methods, an inexhaustible creative imagination, the fearless introduction and employment of ideal elements, and an appreciation for a refined and logical development of all its parts.

We who stand on the threshold of a new century can look back on an era of unparalleled progress. Looking into the future an equally bright prospect greets our eyes; on all sides fruitful fields of research invite our labor and promise easy and rich returns. Surely this is the golden age of mathematics!

OUTER ISLAND,
September, 1904.

DE SÉGUIER'S THEORY OF ABSTRACT GROUPS.

Eléments de la Théorie des Groupes Abstraits. By J.-A. DE SÉGUIER. Paris, Gauthier-Villars, 1904. ii + 176 pp.

THE title for the complete treatise is Théorie des groupes finis. The present first volume deals with the theory as far as it demands no concrete representation. The second volume is to be entitled Compléments.

The Eléments gives a remarkably compact presentation of purely abstract group theory, including the most recent results. The attempt has been made to extend as far as possible the general theorems to infinite groups. The broader view thus gained more than compensates for the increased abstruseness. It appeals particularly to the reviewer who has given much attention to the coördination of the various branches of analytic group theory into a comprehensive theory of analytic groups in an arbitrary field. The inclusion of infinite groups, moreover, gives the author the means of a natural presentation of negative and rational numbers, Galois's imaginaries, and algebraic numbers as elements of certain groups. The author is therefore justified in giving (pages 27–51) a very compact, but practically complete, account of Galois fields (champ, corps de Galois). Relative to a first mode of composition, called addition, C_N is an additive group; relative to a second mode of composition C_N, with zero omitted, is a multiplicative group, and one may set $0x = x0 = 0$ by definition; a final postulate makes multiplication distributive with respect to addition.

The opening six pages on Cantor's assemblages establish his distinction between finite and infinite sets, but make no classification of the latter. Throughout the text the term *corps* is