

Observations on the Mutton-birds of Phillip Island, Victoria

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On Phillip Island Mutton-birds, or Short-tailed Petrels (*Puffinus tenuirostris*) generally begin to arrive about November 20, for the purpose of laying, although the full flight does not take place until the 26th, and it is at its maximum from that date until November 30th. The first birds arrive at their nesting-places just after sundown. The actual time of arrival at the most outstanding place on the island, *viz.*, Cape Woolamai, being about 7.45 p.m., on November 30th, but as the days lengthen the time of arrival gets a little later. The birds continue to arrive until about 9 p.m. At first the flight is silent, but after about a quarter of an hour occasional calls are heard both from the birds overhead and from those in the burrows. Gradually the calling increases in volume until in half an hour's time the whole rookery is in quite a turmoil of screeches, calls and cooings. This gradually quietens down, although the volume of sound may rise again at intervals during the night. A number of the birds seem to sit about on the surface of the ground all night, scarcely moving at all, while some walk around quietly and slowly. All the burrows seem to be occupied. Many of the birds in the burrows make much effort to clear out the loose sand, but practically no attempt is made by the birds on the surface to commence new burrows. Some few birds, which apparently cannot find unoccupied burrows, investigate a few holes, but, finding them occupied, sit quietly on the ground. Most of these birds sitting about on the ground were found on examination to contain eggs. Owing to the fact that the drifting of loose sand on all the rookeries is now serious (during 1923 the blown sand covered up two or three of the large rookeries and is gradually extending across the Cape itself), many birds which last year had burrows in these areas are now without homes. The birds make little or no effort to clear out the burrows which are covered with loose sand, probably realising that it would not be safe to do so.

The departure of the birds begins at the first sign of dawn. They are not then nearly so noisy as at the time of arrival, although in every burrow birds can be heard chattering and cooing. On leaving the burrows the birds make straight for a clear place to take off, preferring if available a steep sand-blow or a cliff. A few vigorous flaps of the wings are given, and the bird then rises with a slight jump. It is quite possible, however, and not at all an infrequent practice, for the birds to take off from a clear flat area. It seems desirable for the bird to have a take-off ground as clear as possible to get its run, just as an aeroplane

requires a clear area in which to gather speed before rising. Any obstruction such as grass or other growth seems to prevent the birds from leaving the ground.

EXPERIMENTS REGARDING THE RETURN OF BIRDS DURING THE SEASONS 1920—1923.

Sixteen burrows were selected and numbered in 1920, and the adult birds found therein were banded. In 1920 coloured celluloid rings were used, but in 1921, 1922, and 1923, soft metal rings with a number stamped thereon were utilised. As a result of these markings, it has been proved that many of the Mutton-birds return to the same burrow, or adjacent ones on the same rookery, in some cases with an unmarked mate, but sometimes the same pair will return to the same hole. In 1920 sixteen birds in twelve burrows were marked with celluloid rings. In 1921 four of these burrows were not used by the birds. Amongst ten birds examined from the remaining burrows, it was found that six had returned to their old burrows; in one case a pair of marked birds was found in the burrow used the previous year. In 1922 four marked birds returned, two of these being an original marked pair, while another pair marked in 1920 was found in an adjoining burrow. In 1923 four marked birds again returned to the same burrows, while the pair in the adjoining burrow also came back. Another marked bird was found in a neighbouring burrow. Summarised, the results from the 1920 markings show that, over a period of three years, ten out of sixteen birds returned to their old holes, while one returned to a burrow near its original hole. Two original birds marked in 1920 returned to their old home. In 1921, twenty-two birds were marked with metal rings in twelve burrows. In 1922, eight of these returned to their original holes, and one was found in an adjoining burrow. Two of the returned birds were an original pair. In 1923 seven birds returned, two being an original pair, and four others were found in adjoining holes. Summarised, the 1921 markings show in two years a total return of ten birds out of 22 to their original holes and five to adjoining holes. Two original pairs of birds returned, one pair for two consecutive years.

Out of 44 birds marked, 22 have been shown to return to their original holes in the different seasons and six others have been found in adjoining holes. No search was made for the marked birds in holes any distance away. As the rookery where the selected holes were situated is approximately 400 ft. square, and contains some 500 holes closely packed, it is remarkable that such a percentage of the birds should return to their original holes. It would seem, therefore, that once a bird has laid its egg in a particular rookery, it does its best to return to that same rookery every year.

An instance of the homing instinct of the birds may be quoted. Across a pathway leading to the camp of the observer was

apparently a rabbit warren, one entrance to which was in the middle of the path. This hole was filled in with sand and trampled hard. One evening a bird was noticed to run on to this patch of sand and walk around slowly, apparently looking for something. It passed several burrows, but made no attempt to enter. On returning to the sand patch it sat for a minute or two, and then went off again on a short tour of exploration. This procedure was repeated about five times. Finally the bird returned, and began to scratch on the site of the old burrow. The next morning the burrow was open and was occupied during the season by this bird and its mate.

OBSERVATIONS ON THE QUESTION AS TO WHETHER THE MUTTON-BIRD LAYS AGAIN IF ITS EGG IS TAKEN.

