two on Pauropoda, and one on Symphyla, in addition to five that are concerned with two or more of the classes. It is at least clear from this distribution that the era of specialization has arrived and that few modern workers try to cope with "myriapods" collectively except under very favorable conditions (as in inventories of local and well-known faunas). One might also infer that diplopods are more amenable to investigation than the other classes, particularly as regards life cycles and ecology. Another imbalance shows up in the following breakdown: systematics, six papers; evolution and phylogeny, three; morphology and development, 14; biochemistry and physiology, two; behavior, one; distribution, four; life cycles and ecology, nine; population dynamics, four; control of pest species, three.

The editor of the volume, who was also organizer of the congress, remarks in his foreword that "perhaps most important are those papers which are examining the very bases of description and classification to find the foundations cracking, or even wholly unsuited to support the superstructure of zoogeographical and evolutionary studies already built upon them." This reviewer, himself a systematist, can heartily endorse such a sentiment, and notes with regret the paucity of papers in basic taxonomy. There are really only five. One exposes the classification of a large and important family of juloid millipeds for the first time; a second is a modern revision of the classification of the order Sphaerotheriida that reflects the possible paleogeography of the group; a third discusses some of the Gordian knots in current nomenclature of lithobioid centipeds; the last two are accounts of the variability and usefulness of various taxonomic characters used in Chilopoda. Nowhere in the volume is the fact brought out that probably fewer than 20 percent of the world fauna of "myriapods" have even been named so far, or that the number and definition of *orders* have yet to be settled. It could be noted in this connection that most of the existing classification is either inadequate or outright wrong and must be redone in toto.

What the reader does get from this book is a sampler of the research possibilities presented by these generally neglected arthropods; there is clearly plenty to do, in a diversity to suit almost any investigator's fancy, and virtually every discovery will be new and important. It is especially evident both from the papers and the references they cite that so far the laurels for advancing the knowledge of "myriapods" must go to European scientists.

The papers range in scope from preliminary reports on research in progress to fairly sophisticated accounts of ultrastructure or population structure. The informal symposium on relationships of the myriapod classes reflects how little consensus there is on this subject. One author (S. M. Manton) endorses the essential homogeneity of the "myriapods" while opposing them to the several "hexapod" groups, chiefly on the basis of a functional difference in mandibular anatomy. Another (J.-M. Demange) believes that chilopods are, in principle, composed of incipient diplosomites just like diplopods (a point refuted by Manton). A contribution on segmentation in the germ band of the diplopod embryo brings out, in discussion, the interesting fact that studies of the embryo do not yield as much structural detail as investigations of the adult.

Some nationalistic trends may be noted: papers on ultrastructure and neurohormones in diplopods are predominantly by French authors, whereas the British hold a clear dominance in studies of ecology, life cycles, and distribution (reflecting the emphasis placed on these areas by Blower and his associates at Manchester). Nationalism shows up in the languages: all nine papers by French authors are written in French, whereas authors from Germany, Italy, India, and Scandinavia opted almost entirely for English. The French contributions are easy to read, and the discussions of them have been translated into English.

In format and typography *Myriapoda* is well designed, and the paper quality and the illustrations are excellent. I have found no typographical errors. The binding is good and the book will lie open readily at any place without being forced. Following some information on the activities of the Centre International de Myriapodologie, the book concludes with author, subject, and scientific name indexes and a provisional classification designed to help the nonsystematist orient himself. Although it was almost three years in press and commands a rather high price, *Myriapoda* will generally be held as worth both inconveniences. The very existence of such a volume is remarkable. Less than a decade earlier such a congress as this would have been unimaginable because of the dearth of investigators in Myriapoda. Now a third congress has been convened in Hamburg, and this reviewer feels optimistic about the statement in Blower's foreword: "The time is now coming for the Myriapoda to get their just share of attention and it is hoped that this volume might hasten that day."

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Edible Plants

Crop Physiology. Some Case Histories. L. T. EVANS. Ed. Cambridge University Press, New York, 1975. viii, 374 pp., illus. $23.50.

The nine plants reviewed in this study of crop physiology account for 65 percent of the world production of edible (plant and animal) dry matter and 55 percent of the world production of edible (plant and animal) protein. That a reasonably complete review has been accomplished so successfully in a single volume indicates the excellence of the authors, but it also indicates how limited is our knowledge of the crops on which man depends.

The book is a collection of 25- to 50-page monographs, one on each crop, together with introductory and final chapters by the editor. The style of the monographs is between that of a review and that of a text and, happily, they include many unpublished data and observations drawn from the knowledge and experience of the contributors.

The introductory chapter provides statistical data on the crops and their yields together with a brief history of crop physiology and major research trends. This chapter is a conventional one and lacks consideration of new trends leading to minimum-energy-input crops and cropping practices. It is followed by chapters on maize (W. G. Duncan), sugarcane (T. A. Bull and K. T. Glasziou), rice (Y. Murata and S. Matsushima), wheat (L. T. Evans, I. F. Wardlaw, and R. A. Fischer), soybean (R. M. Shibles, I. C. Anderson, and A. H. Gibson), pea (J. S. Pate), potato (J. Moorby and F. L. Milthorpe), sugar beet (G. W. Fick, R. S. Loomis, and W. A. Williams), and cotton (J. A. McArthur, J. D. Hesketh, and D. N. Baker) and a summary chapter on the physiological basis of crop yield by L. T. Evans.

The chapter on maize is exemplary. It is rich in unpublished observations, particularly concerning effects of kernel number on yield, and suggests whole new subjects of research. The chapters on sugarcane, rice, and wheat have fine discussions of leaf area and many data on carbohydrate transport and source-sink relationships. The chapters on soybean and pea have good discussions of protein content, and the pea chapter is distinguished by a schematic description of ontogeny and a consideration of the distribution of nitrogen and photosynthate between nodules, leaves, and seeds. The best model for yield and almost the only enzymology are provided in the chapter on potato. Excellent developmental studies are presented in the

chapters on sugar beet and cotton. The final chapter presents the editor's rich knowledge of the factors limiting crop yield.

The text is as readable and enjoyable as a novel and provides students and research workers with a guide to what is known and, equally important, what is not known of the physiology of these important crops. In general, the chapters lack serious consideration of the chemistry and enzymology of the crops, and perhaps these will be the subjects of companion volumes.

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