

lation to snowy days, and their number and distribution throughout the year are illustrated, as usual, with compact tables of mean values for a large number of stations. Mean first and last snowfalls, here effectively tabulated, are important factors in the estimation of the climate of any place.

To this point the work deals with general conditions and mean values drawn from the long and trustworthy records discussed. In the sequel, that most obvious fact about rainfall, its variability, receives attention. The outstanding and apparently abnormal features are discussed, and a very complete list of dry and wet seasons from 1851-1900 is here available for critical investigation. The attempt to correlate these changes with larger variables, cyclic or otherwise, is a most important work. The rainfall, considered in relation to the well-known sun-spot period, seems to indicate that periods of maximum precipitation are bound up with maxima of sun's spotted area. The author, however, is not able to consider these directly related as cause and effect, while he suggests that Sir Norman Lockyer's views as to the importance of prominences and allied phenomena may be nearer the true relation. The reader is specially referred to Sir Norman Lockyer's "Report on Simultaneous Solar and Terrestrial Changes" as best setting forth the general relationship between these two classes of phenomena.

The second and third volumes contain tables of data arranged under observing stations in the river basins.

The work is a monument to the value of scientific organisation and industry, and illustrates the high worth of collecting long, trustworthy, and continuous meteorological records.

OUR BOOK SHELF.

The Zoological Record. Vol. xlii. Being Records of Zoological Literature relating chiefly to the Year 1905. Edited by D. Sharp. (London: Zoological Society, 1906.)

WITH this volume ends, at any rate for the present, the series of this invaluable work with which we have been so long familiar, for next year the amalgamation with the zoological section of the International Catalogue of Scientific Literature is to commence. One effect of this change will be to make a radical alteration in the abbreviations employed for the titles of zoological serials, a change which, from the point of view of the working naturalist, is distinctly to be deplored. Whether the new arrangement will give that relief to the recorders to which the editor alludes so confidently in the preface remains to be seen.

In the main, the present volume follows the same lines as its predecessors, and displays the usual high level of excellence. By a rigorous system of cutting down, it has, however, been found practicable to make a considerable reduction in the number of papers in the general section.

Owing to the retirement of one old and experienced member of the staff, it has been necessary that a new recorder should undertake the sections dealing with reptiles (inclusive of amphibians) and fishes, and it

is unfortunate that the editor has not apparently realised that this new member of his team required more attention than the old stagers. To allude to a tithe of the serious and misleading errors in these two sections would be impossible, and we can only indicate a few of the most glaring. Geography seems a very weak point with this recorder. In the fish section, for instance, the Rio Negro is placed in Africa, while the eastern seas of the Russian Empire are included in Europe. Arabia in the reptile section comes under the heading of Africa, while in the fish section Muscat and Oman are placed in Asia. "Ophidia," too, is so placed and printed on p. 27 of the reptile record as to convey the idea that it stands for a country. It should also have been explained that "Riu-kiu" is the Chinese equivalent of "Liu-kiu" or "Loo-choo."

As to misprints, it might almost be said that their name is legion; but, as examples, it must suffice to notice *Epicrates* for *Epicrates*, *gandryi* for *gaudryi*, *Hoodwell* for *Hordwell*, *Malaclemmys* for *Malaclemmys*, and *Tyrannosaurus* (repeated in the list of new genera) for *Tyrannosaurus*. In the case of a large number of new species of reptiles the localities are omitted, while many papers quoted in the title-list are not referred to in the subject-index. None of the genera included in the Percidæ really belongs to that group.

The other recorders seem, for the most part, to have done their work well, although it would have looked better if the somewhat long list of corrigenda to the mammal record had not been required.

R. L.

The Principles of Horticulture. A Series of Practical Scientific Lessons. By Wilfred Mark Webb. Pp. 136. (London: Blackie and Son, Ltd., 1907.) Price 2s.

THE experience of the author as a former teacher and demonstrator in the Essex County Council School of Horticulture has served him in good stead. He puts a plant into the hands of the pupil, shows him how to study it, indicates to him what there is to be learnt from it, both as to external form and internal function, and having thus rendered help in the preliminary stages leaves the pupil to make himself master of further details by his own exertions.

We rather doubt the advantage of beginning microscopical work at so early a stage, and should prefer to defer the investigation of the minute anatomy of a plant until the pupil has become familiarised with the facts of morphology. The search for sieve-plates and companion cells might well be left until the pupil has familiarised himself with morphology and classification. Stress is very properly laid on the importance of drawing, as every student soon finds the great help of sketches of even the roughest kind, provided that they show what the draughtsman saw or intended to see. Accuracy of detail rather than artistic effect is what should be aimed at, and it is a matter of surprise to see the excellent representations which pupils make after very little practice. The illustrations in the present book afford a good example of our meaning; they show what they are intended to show, though they are not pictures. A list of the natural families, arranged according to the system of Engler, is given. For the purposes of the beginner it would, we think, have been better to have picked out some dozen or score of the most important orders, and to have omitted a mass of detail not required by the average student and not full enough for those who desire more complete information.