

Species.	Average of the first seen.		Difference. Days.
	Raleigh.	Asheville.	
Solitary Vireo	March 26	March 10	16
Worm-eating Warbler	April 24	April 20	4
Scarlet Tanager.	" 28	" 20	8
Black-throated Blue Warbler	" 28	" 24	4
Rose-breasted Grosbeak	May 2	" 23	9

Each of these species appears at Asheville, in the mountains, before being seen at Raleigh, on the plains. The probable explanation of this anomaly is that each of these species breeds commonly at Asheville, and rarely or never at Raleigh. There is here a striking and unexpected exemplification of the rule that *the southernmost breeding birds constitute the van in spring migration*. While the present sum of knowledge is not sufficient to warrant the statement that this rule is universal, and very likely further investigation will show some exceptions, yet the above facts furnish strong evidence in its favor.

SPRING BIRD MIGRATIONS OF 1903.

BY ELON HOWARD EATON.

BIRD migration is a very elusive subject. At least we have found it so in western New York, after trying for years to determine its times and seasons, bird routes and isoptoses, causes and results. Even if one could be everywhere all the while at the same time, it would be difficult to run down the last factor in this complex problem. Meanwhile we are after facts.

The writer has been greatly disappointed to find how imperfect are the records of observers in determining the presence of a bird at any given station, rendering it almost impossible to draw correctly the lines of simultaneous arrival. Consequently at Roches-

ter we have taken the observations of several workers at the same time, and thereby seek to determine the true time of arrival and degree of abundance of each species. It is quite surprising at our weekly meetings to learn that some common bird has been in the environs of the city for four or five days, perhaps, before many of us have seen it at all. By comparing and verifying observations we get much closer to the real facts.

Without burdening any one with a mass of detail, we wish to present some of the conclusions which have been reached as the result of observations made near Rochester during the spring of 1903.

First, regarding the yearly migration of hawks, it has been confirmed that an incredible number of these birds pass each spring along the southern shore of Lake Ontario and move toward the east over the country south of the lake, evidently making their way, around its eastern end, toward the north. The height of the migration occurs during the latter part of April and the first week in May. The birds are mostly Sharp-shinned and Broad-winged Hawks. A sprinkling of Marsh and Pigeon Hawks is always present, but surprisingly few of the Cooper's Hawk when its general abundance in many parts of the State is considered. It also seems unusual, at a time when Red-tailed and Red-shouldered Hawks are nesting in western New York, to see many of these species also, soaring high in the air and wheeling toward the east. This is not like the spring soaring of the Buteos over their nesting woods. Many are often seen together or in the same field of view and, as far as I have noticed on these occasions, they are absolutely silent, and when one party has passed off the scene another appears going in the same direction. Thus there is a constant whirling stream passing over, sometimes during the greater part of the day. When the wind is high the Hawks fly low, with less circling. The Sharp-shinned species flies lowest of all, and even in calm fair days, when Buteos are circling almost out of sight, this hawk moves mostly within gunshot. One morning at least one hundred of these birds passed over a single observer within two hours, and on another occasion we saw twenty-five of this species lying in one pile back of the little hotel on Buck Pond, where the proprietor had been trying his marksmanship after breakfast.

The writer was surprised to learn how many of these migrants are Broad-winged Hawks, but they were certainly a conspicuous part of the procession, from the 21st of April to the 17th of May. We were again reminded of this fact while spending the month of August near Lake Restoule in Canada, where the Sharp-shinned and Broad-winged Hawks were the commonest of the family. None of this latter species breeds about Rochester, and it is either of irregular distribution or much more a bird of the Northern Forests than we had previously supposed.

During the spring of 1903 there was a striking scarcity of some birds which are usually very common at our station. Among this number may be placed all warblers with the exception of the Myrtle Warbler, Mourning Warbler, Yellow Warbler, and Redstart. The Yellow-bellied Sapsucker was not more than one-fourth as abundant as in the preceding year; the White-throated Sparrow much less abundant than usual, and the Baltimore Oriole was, perhaps, sparingly represented.

Among the birds which were noted as unusually common were the Crested Flycatcher, Phœbe, Purple Finch, Junco, Indigo Bird, Yellow-throated Vireo, House Wren, Winter Wren, Ruby-crowned Kinglet, and Bluebird. The last-named species was certainly three times as abundant as in any spring since 1895. As many as twenty-seven of these birds were noticed in a single flock during the latter part of March. Their notes were everywhere heard along the roadside as one journeyed about the country.

