

Although mutton-birds are to be found in enormous numbers on all the outlying islands of the Stewart Island group, and which in consequence are called collectively "mutton-bird islands," they are not there all the year round, but migrate at a certain season to the north of New Zealand, where they are to be seen in the winter, few, if any, remaining in the south.

On about the 25th September the great mutton-bird army arrives, flocks of hundreds of thousands darkening the sky. The first procedure of the newly arrived birds is to clean out the old nests. Holes which have been partly filled up by the falling peat are opened out; those too wet are extended into drier ground by side-channels, and a hole thus may have three or four branches. The depth of the nesting-holes depends upon that of the soil overlying the rock. At any rate, they are never very deep, since their direction is not vertical, but, after descending for some inches, pass horizontally, branching in various directions. In this manner the peaty ground becomes quite honeycombed with these subterranean passages. The holes cleaned out, they are next lined with the dead leaves of the puheritaiko (*Senecio rotundifolius*), but the nest is quite a rough one at best. The birds do not appear to use any hole indiscriminately, but return to the same year by year. Thus, Mr. Bragg states how in one particular hole he found during four successive years a white nestling, the usual colour being sooty black. This discovery is also interesting, as possibly showing an origin by mutation of a new race, or at any rate a remarkably distinct and sudden variation. While cleaning out the holes and making the nests the birds go without food, both sexes taking a share in the work; but, the nests once finished, the birds sally forth to the sea, catching fish until about the 25th November. On or about this day each bird lays its one large, white, semi-transparent egg, the birds as a whole laying at nearly the same time.* If any birds are delayed by the wind their eggs are dropped into the sea, and thus there appears to be some connection between the weather and the abundance, or the contrary, of the mutton-bird harvest. Also, if food is scarce, the "season" will be a bad one.

The birds feed on small crustaceans and fish, especially such as are oily. Shark's liver is much relished, and they will bolt huge lumps until they can hardly fly.

On the 25th December, or thereabouts, the egg is hatched. At first the young bird is a mere ball of down, and absolutely helpless. It remains in the nest until about the 1st April, still a fluffy ball of down, but with feathers beneath, its bones quite soft, and body enormously fat. This latter condition of affairs arises from the constant attention of the parent-bird, who has supplied it with very great quantities of food, going right into the hole and vomiting the much broken-up morsels into the young one's mouth. The nest is, however, kept absolutely clean, and no trace of food is left upon the ground.

The food consists for the most part of fish, but occasionally the meat of a dead whale may be utilised. In each nest there is but one bird.

About the middle of April the old bird ceases to feed the young one, which, gradually losing its excessive fat in consequence, becomes vigorous, and, leaving the nest in the night-time, essays to fly, flaps its wings awkwardly, gets on a stone, stump, or other point of vantage, flops aimlessly off, and performs many curious antics. It is at this stage that the best birds may be caught, as previously they would be altogether too fat.

With the cessation of the feeding the old birds migrate northwards, the young ones following as soon as they are able to fly. At about the end of May, thousands upon thousands of mutton-birds may be seen going northwards at many parts of the New Zealand coast. About six months are spent in the north and six in the south. At the same time, it must be borne in mind that certain birds remain always in the north, nesting being recorded from Kapiti Island, Karewa, Rurima Rocks, and Whale Island (Buller, 14). Buller records how he saw great flocks preceeding *southwards* from the neighbourhood of Timaru in the month of April, but these would probably be Stewart Island birds returning from a northern expedition in search of food.

Long before the northern migration of the young birds the Maori owners of the islands have been busy. At the present time the various "mutton-bird islands" are claimed by different Maori families, and thither, during April, does the whole Native population of Stewart Island and Ruapuke—men, women, and children—go, living on these small and gale-swept dots upon the ocean until about the 14th or 16th of May. The first batch of birds caught are too fat for the fastidious southern palate, and they are all sent north, where they are much prized by the northern Maoris.

It is when the young birds come forth at night-time that the special slaughter begins. Torches have been prepared two or three days in advance. These are made of dry totara bark,† tied with strips of *Phormium*, and quite saturated with the mutton-bird oil. They give sufficient light, and defy the constant gusts of wind. The young birds are easily caught, and are killed by breaking their skulls with the blow of a stick. Formerly the killing was done by the old Maoris with their teeth. During the daytime, too, in the earlier part of the season, the birds are captured in their holes, the arm being thrust in at times up to the shoulder.

After killing, the birds are plucked. First, the feathers are pulled out; but under these is much down, which is taken off by dipping the bird for an instant into boiling water, and then removing it with the hand. They are next hung up for a night in the open air so as to make the flesh firm, the birds being tied in strings and slung over a rail. Next day the wings, legs, and neck are cut off, and the bird split open, cleaned, and well rubbed with dry salt. The birds are then packed into casks, and stand thus in the salt for one day. Finally, they are removed from the casks and packed into bags made of the great bull-kelp (*Durvillaea utilis*) (Photo No. 35). These bags are made by splitting

* My informant insisted that all the birds lay exactly on the same day, but I have taken the liberty of modifying this statement, which, of necessity, cannot be proved, and seems most unlikely. But there is probably little doubt that a general egg-laying does take place at a certain well-defined period.

† It may be remembered it is the thin-barked totara (*Podocarpus Hallii*) which grows on Stewart Island, and not the thick-barked (*P. totara*), whose bark would not be so suitable.