quadratic forms, the discussion not being completed until later in connection with the theory of quadratic numbers.

The author has developed the theories of quadratic forms and quadratic numbers in conjunction in Part 2, each supplementing the other and forming together a single theory. In this fact he finds his chief reason for calling his treatment "modern." The result is indeed "esthetically satisfying" (quotation from the preface). In view of the fact, however, that the book is professedly intended for beginners, it may perhaps be doubted whether this treatment is pedagogically desirable. There can be no manner of doubt that the beginner will find Part 2 hard reading; and it does not appear evident that the intermingling of forms and ideals, however beautiful the result, makes the reading any less difficult.

The book is remarkably free from typographical errors. Besides the single one noted in the corrigenda, the reviewer has noticed only two; one on page 36, 3d line from below, where *nr.* should read Nr.; and one on page 70, line 7, where the reference should be to Nr. 4 instead of to Nr. 3. In this connection we may note further that on page 25 the expression $\phi(1)$ must be defined as equal to unity, and on page 71 the condition $\Delta \neq 0$ should be added.

J. W. YOUNG.

The Axioms of Descriptive Geometry. By A. N. WHITEHEAD. Cambridge University Press, 1907. viii + 74 pp.

THIS little volume is No. 5 of the Cambridge Tracts in Mathematics and Mathematical Physics. It follows a previous tract (No. 4 of the same series) by the same author, on the Axioms of Projective Geometry, to which constant reference is made. The work begins with formulations of the axioms, those of Peano and Veblen being given in detail. Chapter II treats of the relation of projective space and the associated space obtained by taking a convex region of the projective space, such a convex region being shown to be a descriptive space. The development follows that of Bonola closely. Chapter III contains the development of ideal elements in a descriptive geometry, the work being drawn from Veblen, apparently. In Chapter IV a "General theory of correspondence" is introduced through the medium of projective coordinates, the ideas of continuous groups of projective transformations and their infinitesimal transformations being developed from analytic