THE RELATIONSHIP BETWEEN THE MAGENTA PETREL AND THE CHATHAM ISLAND TAIKO

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ABSTRACT

The Magenta Petrel, **Pterodroma magentae,** is a distinct species, closely allied to the **Pterodroma macroptera** group of gadfly petrels, which agrees in size and appearance with the Chatham Island Taiko, apparently last recorded alive at its breeding places between twenty-five and fifty years ago. A large collection of bones of this and other petrels from the Chatham Islands in the British Museum (Natural History) appears to include several other species also new to the group. It is suggested that some of these may still survive there.

INTRODUCTION

On 22nd July, 1867, the crew of the Italian research vessel "Magenta" shot a new gadfly petrel at 39° 38′ S. 125° 58′ W. in the Pacific sector of the Southern Ocean south of Tubuai Island. They thought that they saw further birds at 32° 23′ S. 92° 39′ W. and 26° 07′ S. 88° 50′ W. on 2nd - 3rd and 31st August, but the species has never been definitely identified again since. The original descriptions of this and other new petrels collected during the "Magenta" expedition published by Giglioli and Salvadori in Italian in 1868 and English in 1869 attracted considerable attention at the time, and Osbert Salvin, the leading authority of that day on the group, soon borrowed the types, agreed that they were new, and described and figured them again in "Rowley's Ornithological Miscellany" in 1876, and most subsequent authorities have upheld his conclusions. However, unlike the other novelties described with it, *Pterodroma arminjoniana, Pterodroma (cookii) defillipiana,* and *Puffinus assimilis elegans,* the Magenta Petrel itself, *Pterodroma magentae,* has failed to reappear, and has gradually been lost to human recollection among the morass of synonyms for closely related forms which has accumulated in the literature since the time when it was discovered.

During the course of a visit to Italy in the spring of 1956 I made a point of hunting down the forgotten type of *Pterodroma magentae* in the Salvadori Collection at Turin, to investigate its character and affinities. It proves to be a highly distinct form similar in its dimensions to the large subantarctic gadfly petrels of the *Pterodroma macroptera-lessoni-incerta-solandri-gouldi* group, reviewed by Murphy and Pennoyer in 1952, and in its appearance to the lost Chatham Island Taiko, also said to resemble *P. macroptera* in its dimensions (Fleming 1953). Since a first examination of the large Forbes and Rothschild collections of subfossil bones from the Chatham Islands in the British Museum (Natural History), recently rediscovered by Dawson (1958), reveals that one of the species most commonly represented there is a

large gadfly petrel very similar to *Pterodroma macroptera* in its osteology, but agreeing with *P. magentae* in the possession of a shorter bill, it seems highly probable that *Pterodroma magentae* is in fact the lost Chatham Island Taiko, and a local representative in the Chatham Islands of the "macroptera" superspecies of petrels.

THE TYPE OF *PTERODROMA MAGENTAE*

Salvadori's great collection, including the *Psittaciformes* which he used when working up this section of the "Catalogue of Birds in the British Museum," and many other important types, has received little attention since he died half a century ago. At the time of my visit it still remained much as he left it, in an attic open to the atmosphere of one of the dirtier industrial cities of Europe, with mounted specimens, covered in a thick deposit of soot, ranged in glass cases around the walls, exposed on benches, and lying jumbled in bins all round the room. There was a large case of mounted petrels, including the types and paratypes from the "Magenta" expedition (all labelled indiscriminately as "types"), among many other interesting things, but the Magenta Petrel itself was not among them. It was soon discovered elsewhere. I have seen all other known petrels and this one resembled none of them. The upperparts are now stained uniformly dark brownish-black, with paler feather edges, but the concealed parts of the feathers are a curious purplish-grey, not unlike old wine-stains, exactly as in Salvin's excellent plate, also reproduced by Godman in his "Monograph of the Petrels" (1907-1910). There are more prominent pale edges to the feathers of the forehead, and it has a pale chin, with a dark band across the upper breast. The primaries have dark shafts and pale inner webs, and the underwing and axillaries are dark, but the belly is white except for a few dark streaks on the flanks. The measurements fall very close to my average for the typical race of *Pterodroma macroptera* (including some measured at the same time in the same collection) and *Pterodroma solandri*, except that the bill is shorter and less massive; the wing is 306 mm., the tail 127 mm., the tarsus 42 mm., the middle toe 54 mm., the exposed culmen 32 mm., and the bill 16 mm. in width and 15 mm. in depth at the base. According to the original description, in life the birds had pale legs and feet with dark tips to the toes, as with other large white-breasted gadfly petrels.

