

Sight observations of "white" grebes—presumably incomplete or complete albinos—have been reported by several authors. Stott (Condor, **50**: 46, 1948) observed a white Eared Grebe in California and Rockwell (Condor, **12**: 188–193, 1910) observed a white Pied-billed Grebe (*Podilymbus podiceps*) in Colorado. Because of their individuality, some of these albinos have provided interesting information. Schuz (Der Vogelzug, **2**: 40–41, 1931) assumed that two white Great-crested Grebes observed in two areas in Europe at different times were the same bird and estimated the speed and route of migration of this individual. Observations of a white Eared Grebe by Allen (Condor, **42**: 127, 1940) suggested that wintering populations in California were stable from at least October until February.

For their kindness in searching grebe collections for albinos, I am indebted to personnel of the above mentioned museums and to those of the following museums: American Museum of Natural History, Carnegie Museum, Chicago Natural History Museum, Cornell University Laboratory of Ornithology, Harvard University, Los Angeles County Museum, Minnesota Museum of Natural History, New York State Museum, Saskatchewan Museum of Natural History, State University of Iowa, University of California at Berkeley, University of California at Los Angeles, University of Michigan Museum of Zoology, and Yale University.—MILTON W. WELLER, *Iowa State College, Department of Zoology and Entomology, Ames, Iowa.*

Eared Grebe in South Carolina.—On January 13, 1959, while looking at two Horned Grebes (*Podiceps auritus*) in the Charleston Municipal Yacht Basin, Charleston, South Carolina, my wife and I noticed a different looking grebe pop to the surface of the muddy water nearby. It proved to be an Eared Grebe (*Podiceps caspicus*)—the first record for the state of South Carolina.

At my suggestion, Milby Burton of the Charleston Museum collected it on the following day. The bird (Charleston Museum No. 59.8), a female in winter plumage, weighed a fraction over 11 ounces. The stomach contents consisted of small fish and tiny shrimp. Measurements in mm. are: wing 124.5; tarsus 39.5; culmen, slightly depressed in center, 23.

The five inner primaries are narrowly tipped with white, the amount of white tipping increasing from 1.5 to about 8 mm. on the innermost of the eleven primaries. This tipping and the lack of reddish tinge in the primaries indicate an immature of the American race, *californicus*, rather than the nominate European race, which has the innermost primaries largely white, at least on the inner webs (Baird, Brewer and Ridgway, "Water Birds of North America", vol. 2, pp. 435–436, 1884; Witherby *et al.*, "Handbook of British Birds", vol. 4, p. 105, 1940). E. B. Chamberlain, who prepared the skin and confirmed the identification, records: "iris orange, with a fine white inner ring".—WALTER DAWN, *176 Wentworth Street, Charleston, S. C.*

Records of Flight Preening and Related Aerial Activities in Birds, Particularly the Black Tern.—Although plumage maintenance activities in most birds are performed only while perching, standing, swimming, or while on the nest, certain groups carry on these activities to a varying degree while in flight. One would expect such behavior to appear in those groups that have evolved a high degree of mastery in the air and, indeed, the existing records indicate that this is the case.

Shaking of the plumage is probably the most common and widespread of these movements. It may be seen directly following any activity which is apt to

displace the feathers, e.g., fighting, bathing, diving into the water, or copulating. Because it is a rapid movement and does not necessitate more than an instantaneous departure from normal flight activity, it is not necessarily restricted to those birds with unusual flight ability. I have observed it during flight in a variety of species, especially after bathing and following banding operations.

Scratching of the head and neck in flight may be more widespread, and is certainly more frequent, than records indicate. It has been reported in the following species: Light-mantled Sooty Albatross (*Phoebastria palpebrata*) (Murphy, 1936: 499), Wandering Albatross (*Diomedea exulans*) and Royal Albatross (*Diomedea epomophora*) (W. C. Dilger, pers. comm.), Western Gull (*Larus occidentalis*) (Bent, 1921: 97), Glaucous-winged Gull (*Larus glaucescens*) (Bent, 1921: 71), Sooty Tern (*Sterna fuscata*) (Chapman, 1908: 197).

