reduced blood in less than 12 min.

We thank Miss Joan Henthorn in the Department of Haematology, Central Middlesex Hospital, for the automated cell counts and Mr TG Proger of Kimal Scientific Products Ltd for supplying the filters.

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Acute bacterial conjunctivitis and maltose negative meningococci

Acute bacterial conjunctivitis is usually caused by the pneumococcus or *Haemophilus influenzae*, but other organisms are sometimes involved and it is important to identify these exactly. Among the less common pathogens are the neisseria, and both *Neisseria gonorrhoeae* and *N meningitidis* have been implicated in ophthalmic infections.

N gonorrhoeae is particularly associated with severe destructive ophthalmia in the newborn but may also cause purulent conjunctivitis in adults in whom infections by *N meningitidis* also occur from time to time.

These two organisms are very similar, but for obvious epidemiological reasons it is important to distinguish between them. Coagglutination tests are available to identify *N gonorrhoeae* but not for *N meningitidis*. The differentiation of these two organisms therefore still relies mainly on classic methods of sugar fermentation. In these tests *N gonorrhoeae* produces acid from glucose only, while *N meningitidis* produces acid from glucose and maltose;¹ in many laboratories this is still the only way of identifying them. Difficulty comes about because there are some strains of *N meningitidis* which do not ferment maltose promptly and are therefore likely to be wrongly identified.²

Case report

A 12 year old schoolboy attended the casualty department complaining of pain, redness, and stickiness of the right eye for two days. Apart from a recent sore throat

he had been well. Examination confirmed purulent conjunctivitis of the right eye and a swab was taken for bacterial culture. He was treated with topical chloramphenicol ointment applied initially to the right eye and later to both eyes as the condition became bilateral the following day. The condition subsided over the next five days and the patient was well at follow up.

Cultures produced a heavy pure growth of a capneic neisseria, which when tested for sugar reactions (Difco GC medium base) produced acid from glucose only and not from maltose, sucrose, or lactose. These are the characteristic reactions of *N gonorrhoeae*, but the isolate gave a negative result with the gonococcal coagglutination test (Phadebact). There was therefore some doubt as to the identity of the organism; it was further subcultured and the identification tests repeated. By the third subculture the organism produced acid from maltose, and serotyping confirmed it as a group C strain of *N meningitidis* which was fully sensitive to penicillin, chloramphenicol, and sulphonamide.

Discussion

N meningitidis is not a common cause of bacterial conjunctivitis. At the Manchester Royal Eye Hospital during the seven year period 1977-83, there have been five patients infected by this organism, compared with 536 pneumococcal and 451 *H influenzae* infections. The meningococcal infections were all in adult or adolescent patients, in contrast to the other bacterial infections for which the highest incidence was in preschool children. During the same period there have been six cases of neonatal gonococcal infection and one in an adult.

The interpretation of results from conventional tests for identifying pathogenic neisseria must be treated cautiously. There are a number of reports of maltose negative strains of *N meningitidis* causing meningitis^{3,4} but not previously from ophthalmic infection. A negative result in the gonococcal coagglutination test and repeated testing of sugar reactions on repeated subculture may be needed to establish the true identity of atypical strains of *N meningitidis* isolated from unusual sources.

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Antigenic variation in Latin American human pararotaviruses (atypical rotaviruses)

Recently, virus particles morphologically indistinguishable from rotaviruses but which lack the typical group antigen have been described in man and animals. Such viruses have been variously termed pararotavirus¹ or atypical rotavirus.² The characterisation of a pararotavirus has recently been described from a child in Mexico City,³ and a further isolate has been found in a child with diarrhoea in Chile (unpublished observations).

We have compared by electron microscopy the antigenic relation of both these human pararotaviruses using the protein A solid phase antibody capture technique. Paired serum samples were available from the child in Mexico City, which have been shown to be free from antibody to rotaviruses. These sera were used in the protein A antibody capture technique against both the Mexican and Chilean pararotaviruses. In addition, human immune globulin prepared in the United Kingdom was tested in a similar fashion. Briefly, carbon-formvar coated grids were floated on a solution of staphylococcal protein A before transferring to a solution of the appropriate antibody.⁴ The grids were then floated on a suspension of clarified faecal emulsion containing the antigen before staining with 1.5% phosphotungstic acid. The Table shows the results obtained after blind examination of the electron microscope grids.

