

from the table given by Mr. Gregory on p. 185, and several elements, such as bromine, are erroneously included.

The 107 illustrations form a noticeable feature of the book, many of them having been specially drawn for it. We confidently recommend the book to the notice of teachers, for it is certainly one of the most excellent expositions of the subject that we have yet seen.

Proceedings of the Edinburgh Mathematical Society.
Vol. xi. (London: Williams and Norgate, 1893.)

THE practice recently adopted by this Society of issuing its volumes in complete form at the end of its session, whilst it has some advantages, has the great disadvantage which results to an author in the long delay of the publication of his results if he has made his communication early in the session. We believe, however, that the Society meets this objection by allowing authors to have copies of their papers as soon as they are printed.

There are twelve contributors to this volume of 170 pages. The historical notes are especially interesting. They are on the history of the Fourier series, by G. A. Gibson; history of the nine-point circle, early history of the symmedian point, and Adams's hexagons and circles, by Dr. J. S. Mackay. These last are written in Dr. Mackay's usual interesting style, with full references to early writings on the several points. It is a pity that he has not received sufficient encouragement to publish his large store of notes in a single volume instead of issuing them in the shape of detached notes. Prof. A. H. Anglin gives a paper on certain results involving areal and trilinear coordinates. Mr. C. Chree writes on action at a distance, and the transmission of stress by isotropic elastic solid media, and Mr. W. Peddie contributes notes on the use of dimensional equations in physics, on the fundamental principles of quaternions and other vector analyses, and on the elements of quaternions. This last subject is discussed at some length by Prof. Knott in the quaternion and its depreciators. His attitude is well known to the mathematical readers of NATURE (see vols. for 1891-2-3). The remaining notes appeal to the mathematical masters, who form the major part of the *clientèle* of 131 members.

LETTERS TO THE EDITOR.

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The Publication of Scientific Papers.

THE discussion of this important subject has been started *à propos* of physical papers, but the publication of papers in all branches of science is in an equally unsatisfactory state.

Prof. Lodge, in his letter in your issue of July 27, after paying attention to the preparation of useful abstracts of all papers on physical subjects appearing both at home and abroad, calls attention to what has always appeared to me to be the most important matter for reform, namely, the means and methods of publication of English scientific papers.

There is no complaint more frequently heard abroad than that important papers of English scientific men are almost inaccessible to the foreigner, because it has been the fashion to communicate them to local societies and to rest content with such publication as is secured by their being printed in the Society's Proceedings or Transactions. If these societies distributed their publications liberally where there are students who ought to have the opportunity of reading them, and without taking account of whether they receive in exchange a publication of an equal number of pages, the evil would be much less. But this is not so. It is notorious—to take, for instance, the Royal Society of Edinburgh, with which I am best acquainted, and which is not by any means the least liberal in the matter of distribution—that unless the author distributes lavishly separate

copies of his paper in every quarter where he considers it important that it should be read, it will pass unnoticed, and a worker in the same branch of science will not consider that he is open to any blame for not being acquainted with a paper published in an organ so difficult to procure. I believe that this applies in at least an equal degree to the other two societies mentioned by Prof. Lodge, namely, those of Dublin and Cambridge, and of course it is all the more applicable to societies of less importance. But even the Royal Society itself is open to exception in this respect, for although no fault can be found with the Proceedings or Transactions as a recognised organ of publication, they are, as a matter of fact, not more readily accessible abroad than the corresponding publications of the Edinburgh Society, and the majority of foreign students never see anything but abstracts of important English papers. The only independent scientific journal of importance is the *Philosophical Magazine*, and though widely known it is not extensively used, and has not grown with the times. The want of means of scientific publication which has been produced by the development of scientific activity in the last twenty or thirty years has been met by an increase in the number of societies, and by a greater development of society publication. The former is probably an advantage, the latter is certainly a disadvantage. The publication of scientific papers cannot be too much centralised in the interests of both authors and readers, and for this purpose a central organ such as indicated by Prof. Lodge is required.

What is at present inefficiently and extravagantly done by a multitude of amateur publishers scattered over the country could at much less cost be efficiently done by a central publishing officer issuing a central organ, in several series, each series appearing in monthly numbers, and the whole run on strictly business lines. Each series should be devoted to a particular science or branch of a science. Thus, there might be several series in chemistry as organic chemistry, inorganic chemistry, physical chemistry and technical chemistry. Physics also would fall into several series, as would other sciences. Each series of original papers would have a parallel one of abstracts of foreign papers on the same subject, and it would be useful to have a separate series, which might be issued weekly or fortnightly, devoted to printing a minute of the proceedings and papers read at the meetings of the various societies throughout the country, to be furnished by their secretaries.

The effect of the realisation of some such plan as this would be the immediate setting free of the large sum of money annually spent by the societies in printing, and the collection of all that is published in *one* organ, which would be an enormous assistance to the student.

Each series would have to be intelligently and liberally indexed, and a separate volume of the indices of all the series published each year. It would then be sufficient for the worker to take in the series devoted to his own branch of science and the yearly index volume, which would prevent his overlooking papers of importance appearing in other series.

This scheme of central publication has occupied my thoughts for some years, and I have from time to time discussed it with my friends, and it has even been brought before one publisher, but without any practical effect.

It is therefore with very great pleasure that I find Prof. Lodge advocating a similar scheme, and I hope that it may be the means of fixing public attention on the present unsatisfactory state of things and of forcing a remedy.

August 8.

J. Y. BUCHANAN.

THE abstracts of physical science for the year 1886, published by the Berlin Physical Society, are contained in three stout octavo volumes, comprising over 2000 pages, while the somewhat less comprehensive supplements to the *Annalen* average about 1000 pages. A good index, on the other hand, can be prepared at little more than the cost of printing. An index entry, which contains the full title of the article, the name of the author, the correct reference, the number of pages covered by the article, and, where necessary, a brief indication of the scope of the article, is sufficient to inform the student where each advance in his particular branch of science is to be found reported, and is of permanent value to searchers of all sorts, provided a proper system of classification of the index entries is adhered to. The scheme of indexing carried out by the Association of Engineering Societies of America presents many features worthy of imitation. The index, which appears monthly in the journal, is printed on one side only (the reverse