

after a few days, the specimens chosen were destroyed before sufficient data were obtained.

One, when first seen on September 25th, was the size of an orange, on October 3rd it had grown to the size of a large grape-fruit, on the 10th it was broken; but by placing the pieces together, it had reached nearly double its former size; this observed growth required fifteen days, with possibly three or four more days added for the growth attained before it was first seen.

On October 10th another specimen was found in the same woods, measuring $23\frac{1}{2}$ inches in circumference, on the 11th it had increased to $24\frac{1}{2}$ inches, on the 13th to $28\frac{1}{2}$ inches, on the 15th to $32\frac{1}{2}$ inches. When next visited on October 17th, it was badly smashed. An examination of the fragments showed pure white with no change in colour of the interior, thus proving that it had not reached the limit of its growth, as change of colour of the interior shows that ripening has begun and that the growth has been arrested. In the five days of observation, it grew $8\frac{1}{2}$ inches in circumference. With the same ratio it would take a little over thirteen days to have grown to the size when first observed, making eighteen days in all. Doubtless weather conditions play an important part in rapid or slow growth.

An examination of the ground with a pointed stick showed an attachment by a taproot about $\frac{1}{4}$ inch thick, tapering gradually for 3 inches to a fine point. No white threads (*mycelium*) were visible in several specimens examined. One would expect that such a large fungoid growth would require a network of mycelium to furnish sufficient nourishment. Since a puffball is composed of about 90 per cent water, the amazing fact is not so much its size as the scarcity of any visible rootlets to extract and convey moisture from the ground sufficient for its requirements.

From the above it is apparent that the writer has been unable to obtain data for a growth of puffballs any larger than about the size of a football; and that to attain this size it requires a period of about three weeks.—W. S. ODELL.

FEMALE REDSTART SINGING AT QUEBEC.—I have read with interest Mrs. MacLoughlin's article on page 142 of your September issue, re the female Redstart singing at Hamilton.

Last spring I had what I at first thought was practically the same experience, but I afterward decided, in accordance with Mr. Taverner's note, that it was a young male still in its first plumage.

If I had thought there was any question as to whether or not it breeds in this plumage, I think I could have settled it finally in the affirmative.

I saw this bird, and its mate in ordinary female Redstart colours several times in the same locality, when I went to check up the question as to what exactly the male was, and am positive they were nesting there.

I might mention that this male, although yellow, where he ordinarily would have been red or orange, was much blacker in the other parts than the female.—R. MEREDITH.

PUBLICATIONS RECEIVED

New Physical Geography, by Ralph S. Tarr and O. D. von Engeln; revised edition, The Macmillan Company, N.Y., 1926.

American Bee Journal, Hamilton, Illinois.

American Game, issued by the American Game Protective Association, New York City.

Bulletin of the Northeastern Bird Banding Association, Boston, Mass.

LECTURES.

The Natural History Society of Manitoba has published a list of lectures and demonstrations to be given during the Session 1926-27. The list includes topics from Geology, Botany, Ornithology, Entomology, in addition to some general ones.

The programme of the first series of free public lectures in the Victoria Memorial Museum has been published. These lectures will deal chiefly with the natural resources of Canada and each will be given by a lecturer from his own experience.

BOOK REVIEW

BIRDS OF WESTERN CANADA, *Museum Bulletin*, No. 41; *Victoria Memorial Museum*; by P. A. Taverner, Ottawa, 1926, 380 pages, 84 colored plates, price 75 cents in paper cover, \$1.00 in cloth.

The very favourable reception given to Mr. Taverner's "Birds of Eastern Canada", published in 1919, and the continued demand for copies has shown that such a book was needed and appreciated in Canada, and the authorities of the Victoria Memorial Museum have wisely supported

the production of a companion work, dealing with the birds of the Canadian West. The introduction is comprehensive and of much value to the student of birds, covering classification, geographical distribution, migration, protection, bird study, bibliography, and a key to the families of birds referred to in the book; the excellent outline drawings being by the author; the whole treated in a clear and simple manner for the general reader as well as the student.

The body of the work comes under the head of

"descriptive" ornithology, and deals with the subject in a manner both authoritative and easy to understand, each family is discussed with reference to its distinctive peculiarities, description, field marks, nesting habits, and economic status; thus preparing the reader for the description and discussion of each species with a short reference to the sub-species concerned, if any, this latter is by no means glossed over, and students will find much help here. The excellent text figures, nearly all by the author, are a feature of the work especially the wonderful series of hawk outlines, some of which are due to help, acknowledged by the author, from the American artist, Louis Agassiz Fuertes. The glossary at the end of the work is another useful feature. The coloured plates will perhaps attract more attention to the book than it would otherwise receive and will undoubtedly lead many a casual reader to a study

of the letterpress; the majority of the plates are from drawings by Major Allan Brooks and we are fortunate in having them in a Canadian book; the other coloured plates reprinted from "Birds of Eastern Canada", are by Mr. Frank Hennessey.

The reviewer has no doubt whatever that the "Birds of Western Canada" will be well received, and nothing better illustrates the author's knowledge of his public than the make-up of the book. Not only is it an original book on Canadian birds, but it shows that two departments of the government can co-operate in producing a really fine piece of work, the officials of the museum, and of the Printing Bureau have worked together, and the care with which the colours of the original paintings have been reproduced is evident.

The author acknowledges the assistance he has received from various sources, but the book is distinctly the author's.—J. H. FLEMING.





Fleming, James H. 1926. "Birds of Western Canada, by P. A. Taverner [Review]." *The Canadian field-naturalist* 40(8), 185–186.
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