

Book Reviews

The Evolution of Living Things. H. Graham Cannon. Thomas, Springfield, Ill., 1958. x + 180 pp. \$3.50.

The biological, or synthetic, theory of evolution has gained so wide an acceptance, at least in English-speaking countries, that one is apt to forget that several other surmises still have their adherents. One of these possibilities is, certainly, the Lamarckian doctrine. H. Graham Cannon, a fellow of the Royal Society and professor of zoology at the University of Manchester, England, is a staunch advocate of Lamarckism. In the book under review, he attempts to state his reasons both for rejecting the biological theory of evolution (which he labels "Neo-Darwinism," a name that properly belongs to certain speculations, particularly those of Weismann, which were in vogue early in the present century) and for his espousal of a particular brand of Lamarckism (psycho-Lamarckism). The gist of the latter, in the author's own words, is as follows: "All the evidence that I have sifted in the earlier chapters leads as far as I can see inexorably in one direction: to the conception of some guiding force within the organism which controls and guides its evolution, not by haphazard changes but by selected modifications."

The assumption of guiding forces is not, however, likely to appeal to many biologists. None of the evidence referred to is either new or original, and all of it has been interpreted by other evolutionists in accordance with the biological theory. The strictures against the latter are, in large part, based on misunderstanding. Two examples will suffice. On page 116 we read: "The Mendelians regarded the organism as a collection, not a complex which is something much more, but simply as a collection of unit characters for which there was appropriate but well defined gene representation. They regarded the characters of an organism like so many marbles in a box, and just as individual marbles may be changed at random and substituted, so might the characters undergo isolated, independent random change." Cannon

apparently believes that these views, considerably overstated by him, are still held by geneticists. On pages 147 and 148 he states that "it must be remembered that it is at least possible that there are more different types of organisms without chromosomes than those with them. They can carry no genes and therefore they cannot exhibit a Mendelian type of inheritance and it follows from this that they cannot have evolved according to Neo-Darwinian principles . . . I am well aware that repeatedly it is stated that some sort of sexuality has been found among bacteria. But why anyone should look for sex in organisms which do not possess nuclei I do not know."

In recent years Lamarckism has suffered unfairly, because it has acquired much-talked-about partisans in the form of the Lysenko clique. Cannon is evidently embarrassed by his allies, for the whole Michurinist-Lysenkoist affair is not so much as mentioned in his book. This did not prevent some organs of the press from reporting that the trend in western biology is now towards acceptance of Lysenko's views! This would only be correct if Cannon's opinions represented a trend, and they do not.

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Terms Used in Archaeology. A short dictionary. Christopher Trent. Philosophical Library, New York, 1959. 62 pages. \$2.75.

The effort under review is so fantastically bad that one wonders at the irresponsibility of a publisher who is willing to put such a poor job in print.

Of the meager total of only 240 entries, some 60 (25 percent) are British site-names. The absence among them of such important excavations as Star Carr, Skara Brae and Sutton Hoo is incomprehensible. On the technical side, one also looks in vain for burin, graver, scraper, leister, rock shelter, assemblage,

industry, culture, and other significant terms too numerous to mention. Flake is given, but pressure flaking, core, blade, and striking platform are not.

Sins of commission outweigh those of omission and occur on every page. Most of the definitions are grossly inadequate, and errors abound. Hallstatt for example, is *not* spelled Hallstadt, Paleolithic cultures are *not* customarily called by the names of their type sites but rather by their adjectival forms (for example, The Magdalenian Culture, *not* The La Madeleine Culture), and Sumerologists will be startled, and not too pleased, to learn that Akkad and Sumer are merely alternative terms.

Normally one would consider \$2.75 a modest sum for a technical dictionary, but with the decimal point moved two places to the west this one would still be overpriced.

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The Nimonic Alloys. W. Betteridge. Arnold, London; St. Martin's Press, New York, 1959. xii + 332 pp. Illus. \$15.

The Nimonic Alloys is intended to be a comprehensive summary of the properties of a single group of commercial alloys. It is obvious that any book which attempts to present the state of current technology in a field in which there is great interest and activity will inevitably be subject to criticism on the grounds that some of the material is already out of date. However, it is obvious that in this case the author and his colleagues have taken special pains to make the book as complete and up to date as possible.

The nimonic series of alloys was developed in Great Britain during the early stages of World War II; the latest member of the series was introduced in 1955. These alloys, all basically modifications of the familiar binary 80-20 nickel-chromium electrical resistance alloy, are used in various wrought forms in gas turbines and for other purposes where high resistance to scaling and a reasonable degree of strength under heat are required.

This book is intended primarily for the user and fabricator of these materials, and the emphasis is therefore placed on their metallurgical characteristics and physical and mechanical properties. In addition, some information on

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