

species, these appear fairly accurate; and many little anecdotes of habits, &c., are related in a manner which can scarcely fail to attract attention.

Although both from the artistic and the strictly scientific standpoints, the volume, in our judgment, is somewhat of a failure, yet as an earnest and brightly-written attempt to popularise the study of the commoner North American birds, it is deserving of attention on the part of residents in the States who want to know more about the ways of the feathered creatures with which they meet.

R. L.

OUR BOOK SHELF.

Symons's British Rainfall, 1897. By G. J. Symons, F.R.S., and H. Sowerby Wallis. Pp. 58 + 239. (London: Edward Stanford, 1898.)

AN interesting article on the mean annual rainfall in the English Lake district appears in this new volume of "British Rainfall," in continuation of articles published in the volumes for the years 1895 and 1896. The earlier contributions showed the rainfall at Seathwaite from 1845 to 1895, and the rainfall within an area of about thirty square miles having Seathwaite nearly in the centre. In the present volume a much larger area—about 650 square miles—is dealt with from the point of view of rainfall, and a number of noteworthy conclusions are reached. The paper is accompanied by an orographical map, and a map showing by means of isohyetal lines—that is, lines of equal mean annual rainfall—the distribution of the precipitation in the district. This map shows that annual rainfalls exceeding 100 inches occur over more than seventy square miles. A high rainfall appears to be established at the head of the Langdales, trustworthy observations giving a mean of 129.7 inches at Mickleden, which value is within five inches of the rainfall at Seathwaite.

Mr. Symons points out that the rainfall differs very greatly, even within a few miles. An examination of the records of three pairs of stations, separated by $3\frac{1}{2}$, $2\frac{1}{2}$, and $1\frac{1}{4}$ miles respectively, showed the increase per mile to be 28 inches, 21 inches, and 71 inches respectively, the last-named representing a difference of 0.04 inch per yard.

Heavy rains in short periods appear to have been more frequent in 1897 than they generally are. Large rainfalls in twenty-four hours were also noteworthy. One of the heaviest rains on record in the United Kingdom occurred at Seathwaite on November 12, 1897, the fall in twenty-four hours ending at 9 a.m. on November 13 being 8.03 inches—that is, more than half an inch greater than any diurnal record during fifty-three years. As to the relation which the total fall of rain in 1897 bears to the average amount, Mr. Symons finds that, for England and Wales, and Scotland as a whole, the fall in 1897 was the same as the average fall for the period 1880–89, but in Ireland it was twelve per cent. in excess.

The number of observers who now send their records to Mr. Symons is 3318, and credit is certainly due to him for the organisation of this vast staff, and to the authors combined for their work of reducing the observations to law and order.

Storia Naturale, per la gioventù Italiana. By Achille Griffini, Assistant at the Royal Zoological Museum, University of Turin. Pp. 720. (Milan: Ulrico Hoepli, 1898.)

ENCYCLOPÆDIAS in one volume are not much in vogue in England, and this one needs but a short notice. It

embraces the whole range of zoology, botany, and mineralogy, and seems to be the result of much laborious compilation and condensation. But surely such labour is all but thrown away; such a book can never really interest young people, or train them in the habit of attention and observation. If a new butterfly or fossil be met with, the book may perhaps be consulted, but will in all likelihood be found either to have omitted the species altogether, or to have given so inadequate a description as to make identification a mere guess-work. This is no fault of Dr. Griffini, who has worked conscientiously, and has been obliged, as he says with a sigh, to suspend all his scientific research during the composition of the book: it means simply that it is impossible in the given space to deal with any one species in a way that can be called either scientific or interesting. Here is an example—a description of one of the most singular and beautiful birds in Europe:—

"*Tichodroma muraria* (the wall-creeper), length 17 cm., of an ash-grey colour with red and black wings; the male has a black throat, but in the female this is whitish. It lives on the tops of the Alps and Apennines, climbs with agility, often poises itself on its wings during flight, and feeds on insects."

This account may be said to be devoid of all the qualities which should attract the "gioventù Italiana," or fix this curious bird in their memories: it is incomplete and inaccurate, as well as uninteresting; and it is obvious that the writer had never seen the bird alive. But many species are much more minutely described, and illustrated by very fairly good woodcuts, which are better than the coloured plates containing each a large number of species crammed into a small space. And there is no doubt a certain advantage to beginners in having a survey of the whole field of natural history for purposes of classification as well as ordinary reference. Yet for helping the beginner and awakening his interest, our own plan of issuing a series of handy volumes seems far better both for authors, readers, and publishers.

Iowa Geological Survey. Vol. vii. Annual Report, 1896, with accompanying papers. Pp. 555. (Des Moines: Iowa Geological Survey, 1897.)

THE papers in this report contain descriptions of the geological characteristics of six counties in Iowa, namely, Johnson and Cerro Gordo Counties, described by Dr. Samuel Calvin, State Geologist; Marshall County, by Dr. S. W. Beyer; Polk and Guthrie Counties, by Mr. H. F. Bain; and Madison County, by Prof. J. L. Tilton and Mr. H. F. Bain. These counties are geologically important in regard to both indurated rocks and superficial deposits, and the report upon them, with the many maps and diagrams, will be found of interest and service to the people of Iowa.

In addition to the counties reported upon in the present volume, a large amount of other work is referred to in the administrative report. Thus, investigations undertaken with the object of determining the distribution of certain types of soil and their relation to the drift-sheets covering the State, have incidentally demonstrated that the succession of Pleistocene deposits is more complete and more clearly indicated in Iowa than in any other corresponding area of the North American Continent so far studied. Another interesting subject referred to is the discovery of a remarkable fish fauna in an old slate quarry in Johnson County. The beds in which the remains occur are of Devonian age; but it is said that no such assemblage of Devonian fishes has hitherto been found in North America, or in the world. The material has been placed in the hands of Dr. C. R. Eastman, of the Museum of Comparative Zoology, Cambridge, Massachusetts, who has undertaken to study it.