requiring neither treatment of tissue culture cells nor centrifuging of specimens.

Briefly, specimens in 0·25 ml of transport medium[1] are inoculated onto circular coverslips in flat-bottomed tubes, 30 to 60 minutes after each tube has been seeded at room temperature with 1 ml of suspension of McCoy cells, 200 000 per tube, in Eagles' MEM (Hanks based) containing 10% fetal calf serum, 0.5% glucose, 100 mcg of vancomycin and 50 mcg of streptomycin per ml. At the time of inoculation most cells have adhered to the coverslip and can be seen easily with an inverted microscope; tubes are rejected if this is not so. After 2-3 days incubation in 5% carbon dioxide at 37°C the now monolayered coverslips are examined by immunofluorescence technique for Chlamydial inclusions. Suspensions of cells prepared by orthodox methods for seeding tubes may be kept at 4°C for up to 24 hours before being used.

We have now examined 91 urethral specimens from males attending a sexually transmitted diseases clinic; 45 have yielded Chlamydia. This is an acceptable isolation rate. Isolates may be passed repeatedly in plastic flasks using this technique, and numerous inclusions can be produced making such a technique encouraging as a basis for high antigen-yielding systems.

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We are grateful for help from clinic and laboratory staff.

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Orcein staining for the demonstration of sulphomucins

Shousha and Boxer[1] suggest that orcein staining may be used as an alternative to high iron diamine (HID) for the demonstration of sulphomucins. Whilst the HID method is the most sensitive and specific means of detecting sulphomucins, it would be desirable to replace it with another method for the reasons given by Shousha and Boxer and also because diamines are carcinogenic. However the authors have preceded the orcein staining by an oxidative step. According to Sipponen,[2] they have not only demonstrated sulphomucins but also sulphonic acid residues resulting from the oxidation of disulphide groups. This would explain the unexpected positive results in small intestine and intestinal metaplasia of the stomach. Only when orcein is *not* preceded by an oxidative step can one expect a pattern of staining comparable to the HID method. It would be interesting to know if orcein can be combined effectively with alcian blue for the separation of sulphated and non-sulphated acid mucins.

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[1] Shousha S, Boxer GM. Orcein as a mucin stain for gastrointestinal tissue sections. *J Clin Pathol* 1981;**34**:1063-4.
[2] Sipponen P. Histochemical reactions of gastrointestinal mucosubstances with orcein, high iron diamine and alcian blue after prior oxidation of tissue sections. *Histochemistry* 1979;**59**:199-206.

Drs Shousha and Boxer reply as follows:

We agree with Dr Jass that according to Sipponin[1] the method we used demonstrates both acidic sulphated mucin and acidic mucins "with presumed sulphonic residues" as evidenced by the reaction noticed in the small intestine, and that our results are thus comparable to HID staining with, rather than without, oxidation.[1 2] We have tried using orcein without prior oxidation but the results were weaker and less defined. We also tried to combine orcein staining, with and without oxidation, with an alcian blue technique at pH 2·5, both before and after the orcein staining, with no success.

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[2] Sipponin P. Histochemical reactions of gastrointestinal mucosubstances with high iron diamine after prior oxidation and methylation of tissue sections. *Histochemistry* 1979;**64**:297-305

Book reviews

Cytology of Bone Tumours. A Colour Atlas with Text. NG Sanerlein and GM Jeffree. (Pp 168; 259 illustrations; £32·50.) John Wright & Sons Ltd. 1981.

The accumulated expertise of the Bristol Bone Tumour Registry group in the application to bone tumours of histochemical methods has more recently been extended to cytological smears. In this book an excellent introductory chapter sets out the general principles of cytodiagnosis and emphasises the advantages of speedier and more accurate diagnosis when histology is complemented by cytology. The method of making smears and, in the appendix the staining techniques are so clearly described that worthwhile preparations can soon be obtained even by those of us inexperienced in this field, though skill in interpretation will clearly take longer to acquire.

The remainder of the book consists of chapters on the different types of primary bone tumours according to the predominant cell type as well as on metastatic carcinoma and a number of non-neoplastic lesions. In each chapter the important histological and cytological diagnostic features and the most helpful stains in differential diagnosis are described and well illustrated, mostly in colour. The careful matching of histological and cytological preparations increases their value.

The use of cytological techniques seems to this reviewer to be especially helpful in two spheres. Alkaline phosphatase staining of smears may resolve the notorious difficulty in differentiation in small biopsies between chondroblastic or fibroblastic osteosarcoma and true chondrosarcoma or fibrosarcoma. Similarly cytology may aid the important assessment of cell detail cartilage tumours. This book must be of interest to all pathologists concerned with the diagnosis

of bone tumours and should encourage us to add cytology to the histological, radiological, and clinical assessment.