The opinion is held widely amongst the Mutton-bird "eggers" frequenting the rookeries on Phillip Island that when the Mutton-bird is robbed of its egg it lays again. This belief has its foundation in the fact that in working a certain portion of a rookery "eggers" get fresh eggs every day, and they naturally assume that this is due to the fact that the birds lay again after being robbed. Careful investigation seems to point to the fact that while fresh eggs are certainly taken each day, they are not obtained from the same burrows, except on odd occasions. It is not every burrow that will yield an egg, but on most of the rookeries the burrows are packed so closely together that an "egger" working a comparatively small area every morning during the season will soon accumulate a fair number of eggs. Then again, the fact that such a large number of young birds reach maturity, although the burrows have been robbed every morning for a week during the egging season would seem to show that the birds lay again. The third ground for the belief that they lay again is the number of immature eggs found in a mature bird, but this seems to be a feature of all mature birds no matter of what species. To test the question as to whether the birds, if robbed, lay a second time in one season, sixteen burrows were selected and marked. In 1920 the eggs were taken from six burrows as they were laid, between November 23rd and December 3rd, and the birds were marked with rings on their legs. In only one burrow was a second egg found, and in this instance two strange birds were with the egg.

In 1921 a similar procedure was followed and the burrows were kept under observation until January 16th, 1922. In one hole two strange birds and an egg were found. In another a strange bird and an egg were found on December 15th. A marked bird, No. 82, and a new egg were found on December 21st, but the hole was deserted eight days later. This bird (No. 82) had been robbed on November 29th, but it is possible that the egg found with it was laid by a strange bird, owing to the

fact that the mate, No. 110, was never found subsequently in the hole, although this was examined at frequent intervals, and also owing to the fact that the bird (No. 82) deserted the egg only eight days after it was found with it. In another burrow two birds (Nos. 75 and 119) were robbed of their egg on November 20th, 1921, but were found on December 15th with a new egg, which they continued to incubate alternatively and continuously until January 16th, when observations were relinquished. In this case it is quite possible that the egg was laid by a strange bird and adopted by this pair. It has been proved by experiment that the birds will adopt a strange egg if such is placed in the hole soon after they have been robbed. This is the only instance during four years of observation in which the two original birds were found with a second egg.

In 1922 the rookeries were not visited until late in the laying season. In burrow No. 1, which was robbed on December 1st, 1922, sixteen days later a strange bird and an egg were found. A further inspection of the burrows on December 26th showed that there were no fresh eggs. During December of 1922, fifteen other burrows were marked and the eggs taken from under the birds, but the birds were not branded with rings, as in the other cases. The eggs were all removed prior to December 4th, and the nests were not again inspected until December 26th, when no fresh eggs were found.

Summarised the results of the four years' observations are:— In 1920, in one burrow out of twelve a second egg was found; in 1921, three out of twelve; in 1922, two out of sixteen; and in 1923, none out of thirty-one; or a total of six out of seventy-one during the four seasons. In none of the six cases, however, was it conclusively proved that the original pair of birds owned the second egg.

PERIODS OF SITTING BY PARENT BIRDS.

In order to ascertain whether both parent birds sat on the egg, a burrow was selected and marked on December 6th, 1923. It was found that one parent sat until December 11th; the other until the 25th; then the first again until January 7th; the second again until January 19th, when the egg hatched, and the birds left the young one during the day. Of course during the night both birds came back to the burrow and fed the young one. It would thus appear that each bird sits for about a fortnight, when it is relieved by its mate, which takes its turn for a fortnight. In cases where the egg is taken, the birds continued to inhabit the burrow for a few days, both night and day, after which they came back only at night for a short period, and then finally deserted the rookery.

CONCLUSIONS.

As the result of observations and experiments carried out during the past four years, there seems to be fairly conclusive

evidence that the Mutton-bird, in contradistinction to most other birds, lays only one egg in the season. This may be accounted for by the fact that the egg is such a large one, and quite disproportionate to the size of the bird. There also seems to be fairly conclusive evidence that the birds return to the same rookeries and holes each year for laying purposes. These are facts of great interest and importance in the conservation of these birds, and will have an important bearing on the regulations framed under the Game Acts for their conservation and protection.

A Spring Excursion into South-western Queensland

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Part II.

We resumed our journey towards Adavale, the thick scrub giving place to more open forest, and then to open scrub, with much herbage and many wild flowers. We stopped for lunch in quite a garden, and added many plants to our portfolios. Amongst these were a new *Prostanthera*, and a very beautiful *Trichinum*. Birds were mostly Yellow-throated Miners, which species had replaced the Noisy Miner since we crossed the Paroo-Bulloo watershed. Singing Honeyeaters were again in evidence, and Spiny-cheeked Honeyeaters were here as elsewhere; they had been with us all through.

Nearing Adavale the country became more open, with larger timber, mostly Yapunyah, Bimble-box and *E. Thozetiana*, which finds its western limit here. We crossed the Blackwater Creek, which was running from bore-water, before entering Adavale—a small hamlet on a bare open space. Leaving the town we had seven miles to go over a bare open common before crossing the Bulloo main channel. The road to Windorah went on, but our way was to the south, parallel with the river. During a compulsory halt a pair of Chestnut-tailed Thornbills were seen feeding their nestlings in a dead Mulga. The entrance hole in the tree we were curious enough to measure, and found its horizontal diameter $\frac{5}{8}$ in., and its vertical $\frac{7}{8}$ in., yet the parent birds went in and out without difficulty. Up to this time we had not seen a Budgerygah, though a few small lots of Cockatoo-Parrots had passed us at intervals since the commencement of our trip. We camped for the night at a good waterhole in the middle of the Bulloo channel.

Next day we proceeded along the road, which crossed and re-crossed the river all the way from Adavale to Thargomindah. After several miles we decided to walk along the channel, while the car went on to the next crossing-place to await our arrival for lunch. The walk was a long one, and we did not have lunch till three in the afternoon. Very little bird life enlivened our walk—two pairs of White Cockatoos and one Galah, and we



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