Analytic Function Theory. vol. 1. Einar Hille. Ginn, Boston, Mass., 1960. xi + 308 pp. $6.50.

Americans are fortunate that a translation of Caratheodory's great *Theory of Functions* (Chelsea, 1954), which stresses the geometric aspects of function theory, has been followed so soon by an equally fine work in English, which stresses the analytic aspects of function theory. The first volume of Hille's treatise, here under review, is the best introduction to the classical theory which has yet appeared in our language. The book is well-planned, well-organized, and beautifully written. It will surely become a modern classic.

The prerequisite for reading this book is a good course in advanced calculus, which means that it could be used as a text in most American colleges for either senior students or first-year graduate students of mathematics. However, the book is much more than just another text. Hille, in addition, sets his subject in the broader framework of modern, functional analysis and topology. He also presents his subject as a living, evolving structure to which many minds have contributed. The interesting historical remarks and biographical details about the great mathematicians who have developed function theory give the book depth and spaciousness. They should also serve to help the aspiring young mathematician to

> Give past exemplars present room
> And their experience count as mine.

The mature mathematician will find the book excellent reading even when it deals with the most familiar subject matter. There is a continual succession of small novelties of proof and presentation. The style is concise but extremely lucid, and trivial details are not laboriously spelled out. However, I would like to see some mention of Menchoff's theorem in the chapter on holomorphic functions and a development somewhere of the Euler-Maclaurin sum formula. Without this, the deduction of Stirling's formula in chapter 8 seems a little heavy.

The plan of the book is sufficiently indicated by the chapter titles: Chapter 1, "Number systems"; Chapter 2, "The complex plane"; Chapter 3, "Fractions, powers, and roots"; Chapter 4, "Holomorphic functions"; Chapter 5, "Power series"; Chapter 6, "Some elementary functions"; Chapter 7, "Complex integration"; Chapter 8, "The calculus of residues"; Chapter 9, "Representation theorems."

There is a good selection of problems and of suggested collateral reading. The three appendixes on point set theory, properties of polygons, and the theory of integration make the book practically self-contained, and they enhance its value for self-study.

After such a fine beginning the mathematical world will look forward with interest to the projected second volume of Hille's treatise.

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Handbuch der Pflanzenanatomie. vol. 3, part 4, *The Plant Cell-Wall*. P. A. Roelofsen. Translated from the Dutch manuscript with the assistance of C. E. B. Bremekamp. Borntraeger, Berlin, 1959. vii + 336 pp.

The literature dealing with the chemical composition, physical properties, and microscopic structure of plant cell-walls, which has accumulated during a period of more than 100 years, is so voluminous that it is impossible to cover it in a single book. In this second edition, Roelofsen aims to give a critical exposition of the present state of knowledge with emphasis upon progress since the publication of the first edition (1925).

One cannot adequately evaluate the merits and significance of a book of such diversified subject matter in a review restricted to less than 500 words. In general, the book gives a critical and unbiased discussion of the limitations as well as the significance of techniques and of the reliability of generalizations that have been formulated by their use. It reveals how much still remains to be learned regarding diversified types of cell-walls. Thus, it provides a valuable reference book for chemists, physicists, and botanists who desire a résumé of available knowledge which provides clues regarding problems in need of future investigation and solution.

It should be noted in this connection, however, that there are rather conspicuous inequalities of treatment. In other words, there are parts of the text where the discussion is excessively brief and, at least in some of them, inaccurate or misleading.

For example, in dealing with the primary wall of growing cells, the orientation of cellulosic microfibrils in the lateral meristem or cambium is discussed. Unfortunately, the term *cambium* frequently has been expanded to include a relatively wide zone of soft tissue which includes not only the initials of the lateral meristem but also differentiating elements of the xylem and phloem. Therefore, in electron photographs obtained from disintegrated cells of the so-called cambial zone, there are no means of determining with certainty whether fragments were obtained from cambial initials or from their daughter cells in early stages of tissue differentiation.

In the case of the secondary wall, in contrast to the primary one, electron microscopy thus far has contributed little more than verification of conclusions reached during the 1930's by synthesis and harmonization of evidence obtained by "ordinary" microscopic techniques, polarization microscopy, and x-ray analyses. The literature of this significant transitional period certainly merits more adequate consideration.

There is a curious misinterpretation of my own work. Illustrations of the cross-section of a *Pandanus* fiber and of the phenomenon of "ballooning" in such a cell are reproduced with implication of an erroneous conclusion. A careful reading of our original paper and of a subsequent one which has diagrams illustrating changes in fibrillar orientation demonstrate that our interpretation of ballooning was correct.

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Marine Algae of the Eastern Tropical and Subtropical Coasts of the Americas. William Randolph Taylor. University of Michigan Press, Ann Arbor, 1960. xi + 870 pp. Illus. $19.50.

The appearance of this long-awaited work is an event of great importance. Until now, the marine algae of the vast western Atlantic warm-water shores of the Americas, from North Carolina to Uruguay, could be identified only by referring to a large number of scattered publications. Recent recognition of the role of marine resources in the Latin American economy