The plesiadapoids are retained among the Insectivora. The history of man is briefly rewritten, as it surely will have to be in the future. The creodont group is reduced principally by transferring the miacids to the fissipeds. The condylarths receive new treatment. Small sections are added to the Sirenia and the desmostylids. There are many changes in the classification of the rodents, now grouped into three main suborders, and the lagomorph section is also revised.

Extensive changes appear in the arrangement and comprehensive listing of genera in the table of classification (pp. 346–96). Illustrations added to this edition are distinguished by their clarity, in some slight contrast to more smudged ones repeated from earlier editions. Certainly the entire work effectively serves a great need for a comprehensive vertebrate text that is clearly written, excellently illustrated, and salted with interesting and original ideas.

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Biotoxicology

Poisonous and Venomous Marine Animals of the World. Vol. 1, Invertebrates. BRUCE W. HALSTEAD, with sections on chemistry by DONOVAN A. COURVILLE. Government Printing Office, Washington, D.C., 1965. 1030 pp., illus. $50 for the set of three volumes.

This amazingly complete compilation of information relative to what might be called "dangerous" invertebrates is the culmination of some 20 years of work. It is a definitive monograph that will probably remain unrivaled for some time to come.

The volume begins with a historical account, which traces the recognition of poisonous marine invertebrates and the treatment of their effects from the time of ancient Egypt to the present. The eight most common marine invertebrate groups are then dealt with (Protozoa, Porifera, Coelenterata, Echinodermata, Mollusca, Platyhelminthes, Annelida, and Arthropoda). (It is because of the broad scope of this work that five reviewers, each a specialist in one of these groups, has participated in this review of it.) Each treatment begins with a taxonomically arranged listing of those animals reported as toxic or venomous, with notes on distribution and with literature citations. Then a general account is given of biotoxicological research on the group, comments on the biology of the animals, and a morphological description of the poison glands, venom apparatus, or mechanism of intoxication, as applicable. There follow discussions of the medical and public-health aspects of the effects of the animal and consideration of toxicological assay methods and chemical analyses for the various toxins.

In almost all extensive undertakings such as this, it is inevitable that a number of minor errors survive editing procedures. Here, there are some occasional misspellings, and the captions for a few plates are reversed. In the chapter on the Mollusca there are errors in some ordinal and subclass names. The overall quality of the editing is high, however.

The treatment of all groups but the sponges is uniformly good. It is felt that there is an overemphasis on the commercial species and a relative neglect of the remaining sponges; this may well be a reflection of the amount of research that has been done on the two categories.

The book is well illustrated. The first chapter, on history, contains 175 figures, most of which are photographs of workers in the field of biotoxicology. There are about 20 line drawings and over 200 plates which serve to cover the animal groups. About half of the plates are in color; although they are well done from the standpoint of color, a number are not quite in focus, and there appears to be some repetition and superfluity. Those plates which are reproductions of illustrations from older scientific papers are of questionable value, since they are often so generalized that little detail is apparent.

In summary, it is felt that Halstead has done a great service in overseeing the drawing together of a vast amount of information on biotoxicology. It is to be hoped that, in addition to being a valuable source of specific information, the book will act as a stimulus for intensified research in this relatively neglected field.

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Asiatic Plants

The Flora of Eastern Himalaya. Results of the Botanical Expedition to Eastern Himalaya organized by the University of Tokyo, 1960 and 1963. Compiled by HIROSHI HARA. University of Tokyo, Tokyo, 1966. 754 pp., illus. About $32.

This handsome volume is at once a comprehensive illustrated catalogue of the temperate flora of Eastern Himalaya and a fascinating comparison of this flora with that of Japan. As is explained in the preface, "The main objects of [the University of Tokyo] Expeditions are to make clear the close botanical relationship between Eastern Himalaya and Japan, to investigate critically the corresponding taxa in both regions, and to analyse the process of evolution in the plant groups originated from a common ancestor in the Early Tertiary and now widely separated in both regions."

The larger part of the book is occupied by an enumeration of the taxa represented in the 60,000 specimens obtained by the two expeditions. For each taxon there is provided a synonymy, a list of collections, its distribution, and often taxonomic or ecological notes. Hara, who seems much too modestly designated as "compiler," has contributed accounts of some 90 families; a much smaller number, representing a broad spectrum, have been contributed by other Japanese botanists.

The groups included range from fungi and lichens through spermatophytes. There is a 12-page account of the membership of the expeditions and their itineraries, supplemented by a folded map at the end of the volume. All of this must constitute a major contribution to our knowledge of one of the world's most exotic floras, one that seems as remote as the dazzling picture of the distant Kangchenjunga Range in the frontispiece.

