

upon here with a critical pen are to be regarded as trivial when compared with the work as a whole. In the hands of a teacher who will supplement the exercises of the text with more of those illustrative of the older methods on the one hand, and who will drill his students vigorously in reckoning with Lie's fundamental operator, the infinitesimal transformation, until they acquire facility in forming commutators,* on the other, the book is fully capable of realizing its double object of introducing the beginner† to two of the widest and most fruitful domains of mathematics—the theory of continuous groups and the theory of differential equations.

The mechanical make up of the book is up to the standard of the Macmillan press. A few trivial typographical errors will not escape the careful reader; the most flagrant probably is the occurrence of three in two consecutive lines of the preface.

The list of mathematical text-books in English is being continually and wisely augmented by the publications of The Macmillan Company, but with all that is good in the new, American students would welcome re-edited reprints of the classic volumes of Boole in the field of differential equations.

EDGAR ODELL LOVETT.

PRINCETON, N. J.,
24 February, 1898.

SHORTER NOTICES.

Annuaire pour l'An 1898, publié par le Bureau des Longitudes.
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One or two alterations which have been made in the *Annuaire* for the current year call for mention. A few of the more technical astronomical details concerning variable and double stars and small planets have been omitted, while the

* This term has been suggested as the equivalent of Lie's *Klammerausdruck* to represent the operation $(U_1 U_2) f \equiv U_1 (U_2 f) - U_2 (U_1 f)$, where $U_1 f$ and $U_2 f$ are two infinitesimal transformations; its use would have spared numerous circumlocutions in the text.

† The reader will observe that in the above opinion the writer takes exception to one advanced in *Nature* (current volume, 10 February, 1898), where the usefulness of Page's book as an introductory volume for beginners is questioned. No text-book can supply both text and teacher. In the hands of an instructor who is alive to both sides of the subject the book is susceptible of successful application to the needs of those studying the subject for the first time.