

his records show that the eggs up to the second or third of a 'clutch' were mostly laid at intervals of 25 - 32 days. The incubation period is 75 days, as recorded by Robson, but may vary in exceptional cases up to 80 days; the first egg generally takes 77 days. Robson found that the chick began feeding as soon as it left the nest, and returned to the nest while the remaining eggs were being incubated.

In addition to the nest described above, G.C.W. has a record of another kiwi's nest which was found on the adjacent farm in January-February 1952. This nest, unfortunately destroyed by fire, also contained two eggs; one was infertile and the other contained a well-grown chick.

On 21 January 1955 the Auckland Museum received another record from Mr P. A. Laurent, of the neighbouring town of Kaeo. Mr Laurent wrote that a kiwi's nest had been destroyed by a bulldozer engaged in the construction of a new road cutting, at Tauranga Bay, about a mile south of the Whangaroa Harbour entrance, in the same district. The sitting bird was found dead under a fall of earth, and was sent to the Museum by Mr Laurent. There were two eggs in the nest, one of which had been broken, and the other (weight 14 oz, containing a well-developed chick) was also sent to the Museum. The locality is in open country with bracken fern, and some scrub and bush. Mr Laurent also mentioned that a live kiwi was found in January 1954 in this area: it was in a hollow log which had been moved when constructing a road through scrub.

## NOTES ON THE HEN AND CHICKENS ISLANDS

By B. S. CHAMBERS, S. CHAMBERS, and R. B. SIBSON

Through the courtesy of the Commissioner of Crown Lands, Auckland, members of the King's College Bird Club spent a week, 15-22 December, on Big Chicken Island in 1953, and six days, 15-21 December, on Hen Island in 1954. On both trips the skilled seamanship of Mr Norman Warren (skipper of the *Gunner*) saw us safely to and from these islands. One of the advantages of sailing from Leigh is that one is soon in waters which are the feeding ground of countless petrels and shearwaters, of which no less than twelve species breed on the outer islands of the Hauraki Gulf. Within the triangle formed by Leigh, Little Barrier and Hen Island, one should see on any day in the summer at least six species, and with luck as many as ten of the local breeding species may be logged. The two defaulters are the far-ranging Black and Grey-faced Petrels, whose oceanic beat is away to the north and east. To the watcher of birds there is something particularly satisfying in the flight of petrels at sea. He cannot have too much practice at identifying even the commoner species under the varying conditions of calm and storm, and at studying the characteristics of shape, flight and plumage pattern.

There are in the Chickens group five islands of some size, strung out in a line which runs roughly east and west. The Big Chicken, or Western Chicken as it is sometimes mistakenly called, is in the middle. To the west are the two smallest islands, on which we had no opportunity to land. To the east, separated by a narrow channel, is the Middle Chicken. It rises a little higher than the Big Chicken; and from what was seen on one brief visit, its sturdy unspoilt forest would be a suitable home for Saddlebacks, if further experiments at distributing this rare and beautiful bird are contemplated. The line of islands ends with the Eastern Chicken, on the outermost tip of which a light has been placed. This has necessitated the cutting of some bush, but for the most part the island is untouched by man. During a brief reconnaissance thirteen species of land birds were seen.

The Big Chicken, with an area of some 340 acres, rises steeply on all sides except part of the west, where a pleasant sandy beach is backed by a gently rising valley, deep in flax and rather surprisingly sporting an alien

willow tree. The northern coast is an almost unbroken line of cliffs. From the main ridge, 500-600 feet above sea level, deep gullies fall abruptly away to the south and east coasts. Although big old trees, puriri, kohekohe and pohutukawa, survive in the gullies, much of the island is now covered with the saplings of second-growth forest. Beneath this on all suitable sites are the traces of past Maori occupation. The Maoris have moved out, but petrels and shearwaters have moved in and have riddled with their burrows the trenches and terraces of former pas.

Despite the steep slopes it is not difficult to move about the Big Chicken, except where there is short windswept scrub. Beneath the canopy of the trees the ground is generally clear and there are few climbers or epiphytic plants to impede progress. This being so, we were continually finding tuataras, the numbers of which were remarkable.

Although we had with us a big dinghy and an outboard engine, rough weather prevented our making much use of them. On only one day was it safe to cross to some of the other Chickens; and even then a rising wind cut short our stay on the Middle Chicken before we had time to penetrate the bush.

Brief descriptions of Hen Island have been given by Turbott (1940) and Sibson (1949). Here our previous experience stood us in good stead and much more of the island was covered by exploring parties than in 1949. The northern gullies received their meed of attention and produced the only Yellow-crowned Parrakeets which were recorded. Eastwards along the main axis of the island a hill-top pa with a most interesting well-made defensive wall was reached; and D.A.U. went considerably further. Calm weather permitted frequent use of the dinghy. One trio during a circumnavigation of the island was able to drift among Fairy Prions and D.A.U. obtained some unusual photographs.

