

Phloem transport

Transport of Nutrients in Plants. By A. J. Peel. Pp. 258. (Butterworth: London, April 1974.) £4.80.

THE author's name is a truer guide to the content of the book than the title: transport in the phloem is the subject studied in depth. Discussion of transport in the xylem occupies about a tenth of the book. The symplast system is described, perhaps as an afterthought, in one page of the introduction. Transport across membranes or within the cells is mentioned only briefly. Nevertheless, as a book on phloem transport, this is a most useful work that successfully communicates the nature of scientific investigation and explores a system which is of biological interest to both the academic student and the applied scientist.

Although a self contained book in its own right, the author facilitates further reading by signposting the more relevant recent reviews to augment the information he presents, and by citing some original papers. A glance through the contents rapidly conveys the wide range of background provided. I anticipate that the concepts and approaches discussed will not become rapidly outdated. The book would serve well as an introduction enabling the student to proceed with greater in-

sight to the proceedings, shortly to be published, of the Phloem Transport Conference just concluded at Banff, Alberta.

The text contains remarkably few factual errors, especially for a first edition. It also presents a fair assessment of the current balance of opinion and of the problems associated with interpreting experimental data in relation to theoretical (or hypothetical) models. The evidence quoted by Peel shows a distinct personal bias, but this prerogative may be allowed as it is relevant work which advances the line of the arguments. Data are quoted with a high degree of reliability throughout the text. In the case where the results presented did not seem to fit—a table on page 30—I found that the error arose only because the data were condensed from two separate experiments in the original reference.

There is a short section which lacks the high standard of clarity shown in the rest of the book, in which Peel calculates how much energy, compared with that available from metabolism, would be required to drive actively a volume flow through sieve tubes containing fibrils. He implies that such a flow would be driven against some overall pressure difference, whereas a metabolically dependent pumping mechanism might well drive a flow against a viscous resistance in the absence of an overall pressure difference. His calculation is, of course, correct but the purpose and the understanding are obscured.

These two criticisms are, however, on very rare exceptions in the text. For the advanced undergraduate, as an introduction to further study, and as a background to applied biology, the book conveys a clear and realistic appraisal of the variety of approaches and of the disagreements and controversies within the field of phloem transport.

David Aikman

margins of the Indian plate from Turkey to the Macquarie Ridge examining 20 sections on the way. And if you fancy the Pacific, there are 20 segments of circum-Pacific structures laid out for your consideration.

About 100 scientists have contributed to the making of this book. As a beginning, a small group worked out a questionnaire which could be applied to each selected segment. It posed over 300 questions relating to such matters as surface shape, deep structure, and time relationships, and was designed to elicit a series of factual answers. The main mass of the book consists of accounts of 46 segments based on the responses of over 80 experts who replied to the questionnaire. Dr Spencer collated and edited these replies. On his shoulders and on Sir Peter Kent, who chaired the group which initiated the project, and who in the later stages provided the resources which brought it to completion, has lain the main burden of producing this volume. Readers can judge for themselves how successful the work has been. Coming to the completed book as a member of the group who started the project I think the result is impressive. Much effort separates the finished work from the initial proposals of the planning committee and I do not feel that membership of that body prevents me from congratulating Dr Spencer and Sir Peter. By their efforts they have transformed the original idea—Mr Brian Harland's, as I recollect—into a book of 800 solidly packed pages.

Geotectonic theorists can now contemplate systematic accounts of segment after segment of the Mesozoic and Tertiary fold belts of the world in comfort by the fireside. More to the point, the book provides a useful tool for further research. It supplies what was planned at the outset—data for orogenic studies. It shows that the complexities of mountain chains can be treated in a systematic fashion. The amount of data presented varies from region to region, as is to be expected. More serious is the lack of information from the Soviet Union and the western states of America despite vigorous efforts to fill that gap. The Geodynamics Programme includes, however, a similar but more extensive project which may be expected to compensate for those omissions.

Of particular interest is the opportunity this volume provides for comparisons between the make up of young fold belts and structures formed earlier in the history of the Earth. There is a growing body of evidence which suggests that global tectonics have changed with time. Data such as this should help to show whether or not that view is firmly founded. **J. Sutton**

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Younger fold belts

Mesozoic-Cenozoic Orogenic Belts. Data for Orogenic Studies. Edited and collated by A. M. Spencer. Pp. xvi+809. (Scottish Academic Press: Edinburgh, 1974.) Published for The Geological Society, London. n.p.

THIS book tells the reader about some 40 segments selected from fold belts formed since Mesozoic times. Dr Spencer writes in his introduction that the volume is not designed for fireside reading, but I rather doubt that. It sets out to provide an objective presentation of what is known about each region; as far as possible the treatment is uniform from sector to sector. The result I find is absorbing and the book rather well suited for the evening fireside. With it one can travel along the