

we moved along. Only the birds on or within the fences paralleling the road were included. Our estimate was about 15 birds per mile, or roughly 4,125 from Brookings to the Badlands.

Grasshopper Sparrow (*Ammodramus savannarum*).—On one small section of prairie five miles west of Wolsey (Beadle Co.), South Dakota, Grasshopper Sparrows were in abundance on June 3. One breeding male specimen taken is probably referable to the eastern race (*A. s. pratensis*). The breeding range of the eastern form is said to be "east of the Great Plains from southern Wisconsin . . . south to southern Louisiana . . ." (A. O. U. Check-List, 4th ed.: 336, 1931). More specimens are obviously needed.

Brewer's Sparrow (*Spizella breweri breweri*).—In South Dakota on June 5 we collected one male and saw another individual near Indian Creek, north of Belle Fourche (Butte Co.). On the same day still another individual was observed near Redig (Harding Co.). The gonads of the bird collected were in breeding condition. All three birds were singing in grassy ravines with no bushes in evidence. In eastern Montana, where the Brewer's Sparrow is a "common summer resident," it breeds in sage brush (Saunders, Pacific Coast Avifauna, No. 14, 1921). The A. O. U. Check-List (4th ed.: 349, 1931) does not include either of the Dakotas within the eastern limits of the breeding range of the Brewer's Sparrow. Brehens (cf. Visher, Auk, 26: 151, 1909) collected one specimen, supposedly within twenty miles of Rapid City, South Dakota, in July, 1899. Reid (Wilson Bull., 40: 201, 1928) collected a singing bird in the North Dakota badlands 18 miles south of Marmarth on May 28, 1928, and on the following day "saw and heard several of these birds a few miles west of Marmarth."—OLIN SEWALL PETTINGILL, JR., *Carleton College, Northfield, Minnesota*, and EDWARD FOX DANA, *Portland, Maine*.

'Courtship Feeding' in the Black-capped Chickadee.—In his recent paper on 'Courtship Feeding in Birds,' David Lack (Auk, 57: 169-178, 1940) states that he knew of no fully established case where the feeding was restricted to the period of incubation and consequently it could not be classed as courtship feeding, although it was suspected that this might be the case among certain titmice, crows, and finches. In connection with a special study of the Black-capped Chickadee (*Penthestes atricapillus*) (see Auk, 58: 314-333, 518-535, 1941; op. cit., 59: 499-531, 1942), on the Edmund Niles Huyck Preserve, Rensselaerville, N. Y., the writer had an opportunity to follow closely the behavior of this species throughout the year. Observations during the spring indicated that the feeding of the female by the male is not a part of the courtship in chickadees but appears later, particularly during incubation. Neither begging by the female nor feeding of the female by the male was observed before or during the period when pairs first separated out of the winter flocks, which occurred in 1940 between April 10 and 25. During this 15-day period ten pairs were observed, some of them repeatedly and for two or three hours at a time, and only one very weak begging-feeding act was observed. Pairs at this time were clearly mated since they remained closely associated throughout the day and were antagonistic to other chickadees.

The first distinct begging-feeding behavior was noted on May 9 in a pair which had nearly completed excavating a cavity; the male fed the female five times during a two-hour observation period. Between May 10 and 20 the behavior was observed in all pairs which were under observation; all but one of the females at this time were either laying eggs or incubating. During incubation the begging-feeding reached a peak, occurring in all pairs. The female not only begged con-

stantly during the inattentive period off the nest, but the male regularly fed her while she was on the nest. When the young hatched the male almost immediately stopped feeding the female when she was off the nest but continued to feed her during her brooding periods. In several cases the female continued to beg to some extent while off the nest, but the male usually ignored her and fed the young instead. After brooding stopped, all traces of the feeding-begging behavior between the adults disappeared.

To summarize, the feeding of the female by the male and the begging by the female seems to have little if anything to do with the formation of the pair in the Black-capped Chickadee. The behavior apparently may start gradually during nest construction or egg laying (which is at least one to three weeks after definite pairing), then reaches a peak during incubation, and gradually stops after hatching when the male transfers his feeding activity to the young.—EUGENE P. ODUM, *University of Georgia, Athens, Georgia.*

Snow Buntings burrowing into snowdrifts.—During the severe sub-zero weather experienced in New England on February 15–16, 1943, a flock of 150–200 Snow Buntings (*Plectrophenax n. nivalis*), wintering at the Graves Brothers' Farm, Williamsburg, Massachusetts, sought shelter from the 35°-below-zero temperatures and the bitter northwest winds by digging themselves into soft snow under the steep southeast (or leeward) edges of several shallow drifts in an open field. On February 19, when my father, Aaron C. Bagg, and I visited this farm, we saw countless oval depressions still remaining in the snow just under these small 'snow-cliffs,' and Dwight Graves told us that on February 15, when the temperature did not rise above –20° F. all day, the Snow Buntings remained huddled in these holes, leaving only occasionally to feed on a nearby chaff pile. The snow around these depressions was littered with droppings.

According to Forbush ('Birds of Massachusetts and Other New England States,' 3: 35, 1929), "when the snow is soft, these birds are said to dive into it . . . and there pass the night. When the snow is frozen hard, the flocks sleep in the open, protected from the north wind only by some slight rise in the ground, by sand dunes, or by a stone wall." (See also Thomas S. Roberts, 'The Birds of Minnesota,' 2: 454, 1932.) In the case described above, however, the Snow Buntings sheltered in the snow during daylight hours as well as at night. Nearby were stone walls, an extensive, thick, pine grove, farm buildings, and apple trees (in which we saw over 100 of these birds perching on February 19, a milder day). Is it not fair testimony of both the weather's severity and the birds' basic instinct that in Massachusetts the Snow Buntings did as they must do in the extreme Arctic regions where there is no shelter but that afforded by snow and ice? Is it not the same procedure which must be followed by such Snow Buntings as those seen by the Nansen Polar Expedition between 84° and 85° North Latitude (about 90° East Longitude in May, 1895, and 15° East Longitude a year later)—both points being considerably north of any known land?—AARON MOORE BAGG, *Holyoke, Massachusetts.*

Swimming ability of young Robin.—The interesting observation of George A. Petrides, concerning the swimming ability of a young Catbird (Auk, 59: 584, 1942) leads me to report a somewhat similar happening experienced by my friend, Miss Edith McL. Hale, who wrote to me as follows, under date of June 3, 1942:

"I was seated beside Willow Pond at Mt. Auburn [Cambridge, Mass.], when a little bird fluttered low over the pond at some distance from me and dropped to