argument is not at all difficult to follow. Any reader who is acquainted with some elementary matrix algebra and a little knowledge of mathematical analysis will enjoy Vorob'ev's lucid explanation of the theories of non-constant sum cooperative and non-cooperative games of strategy (as well as of the more familiar theory of constant-sum games) and their potential application to circumstances of conflicting interests between the "players" or competitors. Dynamic and differential games are not considered, but it is to be hoped that the author will soon provide us with another text which is devoted to these topics.

This book is a credit to the author, publisher and printer; Dr. Kotz, also, is to be congratulated on his initiative in translating such a fine text. The only significant criticism is that the price is too high for students. One hopes that the publisher will soon make a cheap paperback edition available to them.

PAUL HUDSON

REFERENCE

[1] K. R. POPPER (1962) *The Open Society and its Enemies*, Vol. 2 (4th edition). Routledge & Kegan Paul, London.

Introductory Graph Theory

BELA ANDRASFAI

Adam Hilger Ltd, Bristol, 1978. 268 *pp.* £8.00

This is a curious book; a thorough introduction to a branch of mathematics without the use of mathematics, or almost so. It is thus a true Idiot's Guide to Graph Theory, where the word "Idiot" is used in its original sense from the classical Greek: $\iota\delta\iota\dot\omega\tau\eta\varsigma$ = layman. It induces in the reviewer a bias and some, quite unjustified, feeling of superiority, because theorems can be proven so much more elegantly by using the symbolic language of mathematics. The book does prove all the basic theorems of graph theory using everyday language, aided by the diagrams that are called "graphs". This appears clumsy to the cognoscenti.

This feeling of inelegance, however, is simply the consequence of knowing what appears to be a better way. For the readership for whom this book was written (originally in Hungarian and well-translated), sixth-formers and graduates without mathematical background—for example sociologists who might have heard that graphs offer models for some of their problems—it turns out to be excellent. The reader who actually works through the copious exercises and problems, draws the graphs, and studies the explanations, will acquire a good grounding in graph theory and a feeling for its usefulness in modelling.

The book consists of six main chapters as follows:

1. Introduction to graphs;
2. Trees and Forests;
3. Routes following the edges of a graph, mainly dealing with Euler paths and circuits;
4. Routes covering the vertices of a graph, discussing Hamiltonian paths and circuits;
5. Matching problems, Factors;
6. Extremal values, Extremal graphs.

Chapter 6 is the longest and here, at last the author could not totally exclude statements in terms of mathematical symbols, since it deals with combinatorial problems, but for the uninitiated it contains an introduction to the formulae of combinatorics. It is also the only chapter in which this reader, at least, could discover typographical errors—in the symbolic statements, of course.

To sum up, a good book for the right readership but it is doubtful if aspiring OR analysts belong to that class.

E. KAY