammatic (colour)
- 10. Intravenous pyelogram (28th week of pregnancy). Physiological
- Intravenous pyelograms. Physiological
 (A) One week before delivery; (B) Two weeks after delivery
- 12. Twin pregnancy: (A) Double vertex presentation; (B) Normal vertex and fetus papyraceus
- 13. Triplet pregnancy
- 14. Quadruplet pregnancy
- Advanced secondary abdominal pregnancy
 (A) Straight film; (B) Repeat film with lipiodol hysterogram
- 16. Lithokelyphopaedion
- 17. Pyelonephritis of pregnancy. Intravenous pyelogram
- 18. Gross dilatation of ureter, etc in coliform infection
- (A) Retrograde ureterogram and pyelogram(B) Large right renal calculus. Recurrent pyelonephritis of pregnancy
- 20. Fetal Transfusion. Tuohy needle in fetal peritoneal cavity
- 21. Fetal Transfusion. X-ray prior to second intrauterine transfusion
- 22. Liver from fatal case of eclampsia (colour)
- 23. Bicornuate uterus
 - (A) Transverse lie at term; (B) Hysterogram three months after delivery

- 24. Vertex presentation
 - (A) Anterior position; (B) Posterior position
- 25. Breech presentation
 - (A) Full flexion; (B) One leg flexed, the other extended
- 26. Breech presentation
 - (A) Antero-posterior film; (B) Lateral film
- Transverse lie
 - (A) Primigravida, 32 weeks, with placenta praevia; (B) Multigravida in the first stage of labour
- 28. Twins
 - (A) Vertex and breech presentations; (B) Breech presentation and transverse lie
- 29. Twins. Double breech presentation

30 - 41 PELVIC TYPES, DEFORMITIES AND DISPROPORTION

- 30. Parent types. (Caldwell and Moloy)
- 31. Normal gynaecoid pelvis
 - (A) Brim view; (B) Lateral erect view
- 32. (A) Normal gynaecoid pelvis. Outlet view
 - (B) Android pelvis. Brim view.
- 33. Android pelvis
 - (A) Lateral erect view; (B) Outlet view
- 34. Anthropoid (Pithecoid) pelvis
 - (A) Inlet view; (B) Lateral erect
- 35. (A) Platypelloid pelvis. Inlet view
 - (B) Rachitic flat pelvis. Erect lateral view
- Asymmetrical pelves
 - (A) Naegele. Inlet view; (B) Coxalgic. Inlet view
- 37. Asymmetrical pelves
 - (A) Scoliotic. Inlet view
 - (B) Old fractures. Antero-posterior view
- 38. (A) High assimilation pelvis. Antero-posterior view
 - (B) Spondylolisthetic pelvis. Lateral erect view
- (A) Neoplasm of pelvis. Osteochondroma. Antero-posterior view
 (B) Pelvinmetry with aid of Thoms' grid. Inlet view
- 40. (A) Achondroplasiac pelvis. Antero-posterior view
 - (B) Osteomalacic pelvis. Antero-posterior view
- 41. (A) High head due to disproportion
 - (B) Face presentation, developing during a trial of labour

42-45 CONDITIONS CAUSING OBSTRUCTED LABOUR

- 42. Calcified fibromyoma
 - (A) Antero-posterior view; (B) Lateral erect view

xiv LISTOFPLATES

- 43. Hydrocephalus. Breech presentation (A) Before tapping; (B) After tapping
- 44. Hydrocephalus. Vertex presentation (A) Before tapping; (B) After tapping
- (A) Tumour of fetal buttocks; (B) Anencephalus and hydramnios 45.

46-53 PLACENTOGRAPHY

- 46. Normal anterior implantation of placenta
- Normal fundal and posterior wall implantation 47.
- 48. Normal fundal and posterior wall implantation with pendulous abdomen
- 49. Twin pregnancy. Two placental shadows
- 50. A major degree of anterior placenta praevia
- 51. A major degree of posterior placenta praevia
- 52. A major degree of posterior placenta praevia The same patient as in Plate 51, but tilted back to an angle of 60°
- 53. Central placenta praevia
- 54. Concealed accidental ante-partum haemorrhage (colour)
 - (A) In utero

 - (B) Haematoma covering half of placenta when delivered (C) Couvelaire uterus
- 55. Choriocarcinoma (colour)
 - (A) in fundus of uterus; (B) in myometrium
- Haemolytic disease of the fetus (colour) 56. (A) Hydrops fetalis; (B) Erythroblastaemia.
- Spalding's sign of death of the fetus in utero 57.
- 58. Tear of tentorium cerebelli with excessive moulding due to
- generally contracted pelvis (colour)
- 59. (A) Section of lung. Hyaline membrance disease
 - (B)Kernicterus. Normal infant and a jaundiced infant with opisthotonos (colour)
- 60. (A) Anaemia in pregnancy
- (B) Secondary syphilis of the vulva (colour)

