

endeavoured to devise similar schemes for *S. paratyphi B* and *S. typhimurium*. As these three serotypes between them account for most salmonellosis (assuming that it is permissible to regard the enteric fevers as salmonelloses) efficient phage-typing schemes for all of them offer opportunities of solving epidemiological problems that may otherwise be impossible even to define. Experience during the past 20 years has broadly justified the early hopes placed in the phage-typing method and schemes have been developed for other salmonellas, for some shigellas, for strains of *E. coli* causing infantile enteritis, and for *Proteus hauseri*.

The chapter on phage typing is large and its author describes in great detail the Vi-phage typing method for *S. typhi*. Certain Vi-phage types of the typhoid bacillus (particularly types A and El) are so common in many regions as to reduce the epidemiological value of their recognition, and the author discusses ancillary schemes that have been developed for the subdivision of these types. Stress is laid on the advantages of international cooperation in this field and a table is given of the order of frequency of the commonest Vi-phage types in many countries.

The phage typing of *S. paratyphi B* is examined in similar detail and a somewhat briefer description is given of schemes for the phage typing of the other Enterobacteriaceae mentioned above.

The final chapter gives practical details of the preparation of the numerous media employed in the recognition and differentiation of various groups of the Enterobacteriaceae. It ends with a brief description of the preparation of diagnostic antigens and sera.

This book fills many needs. It supplies clinical, public health, and veterinary bacteriologists with much practical information on the isolation and identification of Enterobacteriaceae and, because it discusses in detail almost every aspect of 'enterobacteriology', is equally useful to the clinician, the epidemiologist, and the research worker. Because of the volume of its documentation it is a valuable source of reference. It is naturally inevitable to find lacunae in a book of such wide scope, but these are relatively few, and the reviewer hopes that they will be filled in a later edition. The index could also be expanded with advantage. In general, however, the authors are to be congratulated on their comprehensive treatment of their subjects.

E. S. ANDERSON

WHOLE-BODY COUNTING A Symposium. (Pp. 535; illustrated. 60s.) Vienna: International Atomic Energy Agency. 1962.

One of the more remarkable consequences of the rapid development in scintillation counting devices over the past 10 years has been the proliferation throughout the world of equipment capable of measuring extremely low levels of radioactivity in the human being. The determination of body burdens of naturally occurring potassium-40 and of the caesium-137 produced in nuclear test explosions is fast becoming commonplace. This symposium, organized by the International Atomic Energy Agency in 1961, provided a unique opportunity for over 100 workers

from more than 20 countries to exchange experiences in this field. The published proceedings are divided into an introduction, by Professor F. W. Spiers, of the University of Leeds, and six other sections, covering the properties of radiation detectors; calibration techniques; typical whole-body counting facilities; studies of natural and contamination burdens of radioactivity; data-processing techniques; and clinical applications of whole-body counting. Discussions are fully reported; indeed, there is one notable example of a discussion almost three times as long, in print, as the paper considered. Clinical applications of whole-body counting are concerned chiefly with studies of the retention of administered radionuclides and the possible replacement of troublesome cumulative excreta collection by direct periodic measurements on the patient concerned; work reported here includes long-term exchangeable sodium studies, measurements of total body potassium in patients with muscular dystrophy, and miscellaneous clinical investigations, as for example measurements of the absorption of iron from the gastrointestinal tract, using test doses of iron 59, studies of protein turnover using iodine 131-labelled human serum albumin, and metabolic studies with 'bone-seeking' radionuclides such as calcium 47 and strontium 85. The equipment described ranges from elaborate systems involving 8 ft. × 8 ft. × 8 ft. rooms shielded by 6 in. thick steel plates, housing four 5 in. diameter × 4 in. thick crystals, to apparatus consisting only of eight Geiger-Müller counters, mounted directly over a patient's bed. Many of the papers are noteworthy for the amount of detailed information and analysis they contain, and there were particularly interesting discussions on calibration problems. The papers concerned with clinical applications gave most emphasis to the techniques employed, and there was little discussion of the clinical implications of some of the data presented.

The volume is very well produced, and was published with commendable speed. It can be strongly recommended to anyone concerned with the installation or use of whole-body counting equipment, in relation to clinical medicine, as well as to those concerned with problems of radioactive contamination of human beings.

N. G. TROTT

THE BORDERLAND OF EMBRYOLOGY AND PATHOLOGY, 2nd ed. By R. A. Willis. (Pp. xi + 641; 226 figures. 90s.) London: Butterworth. 1962.

When it was first published in 1958 *The Borderland of Embryology and Pathology* was rightly acclaimed as a major contribution to medical literature. In this new edition the format of the book, the chapter headings, and all the illustrations remain the same; the number of pages has been increased by 14 and over 300 new references have been added to the bibliography. The first three chapters give basic information concerning experimental embryology, the early development of the human embryo, and the structure and function of embryonic and foetal tissues. Malformations and their causes are covered in the next three chapters. In chapter 5, the paragraphs on the genetic determination of sex, human intersexes, and sex-chromosomal abnormalities have

been rewritten and enlarged. In chapter 6, a section on chromosomal anomalies and malformations has been added in order to summarize the large amount of work in this field published since 1958.

