

book was written studies on indices have developed considerably. . . .") may mean that the Russians are about to announce the discovery of value added by manufacture. A section entitled "Examples of the application of composite indices in the Soviet Union and in People's Poland" is not very informative because there is no reference to anything that happened after 1952. A longer section, "Composite indices in the statistics of capitalist countries," makes the general point that such indexes may be completely unrealistic; if they are not it is usually a matter of coincidence, and even in the case of "correct indices published in capitalist countries a critical evaluation of their applicability from the point of view of Marxian theory is advisable." The only reference to Western literature in this section is to Irving Fisher's *The Making of Index Numbers* (1922).

Three appendixes discuss smoothing, interpolation, and rounding at the same level as the main text. These are followed by scanty statistical tables of normal curve areas, the *t* distribution, the chi-square distribution, and ran-

dom numbers. An additional table of squares, square roots, and reciprocals seems a little archaic. A "name index" with 136 entries becomes less impressive when one notes that these are names, not citations, and that nearly half of the entries should be dated prior to 1900. The list includes Artaxerxes, Bonaparte N., Carl the Great, Cyrus, David (not F. N., but the one who had a census taken with somewhat disastrous results for Israel), Louis XIV, Moses, Peter I, William the Conqueror, and other eminent statistical practitioners. To be fair, the most frequently noted are K. Pearson and J. Neyman. Next in line is W. I. Lenin. Marx and R. A. Fisher are accorded one mention each.

The translation misses the idiomatic by a wide margin, but the meaning is usually clear, at least from the context. Surprisingly, for a work which lists a translator (J. Stadler) and two translation editors (H. Infeld and C. D. I. Forrester), the book is poorly or carelessly edited.

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embryos. I find the drawings of angiosperm steles and nodes misleading. A uniformly excellent level of illustration is very difficult to achieve, and one can sympathize with the problems involved.

Despite the merits of Delevoryas's contribution to this series of complementary texts, one may question the success of the experiment as a whole. The goal of truly coordinated volumes within a series is nearly impossible; even if it were achieved, cross-reference would be awkward. For example, although there is a volume on ecology within the series, ecology is stressed elsewhere: Delevoryas's discussion of angiosperms is built on ecological adaptation. The ten volumes of the series might offer flexibility for teaching elementary biology, but this poses problems: if one does not use all ten, how are lacunae to be avoided? Use of a series rather than a single volume is undeniably cumbersome. This scheme will appeal most to those who enjoy its novelty, or who actively desire liberation from a single text. We can thank the publishers for giving us the opportunity to judge this alternative. The problems involved in this arrangement, however, offer so many difficulties that the majority of professors may decide that a single, large, hardcover text is not a Procrustean device but just the unifying touch needed in a biology course. If one chooses a single textbook, one has a wide choice among attractive and appealing botany, zoology, and biology texts. With the series scheme, however, one has little choice but Holt, Rinehart & Winston's authors and their viewpoints. One notes that other publishers currently show little desire to emulate the idea.

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Introductory College Biology Textbook

Plant Diversification (Holt, Rinehart, and Winston, New York, 1966. 157 pp. Paper, \$2.25), by Theodore Delevoryas, is presented as one volume in a series of ten designed for coordinated use in teaching introductory college biology. Delevoryas states that he wishes to present "certain topics of special evolutionary interest and to develop them more fully than is possible in a survey of all the plants." Like all methods, this approach has its advantages and drawbacks. Evolutionary principles, in my opinion, tend to emerge most clearly following a detailed survey of at least certain groups. Delevoryas, as might be expected, presents his own interest, paleobotany, in generous measure. Few other authors would have stressed fossil plants to such a great extent. This viewpoint is a quite legitimate one, however.

Selection of materials for an elementary text inevitably produces arbitrary inclusions and exclusions: for example, bryophytes receive scant mention and are not illustrated, while several types of life cycles in red algae

are illustrated. The text is clearly written and accurate.

The illustrations of fossil plants are excellent. For living plants, drawings have evidently been designed so as to be simple and uncluttered; some tend to be two-dimensional and textbookish, however. One regrets that few illustrations are original; most were taken directly from other sources, or were redrawn. This results in some mediocre illustrations: why, for example, should the illustrations of a sunflower have been redrawn from those in an old botany textbook when fresh material of this plant is so readily available? The fruit of *Bidens* is inexplicably inverted. A dehiscent fruit of *Echallium* appears to have a second pedicel, at the distal end of the fruit, which attaches to the stem. The shoot apex of *Syringa* is in poor focus. The photograph of a vessel is not likely to impart a clear impression of the nature of a vessel. We are offered drawings of a gametophyte and gametangia of a fern, but no sporangia, spores, embryos, or sporophytes. Drawings of the life history of a pine do not include