The most peculiar feature of the spring migration of 1903 was the striking manner in which the general relationship between weather and bird waves was illustrated. During the third week in March a remarkably warm wave brought us the Phœbe and the Great Blue Heron on the 20th, at least a full week ahead of time; while the Robins, Bluebirds, Grackles, Blackbirds, and Meadowlarks, which had first appeared early in the month, became very common. Then as April progressed the season seemed to halt and falter. Although the average temperature was as high as usual, there was no decided warm wave. The early flowers came on in due time, but the leaving out of the trees was slow. April 29th found the shadbush just coming into bloom. On May 10 the foliage of the maples was about half out. Beeches, hornbeams,

and ash trees were just bursting the leaf buds. On May 12 apple orchards were in the height of bloom. But no great migration wave had reached us. Nearly all the May migrants were from four to nine days behind time. Twenty-five observers from the Bird Section of the Rochester Academy of Science were scouring the fields and groves, eager to make a full record of the migrations at our station. The birds did not escape us unless they did it at night. The nearest thing to a migration wave came on the 3rd of May when forty-eight species of birds, including five species of warblers, were seen by a single observer. These species were not all new arrivals, but many of them were. A southerly wind had prevailed throughout the preceding day and evening, but ended in cool, lowering weather. Two nights before ice had frozen one-fourth of an inch in thickness.

In 1902 the greatest bird wave of the season likewise occurred on the 3rd of May, when the same observer above referred to recorded seventy-five species of birds, including nineteen species of warblers. That, however, was a perfect day, warm and sunny, following a low cyclonic center moving from the southwest and culminating in a shower during the night. During the warbler season of 1903 there was no decided southwest cyclonic storm and no remarkable warbler wave. All concomitants of the season conspired to retard and dissipate any wave of migrants in early May. No warm southwest wind swept them upon us. The gradual unfolding of the leaves furnished no sudden opportunities of shelter and insect food. The nights, being uniformly clear and free from storms, did not compel the migrating hosts to halt in our territory. The northern species which came to us were only those which were induced to stop for rest and food as they leisurely pursued the journey toward their breeding grounds. The result of all of these causes was a gradual and uninterrupted stream of migration with little dash and rush and concentration.

These facts tend to show that the shyer, foliage inhabiting birds travel largely on the crests of warm waves advancing from the south, and as in western New York these waves usually come from the southwest, it is undoubtedly true that our birds mostly come from that direction. It is not true that birds migrate *only* with the aid of favoring winds; nor when the weather gets warm enough to

be grateful to their sensibilities; nor at night, coming to the earth when the rain or storm overtakes them; nor when a certain kind of food first makes its appearance. Nevertheless all these factors doubtless enter into the problem. Certainly there is a sudden increase of foliage-hunting insects when the leaves unfold. The foliage unfolds when the heat, moisture, and sunshine become favorable. Insectivorous, foliage-inhabiting birds would show little adaptation to their environments if they did not attend the feast spread for them. The food, protection, and grateful temperature are there all at the same time. The birds are there also as sure as the unfolding of leaves follows the advent of springtime, and the increase of insects accompanies the unfolding of the leaves, and the predacious insects the development of their prey. Thus natural selection has finally evolved a large number of species of birds with migratory habits.



THE CASE OF *MEGALESTRIS* VS. *CATHARACTA*.

BY J. A. ALLEN.

It is claimed by Mr. Franz Poche in the 'Ornithologische Monatsberichte' for February, 1904 (Jahrg. XII, No. 2, p. 23), that the name *Catharacta* Brünnich, 1764, should replace *Megalestris* Bonaparte, 1856, on the ground of priority, and that Brünnich's name should be orthographically improved to stand as *Catarracta*. As this name has, by different authors, been used for several different groups and spelled in many different ways, its history has, in the present connection, considerable interest. It appears to have been first used, in what may be considered a generic sense, by the pre-Linnæan author Moehring in 1752, and in a subsequent edition of his work issued by Nozeman and Vosmaer in 1758. There is necessarily no reference in either edition of Moehring's work to the tenth edition of Linnæus's 'Systema Naturæ,' even the second edition being essentially prior to the beginning of the binomial system. Also, Moehring was not a bi-