Additions have also been made in the chapter on inborn metabolic and allied disorders. Other sections of the book remain virtually unaltered. This applies to the excellent chapter on developmental vestiges, heterotopia, hamartomas and hamartomatous syndromes, embryonic tumours, and metaplasia. In an appendix, Professor Willis gives his suggestions for further research.

The book contains a wealth of factual information and illuminating speculation, set forth in the lucid and incisive style so familiar to readers of Professor Willis' other major work *The Pathology of Tumours*. In the preface to the first edition the author expressed his conviction that 'pathologists need to know more embryology and embryologists more pathology'. Not only pathologists and embryologists, but workers in almost every branch of medical science will find this book to be of continuing interest and value.

N. F. C. GOWING

GYNAECOLOGICAL PATHOLOGY By Magnus Haines and Claude W. Taylor. (Pp. vi + 519; 515 figures. 90s.) London: J. & A. Churchill. 1962.

The authors hope that this book will be useful to general hospital pathologists, whose biopsy services in most hospitals in this country include a great deal of gynaecological material. I have no doubt that their hope will be justified. Their coverage of the subject is complete and well balanced, with no riding of personal hobby horses. They provide clear factual descriptions, copiously and well illustrated; the photomicrographs in particular are well chosen and of high standard technically, a most important element in the practical usefulness of such a book. General pathologists will certainly find it helpful and reliable in their day-to-day biopsy problems.

The authors hope equally that their book will be of service to gynaecologists, especially those who teach and those who are in training. Again I am sure that they are justified. Surgeons, after a phase of somewhat exclusive absorption in physiology, are now returning to their earlier appreciation of pathology; the neurosurgeons and the thoracic surgeons never lost it; and the gynaecological surgeons, though somewhat dazzled by the competing lights of endocrinology, have a reasonably honourable reputation for fidelity to pathology. In short, there should be a demand for this book among clinicians; and they will find it very useful. The attitude of the book is one of constant awareness of the clinical significance of pathology.

Outside purely factual matters the presentation is not very forceful. Possibly this is a result of dual authorship; it is usually more difficult to make up two minds than one. Repeatedly, on controversial issues opposing views are cited with a minimum of critical appraisal. The reader is left to decide for himself. Admittedly he is given every help to do so by the excellent bibliography, which is full and apposite. But the reader who is not himself a specialist in gynaecological pathology may wish that they had presumed to make his mind up for him.

In what is perhaps the most controversial part of their field, the histogenesis of ovarian tumours, their approach is not so much non-committal as conservative. Whether this is good or bad is a matter of opinion; and as a general pathologist I do not feel qualified to take sides. But this section of their book will stimulate heat among the more radical ovarian experts.

The book is written in a clear and acceptable if not notably elegant style; and I have found no misprints.

A. C. P. CAMPBELL

AVIATION ACCIDENT PATHOLOGY By J. K. Mason. (Pp. xvi + 358; 84 figures. 90s.) London: Butterworth. 1962.

This book is a valuable contribution to a speciality which at the time the book was conceived was still in its infancy. In fact it is not very long ago when far greater interest was shown in the fragments of the crashed aircraft than in the remains of its occupants. The information included in the book is the result of the collection of material with meticulous care (often carried out under the most difficult circumstances) and after painstaking pathological investigation and correlation of the results. Nevertheless, that such patience can have its reward is reflected in the calibre of the book itself, which shows a critical approach to the problems which the author seeks to solve, and by its example should stimulate others, for much still requires to be done. As the author himself admits, there still remain many questions to be answered, but his observations have underlined many of the difficulties as well as setting a standard of careful and systematic approach. At the same time, he makes no attempt to disguise the fact that on many occasions it is quite impossible to be completely certain of the interpretation of pathological lesions found in bodies which have been subjected to a variety of changing conditions, before, during, and after death.

Although it is obvious that if advances are to be made, this work is not for the casual operator, at the same time it is equally true that it must demand close cooperation between what is called specialist on the one hand and the general practitioner on the other. It certainly should be available to all those who practise forensic pathology, and in all reference libraries. The production is above criticism.

FRANCIS CAMPS

PROTHROMBIN By Walter H. Seegers. (Pp. xxvi + 728; 26 figures; 23 tables. 120s.) Cambridge, Massachusetts: Harvard University Press; London: Oxford University Press. 1962.

The title of this monograph will be misleading for those readers not conversant with singular contributions to the literature of blood coagulation made by Seegers and his associates. This is, in fact, a book involving nearly all the known aspects of coagulation, excluding fibrinolysis. In Seegers' view the conversion of prothrombin to thrombin involves thrombin as the only known enzyme. Other substances, which he terms procoagulants, play only supportive roles.

Seegers and his colleagues have attempted to study