

Letter to the Editor

Counterelectrophoresis on Human Serum in Coxsackie Virus Infections

Encouraging results have been obtained by Schmidt *et al* (1968; 1973) on the diagnosis of Coxsackie infections using gel diffusion for demonstration of antibody in patients' sera.

They found that with concentrated Coxsackie antigens human serum produced a group line close to the antigen cup with antigens not necessarily of the infecting virus type, and a specific line, closer to the serum cup, consisting of IgM antibody combined with intact virus particles, of the current infecting virus type, or occasionally with virus for which the serum had a high neutralizing antibody level.

When antigen was inactivated by heating at 56°C for 30 min the specific antigen was converted to group antigen.

Counterelectrophoresis should theoretically enable a less concentrated antigen to be used and be more rapid than simple gel diffusion, but preliminary studies have proved disappointing.

Counterelectrophoresis and antigen preparation were as described (MacWilliam and Cook, 1975). Antigens were normally used at 50 to 100 times the concentration of the original tissue culture fluid, but as the antigens were unstandardized, effective concentrations were not comparable.

Using this method, the results resembled those described for simple gel diffusion in some respects. Some sera produced double precipitation lines, and the majority produced single lines against one or more of the antigens tested. Double lines occurred with sera which by neutralization had high titres or significant rises between the acute and convalescent phase sera against the appropriate antigens.

By careful placing of the holes, it could be shown in six pairs of sera tested that fusion occurred between the line nearest to the antigen cup in a serum with double precipitation lines and the single line in a serum with only one precipitation line, suggesting that these were group lines.

When antigen was inactivated one line only was produced.

However, results using different batches of antigen were not always reproducible, and three sera fractionated on sucrose

density gradients showed two precipitation lines in the IgG fraction.

One reason for the discrepancies could be unsuitable relative concentrations of antigen and antibody, a well-known hazard of counterelectrophoresis, and titration of antigen and antibody supported this. In addition, one batch of Coxsackie B₃ antigen 260 times the concentration of original tissue culture fluid produced no precipitation lines at all when inactivated although double and single lines were produced by unactivated antigen, suggesting that the inactivated antigen was too concentrated to react.

However, apart from concentration there may well be other problems, and more work on technique and interpretation is needed. Further sucrose density gradients would need to be done, and should these confirm the presence of double precipitation lines in the IgG fraction, the origin of at least some of these lines must be different from those described by Schmidt *et al* (1968).

We are grateful to the British Heart Foundation and St Mary's Hospital Joint Standing Research Committee for funds which supported this work, to Mrs M. Cooper and Mr C. Kenny for technical help, and to Professor K. R. Dumbell for help and advice.

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Book reviews

Drug Disposition and Pharmacokinetics with a Consideration of Pharmacological and Clinical Relationships By Stephen H. Curry. (Pp. viii + 214; illustrated; £4.50). Oxford: Blackwell Scientific Publications, 1975.

The growing interest in drug absorption, distribution, and disposition and recognition of their importance in drug therapy has led to increasing use of blood drug measurements, in some cases, as a means of monitoring treatment and a guide to dosage. This short book by Stephen Curry will be of value to those clinical pathologists who undertake such measurements and wish to know more about their meaning and interpretation. It is a readable and relevant book in which mathematics, the essence of pharmacokinetics, are kept firmly in place as the handmaiden of the text rather than as a substitute for it.

V. MARSH

Pathobiology Annual, Volume 4, 1974. Series Editor Harry L. Joachim. (Pp. 346; illustrated; £13.20). New York: Appleton-Century-Crofts.

Recent years have seen an increasing appreciation of the importance of function and its correlation with gross and microscopic structure in studies of the causation and mechanisms of disease. In this respect, investigations of the endocrine system led the research path which is now being extended to a wide variety of other tissues and organs.

The present *Pathobiology Annual* is the fourth in the series. Although the title may appear at first glance to be a contradiction in terms, it serves to focus attention upon one of the aims of the series, namely, to illustrate the value of a comprehensive knowledge of the normal properties of the tissues before attempting to interpret pathological changes.

Topics in the current volume range from the role of the macrophage, through immunology, lymphoreticular disease, and oncogenic viruses to studies of endocrine and metabolic diseases. In each chapter, normal parameters are presented prior to discussion of the functional and structural aspects of pathological derangements. This concept is particularly well illustrated in the excellent chapters dealing with the macrophage, connective tissues and cardiac function, and the

properties of cancer cells *in vitro* as well as the endocrine topics of glycogen storage disease and the pathophysiology of glucagon secretion and triiodothyronine production.

The texts are concise and well presented and illustrated. The quality of the electron micrographs is especially commendable. While not agreeing with all that is presented, particularly in the section dealing with depressed immunological reactivity and cancer, this is an excellent monograph to be highly recommended not only to the practising clinical laboratory physician but also the research scientist.

A. MUNRO NEVILLE

International Histological Classification of Tumours of Domestic Animals. Bulletin of the World Health Organization, Volume 50, No. 1-2. (Pp. 142; illustrated; Sw. fr. 18.) Geneva: WHO. 1974. (Available through HMSO, London).