	Mexican pararotavirus	Chilean pararotavirus	Rotavirus
Acute serum (Mexican)	-	-	-
Convalescent serum (Mexican)	+	-	-
Human immune globulin (UK)	NT	+	+

NT = not tested.

+ = positive; - = negative.

These results suggest that the Mexican and Chilean pararotaviruses are antigenically distinct. Furthermore, antibody to the Chilean pararotavirus is present in human immune globulin prepared from the UK population, which suggests that this serotype has circulated in the UK.

Further studies will establish whether antigenic diversity is as common among the human pararotaviruses as among rotaviruses. Recently, antigen diversity has been reported among animal rotavirus lacking the typical group antigen.²

This work was carried out during a free session of a WHO workshop on electron microscopy and immune electron microscopy held in Mexico City.

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Book reviews

Nephro-urology. Integrated Clinical Science. Ed AW Asscher and DB Moffat. (Pp 168; softback £7.50.) William Heinemann Medical Books Ltd. 1983.

The authors' highly commendable objective in this book is "to present a logical and easily understood account of nephro-urology". In parts they have succeeded admirably; elsewhere the standard falls. To write a book such as this demands complete familiarity with basic science and clinical practice. In several chapters one has the feeling of "arm-chair clinical practice": for example, autonomic denervation as a common cause of postural hypotension or the massive list of investigations required to be applied to stone formers. Some observations are heretical—for example, dismissal of the jugular venous pressure as a measure of fluid balance—or just plain wrong—for example, filtration of PAH by the tubules. In brief the book is a good start in the right direction but it needs more critical and informed editing.

WR CATTELL

final two chapters are specialist contributions on the interaction of platelets with biomaterials, as used in prostheses, and on the action of chemical agents and drugs on platelet metabolism. The latter includes changes in the physicochemical properties of the platelet membrane such as phospholipid structure, microviscosity, and receptor sites. The specialist will also appreciate the extensive bibliography. Generalist readers should be selective.

J STUART

Precancer. Cancer Surveys. Advances and Prospects in Clinical, Epidemiological and Laboratory Oncology. Vol 2, no 3. Guest Ed JJ DeCosse. Annual subscription £45 for four copies. Single copies £14. Oxford University Press.

The early recognition of those cellular events which invariably progress to frank malignancy ("precancer") are of utmost importance to the pathologist and cell biologist alike. Unfortunately, the histological and cytological criteria accurately identifying those events are presently incompletely defined – and often ambiguous.

This small volume contains contributions from several recognised authorities and critically evaluates precancer of the more common sites in an attempt to highlight those features common to this process. The articles are well written and together provide a useful, informed, and easily read review of present concepts of precancer. It is good value at the current price.

CS FOSTER

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Blood Platelet Function and Medicinal Chemistry. Ed A Lasslo. (Pp 324; \$49.50.) Elsevier Science Publishing. 1984.

This reference book on platelet function comprises six chapters by twelve contributors from the USA and Canada. Its unusual title (intriguing yet opaque) is mirrored by an unusual mixture of chapter topics. There is a brief introduction on the role of platelets in cardiovascular disease followed by three good review chapters on platelet ultrastructure and the effects of platelet activation, on platelet function (normal and abnormal), and on the pathophysiology of vascular endothelium. These are valuable reviews for both the specialist and generalist. In contrast, the

The Leukemias. Hematology. Vol 1. Butterworths International Medical Reviews. Ed John M Goldman and Harvey D Preisler. (Pp 372; £29.) The Butterworth Group. 1984.

This first volume in a new series of haematological reviews could more accurately be described as a concise textbook. The Anglo-American team of editors and authors has produced a comprehensive book only distinguishable from the conventional text book by the absence of older references, more recent ones being numerous and up to date.

The four basic types of leukaemia are