Book Reviews

The Climate near the Ground. Rudolf Geiger. Translated from the second German edition of *Das Klima der bodennahen Luftschicht,* with revisions and enlargements by the author, by Milroy N. Stewart *et al.* Harvard University Press, Cambridge, Mass., rev. ed. 2, 1957. xxi + 493 pp. Illus. $6.

It is just 30 years since the first German edition of *Das Klima der bodennahen Luftschicht* appeared—a rather slender volume of 245 pages. In the meantime microclimatology, which is the main theme of this book, has seen much growth. The interesting relationships between climate, on one side, and plant life and human activities on the other have stimulated a great deal of research. Rudolf Geiger, who now teaches at the University of Munich, and his pupils have made many fundamental contributions in this field, especially to those aspects that pertain to forestry.

It is no exaggeration to call this book a classic treatise. Among the important topics covered are the basic features of the radiation and energy balance of the layer of air near the ground. The characteristics of temperature, humidity, and wind, in and just above the boundary layer, are thoroughly reviewed. The influence of ground cover, water bodies, and topography on the microclimate are clearly elaborated. The interactions of natural plant cover, crop plants, and forests with the atmospheric environment are given a lucid appraisal. Less emphasis is placed on the microclimate of human habitations, although the most important fundamentals of this phase are mentioned. Correction of adverse microclimatic conditions through control measures is also touched on, with particular reference to the prevention of frost damage.

The book is written in simple style. It is almost entirely without the heavy mathematical fare that has become such a necessity in the sister science of micrometeorology. This makes it readily understandable to readers in the biological and ecological disciplines as well as to climatologists and meteorologists. This is accomplished without sacrifice of accuracy.

With its many illustrations, it makes an ideal introductory textbook. For this particular purpose, the fact that the second American printing of the translation of the 1940 German (second) edition is not entirely up to date is not too serious. The approximately 500 references (to 1956) which were added to the original 800 of the first printing make the bibliography a very valuable part of the book. However, literature citations alone do not compensate for text. Even in the third German edition (1950) there are important additions to be found, particularly in the section on interrelations between the animate world and the microclimate. These include data on animal flight, room climate, and windbreaks. These criticisms should probably be laid at the doorstep of the publishers rather than of the author. This also applies in the case of the translation, which could be improved on.

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Botany. An introduction to plant science. Wilfred W. Robbins, T. Eliot Weier, and C. Ralph Stocking. Wiley, New York; Chapman & Hall, London, rev. ed. 2, 1957. 578 pp. Illus. $6.95.

The second edition of Wilfred Robbins' and T. Elliot Weier's *Botany,* with C. Ralph Stocking as an additional author, is about 100 pages longer than the first. Seven years have elapsed since the first edition came out, and, considering the number of discoveries and clarifications of older ideas which have been made by botanists, biochemists, biophysicists, and microbiologists during this period, the small increase in the number of pages is a testament to the authors' rigorous selection of topics to be discussed. However, this book, like many others, is still an attempt to satisfy the expressed, or assumed, demands of teachers for a bit of everything. Despite the prefatory statement that it is intended to complement the instructor, not to provide a complete, although introductory, coverage of botany, I cannot help but feel that, in dipping into so many aspects of plant life and of the importance of plants to man, the authors have made it difficult for a teacher to plan lectures and laboratory work which will not be repetitious for the students who faithfully read the book.

There is one point of view expressed in the preface (page viii) and in Chapter 1 (page 3) with which I would like to take issue. It concerns the meanings of the word *botany* and of the words *plant science.* The authors do not consider them synonymous, as they are considered in dictionaries and in general usage. They make botany a restricted part of plant science by defining it as the part "which deals with the basic information concerning plants. [Botany] considers plants for their own sakes without an immediate consideration of their usefulness." They define "plant science" as the "collection of information concerning all phases of the growing and processing of plants." They further explain that plant science includes "the structure, reproduction, chemistry, breeding, disease, physiology, processing, and distribution of plants or plant parts."

The inclusion of processing of plants or plant parts in the definition of plant science seems to me to be presumptuous and unnecessary. I doubt that the chemical engineer who is concerned with processing starches, celluloses, resins, and so on, wants to be called a plant scientist. More disturbing, however, is the implication that a botanist is a "pure" scientist, aloof from, and uninterested in, the usefulness to man of information about plant structure and functioning. If there are such botanists today their viewpoint is tragically shortsighted, and they must be oblivious of the world in which they live, with its problems of food shortages and plant, animal, and human malnutrition and disease. A "botanist" and a "plant scientist" should be one and the same person. Let us make it clear to students and to the public that botanists are plant scientists and let us educate them, if they need such education, to know that botany is the science of plants, *all* of that science. The world needs broadly trained botanists, who will learn everything they can about growth, development, and reproduction of every kind of plant, in order that we may have a chance to have the information we need for whatever practical problem may arise.

The main body of this textbook is planned and written in the pattern now common for general botany textbooks. Whether or not this is the best pattern should probably not be discussed in a review of one particular book. Suffice it to say that this one is a good example of the type.

In the first chapter, it introduces the student to the field, justifies the study of plants by modern man, and delineates