are not currently found in the textbooks of clinical pathology.

This 560-page volume consists of a series of over 50 articles, of which about half are concerned with the clinical aspects of biochemical, haematological, and bacteriological investigations, and the other articles, the technical details of carrying out some of these tests. There are 54 contributors.

The chapters vary considerably and the book looks and feels like a volume of a clinicopathological journal. The standard of the sections varies greatly, and the impression gained is that people have had subjects allocated to them by the editors rather than attempts made to get laboratory knowhow contributions from the leading experts in new fields.

Technical methods are given for chromosomal karyotypes, serum aldolase, creatinin and phosphokinase, the spectrophotometer determination of O₂ saturation, calcium, blood grouping for exclusion of paternity, and of antibodies in erythroblastosis foetalis, amniotic bile pigments, serum bilirubin, sweat electrolytes, urine vanilmandelic acid, thin-layer chromatography of urinary sugars and amino acids, blood phenylalanine, urine amino acid nitrogen, urinary acid mucopolysaccharide, erythrocytic pigment kinase, and G-6-PD. There is a good index.

These methods are for tests that would be carried out normally in reference laboratories and are available in most parts of the United Kingdom. The clinical articles may be useful summaries for pure laboratory workers but would be considered superficial by most consultant paediatricians in this country.

In short, this book will be chiefly of use to the isolated laboratory and is orientated to the American laboratory situation. It is of limited, though in particular circumstances, of value here.

JOHN L. EMERY

ELEKTRONEN-MIKROSKOPISCHE ORGAN-PATHOLOGIE By H. David. (Pp. xx + 711; 200 figures. £10 2s. 1d.) Jena: VEB Verlag. 1967.

This well written and well produced book gives a comprehensive and almost up-to-date account of the results of electron microscopy as applied to general and systemic pathology. The planning of the book enables the reader first to get acquainted with the general cytopathological features of the diseased cell which forms a valuable introductory chapter, based partly on the author's own investigations of the effects of degeneration and necrosis on the ultrastructure of the cell. The structural similarity of all membranes has led to the unit membrane concept of Robertson which is disputed by Sjöstrand and by the author.

Each chapter begins with a brief summary of the normal findings accompanied by an instructive diagram of the ultrastructure of the particular organ or system, which is followed by a detailed description of embryonic, proliferative, inflammatory, neoplastic processes and of their effect on the ultrastructure of the cells.

This reviewer finds little to quarrel with but the view (on p. 278) that 'virus could be found in almost all cases' of juvenile recurrent papilloma of the larynx cannot be

accepted. It certainly is not borne out by our own entirely negative findings.

There are large numbers of illustrations, some of which were provided by other workers in this field, who will be satisfied with the high quality of reproduction. However, Fig. 91 from a laryngeal papilloma shows no evidence of virus particles.

There is evidence of wide reading reflected in the long list of up-to-date references after each chapter. It is interesting to note that some of the more recent references have apparently been added as footnotes during the final stages of publication, a useful innovation, of interest to other authors finding themselves in a similar predicament.

The style is not unlike that of English textbooks and can easily be followed. Many English terms, have in fact, been adopted in an Anglo-German form, *eg* die 'microbodies', the 'negative-staining' methode, 'feed-back' mechanismen.

This book seems to answer the question frequently asked, What is the value of electron microscopy in pathology? There is much to be gained by the pathologist through the systematic application or study of electron microscopy, as Professor David's book clearly proves.

Unfortunately the price of £10 2s. 1d. may perhaps put it out of reach of the practising pathologist interested or working in this important and ever-growing field.

I. FRIEDMANN

THE HUMAN ADRENAL CORTEX: ITS FUNCTION THROUGHOUT LIFE Edited by G. E. W. Wolstenholme and Ruth Porter. (Pp. 146; 26 illustrations. 22s. 6d.) London: Churchill. 1967.

This is a record of the meeting of the Ciba Foundation Study Group No. 27 in honour of Professor F. Verzar on the occasion of his eightieth birthday. It was held on 14 September 1966 under the chairmanship of L. J. Soffer. The contributions describe adrenal cortical function in the foetus (A. Jost), in childhood and adolescence (A. Prader), in pregnancy (P. H. Forsham), in acute surgical and medical stress (L. P. le Quesne and J. D. N. Nabarro), in chronic disease (J. C. Beck), and in old age (A. Querido). Discussions are reported verbatim. Although the book does not deal, except incidentally, with primary disorders of the adrenal cortex, it contains much of interest to the clinician concerning the background activity of the gland in health and disease, against which diagnosis of the primary disorders must be made. It is good value for those with a special interest in this field.

G. K. MCGOWAN

AUTOMATIC DISPENSING PIPETTES AN ASSESSMENT OF 35 COMMERCIAL INSTRUMENTS. 1967. By P. M. G. Broughton, A. H. Gowenlock, G. M. Widdowson, and K. A. Ahlquist. Scientific Report No. 3, prepared by the Association of Clinical Biochemists. 10s.¹

This booklet is the report of an investigation carried out on automatic dispensing pipettes for the Scientific and

¹Obtainable from The Administrative Office, Association of Clinical Biochemists, 7 Warwick Court, Holborn, London W.C.1. (Price includes postage, but airmail will be charged extra.)