MARY E CATTO

The Endometrium. WB Robertson. (Pp 201; illustrated; £25.) Butterworths. 1981.

I enjoyed reading and reviewing this book and would have done it more quickly if it had not disappeared with great rapidity into the registrars' room from where it has been difficult to extract. It is an ideal book for the beginner in pathology—straight forward morphological descriptions, coupled with a clinical and functional approach. It is also good for the experienced histopathologist to remind him that interpreting curettings is not merely a chore but is still an intellectual exercise. Twenty-five pounds seems a lot for less than 200 pages but I think it well worth the price—buy it as a bench book.

G SLAVIN

Antibiotics and Chemotherapy. Vol 29. Kaposi's Sarcoma. Vol Eds CLM Olweny, MSR Hutt and R Owor. (Pp 104; illustrated; No price given.) S Karger. 1981.

Kaposi's sarcoma is a tumour with a remarkably high frequency in Africans and accounts for about 9% of malignant tumours in Equatorial Africa. This excellent report of the Second Kaposi's Sarcoma symposium held in Kampala in 1980 describes progress in the understanding of the epidemiology, pathology, and particularly the therapy of the disease. It is unlikely that this book will find its way into the personal library of British pathologists unless they have a particular interest in tropical pathology but they should certainly persuade the hospital librarian to buy it.

G SLAVIN

Biopsy Pathology of the Liver. RS Patrick and JO'D McGee. (Pp 335; illustrated; $37.50.) JB Lippincott Company. 1980.

A title such as this indicates a deliberately limited approach to the subject: a focus on morphology rather than on the fascinating byways of aetiology and pathogenesis. The distinction is not always observed in this book. It is intended as a guide to 'liver biopsy interpretation', but although profusely illustrated the diagnostic guidelines tend to be obscured by a rather discursive text. The photomicrographs are uneven in quality and some have suffered in reproduction and the authors have been poorly served by the publishers who have the eccentric habit of placing many legends on the page preceding or following the photographs they describe.

The terminology of liver disease is a source of much confusion. To counter this a preliminary chapter is devoted to semantics; this should be useful to beginners. To help the pathologist through the problems of diagnosis, sections specifically on differential diagnosis are included in some chapters. These are helpful, but as the authors would recognise—can only be a partial help, since most problems of differential diagnosis in liver disease require an appraisal of all the evidence: clinical, biochemical, radiological, etc. as well as histological.

The concept of a series of books on 'Biopsy Pathology' is attractive. This book will be of value in the reporting room but I would suggest its value would be enhanced by a more concise and focused presentation.

HM CAMERON

Chromosomal Variation in Man. 3rd ed. Digamber S Borgaonkar. (Pp 714; illustrated; $58.) Alan R Liss Inc. 1981.

Most standard textbooks on human chromosomal disorders describe defined syndromes rather than the vast, and for the clinician bewildering, array of reported chromosomal anomalies. Ready systematic access to this ever increasing literature is essential to the cytogeneticist for purposes of both karyotype and phenotype comparisons between patients he investigates and those previously reported.

Borgaonkar's benchbook fulfils this need and his new edition updates the references to the period between 1970 and 1979. It is compiled using a computerised system of retrieval of published papers that can be rapidly published and hence be almost up to date at the time of publication.

The main section consists of papers on structural chromosome variations such as deletions, inversions, and translocations arranged in order of chromosome, arm, region, and finally band number. Further sections cover numerical chromosomal anomalies and chromosomal breakage syndromes. The book is also an aid to chromosome mapping and marker chromosome linkage studies. Doubtless future editions will refine phenotype-karyotype correlations further as high resolution banding techniques come into wider use.

M D'A CRAWFORD

Lymphokines. Vol. 2. Ed E Pick. (Pp 313; illustrated; $35.00.) Academic Press Inc. 1981.

Among the many new words introduced by Immunologists, few equal "lymphokine" in encapsulating a totally new concept of the biological functions of cells. Lymphokines are substances synthesised by stimulated lymphocytes which influence the actions of other cells in their micro-environments. This volume of articles by some of the many groups of workers in this field covers the whole spectrum of activities attributable to lymphokines. It underlines the complexities of these substances and their effects, as well as the more general biological relevance of this method of cellular interaction, since similar substances are secreted by other types of cells such as monocytes, fibroblasts, etc., giving rise to mono-kines, cyto-kines, etc.

The chapters are of two types, some being presentations of original work in support of new activities while others are reviews of the existing literature on the subject. Almost all the chapters are interesting and worth reading. Of particular interest is the chapter which deals with the effect of these substances on fibroblast regulation, providing insight perhaps into factors affecting fibrosis; and there are two thought provoking chapters on substances secreted by tumour cells.

This is a book recommended for those pathologists interested in keeping abreast of this growing field of cell biology which will undoubtedly continue to make an impact on our understanding of pathological mechanisms.

RA THOMPSON