immaculate;. . .wing about 380 mm." The color of the facial disks is not mentioned. Knight in his 'Birds of Maine,' prefers to treat such birds as "extremely pale or faded individuals of the typical Horned Owl," considering the species non-migratory. This course, however, seems hardly justifiable, and to my mind the present additional records of birds identical respectively with the Labrador and the northwest Canadian forms seem sufficient proof that they have come as occasional migrants from these precarious portions of the species' range, driven from their usual year-round haunts by some causes which we have not yet wholly fathomed; but no doubt chiefly through failure of the food supply in their home regions. These constitute the first definite record for Massachusetts of the Labrador Horned Owl, and the second and third records for the Arctic Horned Owl in the same state.

VARIATION IN THE GALAPAGOS ALBATROSS.

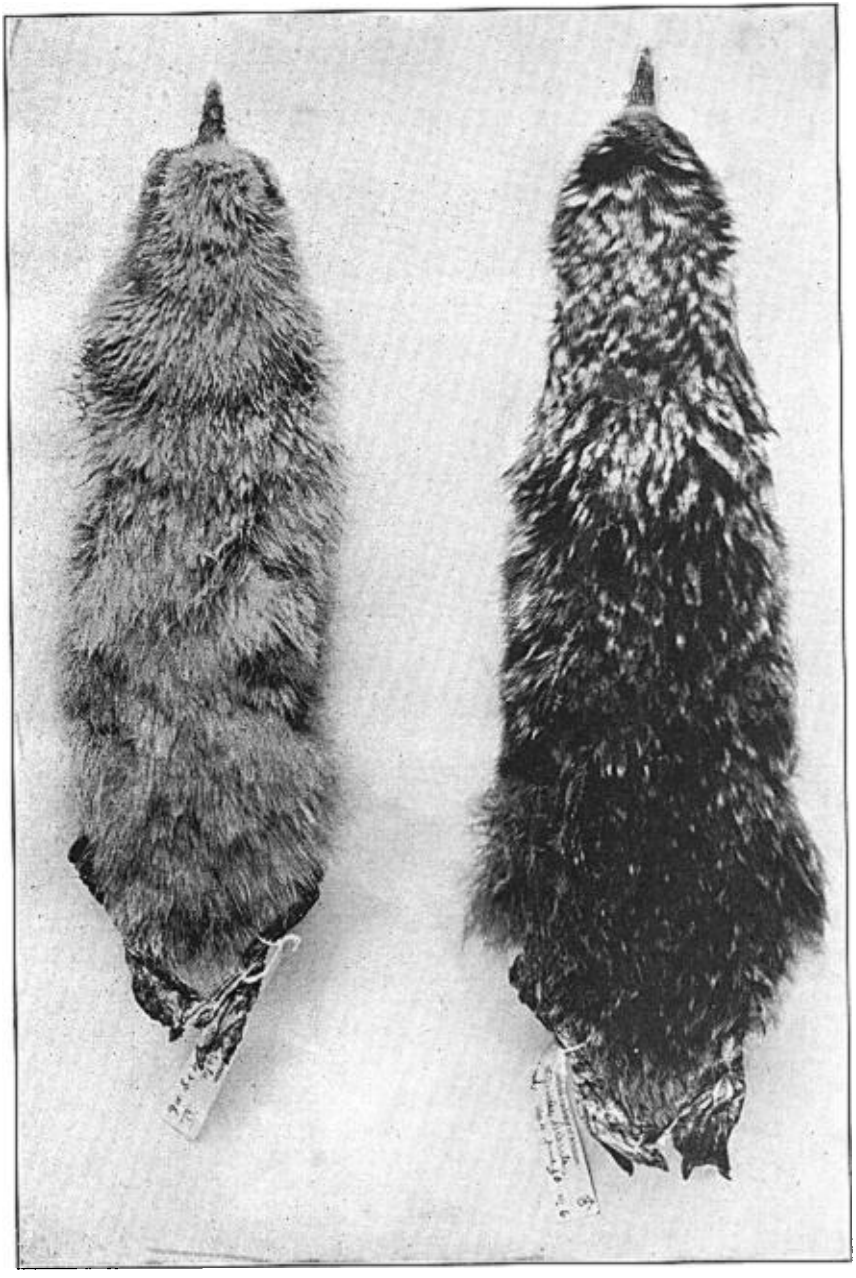
BY LEVERETT MILLS LOOMIS.

Plates XIV–XVI.[1]

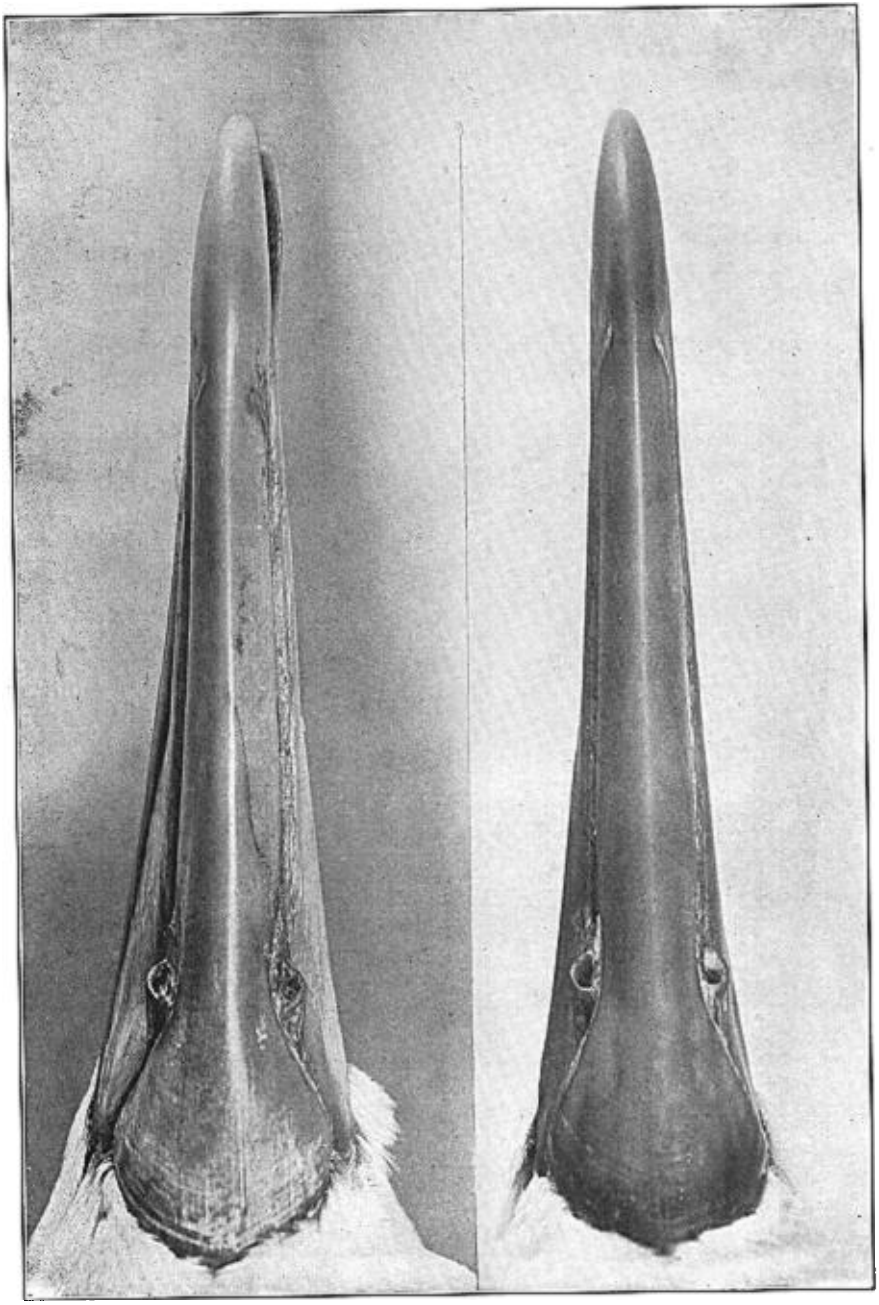
FOR an albatross, the Galapagos Albatross (*Diomedea irrorata*) has a peculiar distribution. It breeds in the Southern Hemisphere within less than two degrees of the equator and, so far as known, only on Hood Island of the Galapagos Archipelago. After reproduction it apparently migrates southward, as far at least as the coast of Peru.