In the original description Giglioli and Salvadori speculated that it might be related to the Tahiti Petrel *Pterodroma rostrata*, but it is much less heavily built, with a smaller bill and legs, and is paler, especially about the face and chin. Salvin thought that it resembled a large soft-plumaged Petrel *Pterodroma mollis*, but it is a much darker grey, with more marking on the breast than is usual in that form except in the rare intermediate-dark phase (Bourne 1957), and it also lacks dark wing and ear coverts. More recent authors have speculated that it may be related to the Phoenix Petrel *Pterodroma alba*, but, while the pattern of its markings is very similar, it is considerably larger and more heavily built, and much greyer in coloration. It bears some resemblance to Schlegel's Petrel *Pterodroma incerta*, which occurs at sea in a similar latitudinal zone in the South Atlantic and Indian Oceans, breeding at Tristan de Cunha and Gough Island; but, while its proportions are rather similar, it is smaller, greyer, and more heavily

marked, with a contrasting white chin, lacking in *P. incerta,* though found in other Pacific members of the "macroptera" superspecies of petrels, such as *Pterodroma solandri* and *P. macroptera gouldi.* Perhaps it is best regarded as a distinct but closely allied species which replaces *Pterodroma incerta* in a similar geographical situation in the Pacific.

THE CHATHAM ISLAND TAIKO

If it is accepted that the Magenta Petrel is a distinct species, belonging to the "macroptera" group of petrels, which was to be found in the cooler parts of the South Pacific just under a hundred years ago, the next problem is to determine its breeding place. There are many possible islands in the appropriate area, most of which hold or once held large populations of gadfly petrels, and some of which have not been explored adequately yet, especially during the winter, which is the breeding season of the northern members of the "macroptera" group of petrels, These include Juan Fernandes, Easter Island, the Pitcairn-Ducie-Oenoe-Henderson group, Rapa and the Bass Rocks in the Tubuai group, the Kermadec Islands, and the Chatham Islands. However, where they have been explored these islands have mostly been found to support petrel species of distinctly tropical affinities, such as *Pterodroma neglecta, P. arminjoniana heraldica, P. alba, P. externa,* or *P. ultima,* while there is little indication of the presence of any large cold-water species. The presence of such a bird is reported only at the most southerly group mentioned, the Chatham Islands. This is the only island group at present lacking any large gadfly-petrel, although one is reported to have been present in the past which died out about fifty years ago. It is described by Fleming (1939) as "larger than *Pterodroma axillaris,* with a stouter bill, and of a dundy grey colour ventrally, agreeing with *P. axillaris* in its parti-coloured feet," and, later (1953) as "similar to *Pterodroma macroptera* in shape of cranium, but smaller . . . (with) a dark upper breast and white belly." Dr. R. A. Falla informs me that recorded accounts of this bird agree very well with the Magenta Petrel, and that the late Robert McClurg, a Chatham Islander of clear memory and good judgment, had when shown Godman's 'Monograph of the Petrels' first selected Schlegel's Petrel as the best representation of the "taiko," and was later prepared to admit the figure of the Magenta Petrel as a possible alternative. The Chatham Islands lie in a very likely place to provide breeding stations for a large gadfly petrel preferring cold surface waters and foraging east from its breeding stations along the subtropical convergence to the place of capture of the Magenta Petrel at 30½°S. 126°W.

Owing in part to the extremely sporadic nature of collecting in the area in the past, and in part to more recent protective legislation, there are few bird skins from the Chatham Islands in foreign collections. But we do have many bones from this group. A high proportion of those in the Forbes and Rothschild collections in the British Museum (Natural History) belong to a large gadfly petrel provisionally identified by Dawson (1958) as *Pterodroma macroptera.* In the absence of any evidence that *P. macroptera* has ever bred in the group, this presumably is really the lost Chatham Island Taiko. In the table the measurements of three series of bones selected at random are compared with those of two specimens of the typical race of *P. macroptera* and one of *P. lessoni.*

TABLE

Comparison of the dimensions of bones of *Pterodroma m. macroptera*, *P. lessoni* and the Chatham Island Taiko

	Skull	Cranium	Culmen	Sternum	Humerus	Femur	Tibia
P. macroptera A	93	46	49	58 x 40	105	38	76
P. macroptera B	91	46	49	63 x 40	109	40	75
P. lessoni	92	47	48	61 x 42	–	40	80
Chatham Is. A	86	46	44	59 x 38	105	38	73
Chatham Is. B	91	48	46	57 x 39	105	39	80
Chatham Is. C	87	47	42	57 x 38	100	40	78

(The two specimens of *P. macroptera* were taken together at 34° 43'S. 04° 00'W. on 24 Feb. 1847, the specimen of *P. lessoni* was obtained by G. M. Mathews from Kapiti Island, and retains typical tail-feathers, and the bones of the Chatham Island Taiko are good specimens picked out at random from larger series.)

It will be seen that, as with the skin of *P. magentae*, the bones of the Chatham Island Taiko agree rather closely in size and proportions with those of *P. m. macroptera* and one of its allies except for the possession of a short bill. All the available evidence appears to agree with the hypothesis that the Magenta Petrel is the same as the Chatham Island Taiko.

