

growth-cycle in rodents, and in man (Van Scott). The presence of growth-waves in the rat, and their absence from the guinea pig, are probably related to vascularization (Durward and Rudall). In fibrogenesis the same end-result is evidently reached by different routes (Mercer). Reduction of the size of the follicle in catagen is retrograde morphogenetic transformation, not degeneration in the usual sense (Montagna and Van Scott). The idea that the cell components may first dissociate and then reunite is a contribution to thought on the mode of working of the gene (Rothman).

Practical application is being sought chiefly in the extremely odd coats of fleece-bearing sheep and man, which both pose fascinating problems in evolution. As to wool, more reciprocal trade is desirable between mouseries and both farms and mills. With reference to human cancer, all that will be said here is that work on the inheritance of coat colour in rodents half a century ago was research now related to human cancer (Fitzpatrick *et al.*, p. 279). A still more widespread killing disability in the human race is maleness. Apparently there is a spectrum in which tendencies to highly developed secondary sex characters merge with tendencies to sex-selective pathological states, rapid aging, and short duration of life (Hamilton, p. 431). Any new fact about hair may save male life and wits.

In gratitude to the late Prof. Walter Garstang this opportunity is taken to report that he coined the terms for growth-phases, anagen, catagen, telogen, and the names of the fibre types monotrich, awl, and auchene, in one short discussion. For the fourth fibre type he then proposed ptychotrich, but a few days later substituted zigzag. F. W. DRY

THEORETICAL PRINCIPLES OF ORGANIC CHEMISTRY

Theoretical Principles of Organic Chemistry
Vol 2. By Prof. Walter Hückel. Translated from the corrected 7th German edition by Prof. F. H. Rathmann. Pp. xi+1046. (Amsterdam: Elsevier Publishing Company; London: D. Van Nostrand Company, Ltd., 1958.) 95s.

THIS completes the translation of Prof. Walter Hückel's text-book, the first volume of which was reviewed some three years ago (*Nature*, 176, 991; 1955). It was concerned in part with valency theory and stereochemistry, dealt with under the heading of chemical statics; and in part with structural rearrangement and the chemistry of unsaturated compounds, dealt with under the heading of chemical dynamics.

The present volume deals with constitution as it determines physical properties and reaction velocities. Under the former heading are considered, *inter alia*, thermodynamic, electrical, and optical properties; relations between cohesion and constitution; properties of organic colloids and crystals; and the nature of the chemical bond. Under the latter are considered general theories of reaction velocity, and their applications; particularly to the hydrolysis of esters, to aromatic substitution, to polymerization, and to ring closures. Equilibrium constants for acidic dissociation, for ring closures, and for reversible oxidation-reduction processes are also considered briefly.

This volume, like the first, is well printed and produced. But it is tediously written, it contains many

infelicities of translation, and it gives far too much prominence to out-moded and incorrect theories. Its treatment of electrophilic aromatic substitution is particularly confusing and disordered. An attempt is made to contrast the qualitative electronic theory with the quantum-mechanical treatment attributed to Wheland and to Seel. It is stated, for example (p. 800), that the latter theory "makes unnecessary the assumption of postulated hypothetical effects". The reviewer considers that the author has appreciated incompletely not only the part played by factors of polarizability in the former theory but also the extent to which the "hypothetical effects" are concealed in the arbitrary assumptions of the latter. The reader will not be helped by Prof. Hückel's discussion of the former theory through the introduction of a "general effect", which deactivates for electrophilic substitution, but is identified strangely with Wheland's "polarization effect" and with Ingold's "inductometric (*sic*) effect".

Taken as a whole, the reviewer believes that these volumes will not generally be found useful by chemists familiar with other works available in the English language. P. B. D. DE LA MARE

AMERICAN MARINE LIFE

The Underwater Guide to Marine Life
By Carleton Ray and Elgin Ciampi. Pp. xiii+338+16 plates. (London: Nicholas Kaye, Ltd., 1958.) 30s. net.

THIS book about life in American coastal waters first appeared in the United States in 1956 and one wonders why an English publisher should have thought it suitable for the English market. Perhaps he is not aware that relatively few of the species described are to be found in European seas and that this book is of very limited interest to skin-divers (for whom it is primarily intended) on the eastern side of the Atlantic. His advertisements, one of them in a popular journal widely read by sub-aqua club members in Britain, certainly do not make any mention of this and in consequence are misleading.

The book, printed in the United States, is beautifully produced and attractively illustrated with many drawings and photographs, in both colour and black and white. It is true that the coloured drawings are sometimes not quite correctly tinted, but they are reasonably accurate in outline and will serve for identification, if not always for the species at least for the group. The preliminary chapters give an elementary account of the environment and of the general biology of the sea. The chapters on the techniques of underwater swimming and photography are too short to be really useful and the space they occupy could, with advantage, have been devoted to expanding the sections on plant life, and on the invertebrates which receive all too brief a treatment. The section on fishes occupies about half the book and is the most valuable portion of it. The final chapter deals briefly with marine reptiles and mammals. Apart from some minor errors of no great significance the book is accurate and well written, and should adequately serve its purpose as an underwater swimmer's guide to life on both coasts of the United States, especially the warmer parts. It should be very useful, too, to anyone visiting the magnificent marine aquaria and oceanaria of that country. D. P. WILSON