

Other topics in this volume, covered in a more pedestrian fashion, are sulphur compounds, non-volatile organic acids, acetylenes, lignin and cutin. These are followed by two excellent general essays covering the importance of secondary constituents as drugs (N. R. Farnsworth) and in human affairs (G. H. Stout and R. E. Schultes). The volume concludes with a forecast by L. Fowden of future developments in phytochemistry, in a chapter entitled "Retrospect and Prospect".

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**Biological Oceanographic Processes:** by T. R. PARSONS and M. TAKAHASHI, Pergamon Press, Oxford, 1973. 186 pp. £4.00 (hard back) £2.85 (flexi cover).

THIS book is intended to serve as an introduction to the field of quantitative biological oceanography. The first two chapters describe the plankton community in terms of the distribution and chemical composition of organisms and nutrients. Chapter 3 deals with the primary formation of particulate material, Chap. 4 with feeding processes and the kinetics of food exchange, and in Chap. 5 the interdependence of all processes in the sea is stressed. According to the text in the sixth chapter "some attempt has been made to identify a number of problems for which solutions may be attempted from a knowledge of biological oceanography". The chapter has two sections. The first "example problems in pollution and water mass identification" consists of a short discourse on the disposal of human excrement followed by some considerations of estuaries, a lake, DDT and apparent oxygen utilization. The second "example problems in fisheries" contains discussion of results which could easily have found their way into earlier chapters. Somehow I feel that there must be a greater purpose for all that has come before.

For the first five chapters, the emphasis is on those processes which have been described in terms of empirical equations. The mathematical treatments are expressed in a clear and concise manner supplemented with a wealth of illustrations, maps, tables, graphs and up to date references. The quality of the text varies. A detailed description of the possible transmission of an antibacterial substance (acrylic acid) produced by *Phaeocystis*, through euphausiids to the penguin (where it causes bacteriological sterility in the anterior segments of the gastrointestinal tract) is followed in the same section by the stark sentiment "the source of oil pollutants might be discovered through hydrocarbon chemistry". In places attempts to simplify complex systems has led to inaccuracies. For instance, straightening the Z scheme of photosynthesis has led to an incorrect redox potential for plastoquinone resulting in the formation of ATP during electron transfer between two compounds of apparent equal potential. Photorespiration is dismissed in a single sentence: "the mechanism is not at present understood". However, these points should not deter anyone interested in biological oceanography from what is a generally well presented and informative volume.

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