

THE PRINCIPLES AND PRACTICE OF  
**MEDICINE**

*A Textbook for Students and Doctors*

By

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CLINICAL UNITS

FOURTH EDITION  
REPRINT

## PREFACE TO THE FOURTH EDITION

WITHIN the short period of six years four editions and three large reprints of this textbook have been published. In addition the book has been translated into Spanish for sale in Spain and in particular South America, and as we go to press requests for translations have come in from other sources. It seems reasonable to assume, from the phenomenal demands reported by booksellers in the British Commonwealth, the United States of America and other parts of the world, that the style, composition and presentation of material have met with the approval of large numbers of students and doctors, and that the general policy governing the selection of material for description and discussion in the previous editions should be maintained. This policy, as clearly stated in the preface to the First Edition, is as follows. "It was also decided that no attempt should be made to describe every rare disease or syndrome, but to devote most of the space available to those disorders most commonly encountered in practice. The selection of the rarer diseases for inclusion and the amount of space devoted to them was based principally on their cultural interest or their educational value as examples of applied anatomy or physiology. It was also decided that each section of the book should start with a discussion of the anatomy and physiology of the system concerned, in order to encourage a rational approach to an understanding of symptomatology and treatment, and should end with a review of the measures available for the prevention of disease."

It is indeed gratifying to have had the privilege of preparing so many editions in such a short space of time. While this has been a considerable strain on the editor and contributors it has enabled them to keep each edition abreast with the rapid advances in medical knowledge which are continually being made.

As a result of the inclusion of additional subject matter, the size of the Third Edition of this book was increased by 38 pages. If new material were to be introduced into the Fourth Edition, I felt it was essential that the additional space required should be

obtained by carefully reviewing every chapter with the object of deleting any material that was redundant or out of date. This has been successfully accomplished, and the Fourth Edition is actually 12 pages shorter than the Third Edition despite the inclusion of new material in almost every section and an expansion of the sections devoted to Psychological Medicine and to Electrocardiography.

As was noted in the preface to previous editions the contributors are drawn from the Staff of the Department of Medicine of the University of Edinburgh and its associated clinical units. Furthermore, in each edition every section has been carefully reviewed not only by the editor but by one or more of the other contributors to this book. It is my belief that one of the main reasons for the success of this textbook is the close cooperation existing between the various members of my staff and myself in its production. As a result it has been possible to achieve the balanced style and composition which are said to characterise the work of a single author, and at the same time to reflect the diversity and depth of knowledge and experience which can only be contributed by a team of physicians.

The belief of the Editor and the publishers that the sale of the Fourth Edition will be of the same magnitude as that of previous editions has encouraged them to print an even larger number of copies to avoid an increase in the published price.

Having scrutinised with the greatest care every paragraph with regard to content, style and clarity of expression, and having contributed subject matter to a greater or lesser extent to practically every chapter of the book, I must accept the main responsibility for the production of the Fourth Edition of this textbook and for any criticisms which may be evoked as to its educational and clinical value.

It is a great pleasure to acknowledge the help received from my staff who contributed so much of the contents of the book and assisted in the editing and correcting of proofs.

I should like to take this opportunity of thanking those teachers of Medicine in many parts of the world who have recommended this textbook to their students.

I am also greatly indebted for helpful advice to certain distinguished medical men who are not on the staff of the Department of Medicine, and particularly to Professor John McMichael of

the Postgraduate Medical School of London and to Dr. Charles Seward.

The production of this book has meant a great increase of work for my secretaries and I wish to express to them my thanks, especially to Mrs. Mona Wilson on whom the chief burden fell. Finally, it is a pleasure to acknowledge the help and kindness I have received from the publishers.

STANLEY DAVIDSON.

