Die Arithmetik der Quadratischen Formen, zweite Abteilung. By
P. Bachmann. Leipzig, B. G. Teubner, 1923. xxii + 537 pp.

Bachmann's series of books, which together aim to cover the entire
field of the theory of numbers, are recognized as the standard from the
standpoints both of scholarship and clearness. Hence the publication
of a new book in this series is an important event to the many devotees
of this field. Although the new volume forms the second part of the
work bearing the same title, it is really independent of the first part
(which appeared in 1898), as well as of the other volumes of the series.
This self-contained book employs largely the methods of the geometry
of numbers initiated by Minkowski, and treats mainly the problem of
the reduction of quadratic forms.

There are sixteen chapters, the number of pages in each of which
varies only slightly from the average 33. The topics of the chapters
are as follows: Binary quadratic forms; Lattices and continued fractions;
Reduction of indefinite binary quadratic forms; Their minima; Geometrical
interpretation of binary quadratic forms by means of lattices in a plane;
Lattices in space and positive ternary quadratic forms; Geometry of
numbers in n-dimensional space; Positive quadratic forms in n unknowns;
Their reduction; Complete forms of Voronoï, limit (or extreme) forms;
Equivalence and classes of positive quadratic forms; Decomposable
forms; Quadratic and cubic irrationalities; Generalized algorithm of
continued fractions; Minkowski's criterion for algebraic numbers; Inde-
finite quadratic forms in more than two unknowns.

The book was edited by Haussner, but follows essentially the manus-
cript left by Bachmann at his death in 1920.

L. E. DICKSON

Analytische Geometrie des Raumes. By Salmon-Fiedler, revised by
Brill-Kommerell. Leipzig, Teubner, 1922. 590 pp.

Those familiar with the original Salmon-Fiedler will at once recognize
that about ninety per cent of the revised edition is identical with the
original. The remaining ten per cent of the book has been rewritten
in such a manner as to make the revision a real contribution as a text
book on the subject. The changes have been made in the form of more
detailed explanations of certain rather obscure articles, the addition of
many cuts and the addition of new subject matter. A great deal of the
projective treatment has been omitted and analytic proofs substituted.
The subject of quadratic forms has been entirely rewritten and precedes
the transformations of surfaces. By changing the order the latter subject
is introduced by means of the former. Many new examples have been
added and several of the original exercises have been omitted. As a
text I consider it superior to the revised English edition.

F. M. MORGAN