associated with patchy distribution, and a survey of the main types of collection and extraction processes. The second, "Successive approximation in descriptive ecology," by M. E. D. Poore, deals with the description and classification of plant communities; by using critical observation coupled with data that have been classified, correlations can be discovered and hypothesis formed; these can then be checked and rechecked for consistency by further observation. The third, "Energy in animal ecology," by L. B. Slobodkin, discusses the relevance of energy to ecology, the theory of energy budgets, entropy and information in ecology, Lindeman's theoretical formulation, the laboratory study of *Daphnia* energetics, and some field studies of efficiency. The fourth, "Quantitative ecology and the woodland ecosystem concept," by J. D. Ovington, deals with the dynamics of organic matter and energy and the circulation of water and chemical elements in forest communities. There are subject and author indexes.

The four articles are a very good beginning to this new series, for they indicate the complexity of the problems that face ecologists and the precision with which limited aspects of these problems can be investigated. One hopes, however, that in future volumes some articles will place the detailed studies in perspective so that the significance of many of the interactions occurring in nature can be assessed.

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Gleason's Flora Abridged

Manual of Vascular Plants of Northeastern United States and Adjacent Canada. Henry A. Gleason and Arthur Cronquist. Van Nostrand, Princeton, N.J., 1963. lii + 810 pp. $11.75.

A new manual covering all the vascular plants of the northeastern United States and adjacent Canada will be considered a major publishing event by a multitude of botanists, students, and naturalists, both amateur and professional. The 8th edition of *Gray's Manual* (1950) is the only other such manual to appear in the past 55 years, a period which has seen not only a vast amount of field work in the region but also increasingly profound studies and improvements in taxonomy and nomenclature.

The present manual is not actually all new, for it is a compression of the large three-volume *Illustrated Flora* (1952), which covered essentially the same area and 4600 species, by Gleason and collaborators. Chief among the latter was Cronquist, who contributed the Compositae, and who now points out in the preface that insofar as this manual differs from the *Illustrated Flora* it is his work. (The joint authorship on the title page is chronological, not contemporaneous.)

Condensation of the large flora into a book smaller than *Gray's Manual* (though printed on more substantial paper) has been made possible by the use of small print (especially in the keys), a slight shortening of some keys and descriptions, the complete absence of illustrations, and the omission of any explanatory introduction except for a glossary. This omission will not be serious in the classroom, where a teacher and appropriate text can guide the student through the elements of systematic botany. But interested laymen and nonbotanists may wish for an explanation of the nature of taxonomy and taxonomic categories, of scientific names and their authors, of the methods and techniques used in identifying plants and interpreting the manual, and of the proper way to prepare specimens.

Because the keys are essentially those of the previous flora, one may predict that they will maintain an enviable reputation for leading to the correct answer with a higher average frequency than those of the other contemporary manuals. Except for the General Keys (to families, exceptional genera, and the like), the keys have been improved by making them strictly dichotomous, and their overall construction reveals a crispness and attention to parallelism which are too often lacking in *Gray's Manual* (but which, it must be admitted, are sometimes also lacking in nature).

The only major taxonomic innovation is the reduction of *Crataegus* to 21 species, more or less comparable to those recognized in *Rubus* (no longer even called "collective species"). Numerous lesser changes in taxonomy and nomenclature are made, and some species are added. But other range extensions and revisionary work of the past decade are not utilized. To what extent these have been intentionally rejected rather than merely ignored is unknown; the net result is an impression of a commendable but spotty effort to be up to date.

The book has usefully flexible covers, a binding that is already separating on my review copy, and rather frequent typographical errors.

The conservative taxonomic treatment, mention of few varieties, clarity of the keys, handy format, and fair price (if maintained) should give this volume the wide appeal that a work of its magnitude deserves.

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Basic and Applied Biology

Temperature. Its measurement and control in science and industry. Charles M. Herzfeld, Editor-in-Chief, vol. 3, pt. 3, *Biology and Medicine.* James D. Hardy, Ed. Reinhold, New York; Chapman and Hall, London, 1963. xii + 683 pp. Illus. $22.50.

The science and technology of temperature measurement and control have been the subject of several volumes in a series of symposium proceedings of which this is the latest; with this volume the series is extended, for the second time, to include biology and medicine. This inclusion has introduced an interesting point in semantics; the control of temperature in living systems is often provided by the systems themselves, and the mechanisms by which the control is accomplished, especially in man, constitute a major problem for both the basic and the applied biologist.

In the fields of military and industrial hygiene and in the field of medicine, it is often difficult to provide simultaneous coverage of both the scientific aspects and their applications. It is, therefore, a pleasure to encounter a collection of papers as carefully prepared and assembled as those found in this volume. There are 56 papers by 70 authors and, as befits the nature of the subject, half of the papers are, at least in part, from government laboratories, including a few from laboratories in the British Commonwealth. The material covered includes temperature measurement and calorimetry, temperature effects in living systems, tissue