Classification of the Teredinidae

Perhaps in its more radical departures from the dreary wastelands of the dry-shell approach this book, **A Survey and Illustrated Catalogue of the Teredinidae (Mollusca: Bivalvia)** (Museum of Comparative Zoology, Harvard University, Cambridge, Mass., 1966. 275 pp.), which is concerned with the systematics of shipworms, indicates a new trend in molluscan taxonomic practice. In the hope of find-

ing a better basis for the classification of the family, the author, Ruth D. Turner, undertook a study of the soft anatomy as well as the shells and pallets of the Teredinidae. Anatomical descriptions of representatives of 14 genera, with 26 good drawings of their anatomy, begin the section on teredinid biology in part 1 of this book. The new information is then correlated with what was already known into coherent accounts of the functional anatomy, physiology, reproductive biology, and distribution of the Teredinidae. This survey reveals that when features of soft anatomy, biology, shells, and pallets are considered together, six natural groups of genera emerge; thus, the value of the approach is demonstrated. Trends in evolution and phylogenetic relations made apparent by the survey are discussed. The new information is used in a revision of the classification of the subfamilies and genera, with the new diagnoses based principally on details of the soft anatomy and pallets. Other taxonomists should examine this application of new characters in completely redefining taxonomic groups. Part 1 reveals the Teredinidae as a group that shows remarkable structural adaptations and striking specializations in many aspects of their biology; this part will interest students of evolution, physiology, and reproduction as well as those interested in mollusks, invertebrate zoology, and marine biology.

Part 2 is an illustrated catalog of all published teredinid generic and specific names. Entry annotations include citations, type localities, and the taxonomic status determined for each name. Pallets and shells of the types of virtually all nominal species and those of specimens showing variations found within some species are illustrated by drawings, with descriptive legends, which are arranged on 64 consecutive plates. The large format allowed these excellent drawings to be reproduced on a scale large enough for easy use. The systematic literature appears to have been exhaustively collected and analyzed for the catalog. Almost all type materials extant in museums and large numbers of specimens derived from a worldwide sampling program were studied to determine the synonymies. This enormous amount of research, clearly done with competence and meticulous scholarship, introduces order into the taxo-

nomic chaos of each species with admirable thoroughness. Its organization does not succeed in making the results of this great labor readily available to users of the catalog.

There is a hint (p. 13) that generic monographs will follow, but the author expects (p. 131) this work to be used for determining species. Statements made in the two forewords imply that the book will become a principal tool for the identification of teredinids. Perhaps it will, but not without considerable expenditure of patience and time by the users. There is neither an index nor a list of figures; nor is there a systematic list of species names and their synonyms under each genus. The catalog gives approximately 800 generic and specific names in alphabetical, not systematic, order but a list of synonyms appears in the entry for each valid name. After placing a specimen in one of the 14 genera with the generic key (p. 81), it is necessary to flip pages (page references not given in the key) to find this genus in the section on generic diagnoses (pp. 73 ff.). The valid species are listed here, but the pages where they appear elsewhere are not given. However, armed with a copy of the list under our genus, we can now safely enter the taxonomic jungles of the alphabetical catalog to find therein each species name, and copy onto our list the plate number (page not given) found under it. The plates are arranged so that figures of most of the species of each genus follow one another, but some are out of order, so that much flipping back and forth is necessary as the specimen is compared with the figures given for each species. Because written species diagnoses do not form a part of this work, the descriptive material given with most legends must be read carefully, and these sometimes direct us (no page reference) back into the catalog for more information. If we have a species of *Lyrodus*, the valid species list under that genus leads us to the catalog entry *pedicellatus* where we find the reference: "Plate 1, A, D, E." If we are hasty in checking these figures we miss the last line on the legend page opposite indicating that all other figures on this plate are also of variations of *L. pedicellatus*. Unless we are unduly suspicious, we do not discover until much later the notes on the respective legend pages that all of the figures on plates 2, 3,

4, and 5 (not referred to in the catalog entry) are also of specimens of *L. pedicellatus*, one of which might resemble the specimen in hand. This type of notification appears on the last line of many legend pages. As we become familiar with the book, suspicion grows that the plate references given under the valid species entries in the catalog do not reflect a large number of late decisions by the author to synonymize species, and for identification purposes fail as guides to all the figures of a species. We must go through all the plates and examine each figure that the legends indicate as illustrating one of the variations of a species of the genus in question. Since it appears that the synonym lists under each valid species entry in the catalog were emended to include late decisions, a more laborious alternative is to extract the entire list (no page numbers) for each of the species in the genus of the specimen, find the catalog entries for each name, obtain the plate number given, and then turn to the plates and find each figure. Plate references in the catalog are usually preceded by 1¼ inches of blank space where additional plate references could have been inserted without altering the total number of lines or their arrangement in any way. A proper systematic index would have been easier to amend and would have added no more than approximately ten pages to the text. This work includes 66 presently valid species and 229 specific synonyms; without a cross-index to the catalog entries and the figures, an attempt to critically examine Turner's synonymy decisions by trying to find and compare all relevant catalog notations and figures of the types of the reputed synonyms would be more dangerous and less appealing than experimenting with LSD.

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Mathematics

The Geometry of Incidence (Prentice-Hall, Englewood Cliffs, N.J., 1966. 176 pp., \$5.95), by Harold L. Dowart, provides a scholarly expository treatment of some of the most interesting consequences of the assumptions of incidence relations in plane geometries.