

zuela," an essay in volume 3, discusses the various phytogeographical regions and climatic conditions and gives detailed descriptions of each locality where the actual material described and illustrated in these volumes has been collected.

"Variations within a species," in the fourth volume, has 12 line drawings that present a visual explanation of the taxonomical problems involved in interpreting the diversity of form and structure within populations; these drawings will be most useful to the orchid hobbyist. In the table of contents of this volume there is a cumulative list of all of the new species and new taxonomic combinations proposed in the series.

The illustrations on the book jackets of the four volumes are excellent color photographs that regrettably are not included in the text: *Hunleya lucida* (vol. 1); *Sobralia yauaperyensis* (vol. 2); *Lueddemannia pescatorei* (vol. 3); and the bizarre *Coryanthes biflora* (vol. 4).

Notwithstanding the fact that the authors were some 2000 miles apart, that the publisher was in England, that the printer was in Holland, and that the whole of the editorial work was done by correspondence, there are remarkably few typographical errors. The four volumes are beautifully printed on excellent paper, and they are very attractively priced at \$20 each; volume 1 contains 448 pages; volume 2, 348 pages; volume 3, 348 pages; and volume 4, 344 pages.

This is one of the best compendiums of its kind published in years, and it will be an indispensable reference work for botanical institutions and university and public libraries, as well as for anyone who has an interest in plants and in orchids in particular. The authors plan to include at least two additional volumes in the series.

HERMAN R. SWEET

Department of Biology,
Tufts University

Ornithology

The day is past when books devoted to the birds of a state constituted important advances in our knowledge of North American ornithology, but such volumes still serve a useful function, chiefly at the local level, and it is understandable that there is a public response to them which justifies the work

and expense involved in their publication. **Birds of Colorado**, vols. 1 and 2 (Denver Museum of Natural History, Denver, Colo., 1965. 927 pp., \$35), by Alfred M. Bailey and Robert J. Niedrach, are sumptuous large tomes that will certainly rank high among the "state ornithologies." The authors have every qualification required for their task; both have had many years of field and museum acquaintance with Colorado birds; both are ardent observers and photographers; both are intimately familiar with the state and with its avifauna.

With its great diversity of habitats and terrain, from the eastern prairies at less than 3500 feet above sea level to the rugged peaks of the Rocky Mountains, more than 50 of which rise to more than 14,000 feet, Colorado offers a wonderful variety of ecological areas for its bird life, which includes some 439 species, or, with subspecies, 503 kinds in all. For each of these, the authors have given well condensed summary accounts that include recognition characters, range (in general and, in greater detail, in Colorado); arrival and departure dates for migrants; life histories of breeding species; and, in some cases, discursive accounts of personal experiences.

Any lavishly illustrated work, such as this, is a picture book as well as a text. The present work contains 124 plates by 23 artists, some of whom are relatively little known to the bird-book-buying public—John A. Crosby, A. Kreml, D. F. Landau, D. L. Malick, R. A. Parks, O. O. Rice, C. L. Ripper, and W. Trimm, for example. More than 700 individual birds of 420 species are shown on the plates in these volumes, and, as might be expected, owing to the different artistic techniques used, some plates will appeal more than others to individual readers. By and large, bird illustrators are not particularly good landscape painters, and I consider the plates with the least pictorial effects the most pleasing. On some plates that attempt to show detailed backgrounds the birds seem almost like "cut-outs" pasted over the background.

In addition to the annotated discussions of each of the birds, there are short introductory accounts of bird distribution, migration, orientation, and longevity; a longer account of the state of Colorado, its rivers, topography, life zones, and plant associations; and a detailed account of the history of Colorado ornithology from its begin-

nings in 1776 down to 1930, at which time Bailey and Niedrach began their work.

Although the regular edition sells for \$35, 200 autographed sets are offered at \$100. The authors and the Denver Museum are to be congratulated on an impressive and authoritative work, one that gives every indication of serving as a reliable reference source for a long time to come.

HERBERT FRIEDMANN

Los Angeles County Museum,
Los Angeles, California

Treatise on the Siphonophora

Dawydoff once wrote that the siphonophores were the hardest of all animals to preserve, and anyone who has witnessed the disintegration of one of these delicate colonial hydrozoans, either in the process of capture or subsequently in the formalin bath, will be impressed with the truth of this statement. Not only does the colony disintegrate but the separated parts usually undergo severe distortion, and it is the gelatinous nectophores and bracts, taxonomically the most important parts, which suffer most. To create order out of these chaotic relics the specialist must have inexhaustible patience, learning, intuition, and a firsthand knowledge of the living animals he is trying to reconstruct. A. K. Totton is one of the few who possess these qualifications, and he has now provided his crowning contribution to the subject, the first modern synopsis on the order—**A Synopsis of the Siphonophora** [British Museum (Natural History), London, 1965. 320 pp., £11]. Totton was assisted by H. E. Bargmann.

Where Paul Kramp's *Synopsis of the Medusae of the World* (1961) is essentially a catalog based on a card-index system, Totton's synopsis is a book written in clear prose and illustrated with numerous photographs and drawings. It starts with a historical review (16 pp.) consisting of valuable commentaries on the work of T. H. Huxley, Haeckel, Bigelow, and others. Next follow sections that deal with gross morphology, reproduction, and phylogeny (13 pp. in all), followed by a note on parasites, a section on terminology, and then the core of the work, the classification and systematics sections (184 pp.). The chief innovation in the classification is the establishment of the Clausophyidae as a separate