Lezioni sulla Teoria dei Numeri Algebrici. By Luigi Bianchi, Bologna, Nicola Zanichelli, 1923, 640 pp.

After an examination of the contents of this book the reviewer feels that it serves a double purpose. On account of the very comprehensive treatment of the subject the book is an excellent work for reference. Moreover, on account of the manner in which the author coordinates the various notions used in the development, it will undoubtedly prove an excellent work for any one who wishes to gain a clear insight into the theory of algebraic numbers.

A brief résumé of the contents of the various chapters will serve to show the ground covered and also to give an idea of how the various topics are correlated in the development.

Chapter one deals with the elements of the theory of matrices and their applications to systems of linear equations and systems of linear forms. It also contains a brief study of forms relative to a modular system $(f_1, f_2, \ldots, f_n)$ where the f_i are linear forms. This leads to the proof of Minkowski's well known theorem regarding linear forms. Some space is devoted to the geometric interpretation.

In the second chapter the author develops the elements of the theory of numbers for the Gaussian field $k(i)$, $(i^2 = -1)$. This development contains the proofs of the fundamental theorems whose generalizations are contained in the succeeding chapters. The chapter concludes with the consideration of further examples of quadratic number fields, showing how the law of unique factorization, which was seen to hold for $k(i)$, breaks down.

The third chapter contains the development of the algebraic side of the general theory of algebraic number fields.

Chapter four is devoted to the theory of units in an algebraic number field. The author shows the existence of units, and of fundamental systems of units.

The fifth chapter contains the development of the theory of ideals and chapter six is devoted to congruences with respect to an ideal modulus with special consideration of prime ideal moduli. In this connection the author treats the subject of quadratic residues which he has already treated, in Chapter 2, for the field $k(i)$. Quadratic residues in a quadratic field are given special consideration.

Chapter seven contains the theory of equivalence of ideals and the separation of ideals into classes. The group of classes and its invariants are studied and a proof of the finiteness of the number of classes is given. This chapter also contains a consideration of the correspondence between ideals and decomposable forms and the relations between classes of ideals and classes of forms, and the multiplication of ideals and composition of forms.

Chapter eight contains the proofs of the general theorems regarding