The island isolation of this bird during its breeding season and its large size render it an attractive subject for a study of variation. The most striking differences occur in the coloration of the downy young and in the form of the bill in sexually mature individuals taken at their rookery.

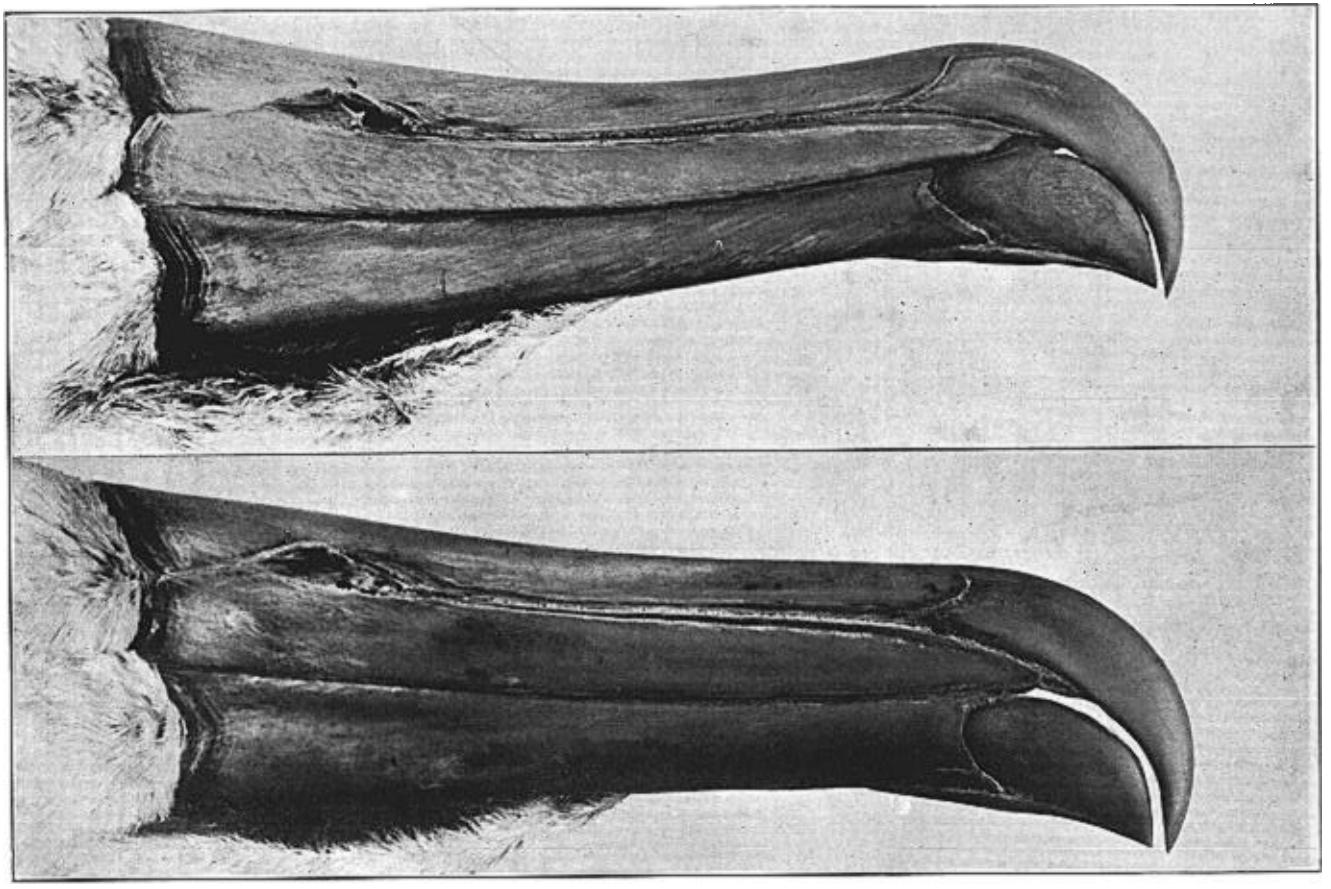
[1] I am under obligations to Mr. Charles B. Barrett and Mr. L. R. Reynolds for the photographs reproduced in these plates. Mr. Reynolds photographed the downy young and the bills showing side aspect and Mr. Barrett enlarged the latter to natural size and photographed the other bills.



