

BOOK REVIEWS

JOHN CHARLES WALKER, *Plant Pathology*, 3rd ed., 819 p. 1969
McGraw Hill Book Comp. New York. \$ 15.

This well known book deals with a number of diseases chosen from different fields of plant pathology which are of importance in the U.S.A. It provides the reader with basic facts, the scientific foundation for a further discussion on general principles, such as found in the second part of the book in the chapters on the relation of environment to disease development and host-parasite interactions.

In the introduction the author explains how difficult it is to define between a normal and a diseased plant in its physiological development, thus emphasizing the dynamic character of a disease.

After having explained a number of terms generally used in plant pathology, a historical survey is given followed by descriptions of diseases of nonparasitic and parasitic origin. In comparison with the first edition of 1950 and the second one of 1957, which contain 699 and 707 pages respectively, the number of pages of the third edition has increased to 819. Though basically the text has not changed, new information has been added to nearly all chapters. In the chapter on non-parasitic diseases the descriptions of nutritional disorders have been extended and stress is laid on the modification of symptom expression by environmental conditions. In the chapters on diseases with an infectious character, which are classified according to the major causal agents, references are found to literature up to 1965 and even to 1967, such as literature concerning fireblight of pear, angular leaf spot of cotton and *Pseudomonas solanacearum*, the cause of the Southern bacterial wilt, a disease recently studied by Sequira. The discussion on clubroot of Crucifers has been extended by references to the cytochemical and ultrastructural studies of Williams and Yukawa. Attention is also paid to the mating types of *Phytophthora infestans* and the epidemiology of this parasite of the potato. Electron microscopical photos are reproduced of haustoria of the black stem rust and their fine structure is discussed. Specially the chapter on virus diseases has been largely extended with some thirty articles added to the original list. The terms "circulative" and "propagative" for viruses which increase within their vector and "stylet-borne" viruses which have no such relation, are introduced instead of the formerly used terms "persistent" and "non-persistent". Throughout the book attention is paid to varieties of crop plants with resistance to a noxious pathogen, Walker's special field of study. The term "physiological specialization" is replaced by "pathogenic races". Though the author has tried to distinguish between a description of the life cycle of a parasite and its relation to the host plant, and on the other hand the physiological aspects of parasitism, the two aspects are too much intermingled to make a clear separation possible. Sometimes the reader wonders why a certain aspect is not mentioned in the first part of the book, only to discover that it is discussed in one of the chapters on the physiology of parasitism. The author might have realised this difficulty when revising his former editions, since modern phytopathology advances mainly in physiological and biochemical direction and he could have asked himself where to place such new information in a scheme that dates from 1950.

This book is extremely useful not only for American students and phytopathologists but also scholars from other countries will benefit by studying it. They have, however, to remember that the literature is mainly of Anglosaxon origin. Dutch or German authors are seldom cited whilst literature from elsewhere can hardly be found. In the discussion on the physiology of the crown gall organism, *Agrobacterium tumefaciens*, the studies of Spurr and associates are mentioned but not the research carried out at the laboratory of Veldstra in the Netherlands or Kern in Germany. In the chapter on diseases caused by Phanerogamic parasites the elaborate studies of I. Dörr in Germany on the haustoria of dodder are not mentioned. As the most important means of control of *Cronartium ribicola*, the white pine blister rust, eradication of

the *Ribes* host is advised. In the Netherlands, however, one tries to prevent the spread of the aecidiospores from *Pinus strobus* to the horticultural centres where *Ribes* is grown as an important crop plant by growing the trees in nurseries protected by forest.

Notwithstanding these and other minor remarks – F. W. T. Hunger, who studied the mosaic of tobacco in 1905, did not work in Germany but in the Dutch East Indies – the book is an extremely useful source of information for beginners as well as for advanced phytopathologists. The need of a third edition shows that it is used extensively. May it find its way to many places where phytopathology is studied.

