

provoke howls of disapproval if, in the year 1899, they should suddenly ordain the complete abolition of qualitative analysis. But it is a question whether the time has not now come for a forward movement in this matter.

We will conclude with a suggestion. Is there any reason why those who control "certificate examinations," "army examinations," "scholarship examinations," and the like, should not, on and after some reasonably early date, permit candidates in chemistry to choose between qualitative and quantitative practical work? Such an ordinance would herald a new era of progress in the chemistry teaching of our schools. Nor would the change be so difficult to carry out as might, at first sight, seem probable, for scholarship examiners at the Universities have long since shown us how to examine boys in quantitative analysis. Indeed, had they not unfortunately made the initial mistake of requiring a knowledge of quantitative work without definitely reducing the range of the qualitative previously required, the University Examiners would long since have solved the whole problem. Even as it is, some good has been done—for a start has been made. But in the interests of sound teaching it is vitally important that this mistake should not be repeated, and that those who are responsible for these matters should remember that the time which has been found to be insufficient to afford a sound training in qualitative analysis cannot possibly be sufficient for both qualitative and quantitative work, especially if inorganic preparations are also to be made by the students as they should be.

W. A. S.

OUR BOOK SHELF.

The Illustrated Annual of Microscopy. Pp. 164. (London: Percy Lund, Humphries, and Co., Ltd., 1898.)

THE first number of this publication is a very creditable production, from whatever point of view it may be regarded. It is written primarily for the amateur, although some of the articles included could be read with interest by any microscopist, for they indicate the work that has been undertaken and carried out during the year. Perhaps, however, it is in this very direction that the book is deficient, as in some of the articles, instead of treating only those parts of the subject which are of recent interest, a large amount of matter is included that can be found in any good work on microscopy. It might safely be assumed that those who are sufficiently interested in the subject will have the necessary knowledge to enable them to understand the points under discussion without this preliminary instruction. This fault, if it may be called so, is perhaps almost inseparable from the first number of a work of this kind; but no doubt in future numbers there will be less difficulty in attaining the object the publishers state they have in view.

Of the papers calling for special mention, those on bacteriology are all deserving of notice, not the least interesting to the amateur being that by Rev. W. Spiers on "Amateur Bacteriology," in which various simple devices are described, enabling those who have no special apparatus to do a considerable amount of bacteriological work. This is all the more important, as it is thought by many that the study of bacteria is limited to those who have the resources of a bacteriological laboratory at their disposal, whereas there is a considerable field of work open to any one who has a microscope, without entailing any but the most

modest expenditure. A paper on "The Diphtheria Group of Bacilli" deals with an important subject, and one to which considerable attention has been given of late. The paper on "Multiple Colour Illumination," by J. Rheinberg, describes a simple method of effectively exhibiting microscopic objects which, of themselves, do not possess any colour contrast. The microscope and its optical parts comes in for a good share of attention. There is an article on "The Microscope in 1897," by Dr. Henri van Heurch, the mention of whose name is sufficient guarantee of its interest. Mr. Edmund J. Spitta treats of "Achromatics v. Apochromatics," and endeavours to show, by a series of photo-micrographs, the immense superiority of the latter. Nearly all branches of microscopy have been touched upon, and into whatever channel the interest of the reader may be directed he is almost sure to find something of interest. Altogether, the book is admirably produced; the illustrations, which are nearly all reproductions from photographs, being of the highest class, and comparing favourably with any of the kind that have been published. It is to be hoped that the publishers will find it possible to continue the issue of this annual, as it cannot fail to be of interest and value to microscopists.

J. E. B.

Wild Animals in Captivity. By A. D. Bartlett; edited by E. Bartlett. Pp. viii+373, illustrated. (London: Chapman and Hall, Ltd., 1898.)

THE late Mr. Bartlett had such an extensive and almost unvalued practical acquaintanceship with animals in menageries, that the publication of the notes kept by him during a long life might naturally be expected to be an event of more than usual interest. But, although there is much to attract general attention, and not a little worthy the notice of the practical zoologist in the present volume, we cannot help rising from its perusal with a certain feeling of disappointment. It appears, indeed, that a very large proportion of the notes that have any real value have been published elsewhere. And although this is a matter of little or no moment when the subject is good and attractive, it is essential that such republished notes should be well arranged and edited. In our own opinion efficient editorship is sadly wanting in this instance. The various notes and papers are far from being well arranged; and there is a considerable amount of repetition, as well as much irrelevant "padding," which might advantageously have been omitted. As a glaring instance of the former fault, the reader may be referred to pp. 164 and 165, where he will find precisely the same anecdote, with identical dates, repeated under two distinct headings; the only difference being that one account is more detailed than the other.

The diction, too, in many places, if not actually ungrammatical, is decidedly inelegant; and the need of competent scientific editorship is strikingly apparent in the concluding chapter of the book, which treats of the food of animals in captivity, and is one of the most valuable in the whole volume. Misprints, also, are by no means absent; the substitution of the word "joints" for "points" rendering a sentence on p. 27 almost unintelligible.

Neither do we consider the preliminary biographical notice of a decidedly remarkable man all that it might be; and, while the rest of the volume might be much abbreviated with advantage, this part would well bear expansion.

With regard to the merits of the book, all readers will admire the many anecdotes of the striking personal courage and devotion displayed by the late author in his dealings with the animals under his charge. There is much, too, in regard to their general habits in confinement which cannot fail to be of importance to all