of strengthening or weakening the constraints. Two thorough chapters on the Dual Problem and the Transportation Problem, and one on more advanced topics including integer programming and quadratic programming, complete the book.

The general impression is that the author has a good grasp, not only of his subject, but also of his reader's needs. He is careful in the way he introduces new notation and ideas, as they afford an insight into the problem. Just occasionally—and perhaps this is endemic in the material—this admirable plan misfires slightly, for example, at one or two points in the theoretical treatment of the Simplex method, and one feels that perhaps some insight into the mathematics would help. This is a commendable book, and one which, in large measure, can be used as a self-tutor, if need be. It includes a comprehensive bibliography of basic texts and research papers; this is entirely appropriate, as it is the author's intention to fit his readers for a confident excursion into such material. J. A. OGDEN

MANSFIELD, MAYNARD J., *Introduction to Topology* (University Series in Undergraduate Mathematics, D. Van Nostrand Co. Ltd., 1963), ix+116 pp., 21s.

This short textbook is designed to cover the subject matter of a first course in point-set topology. After an introductory chapter containing an informal account of the algebra of sets, the second chapter begins with a skilful explanation of why topology has to do with continuity. The reader is then gently led to the open-set definition of a topological space, and through the usual definitions and properties of neighbourhoods, closure, continuous mappings and the like. After that, there is a chapter each on connectedness and compactness. The next chapter briefly introduces regular, normal and completely regular spaces and the last chapter is on metric spaces.

In keeping with his aim to make the book suitable for a short introductory course for undergraduates, the author has clearly chosen to restrict the contents to an essential minimum and has been at great pains to introduce new ideas only where they are needed. Thus, for example, locally compact spaces appear in the exercises but not in the text. It may perhaps give some idea of the scope of this book to indicate that probably the two hardest theorems proved are Urysohn's Lemma and the theorem asserting that every metric space has a completion (with which the book ends). These, and indeed all the theorems, are proved carefully, clearly and fully. The book as a whole has a pleasing style that is easy to read. The concepts introduced are illustrated by more than fifty examples and there are over two hundred exercises, most but not all of them being fairly easy applications of the results proved in the text.

This is a book that could be read by students of fairly modest mathematical attainment. It would give them a good idea of the basic concepts and results of analytic topology and would leave them prepared, and also encouraged, to go on to further study. A. P. ROBERTSON

COHEN, L. W. AND EHRLICH, G., *The Structure of the Real Number System* (Van Nostrand, 1963), viii+116 pp., 33s.

Most students, in their undergraduate courses, meet some part of the development of the number system, but there can be few who have traced it in detail from Peano's axioms for the natural numbers, through the integers, the rationals, and the reals (as equivalence classes of sequences) to the complex numbers. This book provides a detailed guide up these steps.

The necessary preliminaries, in the fashionable Chapter 0, consist of a knowledge of the relevant parts of Set Theory, condensed into fifteen pages, hard going for those without a previous acquaintance with the subject. Indeed the whole book would make hard reading without guidance, since the careful attention needed for all the detail

https://doi.org/10.1017/S0013091500011548 Published online by Cambridge University Press