

markedly boreal aspect, though probably immigrants, at the close of the Ice age, by way of the North Sea, over the sunk portion of Sweden. The var. *arctica*, Harv., of *Sphacelaria racemosa*, Grev., is of peculiar interest near Danzig, as it now occurs elsewhere only in the Arctic seas and on the coast of Scotland, and is not known from the south-western part of Norway or from Sweden. A full enumeration of sources of information adds to the value of an excellent piece of work.

#### OUR BOOK SHELF.

*The Soil.* An Introduction to the Scientific Study of the Growth of Crops. Second edition, revised and enlarged. By A. D. Hall. Pp. xv+311. (London: John Murray, 1908.) Price 5s. net.

THE fact that a second edition of this book is necessary is a welcome evidence of the increased attention which is being paid to the study of the soil and also of the undoubted value of the work. This edition has evidently been most carefully revised in the light of modern investigation, and is an accurate record of existing knowledge on the soil considered from its mechanical, chemical, and biological aspects. Ten years ago we were almost entirely indebted to American or German workers for any scientific monograph on the soil, then only considered from its physical and chemical aspects, but in this work we have in addition a most valuable chapter on the functions of bacteria and fungi in the soil, in which a well balanced judgment is pronounced on certain recently much advertised work which has not yet received the sanction of scientific opinion or even a trustworthy confirmation of its accuracy by practical men.

Mr. Hall's book is not only for the scientific student of soil problems, who can, by the use of the bibliography in the appendix, become familiar with the most important research on the subject, but the practical man will find a very considerable portion of the book of interest and value to him, and the carefully reasoned conclusions will assure him of the reliability of the recommendations. The chapter on soil analysis shows the attempts which have been made to evolve an official method, and it is to be hoped, for the sake of those who often have to compare and argue from analyses made by different workers (in which the personal element must always be an important factor), that the methods which have been selected after most careful consideration may be generally adopted. Mr. Hall has a special faculty for drawing from the almost inexhaustible store of the Rothamsted treasure-house results which illustrate or emphasise his conclusions, and he has the rare quality of clothing figures and tables with interest. The mechanical effect of fertilisers on the flocculation of clay and the consequent alteration in texture are well illustrated by both Woburn and Rothamsted results, and the theory that the "saddenening" effect of such fertilisers as nitrate of soda is due to the presence of common salt and to the hygroscopic character of the nitrate of soda is shown to be only true to a limited extent, the main cause being the deflocculation of the clay aggregates.

We would also commend this book to the attention of science masters in secondary schools, for much of its contents could, with senior students, be utilised both for direct instruction and also for exemplifying, in a substance with which everyone must be more or less acquainted, many of the laws of physical and chemical science.

M. J. R. D.

*The Stars of the Year.* By H. P. H. Pp. 23. (London: King, Sell and Olding, Ltd., Knowledge Office.) Price 1s. net.

*Star Calendar for 1909.* Edited by H. P. H. (London: Hirschfeld Brothers, Ltd.; Glasgow: A. Stenhouse.) Price 1s. net.

*The Star Almanack, 1909.* By H. P. H. (London: King, Sell and Olding, Ltd., Knowledge Office.) Price 3d. net.

THE first of these three publications forms a useful handbook for those people who, unacquainted with the oldest of the sciences, take some kind of interest in the stars and other celestial phenomena. A brief introduction of five pages form a *hors d'oeuvre* calculated to whet the appetite for a more serious study of astronomy, and gives a few facts relating to the constellations, stars, meteors, comets, &c. Then follow twelve circular charts showing the arrangement of the constellations in the sky at 10 p.m. about the middle of each month. These charts have a blue background with white figuring, the zenith being placed at the centre, and they are very clearly printed. Beginners should find little difficulty in locating the various groupings after studying the current chart. It should be noted that on p. 8, where the constellations of the Zodiac are given, Aquarius is wrongly placed before Capricornus.

On the "Star Calendar," consisting of four cards tied together, the charts are so combined as to give the constellations for each quarter, whilst brief notes describe the positions of the planets. The calendar is of a convenient size (15" x 12"), and, being printed in colour with the conventional representations of the zodiacal signs, forms quite a decorative wall-hanging.

In addition to the four quarterly charts, the "Star Almanack" contains a deal of useful information concerning the planets, standard times, comets, meteor showers, &c., also portraits of Sir William and Lady Huggins and a reproduction of Ritchey's Andromeda nebula photograph, whilst a drawing by Mr. T. E. Heath illustrates the conception of a limited universe, ellipsoidal in form. The almanack would, no doubt, prove interesting and instructive if prominently displayed in the class-rooms of elementary schools.

In the first few copies issued of both "The Stars of the Year" (p. 7), and "The Star Almanack," there occurred a slip which gave the earth's orbital velocity as its velocity of rotation. In the later issues the latter is given correctly, and the publishers offer to exchange uncorrected copies returned to them.

W. E. ROLSTON.

*Diptera Danica.* Genera and Species of Flies hitherto found in Denmark. By William Lundbeck. Part II., Asilidæ, Bombyliidæ, Therevidæ, Scenopinidæ. With 48 figures. Published at the expense of the Carlsberg Fund. (Copenhagen: G. E. C. Gad; London: W. Wesley and Son, 1908.)

THIS useful and carefully written fauna commences with a lengthy account of the structure and habits of the interesting family Asilidæ, or robber-flies, as the American entomologists call them. The author is inclined to believe that the powerful beak with which they attack their prey carries a poisonous secretion, but this remains to be proved by further observations. The systematic portion of the work is well done, the subfamilies, genera, and species being tabulated as well as described. The figures represent details, such as the head, antenna, or wing of various species, and full information is given as regards structure, habits, larvæ, distribution in Denmark and elsewhere, &c. One of the largest and handsomest of the Asilidæ, in Britain and Denmark, is *Asilus crabroniformis*, which is remarkable for its black and