Do not let us confuse text-books with original memoirs. A memoir extends or demarks the bounds of knowledge, it is an adjunct to research and plays its part in the development of the mature brain; a text-book is an adjunct to teaching and presents its case to a less mature biological specimen. They have different ends in view.

If this point of view is acceptable we recognise at once how difficult is the function of a reviewer. For, in order to see the mathematical material presented in true perspective, he must be an adult in the subject, but in order to be a true critic of the presentation he must possess the mental acumen of a brilliant boy in the form for which the book is intended.—Yours faithfully,

Imperial College of Science and Technology. H. Levy.

## HIGHER TRIGONOMETRY FOR SCHOOLS.

Dear Sir,—There will be little disagreement, I think, with the principles to which Mr. Siddons expresses his adherence in the May *Gazette*; the immediate issue, which is whether he and his collaborator have succeeded in applying these principles in their work on trigonometry, is one on which readers must judge for themselves. The point I wish to raise is impersonal.

We can admit that tentative work is sometimes indispensable and often valuable and still maintain that an easy rigorous method, when one does exist, is intrinsically preferable to one dependent on delicate assumptions, however frankly these assumptions are disclosed. This is specially clear if the assumptions, or the results to which they lead, are not plausible, and here is where in the matter of the power series for the sine and cosine the case against compromise is very strong. For it is one thing to suggest that because $x^n$ tends to zero for fractional values of $x$, there is some likelihood of being able to find a power series that will fit such a function as the sine over some unspecified range of small values of the argument. It is quite another thing to suggest—or as is more usual tacitly to assume—that the range over which the series fits the function has something to do with the range over which the series when discovered is itself convergent. When we consider how the relative importance of the terms of a power series changes as the variable increases indefinitely, it seems fantastically improbable that the sum of such a series can be a periodic function, and when we find that the series which, on quite reasonable assumptions, fits the sine for small values, is in fact convergent for all values, the natural conclusion surely is that the correspondence between the series and the function breaks down somewhere. That the correspondence does not break down is one of the delightful surprises of mathematics, of which the learner should not be cheated by the teacher's familiarity with the result.

The questions of the infinite products and the series of partial fractions are at present on a different footing from that of the power series. As far as I know, no proofs of these expressions have been put forward that are comparable in simplicity with the proofs of the power series by inequalities, and I agree whole-heartedly with Mr. Siddons that the substance of Prof. Carslaw's paper in the March *Gazette* is quite unsuitable for a first course. Also the morphology of the expressions reproduces so precisely that of the trigonometrical functions to which the expressions are related that the formal assumptions to which attention has to be called are really plausible. —Yours, etc. E. H. Neville.

## ERRATUM.

Vol. xv, p. 129, ninth item. *For* 'commenced the building of a' *read* 'opened the'.

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