adult, but the body, except for some white bars on the flanks, appeared mostly blackish at a distance; I could not ascertain whether the black portion of the plumage consisted of down or contour feathers. The bill of this bird was dark with a light tip and base. At the second marsh we noted two adults, and Breedlove believes that he saw a black chick accompanying one of the adults.

The marshes in this large valley are quite extensive and provide a variety of habitats. I observed pure expanses of bulrush, saw grass, cattails, and short grass, and in one location noted an area of short grass dotted with small bushes. The two *Scirpus* marshes into which I ventured were disconcertingly quaking.

The North American race of the Virginia Rail (*R. l. limicola*) winters south to Guatemala but is not known to breed south of the Distrito Federal, México (Friedmann et al., Pacific Coast Avifauna no. 29:84, 1950). Additional races breed in South America north to Colombia. M. Alvarez del Toro (Las aves de Chiapas. Gobierno del estado de Chiapas. Tuxtla Gutierrez. 1971. p. 57) states that in Chiapas this species occurs only as a winter resident (Sep.–Feb.) and is restricted to the northern part of the state. The present records thus extend the known breeding range of the nominate race some 725 km to the southeast.

On 25 April 1972 in a residential yard in San Cristóbal de Las Casas, I noted a Cape May Warbler feeding 1.8 to 2.4 m up among the outer branches of an apple tree (*Malus pumila*) that measured about 4.3 m tall and 10 cm dbh. Moving more like a vireo than a warbler, the bird picked carefully at the bases of leaves and on the undersides of small branches. I immediately collected the bird (CAS 68567), which proved to be a female (ovary 4 × 3 mm, ova minute) with a fully ossified skull and an extreme amount of fat that invaded even the body cavity. The plumage was rather worn and faded, but new feathers were appearing on the crown, throat, and breast. Alvarez del Toro (op. cit.) makes no mention of this species in Chiapas, and Miller et al. (Pacific Coast Avifauna no. 33:248, 1957) record it for only Yucatán and Quintana Roo. Thus the present specimen appears to be the first for México outside the Yucatán Peninsula.

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COOLING RATES AND DEVELOPMENT OF HOMEOTHERMY IN THE BROWN-HEADED COWBIRD (*MOLOTHRUS ATER ATER*)

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Heart rate, body temperature, oxygen consumption, and carbon dioxide output in newly hatched passerines are similar to poikilotherms; but by the time of fledging, these birds are homeothermic (Dawson and Evans 1957, 1960; Kendeigh 1939; Odum 1942). Ectothermy apparently serves to conserve energy necessary for the rapid growth of these altricial birds. In the 10-day period between hatching and fledging, the average weight of young Brown-headed Cowbirds (*Molothrus ater ater*) increases from 2.5 g to 33 g (Friedman 1929). Because growth is so rapid and the nestling period short, one might expect homeothermy to develop faster in the cowbird than in other passerines. The intent of this investigation was to measure cooling rates of *M. ater ater* in the field and to follow from hatching to fledging the development of independent homeothermy.

METHODS

Between 2 May and 8 May 1972, 13 Brown-headed Cowbird eggs were located in 6 Song Sparrow (*Melospiza melodia melodia*) nests and in 1 Cardinal (*Cardinalis cardinalis cardinalis*) nest in Union Cemetery approximately 0.5 mile N of the Ohio State University, Columbus, Ohio. After hatching, cloacal body temperatures of the nestling cowbirds were measured, using a Model 46TUC Yellow Springs telethermometer. Young cowbirds were removed from the nest and their cooling rates determined in the shade, sheltered from the breeze, and exposed to ambient temperatures ranging from approximately 15–21°C. Initial readings were taken within 2 or 3 min after flushing the host parent from the nest and body temperatures were recorded until reading 1 or 2°C above ambient or until 30 min had elapsed. All birds appeared to recover when replaced in the nest; however, heavy rainstorms and cold ambient temperature apparently caused the death of five nestlings throughout the study. Day 1 is considered the day of hatching. Day 1 through Day 3 data are the average of readings from five nestlings; Day 4 through Day 9 data are the average of three nestlings; and Day 10 data include two nestlings.

RESULTS AND DISCUSSION

As shown in figure 1, nestling Brown-headed Cowbirds show a decrease in cooling rate (change in mean $T_B - T_A$ divided by time) from Day 1 to Day 10. From Day 1 to Day 3, birds cool rapidly to near ambient temperatures. Day 4 shows the beginning of temperature regulation and from Day 4 to Day 10, cooling rates decreased from 0.47°C to 0°C/min. Day 8 and Day 9 nestlings cool slowly (0.11°C/min and 0.09°C/min, respectively) and Day 10 fledglings appear to be completely homeothermic, maintaining an average body temperature of 37.4°C. Adult *M. ater ater* were found to have a mean resting body temperature of 40.8°C (average of five adult cowbirds) which compares with the mean resting body temperature of 39.2°C in *M. ater obscurus*, the southwestern Cowbird (Lustick 1970). Full tolerance to low ambient temperatures is probably not reached in young birds until the autumn molt (Kendeigh 1939).

