

Preface

Viral Structure, Volume 5 of the series 'Electron Microscopy of Proteins', departs from the pattern established in the earlier volumes of the series, in that a single specialization is now covered rather than the more diverse subject matter included in the earlier volumes. In fact, this returns to the original plan of the Editors, which proposed subject-orientated volumes, but which for technical reasons relating to the availability of completed manuscripts and the avoidance of excessive delay in publication was not adopted.

The present book contains nine chapters which deal with animal, plant and bacterial viruses. A loose division can be made between those chapters which place considerably more emphasis on the fundamental biophysical aspects and image analysis and those which are more biologically applied, but this is by no means clear-cut. In general, the chapters place emphasis upon electron microscopical data rather than upon techniques, although the chapter on immunoelectron microscopy contains a considerable amount of information on specimen preparation. Some chapters do present a more personal interpretation than others, but overall, the book contains authoritative, up-to-date and broadly based reviews of the various topics covered.

All the topics included are presented by scientists who are actively involved and internationally known in their respective fields of study. The first two chapters deal with bacteriophage structure and morphogenesis and are followed by detailed presentations on adenoviruses and influenza virus. The chapter on filamentous plant viruses forms a link between these more fundamental chapters and those following which are slightly more biomedically applied. These are hepatitis viruses, reoviruses, the immunoelectron microscopy of plant viruses, and herpes viruses. Despite the breadth of coverage outlined above, a number of important and interesting topics have inevitably been omitted. Fortunately, viruses such as

TMV and the polyoma viruses have received extensive coverage elsewhere in the literature, but other areas such as the immunoelectron microscopy of animal and bacteriophage viruses, and viral nucleoproteins and nucleic acids have been lost due to authors backing out too late in the production schedule for alternative authors to be commissioned. It is hoped, nevertheless, that the range of subject matter included will be of sufficient interest and that it is presented in sufficient depth to render the book of general value to virologists.

The electron microscope has made an increasing contribution to virology since the instrument became widely available to biologists in the 1950s. There must be currently few virology laboratories that do not make use of this facility, and the study of viruses by those interested in the high-resolution TEM techniques and image analysis has helped to push forward important avenues of investigation. Although atlases of viral ultrastructure are available, the aim of the present volume has been to include, where appropriate, extensive discussion of the more biochemical, immunological and biophysical aspects alongside the electron microscopical data. It is the combination of electron microscopy with other technical approaches for the study of biological materials that underlines the strength, directness and value of this approach, points which are not always apparent if electron microscopical data is considered in isolation from that of other approaches.

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