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PLATE I  
SCARLET FEVER

*By courtesy of Parke, Davis & Co. Ltd.]*

*[Facing page 32*



PLATE II  
ERYSIPELAS

*[By courtesy of Parke, Davis & Co. Ltd.]*





PLATE III

SMALLPOX

*By courtesy of Parke, Davis & Co. Ltd.]*

*[Facing page 40*

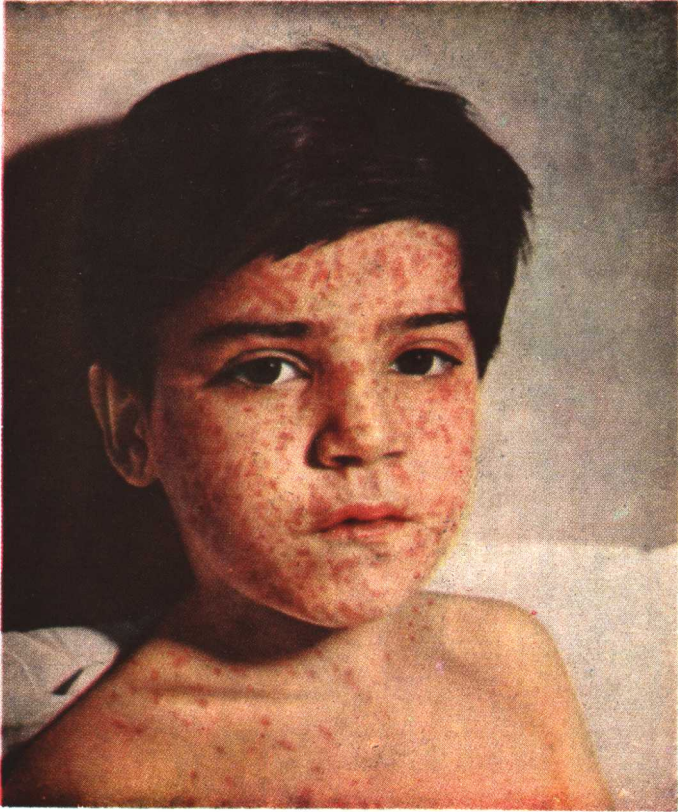


PLATE IV  
MEASLES

*[By courtesy of Parke, Davis & Co. Ltd.]*

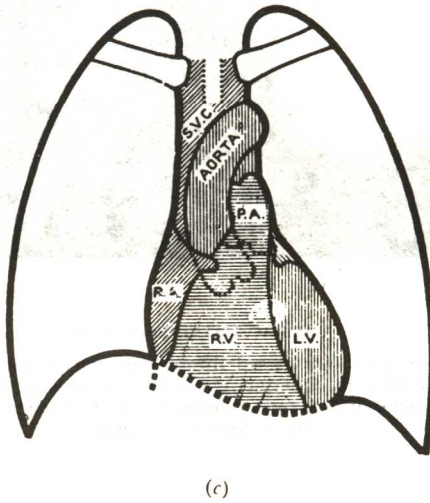
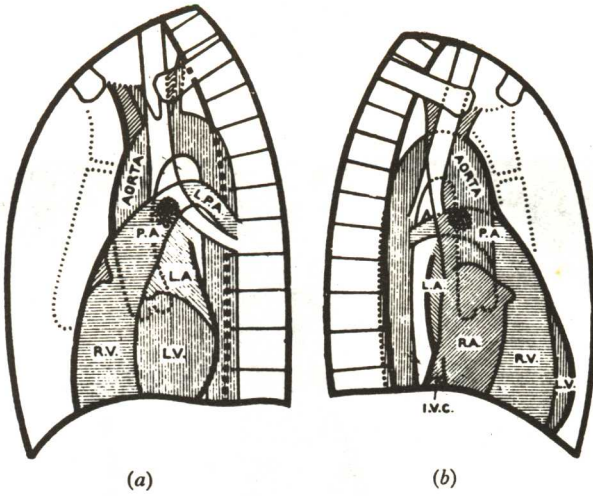


PLATE V

RADIOLOGICAL ANATOMY OF THE HEART

(a) Left oblique view. (b) Right oblique view. (c) Anterior view.

(By courtesy of Sir John Parkinson and 'The Lancet'.)

[Facing page 80]