I have seen aerial scratching in the Mallard (*Anas platyrhynchos*), Herring Gull (*Larus argentatus*), Ring-billed Gull (*Larus delawarensis*) and Black Tern (*Chlidonias niger*) and in all cases it was accomplished in the same manner. While gliding, the head was lowered and turned to the side while the foot was brought forward beneath the wing. The average duration of the movement in the Black Tern is five seconds, during which time the head may be turned so that successive areas of the head and neck are treated.

Chapman's statement (1908: 197) that in the Sooty Tern "it was a common sight to see one put its foot through its inner wing-feathers and scratch its ear" might be interpreted as "over-the-wing" scratching. If this is the case, it is an exceptional method of scratching in the Laridae.

My Mallard record is based on a single observation and occurred as the bird was gliding in for a landing. After landing, it ran around excitedly, stopping frequently to scratch. This is probably a case where an unusually strong stimulus caused a response in a species that does not commonly scratch in the air. Although the movement seemed quite effortless, the bird plummeted earthward and made a rather awkward landing in spite of considerable braking.

The most highly developed activity of this type is probably flight preening. Murphy (1936: 499) writes that a Light-mantled Sooty Albatross "was seen to turn down its head and preen the feathers of its belly without losing its place in the squad". Bent (1921: 97) in describing the behavior of the Western Gull states that it occasionally preens the breast feathers while soaring. I have observed flight preening in two species besides the Black Tern—the Purple Martin (*Progne subis*) and the Bank Swallow (*Riparia riparia*). The swallow records were single observations; the activity in both species was of short duration (4 to 6 seconds) and involved the feathers of the upper breast.

During the summers of 1952 through 1958, observations on the behavior of the Black Tern were made at the colony on North Pond in Oswego County, New York. Flight preening was found to be a fairly common and a beautifully coordinated activity in this species. It can be seen at any time of day throughout the breeding season, but it seems to be particularly common during late afternoon and evening. The characteristic undulatory flight of a preening bird can be recognized at a considerable distance. The bird flies to a peak then preens while gliding to a low point. Here, it stops preening and flies to another peak, and so on. The duration of the flights which I have observed ranged from three or four seconds (a single glide) to twelve minutes. During long flights, the bird circles widely over the marsh maintaining a constant altitude, except of course, for the relatively short amplitude of the undulations (two to four feet) caused by the

alternate flapping and gliding components. The stereotyped pattern of a flight may be interrupted by short periods of slow, flapping flight. When possible, a bird will use air currents to advantage, thereby allowing an extended period of gliding with a minimum loss of altitude.

Short preening bouts involving the feathers of the neck and breast are the most common, while longer flights during which the inner wing coverts, scapulars and feathers of the back are also preened, are less frequent. On several occasions I have observed preening of the inner secondaries and tertials, and rubbing of the side of the head on the humerus.

At a distance, the attitudes assumed by birds performing these aerial activities might possibly lead an observer to the false impression that they are some form of sexual or hostile display. The actual preening movements are usually so subtle that they cannot be seen unless the bird is fairly close to the observer. Most flight preening seems "autochthonous", *i.e.*, activated by preening motivation (see Moynihan, 1955: 240), and in no cases that I have seen does it appear to have become ritualized. It is somewhat mimetic, *i.e.*, a preening bird tends to release preening behavior in other birds in the immediate vicinity (see Armstrong, 1951: 46), but it is not as strongly so as regular terrestrial preening.

On many occasions I have observed short preening glides in situations where one might expect displacement activities (see Moynihan, 1955: 241) to occur in the Black Tern, *e.g.*, both preceding and following the change-over at the nest, following a social attack on a predator, and during the period of general excitement in a colony which precedes the "high flight" (see Baggerman *et al.*, 1956: 9). It is common to see a male make abrupt preening movements of the neck, breast or scapulars as he circles above the nest prior to landing and relieving the female of incubating or brooding duties. I am convinced of the "allochthonous" nature of the preening in this case, *i.e.*, the preening is a displacement activity probably caused by the thwarting of the strong incubation or brooding drives of the male by the presence of the female on the nest and her usual reluctance to leave it. (See van Iersel and Bol, 1958: 55 *ff.*, for a possible alternative explanation of displacement).

It would be very interesting to know if flight preening reaches this level of development in any other species. I have spent much time observing the aerial behavior of the Common Tern (*Sterna hirundo*), but have never seen flight preening of any sort. I believe that if it does occur in this species, it must be rare.

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