Besides the writers the following took part in one or both of these expeditions:

Dr O. F. Lamb, D. A. Urquhart, S. C. Rutherford, V. M. Rutherford, D. P. Eyre, D. Monteith, R. S. F. Lamb, M. B. Gill, G. E. Thomas, P. W. Wilson, S. J. Murray, D. A. Trenwith, P. J. P. Georgetti, D. R. N. Jones, W. H. Robertson, R. J. Sutton, D. J. Withers, D. J. Woodhams.

## SPECIES LIST

*Blue Penguin.* At this season some eggs are still unhatched, but most nests contain downy young.

*Fairy Prion.* On 15/12/53 these were quite numerous to the east of Hen I. and some were seen in the passage between Hen I. and the Chickens. They are known to breed on the Poor Knights, and according to the checklist they also breed on the Chickens. We were unable to find any evidence of breeding on the Big Chicken.

On 15/12/54 there were more than 250 near Sail Rock, where the calm surface of the sea was ruffled by small shoaling fish. Most of the prions were sitting on the water and as they fed they half-raised their wings and with head and neck thrust forward along the surface, they paddled forward. A few Diving Petrels, Fluttering Shearwaters, White-fronted Terns and about 30 Red-billed Gulls were also attracted, but the prions dominated the scene.

*Flesh-footed Shearwater.* Plentiful at sea from C. Rodney to the Chickens. There is a breeding population probably of some hundreds of pairs, on the Big Chickens, the burrows generally being situated on slopes with direct access to the sea. Eggs in mid-December were hardly soiled. Twenty-seven adults were ringed. On Hen I. only one *carneipes* was found in a burrow. None was seen gathering offshore at dusk and the small colony found in 1948 was deserted by this species, though *griseus* was still using it. An ominously large number of the burrows was occupied by penguins.

*Buller's Shearwater.* At sea in the Hauraki Gulf its numbers rival, if they do not surpass, those of the Fluttering Shearwater.

*Sooty Shearwater.* This species is not easily seen at sea in the Hauraki Gulf. Odd birds were noted east of Hen I. on 15/12/53 and off C. Rodney on 22/12/53. Although the Big Chicken is not listed as a breeding place in the checklist, Sooty Shearwaters are now breeding there in such numbers as to suggest that this may well be one of the biggest colonies in the north. Twenty-eight adults were ringed. On Hen I. the numbers are still small. Only two were found in burrows.

*Fluttering Shearwater.* We found no evidence of breeding on the Big Chicken. On Hen I. the distinctive calls of incoming 'flutterers' indicated that many were visiting burrows, but as in 1948 we found it difficult to locate an occupied burrow, though we searched both high and low. Eventually a half-grown chick in down was found in a burrow only about 120 feet a.s.l.

*Allied Shearwater.* It is doubtful if the numbers of this winter-breeder on Hen I. are very large. We had a few unsatisfactory glimpses of what appeared to be this species at sea.

*Gray-faced Petrel.* The burrows of this species occur almost anywhere and it nests inland in gullies more readily than either *griseus* or *carneipes*. In mid-December there are still many young in the burrows, some ready to leave, others still retaining much down. Fourteen were ringed on the Big Chicken and eight on Hen I.

*Pycroft's Petrel.* Several were seen at sea to the east of Hen I. on 15/12/53, in a 'swirl' which included eight species of *tubinares*. On the Big Chicken the calls of incoming birds were heard every evening, beginning about 8.30, but the breeding population would not be large. Only three occupied burrows could be found. In one of these the single egg (48.5 x 34.3 m.m.) was being brooded by different birds on two successive days. The remains of two dead *pycrofti* were found. Judging by the incoming calls, there are many more *pycrofti* on Hen I., but, even so, we were able to find only three occupied burrows. It may be rash to try to estimate the population, but we doubt whether on the Hen and Chickens there are more than a few hundred pairs of these exquisite petrels.

*Cook's Petrel.* A few seen off C. Rodney on 15/12/54. Their normal beat lies normally well to the east of the Leigh - Hen I. run.

*White-faced Storm-petrel.* Some may usually be seen in summer between C. Rodney and Sail Rock, where they may breed.

*Diving Petrel.* A few seen at sea near Sail Rock and east of Hen I.

*Gannet.* These typical birds of the Hauraki Gulf can be quite scarce between Leigh and Hen I.; e.g. only four were seen on one trip and three on another. A few may usually be seen along the coasts of the Hen and Chickens or in the intervening strait, where one line of six birds was noted.

