The chapter concerning mitochondrial biogenesis in HeLa cells, by Giuseppe Attardi *et al.*, must be singled out as especially readable.

The treatment of the genetics of chloroplasts is less thorough, although plastid variegation in higher plants is covered exceptionally well by R. A. E. Tilney-Bassett. The coverage of chloroplast biogenesis is very spotty, consisting only of a chapter by J. Kenneth Hoober and W. J. Stegeman, in which they discuss primarily their own work.

Included in this collection are two papers that will be of interest to those outside the field of plastid genetics. The discussion of the evolution of ferredoxin and fraction I protein in the genus *Nicotiana* by S. G. Wildman *et al.* demonstrates the use of biochemical probes to study the evolution of higher plants and deserves the attention of population geneticists and persons interested in plant evolution. A paper by John R. Laughnan and Susan J. Gabay is concerned with instability of S cytoplasmic male sterility in corn. One wonders about the inclusion of such a topic in this collection, since very little is known about the molecular or cellular basis for cytoplasmic male sterility. Perhaps presentation of the subject in this context, where it will receive the attention of persons unfamiliar with this system, will provide stimulus for investigation on the cellular and molecular levels.

JEAN L. FORSTER
NICHOLAS W. GILLHAM
Department of Zoology,
Duke University,
Durham, North Carolina
ELIZABETH H. HARRIS
Department of Botany,
Duke University

Plant Physiology

Phloem Transport. Papers from a NATO Advanced Study Institute, Banff, Alberta, Canada, Aug. 1974. S. ARONOFF, J. DAINTY, P. R. GORHAM, L. M. SRIVASTAVA, and C. A. SWANSON, Eds. Plenum, New York, 1975. x, 626 pp., illus. $48. NATO Advanced Study Institutes Series A, vol. 4.

The conference of which this book is the proceedings assembled 73 active workers on phloem transport to discuss one of the last great puzzles of plant physiology: how plants distribute their organic food materials. It was one of the aims of the conference to provide ample time for discussion, and a third of the book is taken up with question-and-answer exchanges on the topics of the presented papers. These provide a particularly lively view of the more debatable areas in this controversial field and of the personalities of the more vocal participants, their insights and prejudices.

The first of the three sections is devoted to phloem anatomy. An avowed intention of this was to bring about "a dialogue between the anatomists and physiologists, because it was clear that a great gap . . . exists between the two." This seems to be an unfair description of workers in the field. No phloem anatomist fails to be drawn by the fascination of the sugar transport problem into study and speculation about the function of the cells he studies; nor does any physiologist neglect the descriptive papers that might show structures that would help his thinking on function. Half the contributors to the symposium would be difficult to classify under either heading, and those who are clearly in one category are found ably discussing the papers of those in the other. So the fruitful integration of views that emerges from these pages was strengthened and extended, but not initiated, by this conference.

In the anatomical section there are wide-ranging reviews of phloem and sieve tubes and similar structures in angiosperms, gymnosperms, and lower plants, and concentrated discussion of the topical subjects of P-protein and transfer cells. There is, strikingly, no account of the light microscopy of living phloem, to which much effort has been devoted.

The second part of the book, Physiology of Translocation, is concentrated on loading, tracer kinetics, the effects of external factors, bidirectional transport, and phloem exudates. These are among the "facts" of the process from which an understanding of how it may work must be derived. The balanced surveys of published and novel work and the dialogue of the discussions will give the reader unacquainted with the difficulties a clear view of how these facts can fade away when approached by experimenters with opposing viewpoints or different techniques.

The third part, headed Biophysics of Phloem Transport, is in fact concerned mostly with the hypothesized models. The reader who has not kept up with the arguments about mechanism will find here the wide range of tenable views, the assertions and contrary facts, the acts of faith, and the selections of assumptions that make this a fascinating game, and he will retire bewildered that so little progress has been made since he last tried to follow it all.

Much of the appeal of the book is in its topicality and in the diversity of the observations that are brought out for consideration in both the papers and the discussions. One may expect much of this to go out of date quite quickly. Nevertheless, there are half a dozen critical and deeply researched reviews that will become part of the permanent literature of the subject and should earn the book a place on the shelves of all serious botanical libraries.

M. J. CANNY
Botany Department,
Monash University,
Clayton, Victoria, Australia

Books Received

Administration Behavior. A Study of Decision-Making Processes in Administrative Organization. Herbert A. Simon. Free Press, New York, and Collier Macmillan, London, ed. 3, 1976. lii, 364 pp. Cloth, $12.95; paper, $5.95.

Advances in Clinical Chemistry. Vol. 18. Oscar Bodansky and A. L. Latner, Eds. Academic Press, New York, 1976. x, 342 pp., illus. $31.50.

Advances in Sleep Research. Vol. 2. Elliot D. Weitzman, Ed. Spectrum, New York (distributor, Halsted [Wiley], New York). xii, 236 pp., illus. $20.

Algebra for College Students. Max A. Sobel and Norbert Lerner. Prentice-Hall, Englewood Cliffs, N.J., 1976. xiv, 544 pp., illus. $11.95.

Anesthesia for the Uninterested. Alexander A. Birch and John D. Tolmie. University Park Press, Baltimore, 1976. x, 188 pp., illus. Paper, $7.50.

Antiviral Drugs. Mode of Action and Chemotherapy of Viral Infections of Man. Yechiel Becker. Karger, Basel, 1976. xiv, 130 pp., illus. Paper, $30.50. Monographs in Virology, vol. 11.

Applications de la Thermodynamique du Non-Equibre. Bases d'Energétique Pratique. Pierre Chartier, Maurice Gross, and K. S. Spiegler. Hermann, Paris, 1975. 192 pp., illus. Paper, 78 F. Actualités Scientifiques et Industrielles, 1363.

Atomic Energy Levels and Grotrian Diagrams. Vol. 1, Hydrogen I—Phosphorus XV. Stanley Bashkin and John O. Stoner, Jr. North-Holland, Amsterdam, and Elsevier, New York, 1975. xx, 616 pp. $59.95.

Auditory Competence in Early Life. The Roots of Communicative Behavior. Rita B. Eisenberg. University Park Press, Baltimore, 1976. xxviii, 314 pp., illus. $18.50.

Beyond Economic Man. A New Foundation for Microeconomics. Harvey Leibenstein. Harvard University Press, Cambridge, Mass., 1976. xiv, 298 pp., illus. $15.

Biology. Richard A. Goldsby in collaboration with C. Ritchie Bell and seventeen others. Harper and Row, New York, 1976. xxiv, 862 pp., illus. + plates. $14.95.

Butterflies in My Stomach. Or: Insects in Human Nutrition. Ronald L. Taylor. Illustrated by John Gregory Tweed. Woodbridge Press, Santa Barbara, Calif., 1975. 224 pp. $8.95.