

ods for the determination of flows around profiles, flows in channels and flows with a free boundary.

Chapter IV deals with the mathematical background of transonic gas dynamics. Partial differential equations of mixed type are derived and uniqueness and existence theorems are discussed.

In Chapter V some problems in transonic flows are described. In a short appendix numerical methods are considered. Finally, an extensive bibliography of about 400 papers is included.

The proofs are omitted; however, the main ideas on how to obtain the results are in most cases indicated. Further, the author formulates various new problems which arise in the theory.

In the opinion of the reviewer, the book is a valuable survey for engineers and mathematicians.

STEFAN BERGMAN

*An introduction to the theory of numbers.* By Ivan Niven and Herbert S. Zuckerman. New York, John Wiley and Sons, Inc., 1960. 8+250 pp. \$6.25.

This textbook provides the senior or first year graduate student with a lucid and inviting introduction to number theory. In the first eight chapters a variety of fundamental topics are systematically expounded; the remaining three chapters contain more specialized material. The chapter headings are: 1. Divisibility; 2. Congruences; 3. Quadratic reciprocity; 4. Some functions of number theory; 5. Some Diophantine equations; 6. Farey fractions; 7. Simple continued fractions; 8. Elementary remarks on the distribution of primes; 9. Algebraic numbers; 10. The partition function; 11. Density of sequences of integers. There are many praiseworthy features in the book. The style is pleasant and perspicuous; the motivation for ideas and methods is presented with didactic skill; definitions are exact; proofs are accurately stated.

The authors have taken great pains to answer a question that frequently perplexes the beginning student. "How does one solve a problem in the theory of numbers?" To this end they have furnished extensive lists of problems. (Several of these are of recent American Mathematical Monthly vintage.) Each set is pedagogically ordered, the transition from simple numerical exercise to difficult theoretical problem being swift but not violent. The authors adhere to the doctrine of separation of text and exercises. Nowhere does the proof of a theorem depend upon the results of a problem.

The approach to number theory in this book is analytical rather than historical. Only too infrequently (in the reviewer's opinion) do