



[Photograph by Dr. W. F. Soper

VII. BITTERN SETTLING ON ITS EGGS. For an account of the nest, see pages 50 and 51.



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VIII. BITTERN AND YOUNG. Dr. Soper is to be congratulated on the quality of these outstanding photographs. The N.Z. Bittern is a notoriously difficult subject. Where such great names in N.Z. bird photography as Guthrie-Smith, Stead and Buddle failed, Dr. Soper has succeeded. We believe these are the first photographs obtained of the adult at the nest.

## A BITTERN'S NEST

By M. F. SOPER

The nest was found on 8/12/57 in a small three-quarter-acre patch of rushes and nigger heads about half a mile distant from a large 100-acre raupo lagoon. The nest lagoon was one of four or five similar swampy patches all in the same area; was about mid-thigh deep in water and composed entirely of rushes and niggerheads with an occasional flax bush but no raupo.

The nest was a flat platform four inches above water line moulded into the base of a niggerhead and made of rushes. The four eggs were completely covered from above by the overhanging grass. 8th, 9th, and 11th December — short visits erecting a hide. Four eggs each trip. 13/12/57, final touches to the 'hide' and we watched the mode of return to the nest. The bird had only moved a few feet from the nest when flushed. About seven minutes after our leaving the bird started a slow, careful examination of the hide. This was followed by a complete reconnaissance of the whole lagoon, done with infinite slowness and stealth and lasting an hour and a-half; then again a close look at the hide. Finally back on to the nest.

15/12/57, in the hide. The same careful approach. She makes a bubbling noise rather like blowing air through water with a straw. This noise is made at every approach to the nest and is a sign that her suspicions are allayed. If she is not too sure of things there is complete concentrating silence. The Bittern is like other birds that make a long stealthy approach to the nest — Canada goose and pheasant, for example. Once at the nest it relaxes its vigilance considerably and does not notice noises and movements which would normally cause instant alarm.

On reaching the nest a great foot is placed directly on top of the eggs, very gently. The eggs are then stroked — the only word for it — six or eight times. One gets a vivid mental picture of a blindfold man counting with his fingers. I presume she is making quite sure of their exact position so that they are not trodden on, as, despite binocular vision, the bird apparently does not look where she is putting her feet; it is all done by feel. The eggs are then raked in with the bill before the great brood-patch swings down.

17/12/57 one egg just chipping.

18/12/57 one chick, three eggs.

19/12/57 one chick, 3 eggs, one obviously chipped.

20/12/57 two chicks, 2 eggs.

21/12/57 three chicks, one egg. The bird is now returning much more quickly after flushing. Feeding is by regurgitation, a most refined process when compared with the heaving, struggling, retching, revolting procedure gone through by shags. It is completely silent, done in slow motion and apparently quite effortless. There is a contraction of the throat muscles and then very quietly a shining green frog appears at the gape which is slid slowly down the bill and deposited on the nest. This is followed by a white dull lustre frog, then a more digested frog and finally a putty-like lump, still recognisable as a frog, but only because of what has passed before. This last is picked up by a chick

and, with much gulping, swallowed. The undigested frogs are then picked up and reswallowed by the parent.

22/12/57, four chicks. The biggest are beginning to grasp the parent's beak to induce regurgitation. They make a junior edition of the bubbling noise and when hungry their beaks vibrate with an incessant rapid tremor.

25/12/57. Eldest chick growing rapidly. One reason for the staggered hatchings is now plain. The largest chick is now very demanding, cross-billing with the parent as soon as she appears at the edge of the nest and swallowing the first and undigested frog without difficulty. The next biggest gets the next frog and so on down the line to the putty-like lump for junior. The bigger chicks are now grasping the parent at the gape and following the frog down her bill to catch it at the point.

29/12/57. Parent feeding much more seldom now. Youngest chick weak and looks likely to succumb. Parent bruised and bleeding round the gape and obviously tender as she pulls back when the chicks cross-bill. She is attempting to feed the smallest but the others are too demanding, too strong, and are getting all the food.

1/1/58. Three chicks only. Smallest has died. This was the last visit I was able to make for some time. When I next visited the nest about two weeks later, all three chicks were dead; two lying on the nest, the third on the wooden platform inside the hide. They appeared to have been killed. I am sure the person responsible for this wanton destruction considered the throwing of one inside the hide his master stroke.



## SHORT NOTES

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### PARADISE DRAKE WITH A WHITE HEAD

A male Paradise Duck (*Tadorna variegata*) with a white head has been recorded at intervals since the winter of 1954 in the vicinity of Ball's Clearing Bush Reserve, Puketitiri, Hawkes Bay. This bird has as much white on its head as an ordinary female of the species. From some angles the head appears to be an off-white shade merging to gray at the base of the neck. In other characteristics the plumage is normal, and it is obvious from its behaviour that the bird is a male.

When first seen during the first week of July, 1954, it was accompanied by a normal female; and presumably the same pair were present again on 26/9/56. Then on 16/1/57, the pair with the white-headed drake, appeared with five youngsters estimated to be two or three months old. On 19/7/57 and nearly a year later on 8/7/58, it was seen flying about alone. Finally on 14/8/58, it landed in a paddock near a mated pair of Paradise Ducks, the male of which flew up and chased the white-headed intruder. Later it was sitting on a tree stump, near the pair which continued to show signs of agitation till it flew away alone.

PAM. M. LEWIS