

typical of subsp. *circumscissa* in this area and less commonly elsewhere and do not appear to be sharply distinct morphologically, we prefer not to recognize them taxonomically. These patterns of variability in *C. circumscissa* are apparently analogous with that concerned with corolla size, which has already been discussed, and, like it, they are doubtless reinforced by autogamy.

Since the detection of *Cryptantha similis* became possible following the determination of its chromosome number, we also investigated an apparently analogous pair of taxa in the related section *Angustifoliae*, *Cryptantha micrantha* (Torr.) I. Johnston subsp. *micrantha*, with very small flowers, and another entity with larger flowers, *Cryptantha micrantha* subsp. *lepida* Mathew & Raven, comb. nov. (*Eritrichium micrantha* var. *lepidum* Gray, Syn. Fl. 2:193. 1878). In this case, however, both taxa were found to have the same gametic chromosome number, $n = 12$ (table 1). It should also be noted that the large- and small-flowered taxa have not been found growing together. They appear to be largely geographical entities best recognized as subspecies.

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REVIEW

Taxonomy of Flowering Plants. By C. L. PORTER. viii + 452 pp., W. H. Freeman San Francisco. 1959. \$6.75.

"Taxonomy of Flowering Plants" is one in the series of high-quality biology texts published by Freeman and Company. Dr. Porter states that he hopes it will help to fill the gap he sees existing between "texts that are really reference books for advanced students and much abbreviated texts that have had much of the meat of the subject deleted from them." This rather effective compromise is a work of some 450 pages, suitable for introductory courses of either one or two semester's length. It is divided into three principal parts: History, Principles, and Methods; Selected Orders and Families of Monocotyledons; and Selected Orders and Families of Dicotyledons. A 16-page glossary precedes the Index.

Part I, History, Principles, and Methods, is rather abbreviated. It should be entirely satisfactory for many introductory courses, but will require some supplementation in courses where a substantial portion of the students requires more detailed information. An exposition of aims, history, literature, field and herbarium methods, nomenclature, concepts of taxa, construction and use of keys, phytography and terminology, and phylogeny and classification of angiosperms which can be encompassed within 140 pages and yet prove entirely satisfactory for a wide variety of taxonomy courses is probably impossible. Dr. Porter intended to produce a concise treatment, and he is no doubt aware that some will find his work excessively synoptic in places. The reviewer believes that the material on field methods and the chapter entitled "Concepts of Taxa" are cases in point. In addition, instructors who stress nomenclature will find his chapter of the same name very brief indeed. However, the author generally has been remarkably successful within his self-imposed space limitations. The chapter on phytography and terminology is a good one. It is four times as long as the average chapter in this section, and replete with illustrations.

The student will appreciate the detail in this chapter, and the instructor will find that the drawings can eliminate many blackboard drawings or pencil sketches on his part. The illustrations are excellent. The drawings are mainly the work of Evan Gillespie, but a few are from Gray's "Lessons." This chapter also introduces the symbols for floral parts which are used extensively in the last two portions of the book. These symbols are simple ones that make it possible to portray the characteristics of a family in an easily grasped floral diagram. Every chapter in Part I except the one on the construction and use of keys has a list of references pertaining to the subject matter of the chapter. Some of these lists are more than two pages long. These references add considerably to the merits of the book. They should encourage the student to follow up subjects that especially interest him.

Parts II and III, dealing with slightly more than one hundred families of flowering plants frequently encountered in the North American flora, are very good. Porter's treatment should help the student to see the classificatory function of taxonomy as other than an arbitrary system of pigeon-holing. He has maintained a balance between convenience and progress toward more truly phylogenetic systems. His treatment of the monocots (Part II) is basically that of Hutchinson, whereas that of the dicots (Part III) is a modified Englerian sequence. These classes are divided into subclasses, and these in turn into orders and families. A few of the families are further divided into sub-families or tribes. The intent here is not to construct an elaborate system of hierarchies, but rather to show in a natural way that taxonomy is a science that categorizes living things upon the basis of similarities in form and function. Porter's treatment of the identificatory function of taxonomy is excellent. There is a succinct description, a mention of representative genera, a floral diagram, and drawings for almost all of the families treated. In addition, there are many good photographs of representatives of the larger families. These illustrations are designed to teach the student to recognize, without recourse to a book, the important families of flowering plants. The floral diagrams accurately symbolize the characteristics of a given family, yet are easy to comprehend. The drawings, in addition to their sight-recognition function, frequently show (and label) features that elicit questions from students using dichotomous keys. For example, the involucre, bracts, glands, and unisexual flowers of the Euphorbiaceae are labeled, as are the involucre, involucler, carpophore, mericarp, ribs, oil tubes, and stylopodium of the Umbelliferae. The specialized structures characteristic of the Cyperaceae, Gramineae, and Compositae are treated in the same way. The advantages of these drawings over verbal descriptions or blackboard sketches or projected slides are obvious. It is difficult to imagine a more teachable method than Porter's combination of text, floral diagrams, drawings, and photographs.

"Taxonomy of Flowering Plants" impresses this reviewer as being the best available text for many introductory taxonomy courses, especially one-semester or one-quarter ones. It is generally free from errors and objectionable features. However, it should be noted that the tuft of hair on *Epilobium* seeds is better described as comose, rather than comatose (p. 342). Also, from a realistic point of view, conserved family names probably should be used in an elementary text rather than the permissible but relatively unused Apiaceae, Lamiaceae, etc. Gillespie's illustrations are, as usual, very good, and Porter's prose makes the text a readable one. The relative brevity of Part I (History, Principles, and Methods) poses certain difficulties, but this material can be supplemented by the instructor if he feels this is necessary. However, the feature that distinguishes this book from other contemporary texts is the material on plant structures and family characteristics. These sections are perhaps the nearest approach to a do-it-yourself method of instruction in plant identification that can be devised. It should be welcomed by instructors and students in the classroom, and also by persons who wish to learn how to identify plants without having to take a course to do so. JOHN MOORING, Department of Botany, Washington State University, Pullman, Washington.



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