CONTRIBUTIONS TO THE GANNET CENSUS.

III.—HORUHORU GANNETRY (WAIHEKE), OCTOBER 2, 1946.

By C. A. Fleming, Wellington.

Horuhoru (Gannet Island) a little under a mile due north of Thumb Point, Waiheke, is an irregular, steep-sided, narrow ridge some 150 yards long and 40 yards wide, reaching a height of 75 feet. Areas of taupata scrub on the top of the island separate four main groups of nesting gannets, and a fifth group occupies the semi-detached North Stack. Cliffs rising above a rock platform bound the main island except in the centre of the west side; there the island slopes westward from the eastern cliff and allows access to the summit ridge.

This account is the result of about an hour and a half spent on Horuhoru on October 2, 1946, thanks to officers of the Works Department, Auckland, who provided launch transport for Major G. A. Buddle and myself. Owing to the short time available, Major Buddle concentrated on camera work. The sketch plan is based on rough-paced and estimated distances and is not accurate. The count made was of individual nests either with eggs or with freshly-arranged seaweed; actual counts by eye (in most cases at least two of each group) were made except in area F on the central group which was calculated several times from counts along its margins and across it. 52% to 61% of nests in several small samples contained eggs, the mean figure being 55% in over 100 nests.

The North Stack was examined from the main island and from the sea. On the south-west slope 113 gannets were counted, of which 96 appeared to be on nests; on the north-east slope 32 birds appeared to be sitting; a total of about 128 nests.

The Northern Group consists of 52 nests to the west and three separated nests to the east of the north point of the main ridge.

The North Central Group occupies a rounded ridge top and includes 213 nests.
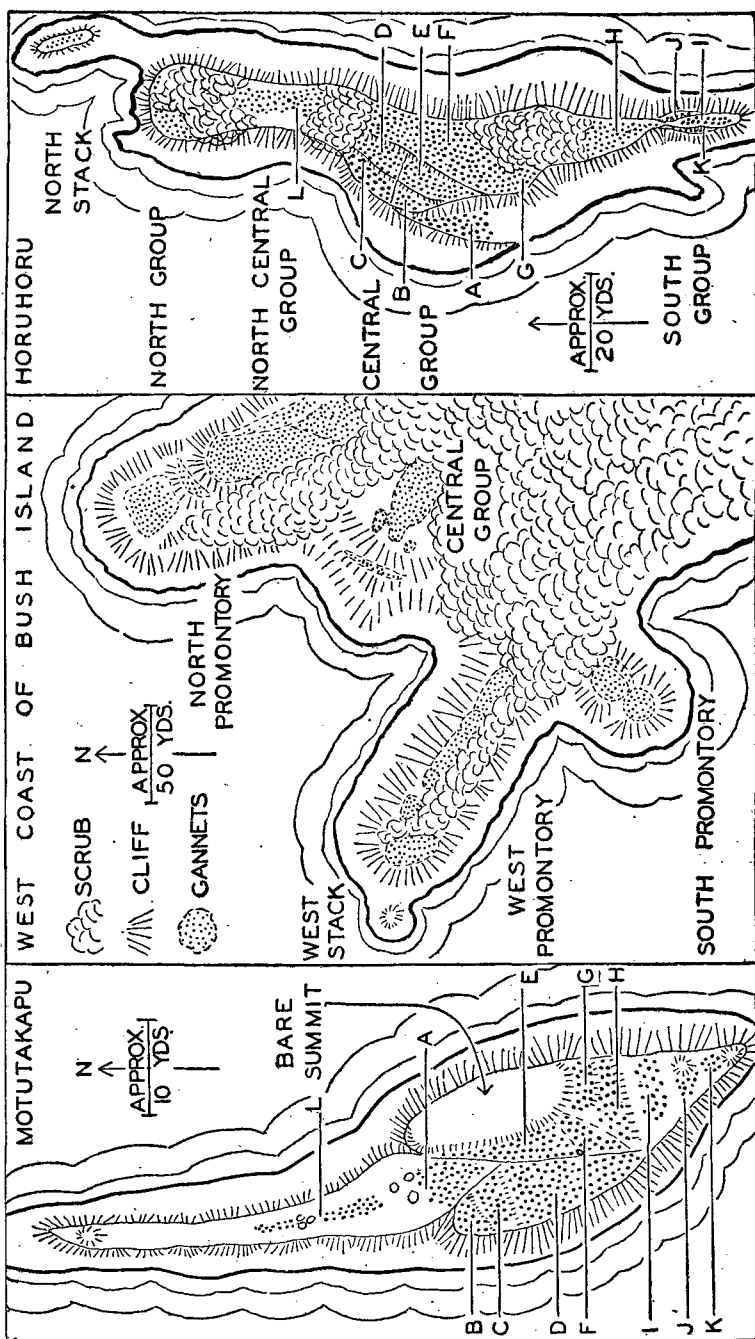
The Central Group of nesting gannets occupies the terraced west slope of the widest part of the island. Seven small areas, defined by steps and joints were counted separately, and gave mean totals of: A, 48; B, 32; C, 45; D, 54; E, 67; G, 43. Area F could not be subdivided and was calculated, the extreme results differing by less than 50 nests, and the median being almost exactly 400 nests. The central group is thus assessed at 689 nests in all.

