BOOK REVIEW

Submicroscopic morphology of protoplasm, by A. FREY-WYSSLING. Elsevier Publishing Company, Amsterdam, 1953, vii and 411 pages, 181 figs. Price 55*s*.

This is the second post-war edition of Prof. FREY-WYSSLING's book, originally written in German in 1938. Although in the title the words "and its derivatives" have been left out, the third part of the book, comprising 90 pages and entitled: "Fine structure of protoplasm derivatives", is still there. It also treats the same subjects: plant cell wall, chitin, starch, reserve proteins, silk, keratin, collagen, muscle and nerves.

The first part (30 pages) deals with fundamentals, as for instance: phases in colloids, coacervation, crystal structure, general structure and swelling of gels. Furthermore, methods: polarization, X-ray, electron microscopy.

The second division (150 pages) deals with the fine structure of protoplasm, *viz.*: cytoplasm nucleus, chloroplasts, erythrocytes and a new subject: gametes.

From the very beginning in 1924 of his brilliant scientific activities, the author himself has been very active in the domain treated, especially where microscopic morphology borders on physics and chemistry or had to be studied with the help of physical methods. In the last twenty years he collaborated with many pupils. Of a total of about 1000 references in the book, roughly 70, still far from complete, give evidence of the leading role of the Zurich school on several items. At present no one seems more entitled to write a monograph on this subject, even more so, since the author writes clearly, entertainingly and suggestively.

Being actively engaged in research by himself and his pupils, there is little wonder that the author emphasizes the results of his school and his own viewpoint. Sometimes relatively much space is devoted to a mere theory, or a point of view is given, although there seems scanty evidence available. In the opinion of the reviewer this is to be appreciated, for it gives the book a vividness, which other ones all too often lack. It also stimulates research to a high degree, because the reader feels inclined to ask himself questions or to think out a hypothesis of his own. Very important points in a book that, as stated in the Introduction, is not a review, but a condensed monograph, written for students attracted to this field of research.

Although not meant for specialists, there is no specialist in the whole field covered who will not estimate the book as an introduction to subjects related to that of his choice. Much of value will also be found by teachers on University-level.

Compared with the 1948 edition, the subjects treated and roughly 85% of the text are unchanged, but new material has been added according to the development of research until the beginning of 1952. As far as can be judged by the reviewer, the translation is good, at least very much improved. A somewhat bolder letter type and a better kind of paper have been used, but the price has been increased about 20*s*.

Of course, a condensed book, covering such a vast field, cannot deal with all subjects, nor treat them exhaustively. Every specialist will miss some items, according to his particular liking. For instance in the section of methods: phase contrast microscopy, replica technique for electron microscopy, small angle X-ray scattering. Or he would expect something on structure of the secondary cell wall in fibres and wood, or a reproduction of perforations in a pit-membrane, or something on bacteria, protozoa, bacteriophage, etc. Or, perhaps he would substitute the small passage on molecular structure of enzymes and hormones for something on localisation of enzymes in protoplasm and nucleus, as being more related to morphology, etc. However, to meet all such desires, the volume of the book would have to be multiplied and its character would have been lost.

Altogether, this is a book that is to be recommended warmly to every one interested in research or teaching in the field covered.

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