

fabricating and processing techniques is given. The book is, however, by no means just a catalog or a handbook, for the relevant metallurgical factors responsible for the particular characteristics of this group of alloys are discussed in a competent and sophisticated manner.

To question the usefulness to an American audience of a book on a class of alloys used primarily in Great Britain seems justifiable. Yet, although the properties and treatments vary somewhat, there is much similarity between the nimonics and the inconel type of alloys so popular in this country. Thus, a person can find much information that is pertinent to all of the high-strength nickel-base alloys in this fine volume.

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Vascular Plants of the Pacific Northwest.

Part 4, *Ericaceae through Campanulaceae*. C. Leo Hitchcock, Arthur Cronquist, Marion Ownbey. University of Washington Press, Seattle, 1959. 510 pp. Illus. \$12.

The fourth volume of this flora (the second to be published) covers the Gamopetalae, except the Compositae, of the region extending from southern British Columbia south to northern Oregon, to Idaho north of the Snake River plains, and to western Montana. The work wisely follows the Engler and Prantl system; the families from Ericaceae through Cuscutaceae are presented by C. L. Hitchcock; the remainder, from Polemoniaceae through Campanulaceae, by Arthur Cronquist, except for *Castilleja*, the second largest genus in the volume (the largest being *Penstemon*), which has been prepared by Marion Ownbey.

The book presents, on the whole, a conservative account of the families included, with keys, descriptions, full references (with citation of type collections), ample synonymy, and a figure of each species. The keys and descriptions appear to be carefully worked out, and the illustrations, by Jeanne R. Janish, are of the high quality characteristic of the work of this artist. She possesses, to a rare degree, the ability to represent habitual characters effectively, in comparatively simple drawings; her figures of details, particularly of seeds, are equally good. (It is hard to understand why the opportunity was missed to illustrate for the first time the nutlet of

Dasynotus, the only genus of Boraginaceae that is endemic in the area.)

The treatment differs from that of all other floras of this type with which I am acquainted in the abundance of discussion under the individual species. In this volume are given the range and distinctive features of the fairly numerous infraspecific taxa recognized, together with the reasons for the reduction of the very numerous species and infraspecific forms that are placed in synonymy. It would seem that the bulk of this material could have been made available in preliminary publications, and that only the taxonomic conclusions need have been presented here; this would have saved space and would have made for greater clarity. Many of the species are under cultivation or are worthy of cultivation; and mention of this fact is almost always made under the generic descriptions—an unusual and commendable feature in a floristic work.

The book is lithographed from unjustified typescript and has the monotonous appearance characteristic of this style of reproduction. The information is there, but it has to be sought; even the names of species are in the same type as the rest. There appear to be very few typographical errors; the only one I detected was "Kuntze" for "Kunze," on page 90. A serious fault is the alphabetical arrangement adopted for genera under the families and for species under the genera, without any number system. The only conceivable advantage of this method is that it cuts down the space required for the index; it is no easier, in fact it is more difficult, to find *Penstemon nemorosus*, for instance, in the 40-page alphabetical treatment of the genus *Penstemon* after one has reached it in the key than if it had been numbered and placed in its proper systematic position. The characters used in the keys are often so artificial, or are so arranged, that they give no hint of taxonomic relationships; consequently there is little or no indication of the real affinities of the taxa dealt with. The absence of a numbering system makes it impossible to ascertain how many species are given in each genus without counting them—surely a responsibility of the author rather than the reader. The alphabetical arrangement of species also makes it more difficult to compare descriptions of closely allied plants and usually requires that illustrations of such plants, in any sizable genus, appear on different plates. The key to *Castilleja*, with 41 species, contains about 16 groups of two or three species each, but

in only one case (and then only for two out of three species) do two species of any one group appear on the same plate. Examination of the couplets and triplets in the *Penstemon* key shows a similar situation. Surely any possible advantage of the alphabetical arrangement is not enough to offset these real drawbacks.

In coverage the work overlaps L. R. Abrams' *Illustrated Flora of the Pacific States*, of which the fourth and final volume is due to appear during the year. The geographical area of overlap is about 35 percent of the total covered in Abrams' flora and about 45 percent of that covered by Hitchcock *et al.*, but the percentage of species common to the two works is very much greater. In this volume, out of approximately 671 species included, only 84 are assigned a range that does not include at least one of the Pacific coast states—that is, approximately 587 out of 671 species should also be described in Abrams' work—of course, often with a more or less different circumscription. Grateful as one should be for the fresh illustrations of these species and for the liberal discussion of their variation and affinities, it does seem that a financial burden is being placed upon the private botanists of Oregon and Washington if they are to be expected to obtain copies of both works; at the present rate of increase in prices, it appears certain that this will cost them over \$120.

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Medical Museum Technology. J. J. Edwards and M. J. Edwards. Oxford University Press, New York, 1959. x + 172 pp. Illus. + plates. \$3.40.

This interesting little book is divided into three parts, the first two of which should be of particular value to the medical historian. The first part deals concisely with the history of the preservation of anatomical specimens, from antiquity to the mid-19th century. The second part is concerned with the discovery and introduction of Formalin preservation. These historical portions occupy about one-half of the book and contain accounts of the principal contributors to medical museum technology. Appropriate illustrations add to the general interest of the history.

The third part of the book contains directions for carrying out methods of