theorem, due to Sylow, is shown by Professor Miller to be included in the following: Every non-abelian group of order p^m contains at least p invariant commutator operators, and its commutator quotient group is always non-cyclic. The paper is devoted to a proof of this theorem and the following closely related theorems : It is possible to construct a non-abelian group having any arbitrary abelian group as a commutator quotient group. Every non-cyclic abelian group of order p^α is the commutator quotient group of some non-abelian group of order p^m.

11. Mr. Quinn exhibited and explained a number of new linkages for describing the right line, in each of which the principle of inversion was applied.

16. A new form of thread model for ruled surfaces was exhibited by Professor Waldo, the frame of the model being conformed to the surface of a sphere ; thus permitting the location of the points of attachment of the threads with much greater ease than in the ordinary forms, in which the limiting surface is discontinuous. The method of construction was also explained.

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A CALCULUS FOR GEOMETERS.

Cours D'Analyse. By G. HUMBERT. Paris, Gauthier-Villars. 8vo, 2 vols.: Vol. I, 483 pp., 1903 ; Vol. II, 493 pp., 1904.

THE rapidity with which French treatises on the calculus follow one another is at times confusing to the American mind. Picard's monumental work is still unfinished ; Jordan's is a recent production ; Vallée-Poussin is as yet scarcely familiar ; Goursat's second volume is only partially complete ; and a number of others, more or less well-known, are certainly upon the horizon. Meanwhile, in the interim between the appearance of the separate volumes of some of the works just mentioned, another first class treatise — the subject of this review — has been published in its entirety.

In general, Humbert's work is characterized by a predominance of geometry, and in particular by applications to the