This collection, and in particular the detailed work on differential equations and the pioneering work in function theory and number theory, gives an excellent idea of Littlewood's qualities—on Hardy's estimate he was the man most likely to storm and smash a really deep and formidable problem. These handsomely produced volumes are a fitting memorial to an outstanding mathematician; they will fascinate and stimulate every analyst. We are greatly indebted to the editorial committee and the publishers.

PHILIP HEYWOOD

HUA, L. K. *Introduction to number theory* (translated by P. Shiu) (Springer-Verlag, Berlin-Heidelberg-New York, 1982), xviii + 572 pp. DM 96.

This is the English edition of a book on number theory written for Chinese students and first published in 1957. Its aim is to give a broad introduction to the subject, indicating the close relationship between number theory and mathematics as a whole. Its twenty chapters cover a very wide range of topics and contain much more material than could be dealt with in a single university course. The only existing English textbook with which it compares is the *Introduction to the Theory of Numbers* by Hardy and Wright. My impression is that, although it may not be quite so easy to read, Hua's book goes further into the subject than the earlier work.

As would be expected, the very considerable Chinese contribution to the subject is stressed. Thus the name of Soon Go will be unfamiliar to most western readers, but as his general solution of the Diophantine equation $x^2+y^2=z^2$ appeared much earlier than in the west it is right that he should be credited with his achievement.

In a short review it is not possible to give a full list of all the topics covered, but the following selection indicates the scope of the work. After basic introductory chapters the author discusses the distribution of prime numbers and gives two proofs of the Prime Number Theorem, namely the analytic proof of Wiener and the elementary one of Selberg and Erdös. Classical subjects, such as partition theory and the divisor and circle problems, are discussed, and other topics include trigonometric sums, continued fractions, indeterminate equations, binary quadratic forms, unimodular transformations, integer matrices, p-adic numbers, algebraic numbers, Waring's problem, Schnirelmann density and the Geometry of Numbers. Nearly everything required is proved in detail and there are indications of further improvements and more recent work. There are also extensive tables of primitive roots and data associated with quadratic fields.

The translator Peter Shiu has done an excellent job and, with very few exceptions, the text runs smoothly. This is a most excellent textbook and mine of information on the theory of numbers. The volume contains between its covers much work that cannot easily be found in one volume; every number-theorist will hope to be able to afford to place it on his shelves.

As the author asks in his preface to be informed of errors, I mention that, so far as I am aware, the values of the Hermite constants γ_9 and γ_{10}, given on p. 543, have not been conclusively established.

R. A. RANKIN

WHITELAW, T. A., *An Introduction to Linear Algrbra*, (Blackie, 1983), ix + 241pp., £7·95 (paper covers).

This book provides a substantial first course in linear algebra, with no previous knowledge of the subject assumed. The necessary terminology and facts about mappings are summarised in an appendix.

The first chapter deals with the geometry of three-dimensional vectors, as far as scalar product, but not discussing the geometrical ideas involved in linear dependence. Then comes an exposition of the elements of matrix algebra, with the basic operations defined but not motivated. A very detailed chapter on elementary row operations leads to the form of the general solution of a system of linear equations. The inevitable chapter on determinants avoids lengthy proofs by confining the details of some proofs to the 3×3 case, with an indication of how to attempt the general case.