

work in the large sea-bird colonies under his care. (See his article in this number.)

#### LABRADOR

Commander Donald B. McMillan banded Razor-billed Auks' Brünnich's Murres, Black-backed, Herring, and Glaucous Gulls, and Northern Ravens last year, and on his Arctic trips he devotes what time he can to this work.

Auburndale, Massachusetts, May, 1930.

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### SOME PURPLE FINCH NOTES, PRINCIPALLY ON THE MOULT OF THE PRIMARIES AND SECONDARIES

By M. J. MAGEE

IN some respects this year (1929) has been an unusual one so far as Purple Finches are concerned. They came in numbers the earliest and left the earliest of any year since I started putting out food regularly in 1915. Large flocks were seen around town March 1st, and I trapped the first one for this year March 6th. The last one trapped was October 17th, and there were only a few around then. I left that afternoon to attend the annual meeting of the A. O. U. in Philadelphia. On my return I was told the last Purple Finch seen at my feeding station was October 21st.

From March 6 to May 1, 1929, 924 were trapped. Last year the first one trapped was on May 1st and there were quite a few still around the middle of November; the last one banded for that year was on December 4th. On account of the early start this year, 1960 Purple Finches were banded and there were 181 returns, making 2141 individual birds trapped.

This year I have attempted to make a partial check on their moult. From July 1st, the date on which I noticed the first signs of moult, to October 17th, when the last Purple Finch for the year was trapped, I looked over 675 birds. As I could not spend all my time on the work, I confined my efforts largely to the moult of the primaries and secondaries.

#### THE MOULT FROM JUVENAL INTO FIRST WINTER PLUMAGE

One hundred and fifty-one young-of-the-year were looked over. There were probably more banded, for after moulting I doubt if the young-of-the-year can be positively separated from the adult females. I noticed the first signs of the moult-

ing of a young bird July 31st, but the majority did not show to the eye signs of moulting until about August 15th. The last young bird showing moult was taken October 1st, but most were apparently through moulting from a week to ten days earlier. I found nothing to indicate that any of the young-of-the-year moulted their primaries, secondaries, or tail feathers. I would place the length of time for the moult from Juvenal to First Winter plumage at from five to six weeks.

### THE ADULT MOULT

Adult Purple Finches, including 1928 males, start moulting much earlier than the young. This year I saw the first adult indicating moult on July 1st, and by July 15th the moult had started on the great majority looked over. The first visual signs of moulting are loose body feathers and new feathers coming on the forehead and sometimes on the crown as well.

Dr. Dwight states: "Whenever a complete moult is about to take place the first tract to show activity is usually the alar (wing) tracts and the fall of the innermost primary is the starting signal closely followed by the feathers of the breast. . . . Very shortly new feathers appear among the inter-scapularies, the scapularies and the greater wing coverts, and usually a little later the feathers of the forehead. . . ." The foregoing may be correct for the large majority of passerine birds, but certainly it does not hold good for Purple Finches.

I checked over fifty adults showing moult on forehead before I got one that had lost a primary. The following are a few examples:

Adult female.	July 8, moulting crown and forehead.
	Aug. 6, 5th primary $\frac{1}{8}$ grown; 4th $\frac{1}{2}$ ; 9th just showing.
A 1928 female.	July 12, moulting forehead.
	Sept. 23, 1st primary $\frac{1}{8}$ grown; 3rd secondary $\frac{1}{2}$ grown.
A 1928 male.	July 13, moulting crown and forehead.
	July 31, 8th primary a little over $\frac{1}{2}$ grown and 7th about $\frac{1}{2}$ grown.
Adult female.	July 15, moulting crown and forehead.
	Aug. 3, 8th and 7th primaries about grown; 6th $\frac{3}{4}$ ; 5th $\frac{1}{2}$ .
Adult male.	July 16, moulting crown and forehead. No moulting of primaries as yet.
Ault male.	Aug. 1, moulting body and head feathers. No moulting of primaries as yet.

Two hundred and seventy-nine Purple Finches were checked for the moulting of primaries and secondaries. The Purple Finch has nine primaries. From the 8th to the 1st, they are renewed nearly always in regular order—8th, 7th, 6th, etc. The secondaries, six in number, are renewed nearly always in

regular order—1st, 2nd, 3rd, etc. Now and then two or three, in one case four, adjacent feathers were of just about the same length, but in only two cases did I find a lower-numbered primary longer than a higher-numbered, excluding the 9th, and only one case in which a lower-numbered secondary had not been renewed first. The three exceptions were:

- A 1924 male. Aug. 13, 8th primary  $\frac{2}{3}$  grown; 7th about grown; 6th  $\frac{1}{8}$ ; 5th  $\frac{1}{2}$ ; 4th  $\frac{1}{8}$ .  
 Adult male. Aug. 19, 8th primary  $\frac{3}{4}$  grown; 7th  $\frac{7}{8}$ .  
 Adult female. Oct. 8, 1st secondary  $\frac{1}{8}$  grown; 5th and 6th  $\frac{3}{4}$ .

