

of the numerous descriptions of fern spores has already been pointed out by Erdtman in a Swedish review; the absence of illustrations may, however, perhaps prove a disadvantage here.

Though it is always possible, in a compilation of this kind, to make suggestions of detailed improvements, these should not, in this case, be regarded as seriously detracting from the sterling value of this book, which as a taxonomic study will remain an indispensable source of reference for many years. Not only the author, but also the publishers are to be congratulated on the production of a compact, convenient, and scholarly piece of work.

I. MANTON

¹Ching, C., "Natural Classification of the family Polypodiaceae", *Sunyatsenia*, 5, pp. 201-267 (1940).

PATHOLOGY OF TUMOURS

Pathology of Tumours

By Prof. R. A. Willis. Pp. xxiii + 992 + 52. (London: Butterworth and Co. (Publishers), Ltd., 1948.) 63s. net.

IN all branches of biology where the experimental method, and the co-operation of the chemist and the physicist, are extending our knowledge of living things, it is still essential for the results of morphological inquiry not only to be preserved but also to be reviewed, summarized and restated in the light of contemporary opinions. The descriptive morphologist acquires his knowledge and judgment by long experience, which no interloper, however gifted with modern techniques, can hope to achieve in a short space of time as a subsidiary interest. This is particularly the case with microscopical work, where sound interpretation of the visual image usually requires long experience and training.

Nevertheless, the chemist and physicist who are partners in a modern biological research team will seek at least some acquaintance with the morphological side of the problems they are investigating, and here is a book on tumours which not only pathologists but also all workers in cancer research will find extremely valuable. The author has not provided just another detailed work of reference, confined to the systematic description of the structure of tumours. He begins with an admirable summary, extending over twelve chapters, of the main characteristics of tumour formation, their mode of origin, statistical study of incidence, experimental production in animals, metastases, and the theories of the nature of neoplasia. The second part of the book describes with commendable precision the characteristic features of tumours in specific regions of the human body and includes many case-histories, together with information on comparable tumours in animals.

It is now generally accepted that the successful production of an advanced text-book should be the work of collaborators each responsible for some particular section. So many text-books by a single author are apt to become reproductions in condensed form of the existing literature, enlightened only in those sections where the author has detailed experience. Dr. Willis makes it quite clear that, though he wishes to give a general outline, much of the book is a personal record of his own observations and conclusions. The five hundred illustrations are all from material he has studied personally. Inevitably there are controversies concerning the interpretation of

some types of tumour. Where conflict arises with other pathologists, it is refreshing to find the author stating his convictions, avoiding 'non-committal vagueness' and at the same time admitting that his own opinions may have to be modified in the light of further research. There is a vigour and a challenging frankness in his criticism of the work and opinions of others which is perhaps characteristic of the Australian temperament. Where controversies have been tediously prolonged, the more heretical contributors are singled out as 'pathologically incorrigible, absurd or deservedly moribund'—expressions which English authors of scientific books and papers unfortunately go out of their way to avoid. The author's opinions, though forcibly stated, are given, however, with reasons that can only be helpful in allowing the reader to distinguish reasonable hypothesis from dogmatic assumption.

As a work of reference the book is well constructed with clear headings to the numerous sub-sections of each chapter. In the references the more important papers are distinguished by a full title with the author's name in block capitals, while the less important papers are indicated in smaller type without title. Dr. Willis wrote this book while holding the Sir William H. Collins chair of comparative pathology in the Royal College of Surgeons of England. He is now director of the Department of Pathology of the Royal Cancer Hospital, London.

E. S. HORNING

FORCES BETWEEN COLLOIDAL PARTICLES

Theory of the Stability of Lyophobic Colloids

The Interaction of Sol Particles having an Electric Double Layer. By E. J. W. Verwey and J. Th. G. Overbeek, with the collaboration of K. van Nes. Pp. xi + 205. (New York and Amsterdam: Elsevier Publishing Co., Inc.; London: Cleaver-Hume Press, Ltd., 1948.) 22s. 6d. net.

MANY of the classical investigations of colloidal chemistry were concerned with the stability of colloidal solutions of insoluble substances, such as gold, arsenic sulphide, silver halides, etc. The well-known phenomenon of coagulation of these sols by comparatively small concentrations of electrolytes suggested that their stability was connected with their electric charges. A considerable amount of research has been made in the past to discover the magnitude and origin of the electric charge on the particles and the nature of the electrical double layer which exists around them in salt solutions. Although qualitative and semi-quantitative explanations have been given of the phenomenon of coagulation and of the rule of Hardy and Schulze, according to which the ionic concentration required for precipitation diminishes rapidly with the charge of the effective ion, yet a complete and satisfactory theory was still lacking.

The present volume contains the results of theoretical investigations on the problem which were carried out by the authors in the Netherlands during the war years. Some short and incomplete accounts of this work have appeared in various journals, but many of the details are published here for the first time. The book, therefore, has the character of a research monograph. It undoubtedly takes the problem to a