Electron Microscopy in Diagnostic Virology—A Practical Guide and Atlas. By FRANCES W. DOANE and NAN ANDERSON. Cambridge University Press, Cambridge, 1987. £35, U.S. $52.50. ISBN 0-521-24311-H.

Every laboratory which undertakes diagnostic work by electron microscopy has to train its own new staff in this activity, and if it is a large and important laboratory it will find itself having many visitors, often from Third World countries, who have come to learn these new methods. The trainees always ask for a good reference book to which they can go when they are uncertain about identifying some mysterious object. Excellent pictures have indeed been published in the larger reference works on virology, notably in the splendid article by Almeida in the latest edition of Topley and Wilson and in the book, now unfortunately well out of date, by Madeley. We are still waiting for the second edition of that.

This book by Doane and Anderson is just what is needed. It starts off with a useful section on 'Ancillary equipment'. The section 'Selecting an instrument' could, however, have defined more exactly what one requires from one's electron microscope, e.g. point-to-point resolution of not less than 0.7 nm, preferably the capacity to put in two or three different grids at the same time, a large camera capacity so that 30–50 exposures can be made, and, above all, that good service facilities should be available for the model chosen.

The methods for preparing virus particles for examination from tissue extracts, respiratory tract secretions, CSF, etc., are well presented, and a useful warning given about the dangers of contaminating grids with inadequately cleaned tweezers.

'Screening cell cultures for adventitious agents', notably mycoplasma, is described. We would not ourselves use the electron microscope for detecting mycoplasma, a more sensitive method being to use a staining method which causes the mycoplasma to fluoresce, for example by acridine orange or, better, Hoechst stain number 33,258.

The second half of the book comprises a number of chapters on the different groups of viruses which one might encounter. Animal viruses, for example African swine fever, are also included, but not plant viruses which can occasionally be found in human faeces and probably also in animal faeces. There is an excellent chapter on the Reoviridae explaining succinctly the classification of the retroviruses in types A, B, C and D with really excellent illustrations of their appearance in thin section.

Unfortunately the section on coronaviruses is rather rudimentary. It does not really discuss the problem of whether coronavirus-like particles found in human faeces, especially prevalent in the tropics, are really virus particles at all; the authors just assume that they are—probably correctly.

At the end is a short section devoted to bacteriophages and objects which might be mistaken for viruses, such as fringed fragments of cell membrane, collagen fibres, glycogen particles and pores in tangentially-sectioned nuclear membranes.

The book is attractively produced and sturdily bound. It is just as well, because every diagnostic virus laboratory should have a copy, which will be used by everybody.

T. H. FLEWETT
The Ultrastructure and Phylogeny of Insect Spermatozoa. By BARRIE G. M. JAMIESON. Cambridge University Press, 1987. 320 + xv pages. Price US$54.50, £30.00. ISBN 0 521 34441 7.

This book provides a most comprehensive and detailed account of the ultrastructure of the spermatozoa of insects of the phylum Uniramia. It is not only a basic text for the specialist, but also introduces cell biologists to the great diversity that exists in sperm organization and fine structure. The author shows that the spermatozoa are a fruitful field for those interested in the organelles associated with cell movement as well as in phylogenetic relationships, and consequently the book has a wider interest than is indicated by its title.

AUDREY GLAUERT

Clastic Particles. Scanning Electron Microscopy and Shape Analysis of Sedimentary and Volcanic Clast. Edited by JOHN R. MARSHALL. Van Nostrand Reinhold, New York, 1987. 339 pp. £53.

This book focuses on the use of electron-microscope (particularly SEM) imagery of surface textures, and image analysis of shapes, in the study of clastic particles. The book is aimed at geologists, but workers in other fields such as powder technology might find the techniques useful.

The book is a collection of multi-author papers, and is divided into six chapters. The papers range from brief summaries of research work to full research articles. Chapter 1 is composed of four papers concerning surface textures of grains from sedimentary rocks, and includes two papers (Bull et al.; Bull & Goudie) which attempt to quantify textures by recording abundances of each of 34 textural features in suites of rock samples. Experimental reproduction of surface textures of sand grains is the subject of Chapter 4. Chapter 2 also concerns surface textures, but this time from volcanic materials. Particularly useful here is a set of charts (Sheridan & Marshall) which illustrate the spectrum of surface features used by volcanologists as indicators of eruption mechanism. Chapter 3 also contains some exciting work on volcanic products. Here the SEM is used to image the ultra-fine silicate ash particles and sulphuric acid droplets which are erupted in copious volumes from volcanoes and which are believed to affect our climate. The papers perhaps of greatest interest to readers of this journal are found in Chapter 5. These concern computer-aided methods for quantifying particle shapes. These techniques are rapid, can be used to process shape data for large numbers of particles, and use low-cost microcomputer image-analyser systems. Articles in Chapter 6 combine quantitative shape data with SEM surface-texture images to infer the geological histories of some natural sand bodies.

A major strength of this book is the SEM photographs which are generally of high quality, and are often reproduced large for clarity. The papers by Robson, Sheridan & Marshall, Rose, Chuan et al., Cadle, and Gallagher have extensive glossaries of SEM images which might be of use to other workers.

Having outlined the book and highlighted some better qualities, I have to pose the question: Why was the book published at all? In my opinion, high-quality books containing collections of articles can rarely be justified. One exception is if the papers provide comprehensive, state-of-the-art reviews of different facets of the subject. Unfortunately, the articles in Marshall's book contain little comprehensive review material. Instead they are research papers of varying quality which could just as easily have been published in journals, thereby saving libraries already under financial stress the cost of yet another glossy book. Moreover, some of the articles are clearly not original, but contain republished material, and a couple are so brief and lacking in detail as to not warrant publication at all. Another fault of the book is lack of proper
The six chapters compartmentalize the papers, but it is clear that there was little thought given to the most desirable structure or to the needs of the reader. The book is a collection of random articles stuffed between two covers and sold at high price; the purpose, I'm afraid, being to make money for the publisher and bring prestige to the editor.

In summary, I would hesitate to recommend this expensive book to individuals. If readers of this journal are interested in particle shapes and surface textures, I suggest they first explore the already extensive literature available in journals. If they do so, they will find few additional concepts in *Clastic Particles*.

T. DRUITT