

OBSERVATIONS ON INCUBATION AND CHICK REARING IN THE ANTARCTIC SKUA

By GRAEME CAUGHLEY

During an inspection of the Adelie Penguin rookeries at the southern end of the Ross Sea*, it was possible to make incidental observations on the Antarctic Skuas (*Catharacta skua macormicki*) nesting nearby.

In the spring of 1958, the first skua was seen in the area on the 28th of October. Skua eggs were first observed on the outskirts of the Cape Crozier Adelie rookery on the 28th of November. Several of the nests had two eggs, suggesting that egg-laying had begun at least four days previously. There is apparently a wide range in the time of egg-laying as eggs in two nests were seen to be hatching as late as 24th January, 1959, at Beaufort Island. Stonehouse (1956) gives the incubation period of *C. s. lonnbergi* as thirty-two days and as the time is likely to be similar in this sub-species, the extreme dates of egg laying in this area would be separated by more than a month.

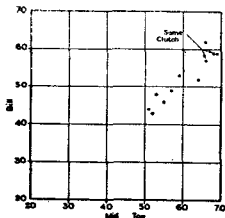


Fig. 1.—Measurements of a random sample of 12 chicks at Beaufort I. on 24/1/59. Measurements are in millimetres.

This staggered egg-laying is reflected in the size range of the chicks. From mid-January it is possible to see them in all stages between newly hatched and having lost their down. At Beaufort Island I measured a random sample of twelve chicks in 24th January, 1959 (see Fig. 1). Although in this sample there is some grouping of the co-ordinates, the newly hatched chick at the bottom of the series does not represent a freak occurrence as three other chicks were seen there at a similar stage of development.

Most predatory birds commence incubating as soon as the first egg is laid (Lack, 1954), and the skua is no exception. Because of this the hatching of the two eggs is asynchronous and one would expect to find two chicks differing slightly in size in each nest. However, it is reported for the Brown Skua, *C. s. lonnbergi* (Murphy, 1936; Stonehouse, 1956) and suggested for the Antarctic Skua (Wilson, 1907) that while two eggs are incubated, only one chick is reared. My own observations support this, for in only one instance did I find a clutch of two chicks. These were between twenty and thirty days old. The only other reference I can find to both chicks of this age being reared is provided by Falla (1937), who records a clutch of two chicks fully three weeks old at Cape Denison.

The question of why the skua should fail to rear both chicks is difficult to answer. Lack (1947) suggests that asynchronous hatching in predatory birds has survival value in terms of the total population as the smaller chick will quickly die if food is in short supply, thereby increasing the chances of the others proportionately.

The nest loses all significance to both the parent and the chicks within twenty-four hours of the second egg hatching, and the chicks seek

* Carried out for D.S.I.R. under instructions from the Dominion Museum

shelter behind any stone or in a hollow (Stonehouse, 1956). It is suggested by Murphy (1936) that after one of the chicks has been fed and the parent has discharged its feeding response, the other chick if not immediately nearby would be regarded as extraneous matter and thus eaten. He thinks that the two chicks produce a conflict between the parental response and the desire to eat. It can be seen that this hypothesis is in conflict with Lack's theory as it is most likely that the larger chick would be first to leave the nest and thus be eaten by one of the parents. Furthermore, the rearing of one chick is not limited to periods of unfavourable conditions but shows every indication of being a constant heritable behaviourism.

Paludan (1951) and Wynne-Edwards (1954) have suggested that mechanisms to reduce breeding potential in sea-birds constitute a density-dependent control on the recruitment rate, but this does not explain infanticide in this case where its extent does not seem to vary with the density of the population. It may be that more detailed work on the life history of this bird in the future will explain this puzzling behaviour.

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OBITUARY — JAMES SHARON WATSON

The death occurred on August 11th of James Sharon Watson, who was a senior scientific officer in the Animal Ecology Section of the Department of Scientific and Industrial Research.

Mr. Watson was born in Oxford, England, and after attending Rugby School, graduated B.A. in Zoology at Christ Church, Oxford, in 1941. During the war, Mr. Watson carried out important studies on the ecology of rats on behalf of the Port of London Health Authority and later undertook similar work in the Middle East.

In 1949, Mr. Watson came to New Zealand to join the Department of Scientific and Industrial Research and undertook work on the ecology of various introduced mammals — especially the rabbit. He had a life long interest in birds, and as an undergraduate, was Secretary of the Oxford Ornithological Society. He joined the Ornithological Society of New Zealand soon after his arrival here, and later published an important paper on the recovery of ringed harriers as well as two short notes on mynas and cuckoos. His main ornithological studies, however, remain unpublished. They include a ten-year study of the distribution and abundance of the two colour phases of the introduced magpie and also important contributions on the inter-relationships between cats, rats and birds on Little Barrier Island. Mr. Watson's colleagues hope to have some of this work published in due course.

Mr. Watson, who was 40, is survived by his wife.

— P.C.B.