*Pied Shag.* On the Middle Chicken there was a colony of twelve nests. They were in windswept 6ft ngaio, on a not very steep slope which faced south-west. Beneath the colony a woody, white-flowered exotic mallow (*Lavatera*) was growing lustily. The colony in Old Woman Cove on Hen I. contained 33 nests. This colony is typical, the nests being in pohutukawas which are growing out from a cliff and overhang the water. It also faces south-west. On the Middle Chicken one had the unique experience of being able to walk around on terra firma among the nests of Pied Shags.

*White-throated Shag.* Odd birds were seen at the Chickens and on Hen I.

*Harrier.* A pair had a nest with two eggs on a high ridge which overlooked

the north coast of the Big Chicken. They often harried the terns which were breeding below. An old nest was found on the Eastern Chicken. On Hen I. one or two birds were seen daily.

*Black-backed Gull.* These are scarce on the outer islands of the Hauraki Gulf. There may be three pairs on the Chickens and the three pairs on Hen I. are widely scattered. Evidently it is not so easy for these gulls to eke out an existence, where they are not parasitic on man.

*Red-billed Gull.* Small flocks come as visitors, presumably from the great colony on Mokohinau, or attach themselves to passing fishing boats. After mid-December birds of the year in mottled plumage begin to appear; e.g. one at the Big Chicken on 22/12/53, one at Hen I. on 17/12/54, and three on 21/12/54.

*Caspian Tern.* Single birds were occasionally seen both on the Big Chicken and on Hen I. They are probably non-breeding youngsters. One in Old Woman Cove had the mottled crown of immaturity.

*White-fronted Tern.* Compared with the large colonies on the mainland and inshore islands, the colonies on the outer islands are tiny. On the Big Chicken 10-12 pairs, much teased by Harriers, were attempting to breed on a rock below the northern cliffs. On Hen I. eight pairs were nesting on a rock below the light. On 16/12/54 six nests held a single egg each and two nests each a newly hatched chick. This colony did not exist in 1948. These terns appear to have a very tenuous hold on the outer islands.

*Pigeon.* Plentiful on Hen I. and the three biggest Chickens.

*Kaka.* On the Big Chicken there were four or five pairs. From one nest which contained two young, a dead youngster had been evicted. Kakas were seen on the Middle Chicken. On Hen I. they force themselves on one's attention, but the nest is not easily found.

*Red-fronted Parrakeet.* Plentiful on the Big Chicken, favouring the northern cliffs at this season. On Hen I. parrakeets were scarce in the high country, but were numerous as in 1948 round the coast where there was a profuse harvest of flaxpods. No occupied nests could be found. A parrakeet seen on Sail Rock was presumably of this species.

*Yellow-crowned Parrakeet.* It is satisfactory to be able to report that this species survives on the Big Chicken, where birds were seen in three localities. On Hen I. it was reported from one of the northern gullies.

*Shining Cuckoo.* Calls were heard daily on the Big Chicken. The 'tsiu' note was being made repeatedly by a bird on the Eastern Chicken. Calls were widespread on Hen I., indicating perhaps three or four singers.

*Morepork.* These were remarkably common on the Big Chicken. Seven nests were found, one containing two eggs, the others one or two young. The main food of the young seemed to be the so-called Native Rat (*R. exulans*), which was abundant. Remains of wetas but no bird feathers were found in the nests. On Hen I. we gained the impression that the population of moreporks, although they were common enough, was not as dense as on the Big Chicken, and that rats were fewer. The one nest found contained two young and a partly eaten 6" gecko (*Hoplodactylus* sp.). A pair of Saddlebacks was noisily mobbing one of the parent moreporks as it perched in full view.

*Kingfisher.* Not very common on the outer islands of the Hauraki Gulf. Two pairs were found on the Big Chicken. One of these had three eggs in a hole in a tree in a shady gully. Kingfishers may compete with parrakeets for suitable nesting holes. A kingfisher was seen on the Eastern Chicken. On Hen I. kingfishers were noted in only two localities. None was recorded during a close inshore circumnavigation of the island.

*Fantail*. Fairly common in the second-growth of the summit flat and ridges, but curiously scarce lower down on the Big Chicken. Two nests found were in *Coprosma robusta* and *C. rhamnoides*. The abundance of Moreporks among the bigger trees of the gullies where they nested may be the reason for the puzzling distribution of the fantails on this island. On Hen I. fantails were numerous throughout.

*Pied Tit*. Judging from singing males we estimated that on the Big Chicken there were at least five and perhaps seven pairs. They were elusive and tended to keep to the tops of the trees. No nests were found or family parties seen. On Hen I. Pied Tits were having a successful breeding season. Several broods of two or three young were seen on the wing. One nest was in rather an interesting position. It was placed in a small cup-shaped hollow on the perpendicular face of a grey lichen-covered boulder. For most of the day the nest was shaded from the direct sun. The nest contained three young and an egg on 20/12/54. D.A.U. built a hide and spent some hours watching and photographing. He reported that the female did all the brooding, both male and female fed the young, the male sometimes fed the female on the nest, both parents cleaned the nest.

