aspect of the matter being ancillary only to the bird notes, much information had to be excluded. The botanical information was garnered from Mr. Ernest Ising, who sent notes on the plant life of the area. Messrs. Burgess and Gray kept "official" lists of the birds seen at the camp and made the same available to me.

The thanks of members attending, and of the Union, are due to Mr. Nicolson, Senr., and to Mr. Andrew Nicolson, of "Middleback," for the use of their station property, and to Adelaide members, who organized the camp—chiefly, it is believed, Prof. Cleland, Mr. Neil McGilp and Capt. S. A. White.

Papers in *The Emu* dealing with the locality or similar country in close proximity are as follow: Vol. ix, pp. 123-133; vol. xii, pp. 1-8, 124-130; and vol. xiii, pp. 16-32.

Petrel Notes

By GREGORY M. MATHEWS

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Apparently *Daption, Priocella, Thalassoica* and *Pagodroma* have very similar nesting sites. *Thalassoica* appears to nest more in the open than do the others, that is to say the others prefer to have some projection under which they nest. Ardley (*The Birds of the South Orkney Islands*, 1936) says that in *Pagodroma* the nests are usually found in the same localities as those of *Daption* and in similar situations, except that *Pagodroma* often uses more sheltered sites on the cliffs; that with *Priocella* the nesting sites and nests are very similar to those of *Daption* except that generally more sheer and inaccessible locations are chosen. The nest consists of a collection of small, flat stones, and the egg is very similar to that of *Daption* but slightly larger.

[The egg of *Priocella* is like that of *Thalassoica* but larger.]

Priocella, Pagodroma and *Daption* never choose an unprotected southwards-facing cliff on which to nest, no matter how favourable the site may appear. This rule was found to be invariable (*vide* p. 361). Mawson's photo. (*The Home of the Blizzard*, 1915) of *Thalassoica* confirms that.

How different are the nesting sites of *Fulmarus* and *Macronectes* which make large nests on the ground in more or less open places. Whilst the latter is quite different from the others in many respects, *Fulmarus* is nearer to *Priocella* in size and coloration.

Although *Pagodroma* is not a Fulmar, its nesting sites and much of its life's history seem closely to resemble that of the southern Fulmars.

Of the many problems still unsolved, the one of distribution is uppermost, as we have some of the Antarctic-breeding

birds—such as the southern Fulmars, a Prion (*Pachyptila desolata*), and the light *Phoebetria*—not wandering far from their nesting places; whilst *Oceanites* goes to the north of Europe.

In the northern hemisphere we have *Puffinis puffinus* breeding off Pembrokeshire and wandering as far as Argentina. Or perhaps it is the breeding bird on the Madeira Islands which goes south.

Apparently the Gadfly Petrels are more stay-at-home, the Shearwaters, together with some of the Swallow Petrels, the greatest wanderers. Here we have no rule. The South Trinidad *arminjoniana* has been recorded from the United States of America after a storm. In fact, after the birds leave their nesting places we have not much information about them, except oddments. Birds of some species follow ships for days, and, whilst they have great staying power, no bird has flown around the earth. Some breed in both hemispheres, north of the Tropic of Cancer and south of the Tropic of Capricorn.

Pelagodroma marina breeds on Tristan, 38° south, and in the Cape Verde Islands, 25° north, about 3,780 miles apart.

Pterodroma mollis on Gough Island, 41° south, to Madeira, 33° north—about 4,400 miles apart.

Cookilaria leucoptera on Bonins, 30° north, to Sydney or Juan Fernandez, 34° south—about 3,840 miles apart.

Thyellodroma pacifica on Rottnest Island, 34° south, to the Bonins, 30° north—about 3,840 miles apart.

Alphapuffinus assimilis on Chatham Islands, New Zealand, 44° south, to the Azores, 38° north—about 4,920 miles apart.

Alphapuffinus lherminieri on Mauritius, 20° south, to the Bonins, 30° north—about 3,000 miles apart.

Microzalias nativitatis on Marcus Island, 24° north, to Rapa, 26° south—about 3,000 miles.

Most writers have commented on the discontinuous distribution of *Oceanodroma castro* and *Bulweria* without arriving at a satisfactory explanation.

In the south-polar regions the 60th degree south marks the boundary of the ice-bound land and islands. Near the South Shetlands this area must be increased to the 58th, towards, but not to include, either the south of South America or the Falklands. It also pushes up almost to the 50th degree to include South Georgia and the area between that and Bouvet Island.

The birds breeding within the Antarctic circle are few, being the southern Fulmars *Pagodroma* and *Oceanites*. From the Antarctic circle to the above area the number of breeding species increases. From the 60th parallel to the 45th (excluding the above-mentioned islands) are a number of

breeding species, and up to the 37th are included the breeding ranges of all southern Petrels.

The sub-Antarctic islands include Kerguelen, Heard, Crozets, Marion and Prince Edward, the Falklands and all the islands off Tierra del Fuego, Macquarie, Campbell, Auckland, Antipodes, Bounty and Snares Islands off New Zealand. Then come Gough, Tristan da Cunha, St. Paul, New Amsterdam, the Chathams of New Zealand, and Tasmania, with Mocha and the Juan Fernandez group, which are nearer to the Tropics. The sub-tropical last-named group is of interest as two species of *Cookilaria* nest there and it is the southernmost breeding locality of the genus. Also *Ardenna creatopus* nests there and farther south on Mocha Island.

Reviews

[*Budgerigars: The Standard of Perfection and Classification of Colour Varieties.* Compiled by T. R. Treloar and J. Hocking for the Australasian Budgerigar Council. Melbourne: Robertson & Mullens Ltd. Price, 4/6.]

Fanciers in Australasia have applied and followed the Mendelian principles laid down by Dr. Duncker and have succeeded in producing every colour type known throughout the world to-day. With progress in that direction and the production of new colour types not known overseas, the need for an accepted standard and uniformity in show conditions became apparent, and this volume aims at supplying the want.

Contents include a description of the perfect type, notes on the colouration of different varieties, particulars of the Australasian Council's alterations to previously-accepted classifications, and official colour descriptions. In connection with this last a standard colour chart of various greens, blues, yellows and other shades is included. The colouring of more than thirty varieties is described in detail.

From the foregoing it might appear that presentation of standards was the only object of the publication. Not so, however, for sections dealing with psittacosis and its control, on feeding, on food values and on management generally are included. More technical are illustrations of matings to produce particular forms and the propagation of mutations and the method of application of the rules of sex-linked inheritance.

The volume should be of particular value to aviculturists. —C.E.B.

[*Arctic Birds as Migrants in New Zealand.* By R. A. Falla. From *Rec. Auck. Inst. Mus.*, vol. 2, no. 1, pp. 3-14.]

The paper deals with the Charadriiformes and two jaegers (Stercoraciidæ) "wintering" in New Zealand. *Stercorarius*