stituent of degree m must have in this maximal subgroup at least one transitive constituent the degree of which is a divisor ($> m$) of $m(m-1)$. This paper has been offered to the *Transactions* for publication.

5. In this paper Professor Winger shows how the classical properties of the rational cubic, R^3, can be derived quite simply from the theory of involution. The method is then employed in the discovery of new theorems. In particular the contact conics, including the perspective conics, are discussed. The paper closes with some theorems on the hyperosculating curves, i. e., curves whose complete intersections with R^3 fall at a point.

W. A. MANNING,
Secretary of the Section.

ON INTEGRALS RELATED TO AND EXTENSIONS OF THE LEBESGUE INTEGRALS.

BY PROFESSOR T. H. HILDEBRANDT.

(*Continued from page 144.*)

III. STIELTJES INTEGRALS AND THEIR GENERALIZATIONS.

While the Lebesgue integral received almost immediate attention and recognition and found its way rapidly into mathematical literature and thought, it is only recently that the definition of Stieltjes seems to have received the consideration to which it is entitled by virtue of its range of applicability and usefulness. As a matter of fact, in the opinion of the writer, it seems to be destined to play the central rôle in integrational and summational processes in the future.

1. *Definition of the Stieltjes Integral.*—(Cf. Stieltjes (23), pages 71 ff.; Perron (17), page 362; Fréchet (5), pages 45–54; Young (29), pages 131, 137.) A definition for this integral was given first by Stieltjes in his memoir on continued fractions. The integral depends for its value upon two functions $f(x)$ and $v(x)$ defined on an interval (a, b). We suppose that they are both bounded. Then the definition is as follows: