GENERAL NOTES

Feather Replacement in Cassowaries, *Casuarius*.—Friedmann has recently published a note (Auk, 66: 74–75, 1949) on the unusual replacement of feathers in Penguins, in which the new feather is nearly fully formed before the old one is shed, and the new feather actually pushes out the old one. Stresemann (Handb. der Zool., VII, Aves, 1927: 32) writes that Penguins and Cassowaries agree in feather replacement in the new feathers pushing out the old and bearing them for a time on their tips. This results in a union between the two generations for a time, and in this Penguins and Cassowaries differ from all other birds in which the beginning of the development of the new feather is accompanied by a shedding of the old.

Shortly after I read Friedmann's note, the Chicago Natural History Museum received in the flesh a Cassowary from the Brookfield Zoo, Chicago. The bird, an adult male *Casuarius unappendiculatus* Blyth, was very fat, weighing 85 pounds, and was in the process of general body moult. This gave an opportunity to compare the feather replacement with the described condition in penguins.

In the Cassowary before me I was able to find but a single sprouting feather, which was projecting about 3 millimeters above the surface of the skin, that bore an old feather on its tip as Stresemann described. On the other hand, many emerging new feathers, about 10 millimeters long, were found not bearing old feathers on their tips. This seems to indicate that in the Cassowary, though the new feathers may push out the old, these old feathers quickly drop off.

The moult of Penguins appears to be a sudden thing; the feathers are not cast a few at a time, but over large areas of the body the old feathers lose direct attachment with the body and fall off in large numbers. The loss of masses of shedding feathers from parts of a penguin has been likened to the shedding of a snake skin (Pycraft, Nat. Antarctic Exped., 2: 13, 14, 1907). The condition in the Cassowary, judging by the present specimen and my recollections of many examples handled in the field, is different. The moult is a gradual thing, a few feathers being replaced at a time, scattered over the body of the bird, rather than a sudden complete shedding over considerable areas. There is thus no sudden change in the appearance of the bird.

The subcutaneous development of the Cassowary feather is slight compared with the described condition in the Penguin. In the Penguins the descriptions indicate the new feather is nearly or quite fully developed and closely curled in its follicular sheath in the subcutaneous tissue. In the Cassowary before me the old feathers are inserted about 5 millimeters in the tissue, while the feather follicles containing the growing feathers are inserted about 10 millimeters; the follicle or sheath shows none of the highly polished, smooth, corneous appearance Lowe (Proc. Zool. Soc. London, 1933: 498–502) described for the Penguin. Opening the follicular sheath, there appeared no unusual growth of new feather packed into it; apparently the new feather, that when grown may be up to about 300 millimeters long, pushes out as it is developed.

From the above we can conclude that while the feather replacement of Cassowaries resembles that of Penguins in that the new feather may push out the old, and may bear the old feather on its tip for a time, there are many points of difference: the Cassowary's old feathers are soon shed after being pushed up from the skin; the loss of old feathers is a gradual one over the whole body of the bird; and there is no great subcutaneous development of the new feather prior to its pushing out the old, but the pushing-out occurs as the feather develops.

It may be well to mention here that it is usual for birds' natal down to be pushed out by the first generation of feathers on the tips of which it may be borne for some time and that, as an abnormality, individual feathers have been reported borne on the tips of those of the next generation in the Magpie Pigeon (Jackson, Brit. Birds, 6: 339, 1913), the Knot, *Calidris canutus* (Bonhote, Proc. Zool. Soc. London, 1906: 901), a Chinese Magpie (Kleinschmidt, Journ. für Orn., 1903: 142) and a chick (Kleinschmidt, Journ. für Orn., 1899: 115).—A. L. RAND, *Chicago Natural History Museum, Chicago, Illinois.*

Sun-grebe, *Heliornis fulica*, in Veracruz, Mexico.—Ridgway and Friedmann (Bull. U. S. Nat. Mus., 50 (9): 230, 1941) reported the occurrence of the Sun-grebe, *Heliornis fulica* (Boddaert), in Mexico only from the Río Coatzocoalcos in the extreme southern part of Veracruz. That this species ranges at least 125 miles north of the Río Coatzocoalcos is evidenced by a specimen in the Texas Cooperative Wildlife Collection, taken by David Donaldson at Boca del Río, a short distance south of the city of Vera Cruz. This bird, an adult male weighing 141.6 grams, was encountered July 23, 1941, in the tidal waters of the Río Moreno. The testes were small (non-breeding) in size. Seemingly, this specimen constitutes the second record for Mexico.—WILLIAM B. DAVIS, *Department of Wildlife Management, Texas A. and M. College, College Station, Texas.*

Albatross Feather from Jones Beach, Long Island, New York.—On November 7, 1948, walking along the high water line at Jones Beach, a rather large (14.75 inches) primary feather was noticed. Picked up and passed close to the nostrils it appeared to have the characteristic odor of the Tubinares. It showed no sign of having been in the water. Normally, a "gull" feather with slightly odd odor would be noted with but passing interest. In this instance, however, the odor was so strong and so firmly reminiscent of *Diomedea* that it was forwarded to the American Museum of Natural History for identification.

Dr. R. C. Murphy wrote on November 26, 1948, as follows: "The wing quill from the Long Island shore is beyond any shadow of doubt that of an albatross. While it is very worn, it appears to have been not long moulted. It is definitely not *Phoebetria*, in which the outer vein of the primary feathers is always much narrower. This leaves only the genus *Diomedea* and the section sometimes called Thalassogeron. I doubt whether the quill is positively identifiable as to species. It is, however, relatively small, both in breadth of the whole quill and in the length and diameter of the shaft. In these respects it most closely resembles *Diomedea chlororhynchus* which is the smallest species of this group of albatrosses ever to be recorded from the Atlantic Ocean. Incidentally, this species has yielded more North American records than any of the other possibilities."

A short time later it was learned that a shipment of albatross feathers had recently found their way into the millinery markets of New York. Samples of these feathers were placed at the disposal of the American Museum by the National Association of Audubon Societies and comparison was made with the specimen from Jones Beach. Dr. Murphy wrote as follows on December 2, 1948. "Your beach quill, although very worn, is longer than the longest of the North Pacific primaries. It also lacks the striations on the shaft which all the others show. It agrees in its relative narrowness and emarginate tip with the southern hemisphere 'Thalassogeron' mollymauks. It certainly is not the species of these millinery quills and was, in all probability, a naturally moulted feather."

It is of course possible that this feather found its way to Jones Beach via some vessel from the South Atlantic. The evidence seems to suggest, however, that it