But to the reader who is not primarily concerned with this flora in its own right, the most interesting parts of the whole account will doubtless be the chapter by Hiroo Kanai on the phytogeography of Eastern Himalaya and its relationship to that of Japan, the taxonomic comparison between the same or vicarious species in the two areas by Hara, and the tantalizingly bare beginnings of a cytological comparison of these plants by Sachiko Kurosawa. Kanai gives a lengthy list of "Japono-Himalayan related plants,"

which (excluding weeds and cultivars) boils down to some 128 mostly native mesophytes, of which the representatives in the two areas apparently are identical in 64 instances, intraspecifically different in 25, and classifiable as related but distinct species in 39. Hara emphasizes that the Himalayan plants are in general adapted to a milder climate than that of Japan, lacking the severe insular winters, and calls attention to the total absence in Eastern Himalaya of the characteristic Japanese temperate deciduous forest.

"Although Eastern Himalaya and Japan are now widely separated, the floras of both regions are considered to have been derived from the common flora of the Tertiary which had covered whole East Asia including Himalaya, China, and Japan." These environmental and geographical changes, which must have been most intensive during the period of Quaternary glaciation, caused the taxa to differentiate in somewhat different directions. "Thus, to compare critically various corresponding taxa which are now found in Eastern Himalaya and Japan gives important data on the origin of the Japanese flora and the evolution of the plant groups involved in the flora."

For those who have been interested in comparing the flora of Japan either with that of the eastern United States and Mexico or with that of the Pacific Coast of North America, this attractive book adds a whole new dimension.

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Tools for Taxonomists

Botanical Latin. History, Grammar, Syntax, Terminology, and Vocabulary. WILLIAM T. STEARN. Hafner, New York, 1966. 580 pp., illus. $16.75.

An English-Classical Dictionary for the Use of Taxonomists. ROBERT S. WOODS. Pomona College, Claremont, Calif., 1966. 345 pp. $5.50.

The International Code of Botanical Nomenclature decrees that, in order to be validly published, any name of a new taxon of plants (bacteria and fossils excepted) must be accompanied by a diagnosis or description in Latin or by a reference to a previously published description in the same language. In order to supply such validating diagnoses, botanists are therefore obliged either to acquire a sufficient knowledge of the grammar and vocabulary of Latin to do this themselves or to have recourse to outside scholarly help. Add to this the fact that Latin was the standard language for botanical texts from the time of Linnaeus up to about a century ago, and it becomes obvious that all taxonomic botanists should be equipped with a knowledge of the language. Stearn's book supplies a most valuable working tool to enable those who are not classical scholars to construct intelligible diagnoses and descriptions and to understand the fundamental information contained in earlier works. After a sketch of the historical development of botanical Latin terminology, the author proceeds to a condensed outline of the grammar and syntax and gives standard sample descriptions in Latin of representatives of various plant groups, from algae to angiosperms, with additional chapters on color terms, habitats, geographical names, general descriptive terminology, and so on. A comprehensive vocabulary, with both Latin and English equivalents alphabetically arranged, contains all the terms commonly used in botanical Latin, with exact definitions. The excellent line drawings included in the text facilitate exact understanding of many of the technical terms employed. Apart from its practical value, this remarkably erudite and carefully constructed treatise is entertainingly written and contains much interesting information on the evolution of the Latin language as a medium of botanical communication. It is only to be regretted that such an outstanding and faultless scholarly work should be marred by the incredible carelessness of the publishers in misspelling Stearn's name on the cover.

Woods's *English-Classical Dictionary* contains, with their literal Latin and Greek equivalents, all words occurring in lexicons of those languages which are or could be used in taxonomic nomenclature. Insofar as possible, ambiguous terms are avoided. The chief use of the book to botanists and zoologists will be as an aid in the selection and construction of suitable epithets for new taxa. Grammatical notes are restricted to a table of case terminations in Latin and Greek, with equivalents. Greek words are transliterated into Roman characters; it would have been useful to include also the Greek alphabet for the benefit of those totally unfamiliar with that language. The typography is good, with the key words in clear bold-face letters.

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Biological Self-Regulation

Living Control Systems. L. E. BAYLISS. Freeman, San Francisco, 1966. 199 pp., illus. $5.

This posthumous book by a noted physiologist attempts to present an introduction to the theory of control systems (more particularly, servomechanisms) with illustrative material drawn chiefly from muscular and physiological responses. The approach is chiefly qualitative, with a supplemental chapter on the elementary mathematics of servo systems at the end of the book. On the whole, the author is quite successful in introducing the reader to such concepts as proportional control, integral control, linear and nonlinear transfer functions, stability, and damping on an intuitive basis, assuming a minimum of mathematical sophistication. This will probably be a welcome opportunity for many students in biological sciences to learn something of this subject without having to tackle one of the more formidable engineering-oriented textbooks. Occasionally, however, the more sophisticated reader may find himself irked by the obvious circumvention of an equation or formal definition in an attempt to avoid mathematical statements, and since the author does assume some scientific background it may be that he has leaned too far in this direction.

The book is primarily a statement of general principles and should not be construed as a thorough review of the application of these principles in living systems. With the growing interest among biologists in such phenomena as genetic induction and inhibition, enzyme kinematics, and control functions of the central nervous system, it is perhaps unfortunate that there are not more examples from these fields, although the choice of such traditional examples as stretch reflexes, iris con-