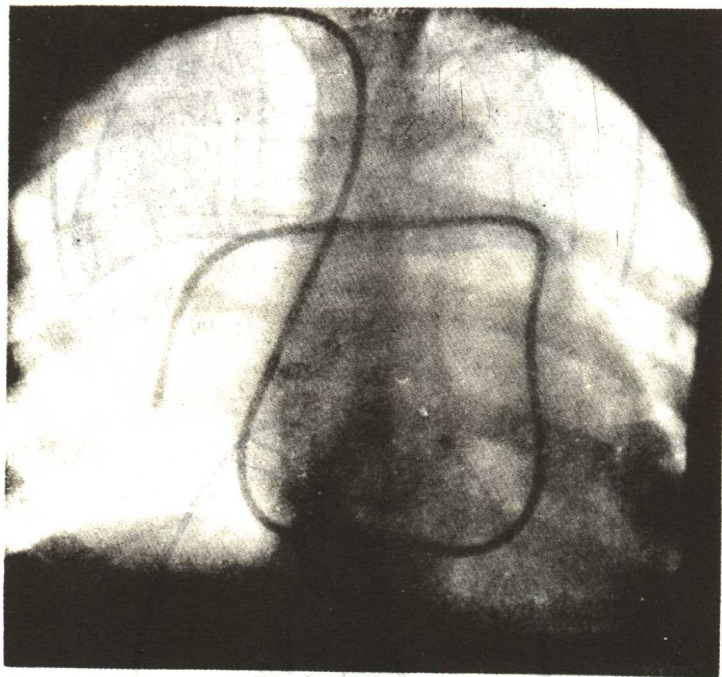


PLATE VI

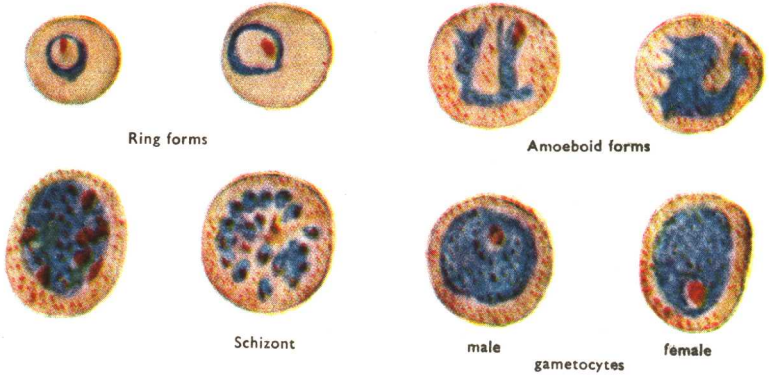
CARDIAC CATHETERISATION

The catheter has been passed through an antecubital vein into the right subclavian vein, superior vena cava, right atrium, right ventricle, main pulmonary artery, right pulmonary artery and its branch to the lower lobe of the lung.

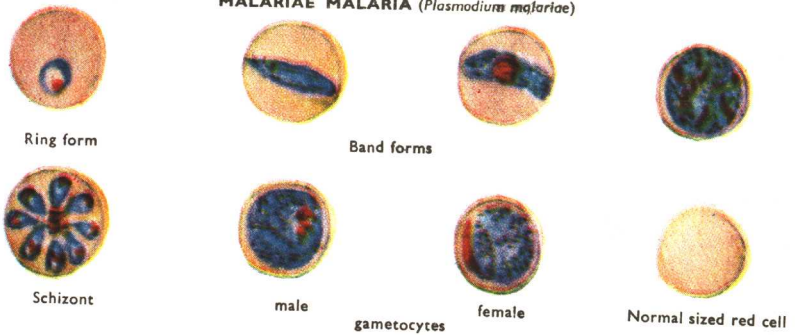
**FALCIPARUM MALARIA** (*Plasmodium falciparum*)



**VIVAX MALARIA** (*Plasmodium vivax*)



**MALARIAE MALARIA** (*Plasmodium malariae*)



**OVALE MALARIA** (*Plasmodium ovale*)

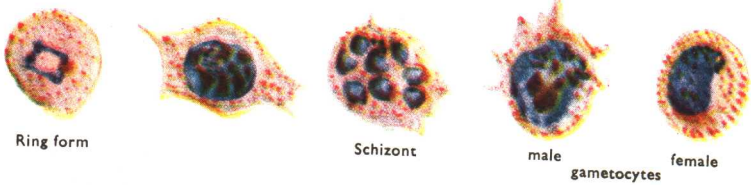


PLATE VII—MALARIA PARASITES

(From Manson-Bahr, 'Tropical Diseases'. London. Cassell.  
Drawings by Sir Philip Manson-Bahr.)

## CONTENTS

	PAGE
INFECTION AND DISEASE . . . . .	1
INFECTIOUS DISEASES . . . . .	19
CHEMOTHERAPY . . . . .	56
DISEASES OF THE CARDIOVASCULAR SYSTEM . . . . .	72
DISEASES OF THE RESPIRATORY SYSTEM . . . . .	240
NUTRITIONAL DISORDERS . . . . .	379
THE CHRONIC RHEUMATIC DISEASES . . . . .	413
TROPICAL DISEASES AND HELMINTHIC INFESTATION . . . . .	449
DISORDERS OF THE BLOOD AND BLOOD-FORMING ORGANS . . . . .	475
DISEASES OF THE ENDOCRINE SYSTEM . . . . .	547
DISEASES OF THE KIDNEY AND URINARY SYSTEM . . . . .	633
DISTURBANCES IN WATER AND ELECTROLYTE BALANCE AND IN ACID-BASE EQUILIBRIUM . . . . .	680
DISEASES OF THE DIGESTIVE SYSTEM . . . . .	703
DISEASES OF THE LIVER AND BILIARY TRACT . . . . .	815
DISEASES OF THE PANCREAS . . . . .	873
DISEASES OF THE NERVOUS SYSTEM . . . . .	883
PSYCHOLOGICAL MEDICINE . . . . .	1005
APPENDIX A—DIET SHEETS . . . . .	1029
APPENDIX B—TABLES OF STANDARD BODY WEIGHTS . . . . .	1038
INDEX . . . . .	1041

# INFECTION AND DISEASE

SINCE infections play such a large part in the production of ill-health it is essential that the doctor should have a sound knowledge of the different types of micro-organisms which may cause disease and of how these agents gain access to the body. He must also know about the factors which influence the host's power of resistance and the general clinical features which result from infection. In addition a knowledge of treatment is essential both in regard to the general management of the patient with a fever and the prescription of certain specific measures such as the sulphonamide drugs and the antibiotics. This chapter is concerned with these general problems.