61-64 NEONATAL RADIOLOGY

- (A) Oesophageal atresia; (B) Duodenal atresia 61.
- 62. Diaphragmatic hernia (A) Before repair; (B) After repair
- Intestinal obstruction 63.
- (A) Small bowel; (B) Large bowel
- 64. (A) Anal atresia; (B) intrauterine pathological fracture (pseudoarthrosis)

Contents

1. Normal pregnancy	1
Sex cycles, ovarian and uterine	1
Sex hormones, ovarian, pituitary and placental	10
Maturation, chromosomes and sex determination. Investigation into	
chromosomal and genetic disorders	13
Fertilization of the ovum. Early development of the zygote (fertilized ovum)	
Imbedding of zygote, decidual formation	24
Chorion and placenta, placental function, structure at term	30
Amnion, umbilical cord and fetus	48
Circulation, blood formation and general physiology in the fetus	57
The gravid uterus	64
General physiology of pregnancy	67
Diagnosis	77
Radiology and radiological hazards, ultrasound	82
Biological and immunological tests	91
Multiple pregnancy	95
Management of pregnancy, antenatal care, maternal medication, diet,	
physiotherapy, occupational therapy, social care	102
2. Abnormal pregnancy	142
Common discomforts	143
Hyperemesis gravidarum	145
Abortion: miscarriage	148
Uterine moles	166
Extra-uterine (ectopic) gestation	177
Urinary tract infection	187
Anaemias	191
Rhesus incompatibility, diagnostic amniocentesis, intra-uterine transfusion,	
the prevention of Rh sensitization	197
Glycosuria: diabetes mellitus	201

xvi contents

Specific toxaemias	204
Eclampsia	204
Essential hypertension. Chronic nephritis	228
Jaundice	230
Generalized infections	232
Respiratory diseases	233
Endocrine disorders	239
Neurological and psychological disorders	240
Dermatological disorders	243
Developmental anomalies, displacements of genital tract	244
Tumours of genital tract	252
Sexually transmitted diseases	256
Hydramnios. Oligohydramnios	273
Diseases of placenta	277
Abnormalities of embryo and fetus	281
Obstetrics relating to the immigrant woman	283
3. Normal labour	287
Calculation of date of labour	287
Onset	291
The stages of labour	293
Anatomy and physiology of 1st and 2nd stages	299
The maternal passages — the fetus — the forces	
Anatomy and physiology of the 3rd stage	319
Mechanism	322
Management	337
General considerations — antiseptics and asepsis — Diagnosis —	
monitoring in labour — active management of labour — control of pain	
 uterine stimulants — delivery: fetus and placenta 	
—nursing care after delivery	
4. Abnormal labour	396
Occipito-posterior positions of the vertex	397
Face presentation	404
Brow presentation	410
Breech or pelvic presentation	413
Shoulder presentation. Transverse lie	432
Twin labour	439
Abnormal descent of cord and prolapse of limbs	442

	CONTENTS	xvi
Pelvic contraction		448
Common varieties — methods of diagnosis — manageme	ent of	
delivery — rare forms of contracted pelvis		
Ovarian and uterine tumours: early rupture of membranes		478
Rigidity of vagina and pelvic floor		48
Abnormality of uterine action		480
Cervical dystocia		490
Obstructed labour		499
Injuries of the birth canal. Inversion of uterus		509
Ante-partum haemorrhage and placentography		52
Placenta praevia		528
Accidental haemorrhage		548
Retention of placenta		554
Post-partum haemorrhage		56
5. The puerperium		570
The normal puerperium		570
Management		57
Post-natal physiotherapy		580
Infection		582
Venous thrombosis		595
Inflammation of breasts		599
Choriocarcinoma		602
Psychological and psychiatric considerations		606
6. Obstetric operations		614
Perineotomy		614
Surgical conservation of pregnancy		610
Induction of abortion		618
Anaesthesia for obstetric operations		629
Induction of labour		632
Version		640
Obstetric forceps		65
Vacuum extractor		670
Caesarean section		680
Caesarean hysterectomy		690
Abdominal hysterotomy		69'
Destructive operations on fetus		698
Symphysiotomy		700
Resuscitation in obstetrics		70

Emergency obstetric units

736