

PROLONGED INCUBATION BY LITTLE SHAGS

During the current OSNZ shag census a colony of 60-80 Little Shags (*Phalacrocorax melanoleucos brevirostris*) in Hobson Bay, Auckland, which includes pied, white-throated, and smudgy individuals, was closely watched throughout its breeding season, September 1977 to April 1978. The progress of 56 nests was followed and from 35 of these, young fledged successfully, with an average of just under two per nest. Other nests failed due to wind damage or desertion.

The nests in the outer branches of pohutukawa were visible from below but out of reach, so that hatching and fledging times could be judged only roughly. Pied Shags in the Auckland area have been shown to incubate for 30 days on average (Millener, P.R., 1972, unpubl. M.Sc. thesis. *The biology of the New Zealand Pied Cormorant*. Univ. of Auck.), and it is unlikely that Little Shags require longer. Visits to the colony every few days revealed that if hatching does not occur the pair may prolong incubation considerably. One pair which built during November finally deserted the nest in April. This nest was clearly in view and from 28 November 1977 to 31 March 1978 (123 days), one or other bird was sitting whenever I visited. Both were involved as the individuality though not the sex of the sitter was readily checked, one bird being pied and the other white-throated. The nest was finally deserted probably because of disturbance by close neighbouring birds which had built during January and which by April were feeding a large nestling. The period of 123 days is remarkable, being more than four times the expected incubation.

Another pair, this time both white-throated, deserted on or about 21 March 1978, without obvious reason, after sitting since November for about 100 days. This nest was occupied during all my inspections until 16 March, unoccupied on 18 March, occupied again on 19 March but not on 21 March or subsequently.

A third nest proved particularly interesting in that one of the birds was inclined to sit as if on remaining eggs, during the growth of its one successful chick. Incubation of this nest began on or about 3 February and the small nestling was first seen four weeks later on 5 March. On 18 March the pied adult was sitting closely with the one nestling alongside, but left on the arrival of the partner (a bird of smudgy plumage). This bird spent some time peering into the nest before turning its attention to the chick and feeding it. On 23 March the pied adult was seen to fly in, feed the chick (now aged about three weeks), then settle to incubate whatever the nest still held. The successfully reared young bird left this nest between 3 and 5 April at approximately five weeks, by which stage it had assumed the white breast and yellow bill of the pied form of Little Shag although the head and neck were still covered in dark down. Young of the white-throated form are wholly dark at this stage.

More work on the plumage development of the young birds is planned for the 1978-79 breeding season.

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