Since the publication of Cotchin's *Neoplasms of the Domesticated Mammals* in 1956 there has been no comparable bench book on this subject. The present work provides without waste of print or illustration a compact guide to the interpretation and comprehension of those tumours and tumour-like conditions which are to be encountered in the dog, cat, and farm mammalia. Publication was not delayed until all the body sites had their tumours identified and described, categorized, and provided with an agreed nomenclature. The present volume deals with lung, thyroid gland, urinary bladder, nervous system, eye, and adnexa selected from the uncommon sites of tumour formation and the haemopoietic and lymphoid system, testes, skin, soft tissues, and mammary glands as examples of the common tumour prone sites, at least in some of the species.

To the growing numbers of medical pathologists, mainly outside the London area, who are called on by their veterinary friends to offer opinions on biopsy and necropsy material from domesticated animals the present volume will prove quite indispensable, to the research worker on any aspect of neoplasia, a valuable source book. Professor W. I. B. Beveridge, the guiding hand behind the venture, is to be congratulated on the result, a scholarly yet practical work which will undoubtedly have a beneficial influence on comparative studies.

A. LEVENE

Isolation of Salmonellas—Public Health Laboratory Service Monograph Series No. 8. By R. W. S. Harvey and T. H. Price (Pp. 52; illustrated; £1.50.) London: HMSO; 1974.

This monograph contains the essence of over 20 years' experience of successful salmonella isolation. The authors give details of many media and a comprehensive account of how these may be used to isolate salmonellas from a variety of sources. This booklet is compulsory reading for laboratory workers who are concerned with salmonella isolation, and nearly all will find something that they will want to try for themselves.

D. M. JONES

Pathogenic Processes in Parasitic Infections, edited by Angela E. R. Taylor and R. Muller (Pp. vii + 107; illustrated; £4.50.) Oxford: London: Edinburgh and Melbourne: Blackwell Scientific Publications. 1975.

During the last 10 years the application of immunological techniques to the study of parasitic diseases has transformed our knowledge of the pathogenesis of these disorders. At the same time these studies have enhanced our knowledge of basic immunological reactions. This 13th volume, based on symposia of the British Society of Parasitology, reflects the increasing interest in the variable and complex reaction of the host to infection, and the role of genetic factors in these variations is stressed. For the general reader, the chapters on immunodeficiency and parasites, the immunopathology of malaria, and mechanisms of disease in leishmaniasis are of particular interest.

This book can be recommended for anyone who is interested in the pathogenesis of disease and, in particular, host-parasite relationships.

M. S. R. HUTT

Medical Oncology: Medical Aspects of Malignant Disease. Edited by K. D. Bagshawe. (Pp. xii + 588; illustrated; £13.50.) Oxford: Blackwell Scientific Publications. 1975.

There has long been a need for a concise and comprehensive book on medical oncology. It is a subject in which very rapid advances are continuing to be made. Bagshawe has collected together chapters on a wide ranging selection of topics which must be of interest to both general medical and specialist readers.

The book is most valuable in those chapters devoted to general and diagnostic aspects of cancer. However, the section on treatment of specific cancers is unfortunately already partly out of date and can be regarded as of only general interest, rather than as an aid to specific therapy. This is not the fault of the authors but a reflection on the rapidity with which this subject is changing.

The many chapters include ones on the genetics, immunology, and growth of tumours—together with others on haematological, metabolic neurological, and dermatological manifestations. The diagnostic chapters cover in a wider ranging manner the conventional techniques of arteriography, lymphography, thermography, and isotope scanning, together with a useful review on immunological diagnostic methods. The chapters on therapy include one on 'Terminal Care' by Cicely Saunders, which should be read by all who work in this field. It is a model review of the topic and is a fitting conclusion to a most useful book.

N. M. BLEEHEEN

Lecture Notes on Clinical Chemistry, By L. G. Whitby, I. W. Percy-Robb, and A. F. Smith. (Pp. xii + 427; illustrated; £4.25.) Oxford: Blackwell Scientific Publications. 1975.

The art of getting a quart, or should I say a litre, into a pint pot does not get easier with time. Nevertheless full marks to Professor Whitby and his colleagues for trying. They have attempted, in just over 400 pages of pocket-book-size and easy-to-read type, to impart sufficient information on biochemistry and physiology to make the work output of a well-appointed clinical biochemistry laboratory intelligible. Their intended audience of medical students wishing to satisfy the final MB examiners, on the one hand, and of practising clinicians with an interest in chemical pathology, on the other, will find this an eminently readable, up-to-date, and reliable source of information.

The authors' approach to the subject is traditional, but SI units are used throughout. No space has been wasted on technical details. Nor, in the main, are the biochemically interesting but exceedingly rare diseases, which clinical investigators find so fascinating but which the average doctor never sees, given undue attention.

Lecture Notes on Clinical Chemistry is a good book worthy of purchase but it