DISCUSSION AND CONCLUSION

The Chatham Islands occupy a similar zoogeographical position in the Pacific to Tristan da Cunha in the Atlantic (Murphy 1936, Fleming 1939), and might well be expected to support a very similar seabird community. Yet so far, although several small petrels such as *Pelagodroma marina, Garrodia nereis, Pelecanoides urinatrix, Pachyptila vittata* and *Puffinus assimilis* are known to have very similar or identical populations breeding in both areas, and other groups such as the Albatrosses also have closely comparable representative species breeding in both places, few of the larger nocturnal petrels which breed at Tristan in large numbers, or their allies, have yet been recorded from the Chatham Islands.

The gadfly petrels of the genus *Pterodroma* provide an outstanding illustration of this situation. Although two medium-sized and two large species have now been recorded breeding at the Tristan group (Elliott 1957), and up to four medium to large species have frequently been recorded nesting together in Pacific localities other than the Chathams (Murphy and Pennoyer 1952), so far apparently only one small species, *Pterodroma hypoleuca axillaris,* has been found nesting at the Chatham Islands, and only one other, larger species has been reported at second hand. The identification of subfossil bones from the group as likely to belong to the Magenta Petrel helps to fill one of the most conspicuous gaps in the expected avifauna of the Chathams, but there are also several other gaps.

Because of the lack of sufficient comparative material of present-day species in the British Museum (Nat. Hist.), identification, made

by Dawson (1958), of petrel bones to the species level, amongst the huge Forbes collection of bones from the Chatham Islands, could only be approximate, based on previous experience with New Zealand collections. An examination of the material already available, however, immediately fills some of the more obvious gaps in the Chatham seabird fauna compared to that of zoogeographically similar sites such as Tristan. Following on from Dawson's preliminary identification list deposited with the Department of Palaeontology, I can record the presence of the following species:

Many *Pelecanoides urinatrix*.

Many *Pachyptila* sp., apparently mainly *P. turtur*, with a few larger bones possibly belonging to *P. crassirostris* or *P. vittata*.

A few *Puffinus assimilis*.

A moderate number of small *Pterodromas*, apparently mainly *P. hypoleuca axillaris*, though some small bones might belong to members of the Cookilaria group, of which there is no comparative material available to me.

A moderate number of medium-sized *Puffinus*, larger than *Puffinus (puffinus) gavia*, but smaller than *Puffinus griseus*, distinct from *Puffinus pacificus*, and by inference the allied form *P. bulleri*. These might be *Puffinus (puffinus) huttoni* or *P. carneipes*, for neither of which is comparative material available in the British Museum, but seem rather large for the first and small for the second; otherwise they do not appear to agree well with any known species.

A few medium-sized *Pterodroma*, of the size expected for *Pterodroma inexpectata*, for which there is no comparative material available to me.

Many large *Pterodroma*, identified by Dawson as approximating *P. macroptera* but here as probably *P. magentae*.

Many large *Puffinus*, resembling *Puffinus griseus* according to Dawson.

A few *Adamastor*, presumably *Adamastor cinereus* (humeri measure 128, 130, 136, 139 mm., and a humerus of *A. cinereus* 135 mm.).

A few *Procellaria*, resembling *Procellaria aequinoctialis*. (humeri 149, 146, 148, 142, 142, 146, 146 mm., compared with a humerus of *P. aequinoctialis* of 150 mm.).

Several of these forms appear to be new to the Chathams, at least as breeding species (Fleming 1953), although their presence there might be expected on zoogeographical grounds; such as the possible Cookilaria gadfly petrels, the medium-sized shearwaters and gadfly petrels, and the large *Procellaria* and *Adamastor* shearwaters. The bones do not appear very old, and the conclusion appears inescapable that within the very recent past the Chatham Islands must have supported a very much larger seabird community than is known at the present day. The first Polynesian human inhabitants, of course, must have found subsistence difficult and may well have exterminated many elements of the fauna. The large gadfly petrel at least appears to have survived within living

memory, and if it could do so, it seems possible other species may have done so as well. The question now arises whether all these birds are yet extinct, or whether they may still exist somewhere in reduced numbers concealed among commoner species such as the Sooty Shearwater *Puffinus griseus,* or nesting at a season when the group has not been searched. Some of these birds are hard to discover even where they are common, as at Tristan, and others, such as *Pterodroma macroptera* and its allies or *Adamastor cinereus,* apparently often nest in the winter.

It is difficult to distinguish possibilities in such a complex group as the Chatham Islands from the far side of the world, but it may be pointed out that another gadfly petrel, the Cahow *Pterodroma cahow,* managed to survive undetected for as long as three hundred years on a much more heavily populated group in the North Atlantic, the Bermudas (Murphy and Mowbray 1951), and it seems likely that the same situation is being repeated on a smaller scale at a number of places elsewhere. When the Cahow was eventually rediscovered it was found to be in acute danger of extinction through the destruction of its breeding habitat by man, through competition for the remaining breeding places with another, more aggressive seabird, and through predation from rats, and most energetic action had to be taken to save the small remaining population (David Wingate, *pers. comm.,* and in Palmer 1963). It seems quite possible that a similar situation may exist with any of the larger nocturnal petrels still surviving on the Chatham Islands or neighbouring archipelagoes. It may therefore be urgent that the situation of these birds be properly investigated as soon as possible, before it is too late to see to their conservation.

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