

HARRIS, P. J. (ed.): **Biological Ultrastructure: The Origin of Cell Organelles.** — Proc. 13th Annu. Biol. Colloquium, April 25–26, 1969. Oregon State Univ. Press, Corvallis 1971. XI + 115 S., US \$ 5,00.

Sechs Spezialisten auf dem Gebiet der Ultrastruktur und Biochemie trafen am 25.–26. April 1969 auf dem 13. Biologischen Kolloquium in Corvallis, Oregon zusammen, um die Frage des Ursprungs der selbstreproduzierenden Zellorganellen (Chloroplasten und Mitochondrien) im Lichte der neuen Kenntnisse durchzusprechen. Diese Organellen enthalten eigene proteinsynthetisierende Systeme. Der Kolloquiumleiter J. LUFT (Univ. Wash. Med. School, Seattle) brachte in seiner Vorlesung eine Übersicht der Zellorganellen und besprach die Schwierigkeiten der Interpretierung von elektronenmikroskopischen Aufnahmen und deren Begrenzungen. Die Arbeit von R. B. PARK (Univ. Calif., Berkeley) war den Chloroplasten, den Beziehungen zwischen der Struktur der Chloroplastenmembranen und dem Sitz der photosynthetischen Reaktionen gewidmet. M. M. K. NASS (Univ. Penna School Med., Philadelphia) beschrieb ihre elektronenmikroskopischen und biochemischen Untersuchungen an der DNS der Mitochondrien. G. COHEN-BAZIRE (Univ. Calif., Berkeley) verglich die Anordnung und biochemische Zusammensetzung des photosynthetischen Apparates von Prokaryonten (blaugrünen Algen, Purpurbakterien und grünen Bakterien). Die Aufgabe der Chloroplasten-DNS bei der Reproduktion und Differenzierung der Chloroplasten von höheren Pflanzen behandelte S. G. WILDMAN (Univ. Calif., Los Angeles). H. NOLL (Northwestern Univ., Evanston, Ill.) demonstrierte an Resultaten aus Zentrifugationen in Saccharosegradienten, dass die Ribosomen der Mitochondrien und Chloroplasten in engerer Beziehung zu den bakteriellen Ribosomen als zu den zytoplasmatischen Ribosomen von pflanzlichen und tierlichen Zellen stehen. Auf Grund der vielseitigen Besprechung des Problems kann zusammengefasst werden, dass der mögliche Ursprung der Mitochondrien und Chloroplasten in einer früheren Symbiose mit den Gastzellen gesucht werden kann.

Das Buch ist reich durch Schemata, Abbildungen und technisch sehr gute und instruktive elektronenmikroskopische Aufnahmen illustriert. Zu begrüßen wäre, wenn den Abschluss nicht nur einiger, sondern aller Referate kurze kritische Zusammenfassungen bilden könnten.

INGRID TICHÁ (*Praha*)

ROORDA VAN EYSINGA, J. P. N. L., SMILDE, K. W.: **Nutritional Disorders in Glasshouse Lettuce.** — Centre for Agricultural Publishing and Documentation, Wageningen, 1971. 56 pp.

Nutritional disorders have been described in the most plant physiology textbooks on the basis of the observation of different plant species and present a very generalized picture. Van Eysinga and Smilde's book is a successful description of these phenomena in one plant species. Lettuce, which is described in this study, is one of the main crops grown under glass in the Netherlands. This makes the book attractive for both plant physiologists and horticulturists. The description of the deficiency of nitrogen, phosphorus, potassium, magnesium, calcium, sulphur, boron, copper, manganese, molybdenum, iron and zinc and of the excess of nitrogen, boron, manganese, zinc and aluminium is based on visual symptoms and plant analysis. Excellent colour plates make the book very instructive. Plant analysis data obtained by the authors are compared with those in literature distinguishing the different content of minerals in outdoor lettuce and in that grown under glass. Brief description of the causes of mineral disorders and the methods of control offer a useful information for horticulturists although some of the described disorders are very rare in practice.

M. KAMÍNEK (*Praha*)

WIEBE, H. H., CAMPBELL, G. S., GARDNER, W. H., RAWLINS, S. L., CARY, J. W., BROWN, R. W.: **Measurement of Plant and Soil Water Status.** — Utah Agricultural Experiment Station Bulletin 484, 1971. 71 pp., in English.

A group of famous U.S. soil and plant scientists have cooperated for many years in studying soil-plant relations (Western Regional Research Project W-67) and have contributed substantially to the development of measurement techniques. This publication, edited by HERMAN H. WIEBE, gives primary emphasis to the methods they have found most useful. These methods are excellently described: STEPHEN RAWLINS has written the theory section, GAYLON CAMPBELL, WALTER GARDNER and RAY BROWN have supplied the major part of the sections on psychrometers, and John Cary describes the freezing point meter. In my opinion, it is a pity that some other methods are either presented too briefly or they are omitted, but a useful list of 65 references offers ready access to the further extension of knowledge in the needed direction. The booklet is well produced and illustrated with 23 Figures and 4 Tables.

JANA POSPÍŠILOVÁ (*Praha*)

WAREING, P. F., COOPER, J. P. (ed.): **Potential Crop Production. A Case Study.** — Heinemann Educational Books, London 1971. 387 pp., £ 6.00.

The book is based on the papers read at a symposium on "Potential Crop Production in Britain", held at the University College of Wales in Aberystwyth in July 1969. The object of the book is to examine the environmental limitations to crop production and to assess the biological potential of different crops and systems of production. Although all the topics are discussed with respect to particular climatic and also economic conditions in Britain, the contributions contain much information generally valid.

33 contributors deal in 26 papers with very different approaches to crop production, varying from simple as well as detailed mathematical models of photosynthetic activity and growth in plants and crop canopies to the practical aspects of particular farming systems, and the organisation of food processing and forecasting of future consumer demands. The papers are arranged in four sections: (1) In the section "The Crop Plant and its Environment" (6 papers) bioclimatological and related factors limiting primary production in crop stands are treated in detail: photosynthesis and energy conversion, the structure and architecture of stands, the root system and nutrition, water as a factor in productivity, etc.

(2) The section "Biological Potential of Crops" (8 papers) summarizes the physiological, "inner" factors limiting the yield of particular crops (arable crops, grassland, forest). A highly elaborated dynamic model of plant and stand growth is also described in this section. Perspectives of agricultural production till the year 2000 are then discussed and various possibilities of controlling and altering factors and plant response which at present cause unpredictable and uncontrollable variation of yield, are analysed in detail.

(3) This section, "Systems of Production in Contrasting Environments" (4 papers) deals with farming systems in different climates.

(4) The final section, "Future Technical Developments" (6 papers) assembles scientific forecasts of developments necessary for future successful agriculture: new methods in plant breeding, the control of pests and diseases, the mechanisation of harvesting and processing the crop, chemical control of plant growth etc.

Reviews and typical illustrations summarizing modern information available in literature are presented in many articles. Unfortunately, with a few exceptions only references to papers written in English are cited. The 26 contributions form together a comprehensive, excellently edited manual, covering very different aspects of crop production. This is the main advantage of this book which will certainly be of interest to anyone working in plant science.

The book is well printed on good paper using photooffset technique. Authors' and subject indexes are supplied; the latter might be more detailed to facilitate orientation in the wide topics treated.

J. ČATSKÝ (*Praha*)