38.

NOTE ON QUADRATIC FUNCTIONS AND HYPER-DETERMINANTS.

[*Philosophical Magazine,* I. (1851), p. 415.]

PERMIT me to correct an error of transcription in the MS. of my paper "On Linearly Equivalent Quadratic Functions" in the last number of the *Magazine.* The theorem [p. 246 above] marked (3), should read as follows:—

$$\begin{Bmatrix} b_{\theta_{m+1}}, & b_{\theta_{m+2}} \dots b_{\theta_{m+s}} \\ b_{\phi_{m+1}}, & b_{\phi_{m+2}} \dots b_{\phi_{m+s}} \end{Bmatrix}$$

$$= \begin{Bmatrix} a_1, & a_2 \dots a_m, & a_{\theta_{m+1}}, & a_{\theta_{m+2}} \dots a_{\theta_{m+s}}, & a_{n+1}, & a_{n+2} \dots a_{n+m} \\ a_1, & a_2 \dots a_m, & a_{\phi_{m+1}}, & a_{\phi_{m+2}} \dots a_{\phi_{m+s}}, & a_{n+1}, & a_{n+2} \dots a_{n+m} \end{Bmatrix}$$

$$\div \begin{Bmatrix} a_1, & a_2 & \dots a_m \\ a_{n+1}, & a_{n+2} & \dots a_{n+m} \end{Bmatrix}^2.$$

I may take this opportunity of mentioning, that by extending to algebraical functions generally a multiliteral system of umbral notation, analogous to the biliteral system explained in the paper above referred to as applicable to quadratic functions, I have succeeded in reducing to a mechanical method of compound permutation the process for the discovery of those memorable forms invented by Mr Cayley, and named by him hyper-determinants, which have attracted the notice and just admiration of analysts all over Europe, and which will remain a perpetual memorial, as long as the name of algebra survives, of the penetration and sagacity of their author.