

of the Gibbs-Wilson notation is admitted, the note is misleading. For had brevity been the chief aim of my paper the notation of Burali-Forti and Marcolongo could have been made to compare very favorably with Professor Wilson's compact reproduction of the formulas in the Gibbs notation. (Compare the analytic statement of the theorems in the two notations.) However, as one of the purposes of my paper was to exhibit the operational feature of the system of Burali-Forti and Marcolongo, obviously the Gibbs-Wilson notation did not lend itself to this end. Moreover, since the notation of Burali-Forti and Marcolongo is not so well known in this country, some explanation seemed to be necessary.

Professor Wilson says in closing: "The use of words like grad, div, rot is hampering: we no longer write $\text{Cubus } \overline{m} \text{ Census } \overline{p} \text{ 16 rebus aequatur 40 for } x^3 - 8x^2 - 16 = 40.$ " Everybody admits the last part of this statement. But we still use for particular kinds of functions or operators such symbols as log, sin, cos, etc., arcsin, etc., sinh, cosh, etc. That the use of such "words" as grad, div, rot is hampering, seems to be a matter of opinion, since they may be used interchangeably with other symbols in both notations.

It is unfortunate that Professor Wilson introduced cartesian coordinates into his proof, since a coordinate system has no proper place in vector analysis. But this seems to be characteristic of the Gibbs-Wilson system. In fact Burali-Forti and Marcolongo have pointed out how the dyadics of Gibbs constantly depend on cartesian coordinates,* a non-linear system.

UNIVERSITY OF MICHIGAN.

SHORTER NOTICES.

Grundlehren der Mathematik. Der zweite Band des ersten Teils: *Algebra*. By EUGEN NETTO. Leipzig, Teubner, 1915. xii+232 pp.

THE *Grundlehren der Mathematik*, für Studierende und Lehrer is a series of four volumes on the elements of mathematics appearing from the press of B. G. Teubner under joint authorship as follows: Part I (two volumes), *Die Grundlehren*

* Burali-Forti et Marcolongo, *Transformations linéaires*, 1912, p. 147.