

factor, chloroplast development and thylakoid ultrastructure, photosynthetic pigments, reactions to inhibitory herbicides, etc. (C. R. Somerville), genes specifying growth substances formation in phytopathogens (R. O. Morris), and synthesis, transport and metabolism of products of nitrogen fixation (K. R. Schubert).

The above brief contents of reviews and names of their authors show that, as usually, important and up-to-date topics are dealt with by excellent specialists in the respective fields. Both the author and subject indexes enable a rapid orientation in the broad content of this volume. As a supplement, cumulative indexes of contributing authors and chapter titles of volumes 29 to 37 are given.

Z. ŠESTÁK (*Praha*)

LARCHER, W., HÄCKEL, H., SAKAI, A. (ed.): DIE NICHTPARASITÄREN KRANKHEITEN. 5. TEIL. Meteorologische Pflanzenpathologie. Witterung und Klima als Umweltfaktoren. Kälte und Frost. (Handbuch der Pflanzenkrankheiten. Band I, 7. Auflage, 5. Lieferung). — Verlag Paul Parey, Berlin—Hamburg 1985. 326 S. 184 Abb. Geb. 248,— DM.

Das von Paul Sorauer 1874 begründete Handbuch der Pflanzenkrankheiten ist das grundlegende und massgebende Standardwerk der Phytopathologie und des Pflanzenschutzes. Der 5. Teil des ersten Bandes erscheint nach einer 50jährigen Pause in der 7. Auflage und bringt im ersten Abschnitt einen Überblick über das Klima als Umweltfaktor der Pflanze. Es werden die Zusammensetzung der Atmosphäre, Luftdruck, Temperatur, Wind, Hoch- und Tiefdruckgebiete, der Energiehaushalt von Erdoberfläche und Atmosphäre und das Klima auf der Erde behandelt. Ein kurzes Kapitel über Messung von meteorologischen Parametern ist angeschlossen. Im zweiten Abschnitt des Bandes werden das Auftreten und Verhüten von Kälte und Frost, deren Auswirkungen auf die Pflanzen und die Ausbildung von Resistenzen behandelt. Kälte und Frost werden als Belastungsfaktoren analysiert und die durch diese Faktoren verursachten Beeinträchtigungen der Lebensvorgänge der Pflanzen dargestellt. Die Mechanismen der Entstehung von Frostresistenz und Massnahmen zur Abhärtung der Pflanzen werden beschrieben. Die Perspektiven der Tiefkühlkonservierung von Pflanzenmaterial werden erörtert. Das Buch schliesst mit einem ausführlichen Literaturverzeichnis und einem Sachregister. Es ist sehr sorgfältig zusammengestellt und gedruckt worden und ist reich illustriert (inkl. Buntaufnahmen von Erkrankungssymptomen). Das Buch ist für Phytopathologen, Pflanzenphysiologen und -züchter, Ökologen, Land- und Forstwirte und Mitarbeiter auf dem Gebiet des Naturschutzes bestimmt.

INGRID TICHÁ (*Praha*)

MARSHALL, B., WOODWARD, F. I. (ed.): INSTRUMENTATION FOR ENVIRONMENTAL PHYSIOLOGY. (Society for Experimental Biology Seminar Series 22.) — Cambridge University Press, Cambridge — London — New York — New Rochelle — Melbourne — Sydney 1985. 242 pp. Hardcover £ 17.50, US \$ 34.50.

The field of environmental physiology research is largely dependent on the development of associated instrumentation. Recent advances in microelectronics, widespread availability of microprocessors, inexpensive computers and battery-operated data loggers resulted in miniaturization of sensors, instruments and equipments and have a profound effect on the improvement of scientific measurement techniques in laboratories and mainly in terrain. This development and progress in instrumentation was a topic of the Annual Conference of the Environmental Physiology Group of the Society for Experimental Biology held at the University of Hull on April 6—8, 1983. The general papers presented at this conference are published in the volume reviewed.

The introductory chapter "Measurement — A game of Snakes and Ladders" written by Prof. J. L. Monteith is an overview of the development of instrumentation in the last thirty years. The next five chapters "Radiation" (J. E. Sheehy), "The measurement of carbon dioxide in air" (P. G. Jarvis and A. P. Sandford), "Water vapour measurement and control" (W. Day), "The measurement of temperature" (C. J. Bell and D. A. Rose) and "The measurement of wind speed" (J. Grace) deal with the measurement of major environmental variables. The second group of chapters is concerned with physiological measurements on plants. They are entitled "The measurement and control of air and gas flow rates for the determination of gaseous exchanges of living organisms" (S. P. Long and C. R. Ireland), "Remote site recording" (F. I. Woodward), "The effective use of microprocessors in a scientific environment" (C. Pinches), "Porometry" (K. J. Parkinson), "Instruments for measuring plant water potential and its components".

(G. S. Campbell) and "Measuring of plant growth and structure" (P. V. Biscoe and K. W. Jaggard). All these chapters consider the relevant biological ranges of measurement, terminology and units, accuracy, precision, response times and stability, techniques of calibration and provision of standards, practical problems and data handling. The closing chapter pointed out that new techniques and instruments accelerate and refine measurements but, on the other hand, bring new traps and problems. Therefore it is necessary to bear in mind that they are only a tool of science and that the solving of problems depends mainly on the quality and knowledge of the worker. All chapters are complemented by ingenious schemes, excellent diagrams and useful tables, as well as by lists of "References" and many of them also by lists of "Manufacturers and suppliers".

This book will be a valuable review of present sensors, instruments, techniques, procedures and methods and their applications in all disciplines concerned with the influence of the environment on plants and it should not be lacking in library of any institution working or interested in this field.

JARMILA SOLÁROVÁ (*Praha*)

MAYER, H.: *EUROPÄISCHE WÄLDER. EIN ÜBERBLICK UND FÜHRER DURCH DIE GEFÄHRDETEN NATURWÄLDER.* — Gustav Fischer Verlag, Stuttgart—New York 1986. 385 S., 74 Abb., kt. DM 32,80

The book of prof. H. Mayer is a concise overview of forest vegetative associations of Europe, their distribution, and the pedological, phytocoenological and forest-management characteristics. In the author's classification Europe is divided into six principal forest regions, to which the Alps Mountains are added as a separate, seventh region. Within every region and altitudinal vegetation zone the principal forest types and plant associations are described. The individual descriptions are closed with an outline of the most important forestry problems and a list of National Parks and Natural Reserves.

The final part of the publication is devoted to the prospects of the development of European forests, to the production and consumption of timber and to the increasing importance of other useful functions of forests, their significance for the rescue and stabilization of living environment.

A separate chapter describes the basic causes of the decay of forests in Europe, with a detailed analysis of the "Waldsterben" problem.

The book is well arranged, the individual chapters are provided with instructive graphs, tables and maps. It is conceivable that the West European and Alpine regions are dealt with in more detail than the area of East Europe, but it is a pity that the author had not at his disposal the Phytocoenological Tables of the Czech Soc. Republic, which could provide him with more information on Central European region.

With the extraordinary variety of natural conditions existing in the European forest regions and the considerable alteration of original forest plant associations by anthropogenic effects, the topic is necessarily limited to a basic classification and global information. The reader gets a good overall survey of natural forest associations of Europe, but the units established and their characteristics are too general to be applicable to advantage within the individual countries.

A minor remark in conclusion: the damage of forests in Czechoslovakia due to emissions is so serious that in a specialist publication it is rather out of place to give the area and intensity of damage nearly twice as large as they really are.

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