$$\frac{q^2y}{qx^2}\frac{qy}{qx} = \left[\sum_{i=1}^{n}\left(\frac{qy}{qu_i}\right)\frac{qu_i}{qx}\right]^{(2)} + \sum_{i=1}^{n}\left(\frac{qy}{qu_i}\right)\frac{qu_i}{qx}\frac{q^2u_i}{qx^2},$$

where the exponent in parenthesis signifies that the expression to which it is attached is to be squared, and after squaring

$$\left(\frac{qy}{qu}\right)^2, \quad \left(\frac{qy}{qu}\right)\left(\frac{qy}{qv}\right), \quad \left(\frac{qy}{qv}\right)^2$$

are to be replaced by

$$\left(\frac{qy}{qu}\right)\left(\frac{q^2y}{qu^2}\right), \quad \left(\frac{qy}{qv}\right)\left(\frac{q^2y}{quqv}\right), \quad \left(\frac{qy}{qv}\right)\left(\frac{q^2y}{qv^2}\right),$$

respectively.

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Secretary of the Section.

PROJECTIVE DIFFERENTIAL GEOMETRY.

AN ABSTRACT OF FOUR LECTURES DELIVERED AT THE NEW HAVEN COLLOQUIUM, SEPTEMBER 5–8, 1906.

BY PROFESSOR E. J. WILCZYNSKI.

THESE four lectures were devoted to an exposition of the principal results belonging to the subject of projective differential geometry. The place of this subject in a systematic treatment of geometry is indicated by the following discussion.

A first important basis for the classification of the various geometries is furnished by the group concept. There is metric geometry, projective geometry, the geometry of the birational transformations, to mention only the most important. Together with this classification by means of the characteristic groups, there is the distinction between differential and integral geometry. The differential properties of a geometric configuration merely depend upon the fact that in a certain, perhaps very small, region, certain conditions of continuity are satisfied, that derivatives of a certain order exist, etc. These differential properties are studied by means of the differential calcu-