Technical Committee of the Association of Clinical Biochemists.

There is a very detailed assessment of the instruments used, conventional pipettes, syringe pipettes, double action pipettes, and the more complex electrically operated automatic pipettes. The report defines the accuracy and precision of each type of pipette, and provides some comments as to reliability, ruggedness, and the effects of solvents on plastic parts. The mechanisms of each type of pipette are discussed in detail, and there is a short and succinct discussion at the end of the booklet on the uses and virtues of automatic pipettes.

The only information which is not available from this very valuable pamphlet is the effect of the drying out of solute in working parts. Like all the publications of the Scientific and Technical Committee of the Association of Clinical Biochemists, this is a very welcome document which will considerably help those intending to purchase such equipment.

M. G. RINSLER

INSTRUMENTS IN CLINICAL MEDICINE By F. D. Stott. (Pp. viii + 144; illustrated. 35s.) London: Blackwell Scientific Publications Ltd. 1967.

The introduction of more and complex electronic equipment into pathology laboratories, apart from the traditional pH meters and spectrophotometers, adds increasingly to the problems of correct usage and maintenance of such apparatus. Better understanding of the principles of operation of the newer machines can only lead to better utilization and fewer breakdowns. This small, well written book is an excellent introduction to many of the problems which pathologists face. The subject matter includes transducers (which will interest clinicians more than pathologists), amplifiers, recorders, and instruments for continuous gas analysis.

M. G. RINSLER

ELECTROPHORESIS: A Practical Laboratory Manual By S. T. Nerenberg. (Pp. viii + 272; 89 figures. 76s.) Philadelphia: F. A. Davis Co. 1966.

The subtitle, 'A practical laboratory manual,' very adequately describes what the author had in mind when writing the book and he has succeeded very well indeed.

The book is divided into two parts. The first is the basic course dealing with the principles of electrophoresis and with the preparation of specimens and the supporting media. The second part is an advanced course describing the application of the principles and techniques discussed in the basic course. The chief techniques discussed in detail are, in this order, cellulose acetate, agar gel, starch gel, and acrylimide gel. The omission of filter paper as a suitable median for zone electrophoresis is very commendable. There is a wealth of detail and of very precise instructions. Some of the statements are necessarily and quite justifiably dogmatic.

Some chapters are devoted to 'trouble shooting', but unfortunately all the instruments and apparatus referred to are those used mainly in the United States. The range of material and apparatus discussed is restricted. For instance only Oxoid cellulose acetate membranes are mentioned.

A great deal of space (34 pages) deals with quantitation

of electrophoretic patterns, both the methodology and interpretation, and I have some reservations as to the method recommended by the author for quantitation of serum proteins by dissolving the fractions. Even if the dye is soluble in the cellulose acetate solvent, the proteins are not and they form discrete small particles in the solution. This certainly can interfere with photometric evaluation.

Certain chapters deal with subjects and techniques rarely mentioned anywhere else, *eg* thyroxine-binding globulin, acid mucopolysaccharides, amino-acid separation using conventional apparatus, *ie*, not exceeding 300 volts. Regrettably some of the apparatus and possibly the reagents may not be easily or economically available outside the United States.

A larger number of illustrations accompany the text. Most of them are drawings but photographs would be preferable in some instances. Their quality is not of the highest order, but one could hardly expect more from a workshop manual.

This book can be confidently recommended and will no doubt find its place on the work bench of every laboratory interested in electrophoretic procedures.

J. KOHN

BIOMEDICAL ASPECTS OF THE LASER By Leon Goldman. (Pp. viii + 232; 118 figures. DM 45.60). Berlin, Heidelberg, and New York: Springer Verlag. 1967.

Goldman's book is the first comprehensive text on the application of lasers to biomedical problems. He starts the book with a brief review of the history of laser technology and rapidly progresses to the highly specialized instrumentation demanded for clinical applications. In this section he describes the development and usages of the curved quartz rods designed by Rockwell which are now finding favour in clinical laser laboratories in America.

The effects of lasers on chemical and biochemical systems are discussed and the importance of the degree of pigmentation in these, and other biological systems, is emphasized. Of particular importance in laser research are those tissues which may be accidentally exposed to the laser source, hence both the eye and the skin are dealt with at some length, with special reference to safety factors and personal protection in laser laboratories. Some degree of success is reported in the ophthalmological field of retinal detachment surgery although the laser has not achieved the widespread acceptance its initial potential promised.

The less well known applications of lasers, such as the effects on internal organs, blood vessels, and neural tissue are covered adequately, as is the application of lasers to cancerous tissues. Goldman points out repeatedly that, as far as medical applications are concerned, laser systems are still in their infancy, and much basic research is still required to understand the mechanism of their action on living tissue. However, as an introduction to the field this book gives a clear, if somewhat optimistic, picture for the future of biomedical lasers.

On the whole the book is well presented and the chapters are usefully divided under subheadings, each one terminating in a brief conclusion and a wealth of