Similar conclusions concerning development have been reported in nestling Vesper Sparrows (*Pooecetes gramineus gramineus*) (Dawson and Evans 1960)

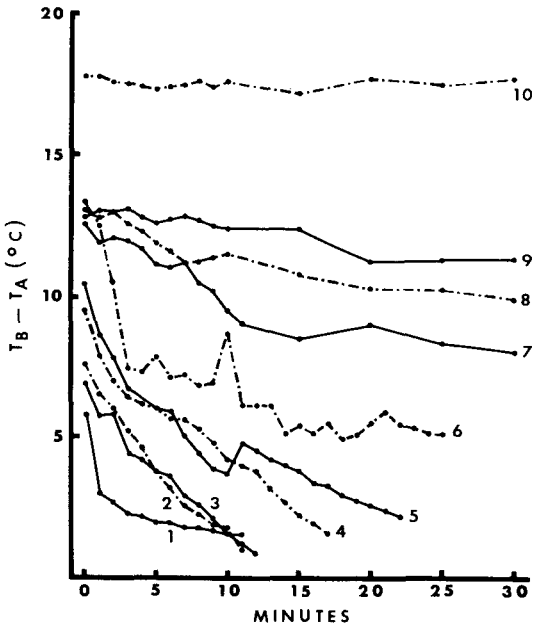

FIGURE 1. Cooling curves as a function of age in *Molothrus ater ater*. Numbers 1 through 10 indicate age, where Day 1 is the day of hatching.

and in Field Sparrows (*Spizella pusilla pusilla*) and Chipping Sparrows (*S. passerina passerina*) (Dawson and Evans 1957). Vesper Sparrows show the beginning of homeothermy on the 4th day after hatching. Field and Chipping Sparrows are able to effectively regulate their body temperatures above 37°C by 6 or 7 days after hatching. Maher (1964) has reported that the Snow Bunting (*Plectrophenax nivalis*) and Lapland Longspur (*Calcarius lapponicus*) are essentially endothermic by the 7th day, where the House Wren (*Troglodytes aedon*) does not develop effective temperature control until 9 days after hatching (Kendeigh 1939). *M. ater ater* maintains a body temperature above 37°C by the 9th day after hatching.

Because of its rapid growth rate, one might expect the Brown-headed Cowbird to become homeothermic faster than other passerines. Since this does not occur, it appears that, in the cowbird, expending energy to maintain a constant body temperature is not as important as expending energy for growth.

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UNUSUAL FEEDING BEHAVIOR OF GREAT BLUE HERONS AND COMMON EGRETS

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On 9 June 1972, I observed 87 Great Blue Herons (*Ardea herodias*) and 4 Common Egrets (*Casmerodius albus*) picking up dead fish from the surface waters of Chesapeake Bay, 3 miles N-NW of Poplar Island, Talbot County, Maryland. The herons and egrets were in a loose flock with 40 Laughing Gulls (*Larus atricilla*) and 8 Ospreys (*Pandion haliaetus*). All except the Ospreys were removing some of the thousands of rotting menhaden (*Brevoortia tyrannus*) drifting SE from a mammoth fish kill which occurred in the bay (Magothy River area) on 6 June.

The herons and egrets were nesting on Poplar Island and were flying just above the water to and from the floating fish. When spearing for fish, the herons assumed a position with the body nearly vertical, legs down (some in the water), wings flapping in a backward motion, and held the neck outstretched. A few herons landed briefly in the 100-ft deep water when taking a fish. Some herons filled the gular pouch before returning to the island, while others returned after retrieving a single fish. Single fish were carried either in the gular pouch or were held perpendicular to the bill.

This unusual feeding practice was in progress when I arrived on the scene at 07:00, but stopped abruptly at 08:10, when all the herons and egrets dispersed at once. A 20-mph wind from the west (with 18–24 inch seas) decreased sharply about 08:00, suggesting that these weather conditions may have been an important factor enabling this type of feeding.

In Rideau Lake, Ontario, Taverner (Can. Field-Nat. 36:59, 1922) observed that a Great Blue Heron landed briefly in deep water, but he was unable to see if the bird removed anything. Bent (Life histories of North American marsh birds, U.S. Natl. Mus. Bull. No. 135, 1926) reported a Great Blue Heron removing an eel-like object from the deep-water portion of a New Hampshire lake.

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