FROM FIELD AND STUDY

Egg Sizes of Laysan and Black-footed Albatrosses.—As one phase of a research program on the albatrosses of Midway Island, in October, November, and December, 1958, a study was made of the eggs of these birds. This work was supported by a contract between the Office of Naval Research, Department of the United States Navy, and the Pennsylvania State University, NR 160–464.

The Laysan Albatrosses (*Diomedea immutabilis*) and Black-footed Albatrosses (*Diomedea nigripes*) arrive at Midway in November to mate and nest. Eggs were easily obtained by moving the docile parents from the nests and substituting a deserted egg. The birds immediately started brooding the substitute egg, and measurements of the borrowed egg were made. Some eggs from nests where the parents had accidentally died were also measured. The eggs of the Black-foots were studied on December 3 and 4 and had been incubated for about 3 weeks. The eggs of Laysans were studied from December 8 to 10 and had been incubated about 2 weeks. About 100 females of each species were dissected to study the eggs in the oviduct.

The length of an egg was measured with outside-measuring, wood-working calipers and a ruler. The diameter at the largest part was measured with a pair of long-jaw calipers. Weights were taken with a triple-beam balance. Volumes were measured by a water-displacement method: an egg was placed in a container of known volume and water added until the container was full; the amount of water was then measured and subtracted from the total volume of the container.

The results are given in table 1. Eggs of Black-foots seem to be slightly larger on the whole than eggs of Laysans. This may be a result of the difference in size between the two species, the Black-foots being slightly larger birds. The results correspond favorably with those of Richards (Condor, 11, 1909:122–123) and Bent (U.S. Nat. Mus. Bull. No. 121, 1922), who used relatively few eggs. An exception, however, occurs in the diameters, where the correspondence is only fair. There is considerable variation in size and proportions of the eggs. Some are almost round, whereas others are elongate; some have the greatest diameter close to one end, and others have it almost in the middle.

TABLE 1

MEASUREMENTS AND WEIGHTS OF EGGS OF 20 LAYSAN AND 100 BLACK-FOOTED ALBATROSSES, AND VOLUMES OF EGGS OF 14 LAYSAN AND 50 BLACK-FOOTED ALBATROSSES

	Lengths (mm.)		Diameters (mm.)	
	Mean±S.E.	Range	Mean±S.E.	Range
Laysan	107.6±0.80	101–113	75.0±0.46	71.1–77.9
Black-foots	107.1±0.43	97–121	76.2±0.25	67.6–81.0
	Weights (gm.)		Volumes (cc.)	
	Mean±S.E.	Range	Mean±S.E.	Range
Laysan	278.5±4.8	240.5–326.1	265.1±6.0	234.5–305
Black-foots	291.0±2.3	218.5–334.7	272.3±3.6	196–313

S. E. = Standard error of mean; range = observed range.

The eggs are creamy white with brown spotting. There is a pronounced cap of reddish brown on the larger end of the majority of the eggs. The cap varies greatly in size and shape, as do the spots; some of the eggs are almost entirely white, whereas others are almost all brown. The brown color is due to blood from the oviduct which dries after the egg is laid. At the time when the egg shell is formed in the proximal part of the oviduct, there are no markings. As the egg passes down the oviduct, small hemorrhages almost always occur, and blood comes in contact with the egg. The dark cap at the large end is produced as the egg is laid. Sometimes small pieces of coral sand adhere to the egg as it is laid and become an integral part of the shell, giving it a rough appearance.

Egg laying is an interesting procedure. It is easy to tell when a female is ready to lay an egg; she stands over the nest with her wings drooping at her sides and looks under herself. She dips her tail toward the nest at intervals, accompanying this with squeaks and groans. Suddenly the egg appears in the nest after one of her tail dips. The female stands a moment and then sits down on the egg. Usually shortly afterward, the male replaces the female on the nest and assumes the first responsibility for incubation.—CARL FRINGS, *State College, Pennsylvania, November 15, 1960.*