Similar examples for a larger number of functions can readily be built.

The following theorem however is true:

If $u_1, u_2, \cdots, u_n$ *are single valued functions of the real variable* x *defined at every point of a certain interval and having at every point of this interval derivatives of the first* $n - 1$ *orders, and if it is possible to strike out the last row and one of the columns of the determinant* D *in such a way that there is no point of the interval in question at which the remaining determinant and its derivative both vanish, then if* D *vanishes at every point of the interval, the functions* $u_1, u_2, \cdots, u_n$ *will be linearly dependent throughout this interval.*

This theorem can be readily proved by a slight extension of the method given for instance by Heffter in his book on linear differential equations p. 233.

EMS, GERMANY,
September 15, 1900.

[*Note added November 2, 1900:* I have just found in Pascal's book on determinants a reference to three papers by Peano (*Mathesis*, vol. 9 (1889), p. 75 and p. 110; *Rend. d. Accad. d. Lincei*, ser. 5, vol. 6 (1897), 1° sem., p. 413), in which the question which I have here considered is taken up. My result is however different from Peano's, which states that the identical vanishing of D is a sufficient condition for linear dependence, provided there is no point at which the first minors corresponding to the elements of the last column all vanish.]

REPORT ON THE GROUPS OF AN INFINITE ORDER.

BY DR. G. A. MILLER.

(Read before Section A of the American Association for the Advancement of Science, New York, June 28, 1900.)

VARIOUS terms have been employed to designate the smallest elements of which any abstract group is composed. Cayley has called them symbols,* or symbols of operation. Dyck and many others have called them operations† or operators. Frobenius and others have called them elements.‡ In what follows we shall employ the last one of

* Cayley, *Phil. Magazine*, vol. 7 (1854), p. 41.
† Dyck, *Math. Annalen*, vol. 20 (1882), p. 1.
‡ Frobenius, *Crelle*, vol. 86 (1879), p. 218.