attempt is very laudable. Knowing how often mosses are found without fructification, he has endeavoured to rely upon characteristics afforded by the barren plant, and not upon those derived from the inflorescence or the capsule. Whether so important a part of the structure as the reproductive system can be safely neglected by the systematist, seems to us at least doubtful. One has heard the story of the man who boldly asserted that the peristomes of the mosses were created different in order to enable botanists to distinguish the species. That may be rash teleology, and certainly Mr. Jameson has not adopted it.

As the book is intended for beginners, we think that a glossary should have been given.

E. F.

OUR BOOK SHELF.

Report of Observations of Injurious Insects and Common Farm Pests, during the Year 1893, *with Methods of Prevention and Remedy*. By Eleanor A. Ormerod, F.R.Met.Soc., &c. Seventeenth Report. (London: Simpkin, Marshall, Hamilton, Kent and Co., Ltd.).

ALTHOUGH the indefatigable Miss Ormerod, our principal English agricultural entomologist, has lately retired from the post which she has so long and so worthily occupied in connection with the Royal Agricultural Society, we are pleased to see that she has by no means relaxed her exertions in the cause, but has again brought out her usual annual volume, which will bear comparison with any of those which have preceded it, in the interest and value of its contents.

The year 1893 was remarkable for the great drought, which though it affected both vegetation and insect-life less than might have been expected, was necessarily favourable to the increase of some species, and injurious to others. The most noticeable feature was undoubtedly the unusual abundance of wasps over almost the whole of Great Britain and the adjoining countries; and thirty pages of Miss Ormerod's report are devoted to wasps alone. The remainder of this report treats of various insects infesting apple, bean, corn and grass, gooseberry, hop, mangold, mustard, pear, strawberry, tomato and cucumber, turnip and willow; and to the occurrence of locusts and mites (*Phytoptidæ*), not attached to particular plants. Most of the species noticed are freely illustrated in their various stages, so that there ought to be no difficulty about their identification, even by persons ignorant of entomology. Particular attention is given, as usual, to the best means of prevention and cure applicable to each case.

Fortunately the climate of England is less suited to the excessive multiplication of many insect pests which are highly destructive on the Continent and in America; and we are glad to notice that Miss Ormerod does not consider that the Hessian Fly, about which so much anxiety was felt a few years ago, is ever likely to become very destructive with us. Miss Ormerod also prints a letter from M. Schöven, announcing the introduction of this insect into Norway; another instance of the impossibility of preventing insect pests being carried by the constant international traffic from country to country, where they establish themselves if the climate and conditions are favourable, but if not, they soon die out, or linger on in too small numbers to be really injurious.

The introduction of locusts into England in brocoli from South Europe, and (dead) in large quantities among hay from Buenos Ayres, is likewise worthy of notice.

Mustard beetles, and others of the more familiar farm and garden pests, still continue to require and to receive a considerable amount of attention.

In conclusion, we may express our hope that Miss Ormerod may long be spared to issue many more of her useful annual contributions to agricultural entomology.

W. F K.

On the Definitions of the Trigonometric Functions. By A. Macfarlane. (Boston: J. S. Cushing and Co.)

DR. MACFARLANE has already written on space-analysis. The previous papers were on the principles of the algebra of physics, the imaginary of algebra, and the fundamental theorems of analysis generalised for space. The pamphlet before us was read before the Mathematical Congress at Chicago, August 22, 1893.

In the first of the above-cited papers the author introduced a trigonometric notation. This has been discussed by Mr. Heaviside in the *Electrician* (December 9, 1892). Dr. Macfarlane, by way of rejoinder, remarks: "I believe that this paper will show that trigonometry is not an application of space-analysis, but an element of it; and that the ideas of this element are of the greatest importance in developing the higher elements of the analysis." Our readers may remember that the notation was also discussed by Prof. Alfred Lodge (NATURE, November 3, 1892). To this our author replies: "I consider that the notation is a matter not of secondary, but of paramount importance. If the notation is arbitrary, it gives us no help in the further development of analysis; if on the other hand it is systematic and logically connected with the existing notation of analysis, it points the way to more general principles and results. I believe that this paper will show that my notation is systematic and logical." The pamphlet occupies 49 pages, and there are some other passages like those we have excerpted; so there is likely to be a pretty fight, of which our readers will soon hear more, if they do not take part in the strife. The pamphlet will repay perusal.

Key to Mr. J. B. Lock's Shilling Arithmetic. By Henry Carr, B.A. (London: Macmillan and Co., 1894.)

IN the worked-out results which we have now before us, Mr. Carr has not restricted himself to giving the mere answers, but has inserted in all cases the steps by which they are reached. This, especially for beginners, will be found of great service, and by judicious use will certainly lighten the teacher's task. We have selected many of the more advanced examples here and there, and worked them out as a test of the accuracy of the results given, and have found no mistakes. Others, perhaps, may not be so fortunate, but all necessary care seems to have been taken to give the right answers. All who use Mr. Lock's shilling book will find it of great assistance.

LETTERS TO THE EDITOR.

The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts intended for this or any other part of NATURE. *No notice is taken of anonymous communications.*]

The Thermal Expansion of Diamond.

IN view of the interest at present aroused by M. Moissan's successful experiments upon the artificial production of diamond, I venture to recount the results of some observations upon the thermal expansion of diamond, which, I think, are suggestive in connection with the particular manner in which M. Moissan has achieved success. M. Moissan has shown that the added condition of high pressure has rendered a method previously unsuccessful now for the first time successful.

Minute particulars being out of place here, I may briefly say