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

references. However, for a book of this price one would have thought the many misprints would have been corrected at the proof-reading stage.

JOHN MARSHALL

TECHNIQUES IN BLOOD GROUPING 2nd ed. Parts 1 and 2.

By I. Dunsford and C. C. Bowley. (Pp. xviii + 534; illustrated. £5 5s.) Edinburgh: Oliver and Boyd. 1967. Twelve years elapsed between the appearance of the first and second editions of this book. With the untimely and tragic death of one of the authors, the burden of preparing an up-to-date edition has fallen on the broad shoulders of Dr Bowley. Pathologists and technicians who have adopted 'Dunsford and Bowley' will be grateful to him for his tenacity in continuing the work. Many will receive the book as a continuing memorial to the remarkable Ivor Dunsford.

The first edition was a single volume of 250 pages expressly designed for use at the bench. The second edition has been extended to 534 pages and is wisely divided into two volumes so that those familiar with its use on the bench need only use volume 2.

Volume 1 is of particular value to those preparing for examinations and as a general reference book. A new section appears dealing with the theoretical aspects of each blood group system, and the useful glossary of serological terms has been greatly extended. Those responsible for the organization of teaching courses in serology will find the tailor-made schedules most helpful.

Volume 2 is what makes the work unique and can almost be described as serology by numbers. It now consists of 129 techniques offered in logical sequence from the preparation of glassware to the highly specialized investigation of platelet antibodies. The methods spring from practices evolved over many years in the Sheffield region and are well tried and reliable. However, other centres are now actively teaching in this field, and a technician may find that some of the methods advocated conflict with accepted practice in his own area. To use the book as intended, it would appear necessary to adopt the system in its entirety. For example, in carrying out technique 65, the reader is referred to techniques 21, 58, and 115.

With the greatly enlarged theoretical sections, the newly introduced index is essential, but it may be a mistake to have placed it in volume 2 as its main application will be in conjunction with volume 1.

Those who have adopted, or wish to adopt the Sheffield system will find this a greatly improved edition, its forthright and rather dogmatic presentation being of particular value to the trainee pathologist and technician.

W. J. JENKINS

GRADWOHL'S LEGAL MEDICINE 2nd ed. Edited by Francis E. Camps. (Pp. xxvii + 768; 340 illustrated. 175s.) Bristol: John Wright and Sons. 1968.

The second edition of Gradwohl's *Legal medicine* has been largely rewritten and has now an international character. Dr R. B. H. Gradwohl (1877-1959) was a distinguished American clinical pathologist who became interested in legal medicine and published his first important paper on this subject in 1910. He was largely

responsible for founding the American Academy of Forensic Sciences and became its first President in 1949. The book was first published in 1954 and Gradwohl himself invited Professor F. E. Camps to undertake the second edition. This he has done with the assistance of eight past and present members of the staff of the Department of Forensic Medicine at the London Hospital Medical School and 29 collaborators from Britain and America, contributing expert opinions on many facets of the subject. They do not put their names to their contributions and the editorship of the whole work is the responsibility of Professor Camps.

This is not an ordinary textbook of legal medicine. As Dr Moritz states in his foreword, it should 'achieve permanent and deserved popularity as a periodically revised, "multi-authored" encyclopaedic reference text on medico-legal problems'.

There are 47 chapters divided into seven sections designated (1) 'Historical and general law'; (2) 'Examination of the living and the dead'; (3) 'Identification of the living and the dead'; (4) 'Death, injury, and disease'; (5) 'Medicolegal aspects of medical treatment, including iatrogenic disease and industrial hazards'; (6) 'Mental disease and forensic psychiatry'; (7) 'The alcohols'; (8) 'Toxicology'.

Whether we look for the most recent work on forensic odontology or on the 'lie detector' we will find accurate, up-to-date information. As would be expected, designed for American as well as British readers, the medical issues in legal cases are described for both legal systems, and there is a comprehensive survey of medicolegal investigations into violent, sudden, and unexplained deaths in different countries.

The bibliographies at the end of each chapter cover world literature and there is a good index: an improvement for British readers would be an index of cases.

The book is splendidly produced and well illustrated and is a tribute to British legal medicine. Professor Camps has taken a comprehensive view of his subject, as would be expected from a founder and former President of the British Academy of Forensic Sciences. He can be well pleased with his achievement. This is an important book which should be well received.

G. STEWART SMITH

BOOKS RECEIVED

(Review in a later issue is not precluded by notice here of books recently received.)

UNTERSUCHUNGEN ZUR HUMORALEN REGULATION BEI REGENERATIVEM UND MALIGNEM WACHSTUM By H. Rabes. (Pp. viii + 125; 42 figures. DM 32.) Stuttgart: Gustav Fischer Verlag. 1967.

LEHRBUCH DER MENSCHLICHEN BLUT-UND SERUMGRUPPEN By O. Prokop and G. Uhlenbruck. (Pp. xiv + 924; illustrated. £6 13s. 7d.) Leipzig: Veb Georg Thieme. 1966.

SUR LE CONTROLE NERVEUX DE LA CIRCULATION SANGUINE REGIONALE DES CENTRES CEREBRAUX By L. Molnar. (Pp. 127; 41 figures. 35s.) Budapest: Akademiai Kiado. 1967.