The life and health of human beings, animals and plants are constantly threatened by invasion by parasites of all kinds, especially by micro-organisms. The outcome of this ceaseless siege depends upon the defence of the host and the invasive power of the organism. During the last century many of these parasites have been identified and studied, and the modes of spread of infection have been recognised. It must also be remembered that organisms which normally exist as commensals may become pathogenic. Thus *Esch. coli* may pass from its normal habitat in the intestine via the blood stream to the kidney and cause acute pyelonephritis. Others may be symbiotic, such as bacteria in the human gut which synthesise vitamins, or organisms in the caecum of herbivora which split cellulose. An organism which is harmless in one situation may be pathogenic in others.

## SOURCES OF INFECTION

Pathogenic organisms may be acquired from various sources.

1. **Patients** in the incubation period or during the course or convalescent stage of an infection.
2. **Carriers.**

(a) *Healthy carriers* are persons in good health who harbour a pathogenic organism. Auto-infection may

occur in the case of boils due to the transfer of *staphylococcus aureus* from the nose to the skin.

(b) *Convalescent carriers* are persons who harbour the causal organism, sometimes for many years, after clinical recovery from a disease, e.g. typhoid bacilli have been recovered from the gall-bladder 25 years after an attack of typhoid fever. In consequence there have been notorious carriers, who were responsible for many epidemics over a period of years.

3. **Animal Reservoirs.** Certain diseases of animals may affect man, and may be controlled or eliminated by measures which prevent human infection from such animals. For example the dog and less frequently other animals are the source of rabies. This terrible disease does not exist in the British Isles because of the rigid control over the import of dogs. Other examples are :

<i>Animal</i>	<i>Diseases</i>
Dog	Canicola fever.
Rat	Plague, Weil's disease, scrub typhus, rat-bite fever.
Mouse	Encephalitis, lymphocytic meningitis.
Cattle	Bovine tuberculosis, brucellosis, anthrax, tapeworm infestation, sleeping sickness.
Sheep	Hydatid disease.
Pig	Trichiniasis, tapeworm infestation.
Horse	Glanders.
Rodents	Tularaemia.
Fish	Tapeworm infestation.
Birds	Ornithosis, psittacosis.

4. **Soil.** The organisms causing tetanus, gas gangrene and botulism are normal inhabitants of the soil. Botulism has resulted from the consumption of infected canned fruit, vegetables and meat which have not been recooked before being eaten.

### SPREAD OF INFECTION

Infection may be spread in a variety of ways.

1. **Droplet Infection.** During talking, organisms present in the nose, throat or mouth are expelled in minute droplets



of moisture and projected for several feet. The more violent expirations which accompany sneezing and coughing project a larger number of droplets over greater distances. Organisms from the bronchial tree and lungs may also be disseminated in a similar way by coughing. Droplet infection is the main direct mode of spread of diseases of the throat and respiratory tract, meningococcal meningitis and all the common infectious diseases of childhood. The risks of infection can be reduced by the provision of ample fresh air, sunlight and good ventilation in houses and hospitals, and by ensuring an adequate distance between beds in institutions, e.g. schools, hospitals and barracks. It is also important to teach the public not to spit, and to cover the mouth or nose with a clean handkerchief during coughing or sneezing. Nurses and doctors should wear suitable masks during operations, the dressing of wounds, and while attending infants in hospitals.

2. **Dust.** When infected droplets dry, a protective layer of protein enables organisms to survive for a considerable time. Such particles from contaminated clothing, handkerchiefs, bedclothes, carpets, and floors of buildings may be inhaled or may infect wounds. This mode of spread is especially important in streptococcal infections and possibly in tuberculosis. The danger can be reduced by the oiling of bedclothes and floors in hospitals and institutions, and by the removal of dust by vacuum cleaner or damp mopping.
3. **Ingestion.** Contamination of food and drink by human faeces is of the greatest importance. Such contamination can occur:
  - (a) From the soiled hands of workers employed in the preparation and distribution of food and milk.
  - (b) From soiled lavatory chains, door handles and public towels, contaminating the hands before eating.
  - (c) From the faulty disposal of sewage.
  - (d) Through the agency of flies.