**The "two-egg clutch" in the Laysan Albatross.**—The recent information of Tickell and Pinder (1966) on two-egg nests of procellariiform birds prompts me to present my data on such nests in the Laysan Albatross, *Diomedea immutabilis*. Tickell and Pinder believe, correctly I think, that a single egg clutch is characteristic of procellariiform birds. However, doubts about the matter tend to linger because detailed studies of banded birds are few, and because the occurrence of two eggs in a nest has been reported for so many of the species belonging to the order (Fisher, 1952; Buller, 1905; Rice and Kenyon, 1962; McCormick, 1884; Marshall and Serventy, 1956; Warham, 1962; Downes *et al.*, 1959; and Richdale, 1952, among others). Most of these workers regarded the two eggs as the products of two different females, but Warham (1962: 153) thought he had evidence of two eggs from the same female. Tickell and Pinder (1966) dispute him, however. And, although Rice and Kenyon (1962: 538) state positively that Laysan and Black-footed albatrosses lay but one egg each year, they cloud the issue by their further statement that the female "apparently" laid a second time in 2 of 95 marked nests. The purpose of this note is to present evidence of the occurrence of two eggs in Laysan Albatross nests and to attempt explanations.

Since 1961 my co-workers and I have recorded daily the observed activities of banded birds and the history of egg deposition in 3,440 numbered nests during the egg-laying season (21 November to 23 December) in a permanently marked study plot on Eastern Island of Midway Atoll. Since 1956 albatrosses nesting in the plot, and their young, have been banded by us or the U. S. Fish and Wildlife Service. (Fewer than 0.5 per cent of the breeding birds appeared without bands in 1965 and 1966.) Individual biographies, including age, mate, breeding dates, nest site, desertions, etc., are maintained for each bird.

From this long-term effort various facts pertinent to the development of our concept of the two-egg nest have emerged. For the sake of brevity these are presented as a series of statements, not supported here by data. (1) Promiscuity, polygamy, and polyandry are unknown in this species. (2) Unpaired females do not lay eggs unless their mates die after copulation. (3) The pair uses the same nest site (within a 3-foot radius) in successive years. (4) Both males and females are prone to move onto and incubate any exposed egg. (5) First-time breeders arrive in the colony later than experienced breeders and usually lay their eggs btween 2 and 10 December, at which time 97 per cent of the eventual total number of eggs to be laid are already in the nests. (6) Females laying for the first time are predisposed to deposit their eggs in the nest scrapes or the already constructed nests of other birds.

Only 31, or less than 1.0 per cent of the 3,440 nests have contained two eggs. Of these instances 26 occurred after 7 December, 2 during the first week of December, and 3 in the last week of November. Of the cases occurring after 7 December, 23 resulted from a second egg being laid by a female not previously recorded as nesting in the plot and, therefore, in all likelihood a young female. At 8 of these nests we knew that both females were breeding for the first time; in 6 the second egg was laid in the nest of a second-time breeder, and in 5 the second egg was deposited in the nests of experienced birds that had deserted.

One of the two instances of two eggs in the first week of December came about when a pair breeding for the second year took over the abandoned egg and nest of an experienced pair and laid an egg. In the second case an unknown female (mated to a young male, however) deposited an egg in the deserted nest of a long-time breeder in the plot.

In late November one example of two eggs involved two pairs known to have

nested in the plot for at least 5 years. The disturbance caused by our work in the colony drove the male of one pair off his egg temporarily; the second pair, whose nest was being started just 4 feet away, immediately abandoned that nest and laid their egg in the nest we had disrupted. The second case concerned an old female and a female in her second year of breeding but mated to an old male; the latter laid her egg in the empty nest scrape of the old female and in her absence. The old bird dispossessed her and laid the second egg. In the third late November occurrence of two eggs an experienced pair and a young pair (the male in his third breeding season and the female in her first) tried to use the same nest after the experienced female abandoned her egg.

In early December, 1963 we removed 50 eggs from beneath marked females on the day the eggs were laid in an area destined to be bulldozed in early January, 1964. Although some of the females remained at the nest for several days, and 75 per cent were recaptured at the nest before the end of December, they laid no second eggs.