The South Group, on the narrow southern point, consists of a more northern wider area, H with 66 nests; a narrow ridge-top I, with 29; flanked by narrow ledges J and K, with 17 and 31 nests, a total of 143.

Summary.—

North Stack	......	......	......	......	......	128 Nests
North Group	....:	:......	......	......	......	55
North Central Group	......	......	......	......	......	213
Central Group	......	......	......	......	......	689
South Group	......	......	......	......	......	143
Total nests, equals breeding pairs				......		1228

MOTUTAKAPU   WEST COAST OF BUSH ISLAND   HORUHORU

N ← APPROX. 10 YDS

N ← APPROX. 50 YDS

N ← APPROX. 20 YDS.

SCRUB
CLIFF
GANNETS

BARE SUMMIT

NORTH STACK

NORTH GROUP

NORTH CENTRAL GROUP

CENTRAL GROUP

SOUTH GROUP

NORTH PROMONTORY

WEST STACK

WEST PROMONTORY

CENTRAL GROUP

SOUTH PROMONTORY

General.—The above figures are means of several counts in nearly every case, but the sums of the extreme figures are within about 50 nests of the mean. No predatory animals were seen at the gannetry but a few broken egg shells were on the shore platform beneath the south group. Very few dead gannets were seen; no birds in juvenile plumage were present; no "unemployed" birds were recognised. Where nesting gannets adjoined scrub it was being locally invaded, but elsewhere bare ground, apparently suitable, was unoccupied by nests.

Postscript.—The above account was written before J. M. Cunningham's visit to Horuhoru, on December 1. In view of the big decrease in occupied nests between October 2 and December 1, some elaboration of the criteria for "occupied nests" in the earlier count is desirable. Occupied nests included: (1) Nests with egg, these accounting for over half the nests, and therefore totalling about four times the number of eggs and chicks counted in December; (2) empty nests with newly arranged fresh seaweed or other vegetation (e.g., **Parietaria**), either with or without attendant birds; in October many birds put to sea and there seemed ample birds for such vacated but obviously fresh nests; (3) empty nests, whether newly-lined or not, on which an adult sat in the incubating position when the count was made: most of such nests were, in fact, freshly lined. Old nest sites with neither new nesting material nor attendant bird were excluded from the counts; at Horuhoru there were very few of these on October 2. I believe the high October count at Horuhoru gives the correct order of magnitude of the population unless (a) a pair sometimes build more than one nest, i.e., a "play-nest," in addition to the functional nest site, (b) unoccupied breeding adults habitually sit on non-functional nest sites, or (c) submature birds incapable of breeding, are attached to the colony, building and occupying nests during the earlier part of the season. None of these postulates is supported by what we know of the breeding economy of **Sula**, but since the Australasian gannet moults into adult plumage within about nine months of leaving the colony (see Buller, Birds N.Z., 2nd ed., vol. 2, p. 177 and pp. 179-80, for account of captive bird), submature birds may be present at the gannetries. Tramping and piracy of nest material could easily account for the obliteration of many nests in two months. The 1946-47 gannet census has revealed a low rate of nesting success in most New Zealand gannetries, and discussion of the general problem would be out of place here.

IV.—HORUHORU GANNETRY, DECEMBER 1, 1946.
By J. M. Cunningham, Masterton.

On December 1, 1946, a visit was made to the Horuhoru Gannetry by the writer and P. J. Parr, thanks to the courtesy of Major M. E. Johnson, of Auckland. A visit of 1½ hours had been made earlier in the year, on October 2, by C. A. Fleming, and his results were available on the occasion of the present trip. Though only an hour was spent ashore, it is felt that this brief period detracted in no way from the accuracy of the survey except in the case of North Stack, on which a landing was not made. Owing to the small number of occupied nests, there was no difficulty in counting their number, and the natural divisions of the colony, as shown by Fleming in a sketch map of the island, were well defined and were again used as a basis for subdivision on the present