exogenous, such as inhaled carbon particles or ingested drugs, or endogenous, such as bile, melanins, lipofuscins; melanins, in fact, are the subject of only three of the chapters in this monograph.

Some of the chapters could well have been dispensed with. The chapter "Histochemistry of melanins" is an exhaustive tabulation of archaic and undocumented statements about the histochemistry of melanin and melanogenesis, for example. A serious omission in this monograph is that there is no summary of the recent findings on the chemistry of melanins by the Nicolaus group in Naples.

There are, however, worthwhile discussions of bile pigments, the Dubin–Johnson syndrome, lipids, the nature of the pigmentation in ochronosis, and the curious pigmentation of the intestinal tract. There is a lucid and comprehensive summary entitled "Normal and abnormal melanin pigmentation of the skin." The presence of melanin in neurons is a subject of much interest because of the successful treatment of Parkinson's disease with L-dopa. The author concludes, after a thorough review of the literature, that "neuronal melanin is not synthesized by a tyrosine-tyrosinase system as in skin melanocytes, but by a different pathway involving oxidation of brain catecholamines, in particular, dopamine."

This monograph is a necessary reference book for the library of the pathologist and a good source book for the biologist and the physician.

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Plants

Biologie Végétale. Vol. 1, Cytologie. A. NOUGARÈDE. xii, 600 pp., illus.; 130 F. Vol. 2, Nutrition et Métabolisme. R. HELLER. viii, 580 pp., illus.; 115 F. Vol. 3, Croissance, Morphogenèse, Reproduction. R. CHAMPAGNAT, P. OZENDA, and L. BAILLAUD. viii, 512 pp., illus.; 115 F. Masson, Paris, 1969. Précis de Sciences Biologiques.

This treatise in three volumes has been written to fill the need for an up-to-date presentation of plant biology in the French language, for the benefit of university students. One can feel that the first volume, devoted to plant cytology, has been prepared by one who is both an excellent teacher and an expert in her field. The methods that have opened new vistas in the study of cells are clearly and accurately presented: phase microscopy, autoradiography, electron microscopy, freeze-etching, ultracentrifugation, and so on. Fundamental aspects of proteins and nucleic acids are reviewed as a background to the study of the constitution and functions of the cytoplasm and its inclusions. The mode of formation of the latter and the figures seen in the electron microscope for the plasmalemma, endoplasmic reticulum, Golgi apparatus, mitochondria, and chloroplasts are very well illustrated through numerous diagrams and full-page electron micrographs. The author does not hesitate when necessary to bring in examples from animal cytology, such as the fine structures of the mitochondrial cristae of beef heart or those of flagellae of the branchial epithelium of the mussel. An explanatory presentation of the process of cell division constitutes the last part of the volume. On the whole, the author has achieved the difficult task of bringing together in a clear picture the outburst of investigations in the fields of electron microscopy and biochemistry which have been directed at the cell in the past 25 years.

The second volume, devoted to nutrition and metabolism, has a much drier presentation. The story of mineral nutrition follows a classical pattern. Certain terms are left unexplained. It is stated, for example (p. 4), that the structural proteins of the protoplasmic gel are held to water by "imbibition forces," which are not defined. In the chapter concerned with the assimilation of nitrogen, nothing is said about the fact that nitrate reductase is an inducible enzyme. Such fundamental processes as the incorporation of the nitrogen atom into an organic molecule and the fixation of reduced nitrogen on keto acids are barely mentioned. A few good metabolic maps would more suitably fill the two and a half pages that are occupied by drawings and photographs of insectivorous plants. Also, the metabolic chains of the biosynthesis of phenolic compounds which are specific to the plant world and have been so intensively studied would have been interesting to discuss. In general, the presentation of plant metabolism is weak.

Three authors have cooperated in writing the third volume, which deals with growth, morphogenesis, and reproduction. On the whole, the subjects of growth, differentiation, morphogenesis, and correlations are adequately treated. Auxins are dealt with in some detail, in contrast to gibberellins and cytokinins. Several auxin tests are presented, but the inhibitory part of the curves, which is known (and has been for four years now) to be due to the endogenous formation of ethylene, is left unexplained. Ethylene itself, which is now recognized as a genuine plant hormone, is not mentioned (not even as a fruit-ripening agent, since ripening and senescence are not discussed). In the chapter dealing with plant movements, nothing is said about the biochemical aspects of tendril excitation, for example the role of flavonoids. The part devoted to plant reproduction gives a fairly complete botanical base for the reproduction of algae, fungi, and higher plants. Again, the presentation is rather formal and classical, with no reference to the interesting results obtained during the last ten years in the hormonal control of formation of antheridia in ferns or the developmental physiology of the myxomycetes, which the last author purposely leaves outside the scope of his presentation.

On the whole, the treatise is an updated version of older treatises; there are some gaps with respect to the newest developments of plant biology, but this science is so vast now that it is impossible to encompass it all nowadays. The usefulness of volumes 2 and 3 as reference manuals is reduced by the fact that only books, and not original articles, are cited.

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The Premier Geosyncline

Studies of Appalachian Geology: Northern and Maritime. E-AN ZEN, WALTER S. WHITE, JARVIS B. HADLEY, and JAMES B. THOMPSON, JR., Eds. Interscience (Wiley), New York, 1968. xviii, 480 pp., illus. $29.50.

Studies of Appalachian Geology: Central and Southern. GEORGE W. FISHER, F. J. PETTIJOHN, J. C. REED, JR., and KENNETH N. WEAVER, Eds. Interscience (Wiley), New York, 1970. xx, 460 pp. + plates. $29.50.

"The Appalachian Chain," as P. B. King writes in the epilogue of the second of these two volumes, "is the most elegant on earth, so regularly arranged that its belts of formations and structures persist virtually from one end to the other—from its first appearance from beneath the sea in Newfoundland,