SCIENTIFIC BOOKS

Organographie der Pflanzen Insbesondere der Archegoniaten und Samenpflanzen. By Dr. K. GOEBEL. Erste Teil—Allgemeine Organographie. Dritte Umgearbeitete Auflage. G. Fischer, Jena, 1928. 642 pp., 621 text-figures.

THIS is a day of early specialization of research in narrowly restricted botanical fields, often by workers who have had but a year or two of introductory courses covering the general field. At such a time the comprehensive discussion here presented by von Goebel of the structure, the space relations and ontogenetic development of plant organs, as well as that of their correlations in function, should prove a broadening and steadying influence of much importance, on botanical investigators in many fields. It is of value not merely to the plant organographer and physiologist, but is of still more value perhaps to the experimental morphologist and to the plant pathologist, the latter of whom more often than not lacks the sort of knowledge of the structure, behavior and interdependence of the plant's organs under normal conditions that can be gained from von Goebel's book. Nowhere else in modern botanical literature can the botanist turn for so authoritative a general treatment of the whole subject of plant organography.

This volume—"Allgemeine Organographie"—with the two or more special volumes on bryophytes, pteridophytes and spermatophytes that are to follow, will constitute a compact encyclopedia of the main features of plant organography, largely observed or verified by von Goebel and his students, during a half century of unusually prolific botanical research. Beyond this, von Goebel's interpretations of the significance of the different structures and the different types of development described are suggestive and stimulating, and may at times indeed be provocative of keen disputation. In the "Organographie" we not only become acquainted with a whole series of observations that are of interest to the causal morphologist, but find many which are also of direct concern to the horticulturist and orchardist.

As compared with the second edition of this "General Organography" this third edition is enlarged by 139 pages and by 160 additional figures. Three fourths of the new pages and ninety-one figures have been added to Chapter III, "Die Symmetrieverhältnisse der Pflanzen." Most of this added space is devoted to a series of new paragraphs on polarity in the spores and sporelings of the thallophytes and in the spores and embryos of archegoniates and seed plants. About twenty pages each have been added to Chapter II, "Organbildung auf den verschiedenen Stufen des Pflanzenreichs," and to Chapter VI, "Die Abhängigkeit von Organbildung von inneren und aüseren Faktoren."

This volume, like its earlier editions, is noteworthy for its illustrations. Many of these are drawings or photographs made by von Goebel himself in far corners of the earth, and they illustrate very aptly the subjects discussed in the book. Other figures are clear diagrammatic presentations of interesting features of the spatial relations of organs, or of the comparative development of the same part in different related species, as, for example, in the instructive figures 40 and 41, which show the shifting of the region of most active growth in the floral axis of certain Rosales. Altogether more than five sixths of the excellent illustrations in this volume (504 of a total of 621) are original with the author. Many of the remaining figures were made by students in Goebel's laboratory.

Shortcomings may be pointed out in the "Organographie" by the cytologist or the plant anatomist who is seeking physical or biochemical explanations of the origins of plant organs and plant tissues. It is true, nevertheless, that he will find recorded here a large number of significant observations regarding the effect on the structure attained by the mature plant, of the inherent qualities of the plant itself and of the various environmental influences that may stimulate or inhibit its development. Many unsolved problems also are here either clearly stated or in other cases roughed out, ready for immediate attack by the trained worker prepared to apply to them the conceptions and the methods of the physiologist, the biophysicist and biochemist for their more or less proximate solution.

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SPECIAL ARTICLES

PHOSPHORUS COMPOUNDS OF MUSCLE AND LIVER

I. MUSCLE

EMBDEN and Schmidt[1] have recently made the highly interesting discovery that the adenosine phosphoric acid isolated about two years ago from voluntary muscle[2] is not identical with that obtained from yeast nucleic acid. Among the chemical properties by which the two may be distinguished the difference in resistance to hydrolysis by acid is particularly striking. The muscle nucleotide ("myoadenylic acid") is hydrolyzed (by 0.1 N sulphuric acid at 100°) only

[1] G. Embden and G. Schmidt, *Z. physiol. Chem.*, 181: 130, 1929.

[2] G. Embden and M. Zimmerman, *Z. physiol. Chem.*, 167: 137, 1927.