DOWNY YOUNG OF DIOMEDEA IRRORATA



DIOMEDEA IRRORATA
Culmen from above (nat. size)



DIOMEDEA IRRORATA. Bills from the side

Independent of age and sex, the downy young have a light phase and a dark phase connected by intermediates, constituting a definite dichromatism. Plate XIV shows the upper surface of the extremes in primary natal down (protoptyles). In the light specimen (1180 C. A. S.) the general aspect was light drab-gray and in the dark one (1185 C. A. S.) dark drab, medially lighter below and varied with dull cream color above, especially anteriorly. It may be, also, that there is a slight dichromatism in the adults, for some nesting individuals are darker than others. It is significant that the only transition nestling (1204 C. A. S.) before me is passing from the dark phase of the natal down into the darker style of the definitive plumage.

To what extent dichromatism prevails among the albatrosses is unknown. Certain of the plumages esteemed to be of specific significance by some systematists I believe to be dichromatic. The whole question of color variation in the albatrosses, and also in the other Tubinares, needs a thorough investigation.

In plates XV and XVI are illustrated the extremes in the general shape of the bill in a series of thirty-three breeding birds obtained on their rookery during eight days ending July 2, 1906. These variations occur independently of sex and, so far as ascertained, of age, the birds being sexually mature. Plate XV exhibits the difference in the width of the bill in two males (1199 and 1221 C. A. S.). In the stouter bill the basal width of the upper mandible is 35.2 mm. and in the slenderer one 31 mm. Plate XVI shows the variation in the concavity of the culmen in two females (1208 and 1225 C. A. S.). The greater concavity measures 6.5 mm. in depth and the lesser 2.5 mm. The latericorn and ramicorn, it will be noticed, also vary in form. Furthermore, the nasal tubes in the entire series of specimens vary; even in the same individuals the tubes may be unlike in shape. In their general dimensions, the specimens differ as follows:[1]

Fourteen males: Wing, 550–593 mm. (572); tail, 142–158 (149); culmen, 146–160 (153.2); basal depth of upper mandible, 30.3–33.6 (31.7); basal width of upper mandible, 31–35.2 (33.4); tarsus, 91–103 (95.3); middle toe and claw, 125–138 (131.6).

[1] I am indebted to Mr. Edward Winslow Gifford for making the measurements here summarized.

Nineteen females: Wing, 535–565 mm. (548); tail, 134–148 (139); culmen, 134.8–148.8 (141.2); basal depth of upper mandible, 29.6–32.6 (30.7); basal width of upper mandible, 30–33.5 (32); tarsus, 88.3–94.4 (91.6); middle toe and claw, 121.4–131.4 (125.2).

The differences recorded in the foregoing paragraphs emphasize the necessity of large series in determining the range of variation in the tubinarine species, and the futility of attributing specific value to similar differences on no better evidence than single specimens.

The future of the dichromatic and structural variations of the Galapagos Albatross is unknown, as is also the future of the island geographic variations of more widely distributed species. It is held, therefore, that any system of classification that attempts to forecast the remote future of such variations is unscientific, and destined to be discarded like the Quinary System that flourished in the time of Swainson.

AUDUBON'S BIBLIOGRAPHY.

BY FRANCIS H. HERRICK.

AT the end of the second volume of 'Audubon the Naturalist'[1] published at the close of 1917, I added a bibliography of 240 titles, selective in respect to biography, criticism and miscellany, but as nearly complete as it was then possible for me to make it in other respects. The most important section was evidently that containing Audubon's principal works, five or, perhaps we should say, seven in number, namely: (1) 'The Birds of America' (4 vols. of plates only, in folio); (2) 'Ornithological Biography' (5 vols. 8vo. of text to No. 1); (3) 'A Synopsis of the Birds of North America' (1 vol.); (4) 'The Birds of America' (7 vols. of revised text and plates of Nos. 1 and 2, in octavo); (5) 'The Vivipar-

[1] 'Audubon the Naturalist: A History of his Life and Time.' In 2 vols. New York, 1917.