

communication. Under the International Code of Botanical Nomenclature no new taxon can be validly published without at least a diagnosis in Latin, so some knowledge of botanical Latin is essential to every working taxonomist.

It is therefore remarkable that no guide to the subject in English, other than more or less complete glossaries, has been published for more than a century. Dr. Stearn's book supplies what is, for once, really a long-felt want, and does it with his usual accuracy, wide knowledge and eye to practical needs.

After a brief introduction to the method of using the book the reader is entertained with a history of the development of botanical Latin terminology, which is valuable not only for an understanding of modern Latin but also for the interpretation of earlier works.

In the second section of the book some 70 pages are devoted to grammar, and here hard work for the reader begins. The young systematist with no previous knowledge of Latin will have to make a determined effort, if he is really going to master this without assistance. It may in fact prove better to pass on to the third section, syntax and other matters, and try to model a diagnosis or description on one of the many good examples given in this part and then to get it corrected, and so learn by trial and error. The examples are drawn from all groups of plants, except bacteria and fossils; therefore a wide range of terminology is available. In addition there is an extensive vocabulary at the end so that by selecting appropriate words and substituting them in the chosen example the beginner can get quite a long way.

If an adverb is being sought, the list on pages 105-107 should be consulted, as well as the vocabulary, as there are differences between them both in content and, to a lesser extent, in the English equivalent given. A few examples, taken at random, will illustrate this: the vocabulary lists *abundanter* and *copiose*, which are absent from the list, and gives *disgustingly*, *badly* as the meaning of *putide*; the list has *infauste*, missing from the vocabulary, and gives *badly*, *absurdly* as the meaning of *putide*.

Other valuable special lists are those dealing with geographical names, colour terms etc., while lichenologists and phycologists will find the list of chemical names particularly useful.

Dr. Stearn claims that botanical Latin should be regarded as a language distinct from classical Latin and most botanists would support this claim at least as far as it justifies the simplification of grammar, the use of a much bigger range of colour terms and other new words or words used in special senses, and the retention of certain non-classical spellings such as *bacca* and *annulus*. To argue the case further is a matter for the language expert. A professor of classics once remarked that botanical Latin was the kind of Latin the Romans would have used if they sent telegrams, that is clear, simple and concise.

Altogether this is a most useful and interesting book from which beginners and experts alike can profit. It has already been used in an unexpected way by a botanist with a knowledge of Latin but little acquaintance with English to produce English descriptions of plants.

T. G. TUTIN

## "PHYSICS OF THE OCEANS"

### Elements of Physical Oceanography

By Hugh J. McLellan. Pp. ix+150. (London and New York: Pergamon Press, Ltd., 1965.) 63s. net.

THE increasing interest in oceanography in recent years has given rise to a number of popular books on the subject, while a succession of review volumes at the research level has appeared, summarizing advances in special fields.

At the same time, the student coming to the subject with no systematic knowledge of it and requiring a sound treatment of its principles has found a very meagre selection of texts. This book by Prof. McLellan is a valuable contribution to filling this gap, so far as physical oceanography is concerned. It is based on a course of lectures given at Texas A and M University and it bears the mark of having been written by a teacher who knows from experience what questions students will ask and which points they will find difficult. It is intended to provide a broad look at the subject, for biologists, chemists and geologists, as well as for physical oceanographers. The treatment is necessarily selective, but is sufficiently representative of the whole field, and each topic is treated rigorously within the limits which the author sets himself.

The three parts into which the book is divided deal respectively with descriptive oceanography, oceanic movements and selected topics. Starting with a view of the oceans in perspective, Part I goes on to describe the chemical nature of the ocean, the measurement and distribution of temperature and salinity and the fields of density and pressure. This leads to a discussion of water masses and a description of the general oceanic circulation. The basic dynamical concepts are well explained in Part II, including a good discussion of geopotential surfaces and stability. Geostrophic currents, wind drift, turbulence, inertial motion and waves are among the subjects treated, and this part ends with a brief description of tides. Two of the chapters in Part III deal with light in the sea and the heat budget of the ocean, essential topics in a study of physical oceanography, and these are followed by a brief chapter on thermohaline circulation. The other two selected topics are sound propagation and estuaries.

There is only one point about which I feel inclined to quibble and that is the indiscriminate use of the terms "force" and "acceleration" in dealing with the effects of the earth's rotation. It is disconcerting to read of "centrifugal acceleration" away from the axis of rotation and "Coriolis acceleration" acting to the right of a moving element in the northern hemisphere. This confusion in nomenclature is not a feature peculiar to this particular book, however.

The book is well illustrated throughout by appropriate diagrams. Those taken from other sources are wisely selected and clearly reproduced and the original ones are also simple and clear. There are useful lists of references and sources of additional information at the end of each chapter.

K. F. BOWDEN

## ELECTROMAGNETISM IN GEOPHYSICS

### Electromagnetism and the Earth's Interior

By Tsuneji Rikitake. (Developments in Solid Earth Geophysics, Vol. 2.) Pp. xi+308. (Amsterdam, London and New York: Elsevier Publishing Company, 1966.) 130s.

MANY advances have been made in the study of the Earth's magnetic field since 1940, when Chapman and Bartels first published their treatise *Geomagnetism*. In that comprehensive work the absence of an adequate theory of the source of the field was notable, and in this direction particularly significant developments have taken place. Prof. Rikitake's book is an up-to-date account of theoretical geomagnetism and it reflects how much more satisfactory our understanding of the fundamental processes has become in recent years.

The book falls into two main parts. The first deals with the main geomagnetic field, giving a wide-ranging review of the theories of its production and its long period variations. Here the author (rather cautiously) advocates the self-exciting dynamo mechanism and he shows how this accounts successfully for most of the observations.