One of the two eggs in a nest is usually kicked out within a few days; two eggs do not fit well into the incubation pouches of these albatrosses. Further, a single pair of birds cannot feed two chicks successfully; putting an abandoned chick in a nest with another chick invariably results in the eventual weakening and death of one, and usually of both.

Our records also show that death of one parent during the incubation or feeding period just as invariably leads to the chick's death.

The evidence then points to the biological inappropriateness of a second egg in this species which does not lay a second egg even when the first is destroyed the day it is deposited.

We have observed no instances in which an egg is "built into" a nest and another egg then laid, as Tickell and Pinder (1966) indicate. At times strong winds may blow sand and debris into the bowls of nests and cover abandoned eggs.

Our conclusions are that: 1) two-egg clutches do not occur in the Laysan Albatross; 2) two eggs in a nest are an indication that two females used the nest, although at different times; 3) two eggs occur only when nest desertion or interference has exposed the first egg; and 4) young birds because of their greater proclivity for desertion, less mature instincts for nest-building, and later arrival in the colony are the ones most often responsible.

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HARVEY I. FISHER, *Department of Zoology, Southern Illinois University, Carbondale, Illinois.*

**Head-scratching in wood warblers.**—We have made several observations of head-scratching of warblers in the wild that supplement those of M. M. Nice and W. E. Schantz (*Auk*, 76: 339–342, 1959; *Ibis*, 101: 250–251, 1959) who affixed small pieces of gummed paper to the heads of captured birds to stimulate scratching. These authors summarized data on 10 species of passerines that used both the direct and indirect method of scratching. K. E. L. Simmons (*Ibis*, 103a: 37–49, 1961) suggested that all these birds normally use the indirect method and that the variation which resembled direct scratching was in adult individuals "no more than indirect-scratching carried out abnormally in response to super-normal stimuli" (p. 44). Nice and Schantz's photo of the Slate-colored Junco (*Junco hyemalis*) supports Simmons' contention because during direct scratching this individual lowered the wing as in the indirect method. We observed a Parula Warbler (*Parula americana*) scratch directly without moving its wing and two other individuals of the same species scratch indirectly. This is similar to the findings of Nice and Schantz (*op. cit.*) of one of Wilson's Warbler (*Wilsonia pusilla*) using the direct method and another using only the indirect method, while two others used both methods. Although it is now obvious that both types of scratching occur in certain wood warbler species, further observations under natural conditions are desirable.

We were able to study head-scratching in several other parulids. The Nashville Warbler (*Vermivora ruficapilla*) scratched directly as noted by Nice and Schantz, who also saw this type of scratching in the Tennessee (*V. peregrina*) and the Orange-crowned (*V. celata*) warblers. But in the many observations we made of Blue-winged Warblers (*V. pinus*), Golden-winged Warblers (*V. chrysoptera*), and hybrids of these two, all scratched indirectly; also our 12 captive Myrtle (*Dendroica coronata*) and 3 captive Bay-breasted (*D. castanea*) warblers all scratched indirectly. We did see one Black-and-white Warbler (*Mniotilta varia*) scratch directly several times in the wild.

Variability of head-scratching in a few parulid species should not lead to dismissal of this behavior as a taxonomic character. Such plasticity is obviously exceptional and could be used in itself in assessing relationships. For instance, it supports the placing of *Parula* (some individuals scratch directly, others indirectly) between *Vermivora* (some species scratch directly, others indirectly) and *Dendroica* (all species observed in the wild scratch indirectly). The accepted taxonomy of the Parulidae is based mainly on similarities of feeding adaptations in adults, but observations on such traits as gape color (M. S. Ficken, *Wilson Bull.*, 77: 71–75, 1965) and displays ( M. S. Ficken and R. W. Ficken, *Wilson Bull.*, 77: 363–375, 1965) suggest that some rearrangement may be necessary. Head-scratching method may prove a valuable addition to the set of complex characters that can be used in defining genera.

There is no information on head-scratching in many parulid species and virtually nothing on other New World families. Field observers could rapidly fill this gap in our knowledge. These observations were obtained in the course of a study supported by the National Science Foundation (GB-3226).—MILLICENT S. FICKEN and ROBERT W. FICKEN, *Department of Zoology, University of Maryland, College Park, Maryland. Present address: Department of Zoology, University of Wisconsin–Milwaukee, Milwaukee, Wisconsin.*