The 9th, innermost, primary I found quite erratic in its moult. It apparently is an exception to the rule that the innermost primary is the first to moult. The 9th primary was checked on twenty-four birds. Below is the list to show the irregularity:

- A 1928 male. July 21, 9th primary  $\frac{1}{2}$  grown; 8th a little shorter.  
 Adult female. July 21, 9th and 8th primaries just showing.  
 Adult male. July 28, 9th and 8th primaries just showing.  
 A 1927 female. July 29, 8th and 7th primaries just showing.  
 Aug. 31, 9th primary  $\frac{1}{8}$  grown; 4th  $\frac{3}{4}$ ; 3rd just showing.  
 A 1926 male. July 30, 9th and 8th primaries just showing.  
 A 1928 male. Aug. 4, 8th to 5th primaries, about grown; 4th just showing.  
 Aug. 13, 9th primary  $\frac{1}{3}$  grown; 2nd  $\frac{1}{2}$ .  
 Adult female. Aug. 4, 8th and 7th primaries nearly grown; 6th  $\frac{3}{4}$ ; 5th just showing.  
 Aug. 13, 5th primary  $\frac{1}{2}$  grown, 4th just showing.  
 Aug. 23, 9th primary just showing; 4th  $\frac{7}{8}$ ; 3rd  $\frac{2}{3}$ ; 2nd  $\frac{1}{3}$ .  
 A 1928 male. Aug. 4, 9th, 8th, and 7th about grown; 6th  $\frac{2}{3}$ ; 5th  $\frac{1}{8}$ .  
 Adult female. Aug. 5, 9th primary  $\frac{1}{2}$  grown; 8th just showing.  
 A 1928 male. Aug. 5, 9th primary  $\frac{2}{3}$  grown; 8th  $\frac{1}{8}$ ; 7th just showing.  
 A 1928 male. Aug. 5, 9th and 8th primaries just showing.  
 Adult female. Aug. 6, 9th primary just showing; 5th  $\frac{7}{8}$ ; 4th  $\frac{1}{2}$ .  
 Aug. 13, 9th primary  $\frac{1}{3}$ ; 4th  $\frac{2}{3}$ .  
 Adult female. Aug. 6, 9th primary  $\frac{1}{2}$  grown; 5th  $\frac{2}{3}$ ; 4th  $\frac{1}{2}$ .  
 Adult female. Aug. 7, 9th primary just showing; 5th  $\frac{3}{4}$ ; 4th  $\frac{1}{2}$ .  
 A 1928 male. Aug. 7, 9th primary  $\frac{2}{3}$  grown.  
 A 1928 male. Aug. 11, 9th primary just showing; 4th  $\frac{2}{3}$ .  
 A 1928 male. Aug. 11, 9th primary  $\frac{3}{4}$  grown; 8th  $\frac{1}{2}$ ; 7th  $\frac{1}{4}$ .  
 A 1928 male. Aug. 11, 9th primary  $\frac{1}{2}$  grown; 8th  $\frac{1}{3}$ .  
 A 1928 male. Aug. 12, 9th primary  $\frac{1}{4}$  grown; 4th  $\frac{1}{2}$ .  
 Aug. 15, 9th primary  $\frac{1}{2}$  grown; 4th  $\frac{7}{8}$ .  
 A 1928 male. Aug. 12, 5th primary  $\frac{1}{2}$  grown; 4th just showing.  
 Aug. 23, 9th primary  $\frac{1}{3}$  grown.  
 A 1928 male. Aug. 21, 9th primary  $\frac{1}{2}$  grown; 3rd  $\frac{7}{8}$ .  
 Adult female. Aug. 23, 9th and 8th primaries  $\frac{1}{2}$  grown.  
 Adult female. Sept. 8, 9th primary  $\frac{7}{8}$  grown; 1st secondary  $\frac{1}{8}$ .  
 Adult male. Sept. 11, 9th primary  $\frac{3}{4}$  grown; 3rd nearly grown.

Of the above, half were moulting the 9th primary about as you would expect; the other half were moulted later and irregularly.

Sixty birds were checked in various stages of moult of the 8th primary in which the 9th primary was a fully grown feather. In thirty of these the 8th primary was over half grown and possibly a new 9th primary might have obtained full growth previous to my trapping the bird. This would hardly hold for the thirty birds checked with the 8th primary just showing to half grown. The majority of these birds must have moulted the 9th primary later.

For the year the check-up indicates about one half of adult Purple Finches, regardless of age or sex, moult the 9th primary regularly; the other half, irregularly.

Next year I hope to make a further check, and, if it confirms this year's, that should settle the matter.

The 1st secondary is not moulted until the primaries are well along in their moult. My earliest date for a new 1st secondary showing is August 4th, and in no case did I find the inner, 6th, secondary, fully grown until after the first primary had attained its growth. The length of time for the adult moult I should put at from about twelve to fourteen weeks. The following are just a few records from my list, indicating the length of time of moult:

- Adult female. July 7, moulting forehead, loose feathers, rump, and upper tail-coverts.  
Sept. 19, 1st primary  $\frac{1}{4}$  grown; 3rd secondary  $\frac{1}{2}$ ; 4th  $\frac{1}{4}$ .
- A 1928 male. July 12, moulting forehead.  
Sept. 23, 1st primary  $\frac{1}{8}$  grown; 3rd secondary  $\frac{1}{2}$ .
- Adult female. July 17, moulting forehead.  
Oct. 12, 5th secondary  $\frac{3}{4}$  grown; 6th  $\frac{1}{2}$ .
- A 1928 male. July 21, 8th primary  $\frac{1}{8}$  grown; 7th  $\frac{3}{4}$ ; 6th  $\frac{1}{2}$ .
- A 1928 male. Oct. 12, 1st primary  $\frac{1}{2}$  grown; 3rd secondary  $\frac{2}{3}$ ; 4th  $\frac{1}{3}$ .  
Aug. 1, moulting greater coverts.  
Oct. 8, 6th secondary  $\frac{1}{2}$  grown.

The first female apparently through moulting was a 1927 bird trapped September 16th, and the first adult male apparently through moulting was trapped September 25th.

Sault Ste. Marie, Michigan, December 1, 1929