*Grey Warbler*. Like the Fantails, these were mostly in the high country on the Big Chicken. Two very conspicuous nests were found, one in a small thin mapou, the other in a straggling hange-hange, only eight feet from a morepork's nest. As in 1948, there was little song at this season on Hen I., but diligent searching revealed that they were generally, if thinly, distributed. Three were singing on the lighthouse end of the Eastern Chicken.

*Pipit*. There is little pipit country on these islands and the few pairs are confined to the coasts, usually where bare earth is exposed above the cliffs.

*Bellbird*. Although the bellbird is abundant on the Hen and Chickens, not a single occupied nest could be found and the breeding season was evidently over. The dawn chorus was poor, and there was little singing by day. The best song was heard in the evenings.

*Tui*. On the Big Chicken tuis seemed to outnumber bellbirds. One nest contained four abnormal unspotted eggs, but they hatched safely. One interesting nest on Hen I. was tucked into the heart of a nikau only three feet above the ground. The sitting tui was remarkably well concealed.

*Silver-eye*. There were a few on the higher parts of the Big Chicken and on the Eastern Chicken. As in 1948 they were scarce on Hen I.

*Saddleback*. Some three years before our visit some saddlebacks were transferred from Hen I. to the Big Chicken under the direction of the Department of Internal Affairs. These introduced birds may be holding their own. A pair frequented the gully where our camp was pitched, and appeared to be breeding. During the hours of daylight their resonant calls were usually audible. Calls were also heard in another gully towards the south-west. On one occasion a bellbird was heard trying to imitate the calls of the saddleback, but it was unable to achieve their piercing, metallic quality. It occurred to us that the abundance of the morepork might be a deterrent to the spread of the saddleback on the Big Chicken. On Hen I. the saddleback is so abundant that it is difficult to conceive that the island could support more. During our stay it was the dominant singer and could be heard even among the stubborn scrub of the exposed eastern cliffs. No attempt at syllabification can do justice to the variety of its calls and any future expedition to Hen I. should go equipped with a tape recorder. No nests were found. The feeding of what appeared to be full-grown youngsters, hardly to be distinguished from their parents, was observed twice.

## INTRODUCED BIRDS

*Song Thrush.* These outer islands do not suit the Song Thrush, which was not identified for certain on the Big Chicken in 1953 nor on Hen I. in 1954, although it was recorded there in 1948.

*Blackbird.* The Blackbird appears to be a more thrustful colonizer than the Song Thrush. On the Big Chicken seven males were noted as singing and another was heard on the Eastern Chicken. On Hen I. Blackbirds were not so easily found, only four singing males being located. A nest which contained four eggs was found.

*Dunnock.* Singing males were heard in four separate places on the Big Chicken. On Hen I. the Dunnock was recorded in 1948, but in 1954 its presence, though suspected, was not proved.

*Chaffinch.* At least five singing males were noted on the Big Chicken. Somewhat anomalously this species could not be found on Hen I. either in 1948 or in 1954, despite diligent searching.

*Starling.* A few pairs about the cliffs and one flock of about eighty birds on the Chickens. Rather scarce on Hen I.

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## BROWN BOOBY IN THE HAURAKI GULF

By P. A. S. STEIN

Gannets and boobies are very like each other in general form. The main differences are minor ones; the extent of feathering on the throat, and the nature of the surface of the front toes. The booby's beak runs back into a naked light-coloured area, from which the eyes stare out as through a mask, and the skin of the feet has no suggestion of scales on its surface. Of much more importance to us is the fact that while the gannet breeds in temperate climates, the booby is essentially a bird of the tropics.

In Australia both Blue-faced and Brown Boobies breed on islands of the Great Barrier Reef. In the Capricorn Group, there are large rookeries at Hoskyn and at Fairfax Island. G. F. Hooley wrote in January 1955 about a ringed bird that he had picked up on Curtis Island (23° S). It was a stranger to him, but the ring number, 17006, told us that it was a year-old gannet. In comparing it with the local 'gannets' he said:

'It was slightly larger than our Brown Boobies which are very common at Curtis Island. There are hundreds breeding on North West Island, about sixty miles north of us, and indeed on most of the Reef islands.'

In February, writing from Port Stephens (34° S) about a two-year-old gannet chick, No. 15601, A. F. D'Ombraïn said:

'They have been very scarce for four years, but during the last year they have appeared again in greater numbers. Last summer I photographed a Brown Gannet which was sitting on the floating limb of a tree. It is the first record I have made of the Brown Gannet in these waters, as I think it is mostly an inhabitant of the north-east part of the coast and the Barrier Reef.'