

Programing and numerical analysis

AN INTRODUCTION TO COMPUTER PROGRAMING. By Henry Mullish. 253 pp. Gordon and Breach, New York, 1966. Cloth \$14.50, paper \$5.00

NUMERICAL ANALYSIS FOR COMPUTERS. By John A. N. Lee. 284 pp. Reinhold, New York, 1966. \$10.00

by Joseph Gillis

Books on programing are not rare and it is rather difficult to determine their relative merits. One method that the reviewer sometimes uses is to put a book in the hands of a beginner and see whether he can write a program at the end. It is about as fair as giving somebody a book on swimming and testing him in the water when he has finished it.

However, whatever the merits of the criterion, *An Introduction to Computer Programing* passed it well. This

text contains all the basic elements of Fortran programing very simply explained—and nothing else. The intricacies of numerical analysis are ignored and the illustrative problems are all of the kind best dealt with by Fortran-like languages.

Up to a year or two ago books on computers suffered from the trouble that the machines described were obsolete before the books were off the press. We seem to have passed that stage, but something like it is beginning to be true of programing languages. The present text describes Fortran II and a great deal has happened since that was developed, even in the area of Fortran itself. However, anybody competent in Fortran II would still have no difficulty in absorbing the subsequent refinements and this book can be a useful means of introducing the subject to a beginner.

The material presented in *Numerical Analysis for Computers* was given in a course on numerical methods for advanced undergraduates at Kingston,

Ontario. It is admirably suited for such a purpose and could very usefully be put into the hands of similar students anywhere in the world.

The book begins with an introduction to Fortran programing and this is followed by chapters on most of the basic topics of numerical analysis. The amount of information under each heading is limited by the size and intention of the book, but the author's own practical interest and experience in computing show up both in the clear way in which snags are pointed out and in the variety of devices suggested for overcoming them.

One can safely recommend this text for the sort of course for which it was originally designed.

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The reviewer is professor of applied mathematics and former dean of the graduate school at the Weizmann Institute of Science, Rehovoth, Israel.

Modern position finding

SPHERICAL ASTRONOMY. By Edgar W. Woolard, Gerald M. Clemence. 453 pp. Academic Press, New York, 1966. \$18.00

by Ernst J. Opik

Written by the retired director of the Nautical Almanac Office, US Naval Observatory, and the retired scientific director of the US Naval Observatory (respectively), this is an authoritative treatment of the principles of positional astronomy. It is intended to replace the old classical treatises such as those of Chauvenet and Newcomb, which included methods and techniques no longer used, and it replaces these methods by more modern methods that until now have been somewhat widely scattered in the astronomical literature. Some of the topics that played a prominent part in the classical treatises are omitted since they are treated in other publications. These are the theories of special phenomena such as eclipses, transits and

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