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H. WALTER und H. STRAKA. *Arealkunde – Floristisch-historische Geobotanik*. 2. Aufl. 478 pp., 366 figs., 20 tables, 2 folding maps. Pt. III, 2, of *Einführung in die Phytologie*, ed. by H. WALTER. Eugen Ulmer, Stuttgart, 1970. Price DM 68.–, Dutch purchasing price f 74.80.

Walter's *Arealkunde* was published in 1954. The present book is a version of it, revised and expanded by H. Straka. The expansion is considerable, from 245 to 478 pages, and involves all aspects and parts of the text, the figures, etc. It is the second of the two volumes of Part III *Grundlagen der Pflanzenverbreitung*, in the series *Einführung in die Phytologie*. The title of the first volume of this part is *Standortstehre – Analytisch-ökologische Geobotanik*.

The introduction states that the first volume of this part deals with the relations between plants and their milieu, the second, present one with the distribution of the plant taxa. This last one is said to consist of three aspects, a historical, an ecological, and a genetic one.

There are four chapters. The first, *Das Wesen der Areale*, is a theoretical treatise of the nature, the properties, and the interpretation of areas, and also on the way in which knowledge of areas can be used in solving problems turning up in other disciplines (phylogeny, taxonomy, geology, etc.). This chapter also deals with the floristic kingdoms, although briefly.

In the second chapter, *Floren- und Vegetationsentwicklung in historischer Betrachtung (historische Geobotanik)*, a survey is given of the development of plant life on earth from the first appearance of terrestrial plants up to the present. As the chapter proceeds, the discourse is limited to smaller and smaller parts of the earth, eventually to Central Europe only. The part played by man does not appear until the end of the chapter and therefore only applies to the last-named area.

The third chapter, *Die Geoelemente der Flora*, starts with a survey of all floristic kingdoms and regions after MATTICK. Independently from this system the authors distinguish a Euro-siberian domain (*eurosibirischer Raum*) which is divided into regions after KLEPOV. Apart from the easternmost ones these regions are dealt with in extenso, with for every region a list of species which together form its characteristic geo-element (geographical flora element).

The fourth chapter, *Florenverhältnisse in Mitteleuropa und den Nachbargebieten*, contains a fine analysis of the floras of these areas from all previously described and some other viewpoints. Here we meet, i.a., the significance of the studies of chromosome numbers as related to plant distribution, etc.

In accordance with the general scope of the work the list of references is very extensive, 33 pages.

The book contains a treasure of worth-wile knowledge presented in a pleasant and legible way. All aspects of plant geography are dealt with in one place or another, usually illustrated by one or more striking examples.

It may be questioned, however, whether the title *Arealkunde* is correct. In the reviewer's opinion a book so entitled should deal in the first place with questions like: what is a plant area? which properties do areas have and how can they be explained? which kinds of areas can be distinguished? The answers pertaining to such questions are given in the first, relatively brief chapter, with a fluctuating measure of detail.

The principal emphasis is on the second chapter that occupies nearly one-half of the text. All aspects of paleobotany are reviewed, and the significance of this discipline for other sciences

and the reverse are scarcely distinguished. The chapter is most interesting but it makes the relative importance of the various parts of the subject in the book quite lop-sided. Particularly the purely ecological side of the interpretation of present-day areas is greatly neglected. The subtitle of the book is *Floristisch-historische Geobotanik*, but this very personal circumscription of the concept of *Arealkunde* does not justify the author and the revisor, nor does the existence of a volume *Standortslehre* in the same series.

The above criticism can be generalised. The book is without clearcut structure in which the diverse aspects of the science of plant areas (and the other parts of plant geography) find a place. This is one of the reasons why it does not contribute to an understanding of the main lines in the relations between the various parts of plant geography or geobotany and between these and other sciences, biological and others. It is therefore justified that the title page no longer bears the notice in the first edition "*für Studierende der Hochschulen*". For didactic purposes the book is not suitable; only an experienced phytogeographer will be able to find his way through it. There is another reason why it cannot be recommended as a students' book: it is too voluminous, and therefore too expensive. This seems to be the case for students in Central Europe, for whom it is mainly intended, and even more so for those in other parts of the world.

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