There are 150 excellent photographs and 51 line drawings, charts and maps, each of which illustrates some point emphasized in the text. I recommend this book to teachers for use at almost any level of instruction.

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Auxins to 1959

Les Phytohormones de Croissance. Méthods, chimie, biochimie, physiologie, applications pratiques. Paul-Émile Pilet. Masson, Paris, 1961. 775 pp. Illus.

In the last 10 years the auxins have certainly been thoroughly written up; first Söding's *Die Wuchsstofflehre* (1952), then Audus' *Plant Growth Substances* (1953; ed. 2, 1959), Leopold's *Auxins and Plant Growth* (1955), my *L'Origine et les Fonctions des Auxines* (1956), and Linser and Kiermayer's *Methoden zur Bestimmung pflanzlicher Wuchsstoffe* (1957); there have been two full-sized symposia (in Wye, 1955, and in New York, 1959) and numerous smaller ones, and several chapters in large books. All this is not to mention a considerable number of special and general reviews. Now comes Pilet (himself an active contributor to the field of growth and auxins), with a 774-page book that covers the literature through 1959. Unlike several of the other authors, Pilet emphasizes pure science rather than horticultural uses. Systematically, he treats (in order) methods, chemistry, biochemistry, physiology, and practical applications. The literature coverage is extensive and thorough; although it includes only papers published since 1937, the list (with titles) still occupies no less than 105 pages.

In some parts of the field, critical evaluation would have been more useful than such complete reporting. For example, it is noted (page 328) that 2,4-dichlorophenoxyacetic acid promotes the oxidation of indoleacetic acid, but it is not mentioned that this was traced to 2,4-dichlorophenol as an impurity. It is noted too that several workers using the diffusion technique found that the molecular weight for natural auxin in seedlings was 306 to 384, while others found 155 to 200. But, except for drawing attention to the probable error of such measurements, no real explanation of these discrepancies is attempted. It is a pity, too, to perpetuate the old statement that indoleacetonitrile gives rise to indoleacetic acid via the amide, for this has been disproved; the amide is neither an intermediate nor an effective substrate for the enzyme.

A 40-page chapter, "Other hormones," treats of kinins, gibberellins, and the postulated calines. Here we find the surprising statement (page 385): "Theoretically, it is certain that a caline controls (*préside à*) root formation, but it must be recognized that we know nothing either of its chemical structure or its biological properties, and no one has been able to extract it or to make an analysis of its biochemical characters." This seems to make the caline about as substantial, and as useful to theory, as the luminiferous ether, and one wonders whether such faith might not be better tempered with a desire for evidence.

The section on physiology contains a good discussion of auxin transport and its complications and another of the role of auxin in tissue cultures, a review which, though brief, is a new and very useful departure. Pilet has a nice gift for making up little tables and diagrams, often bringing together the results of several workers. If the diagrams are sometimes not as easy to understand as a table would have been, they are, in any event, better than a desert of text.

The book is, alas, not free from the usual misprints and misspellings, especially in the bibliography, but it is very understandable that the *élan* which drives one to assemble 105 pages of references might well be exhausted when the time comes to correct the proofs.

What a pity that Pilet's clear exposition and beautifully phrased French will be lost on so many of our students who no longer learn to read the language.

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New Books

Mathematics, Physical Sciences and Engineering

Advances in Inorganic Chemistry and Radiochemistry. vol. 3. H. J. Emeleus and A. G. Sharpe, Eds. Academic Press, New York, 1961. 463 pp. Illus. $12.50.

Anodic Oxide Films. L. Young. Academic Press, New York, 1961. 390 pp. Illus. $11.

Astronomical Spectroscopy. A. D. Thackery. Macmillan, New York, 1961. 256 pp. Illus. $3.95.

The Chemistry of Heterocyclic Compounds. G. M. Badger. Academic Press, New York, 1961. 506 pp. Illus. $12.

Cosmology. H. Bondi. Cambridge Univ. Press, New York, ed. 3, 1961. 182 pp. Illus. Paper, $2.45.

Dispersion Relations and the Abstract Approach to Field Theory. Lewis Klein, Ed. Gordon and Breach, New York, 1961. 284 pp. Illus. $4.95.

Electronic Equipment Design and Construction. Geoffrey W. A. Dummer, Cleo Brunetti, and Low K. Lee. McGraw-Hill, New York, 1961. 248 pp. Illus. $8.50.

Elements of Queueing Theory. With applications. Thomas L. Saaty. McGraw-Hill, New York, 1961. 438 pp. $11.50.

Fundamentals of Heat Transfer. H. Grober and S. Erk (revised by Ulrich Grigull). McGraw-Hill, New York, ed. 3, 1961. 539 pp. Illus. $15.

Gyrodynamics and Its Engineering Applications. Ronald N. Arnold and Leonard Maunder. Academic Press, New York, 1961. 494 pp. $14.

Instruments and Measurements. Chemical analysis, electric quantities, nucleonics, and process control. vols. 1 and 2. H. von Koch and G. Ljungberg, Eds. Academic Press, New York, 1961. 1227 pp. Illus. vol. 1, $16; vol. 2, $22.

Mass, Length and Time. Norman Feather. Pelican Books, Baltimore, Md., 1961. 367 pp. Illus. Paper, $1.45.

The Mathematical Theory of Linear Systems. B. M. Brown. Wiley, New York, 1961. 278 pp. Illus. $8.

Modern Magnetism. L. F. Bates. Cambridge Univ. Press, New York, ed. 4, 1961. 526 pp. Illus. Paper, $2.95; cloth, $7.50.

Physical Methods in Chemical Analysis. vol. 4. Walter G. Berl, Ed. Academic Press, New York, 1961. 487 pp. Illus. $16.

Principles and Applications of Electromagnetic Fields. Robert Plonsey and Robert E. Collin. McGraw-Hill, New York, 1961. 570 pp. Illus. $12.75.

Proceedings of the International Conference on Semiconductor Physics, Prague, 1960. Academic Press, New York, 1961. 1133 pp. Illus. $35.

Random Variables and Probability Distributions. Harald Cramer. Cambridge Univ. Press, New York, 1961. 128 pp. Paper, $4.

Reagent Chemicals and Standards. Joseph Rosin. Van Nostrand, Princeton, N.J., ed. 4, 1961. 565 pp. $14.50.

Soviet Chemistry Today. V. I. Spitsyn. National Acad. of Sciences–National Research Council, Washington, D.C., 1961. 302 pp. Illus. $2.50.

Valency and Molecular Structure. E. Cartmell and G. W. A. Fowles. Academic Press, New York, ed. 2, 1961. 306 pp. Illus. $7.

Understanding Digital Computers. Paul Siegel. Wiley, New York, 1961. 413 pp. Illus. $8.50.

Unit Operations of Sanitary Engineering. Linvil G. Rich. Wiley, New York, 1961. 319 pp. Illus. $10.75.