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NOTES ON THE ALBATROSSES OCCURRING IN SOUTH AUSTRALIAN WATERS.

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(*Contribution from the South Australian Museum*).

The earliest reference to the occurrence in South Australian waters of members of the widespread family Diomedeidae is made by John Gould, who encountered numbers of these birds during a voyage from Launceston to Adelaide in the year 1838. For a long time, except for a few odd specimens found by residents at local beaches, after severe storms, little was added to our knowledge on this subject until Dr. W. MacGillivray (1919), and later Dr. A. M. Morgan and Professors F. Wood Jones and J. B. Cleland and others published their observations.

Seven out of the eight species of Diomedeidae recorded from Australia have been seen within the South Australian boundaries. All of these have a wide range, and their representatives are known to occur from Cape Horn to the Cape of Good Hope, Australia, and New Zealand, as well as in Antarctic seas. In the following account the range of each species is shown as given by Peters (1931). The following have been recorded from South Australia:—

1. *Diomedea exulans*, Wandering Albatross†.
2. *Diomedea chionoptera*, Snowy Albatross.
3. *Diomedea melanophris*, Black-browed Albatross†.
4. *Diomedea chlororhyncha*, Yellow-nosed Albatross†.
5. *Diomedea chrysostoma*, Grey-headed Albatross†.
6. *Diomedea cauta*, White-capped Albatross*.
7. *Phoebetria fusca*, Sooty Albatross*.
[*Phoebetria palpebrata*, Grey-mantled Albatross]§.

* Denotes sight records only.

† Denotes specimens found in 1935.

§ May occur in South Australia.

*CONDON—Notes on Albatrosses in S.A. Waters.***Occurrences.**

Albatrosses are seen regularly by voyagers in the Great Australian Bight, and are not infrequently observed in St. Vincent Gulf, Backstairs Passage, and near Kangaroo Island.

Prior to June, 1935, the Museum collection contained only eight specimens known to have been obtained in South Australia; these included three collected in St. Vincent Gulf by Prof. F. Wood Jones in 1926, the first and only specimens of these birds shot in South Australia for scientific purposes.

Between June and September, 1935, twenty-six individuals, representing four species, were washed ashore together with other sea birds on beaches near Adelaide. The majority of the birds found on this occasion were young or immature. Most of them were quite fresh, and it was possible to record the colourations of the soft parts in the flesh. Some of the meagre and often conflicting descriptions published in standard works appear to have been made from old skins, and they demonstrate the necessity for taking prompt notes at every opportunity.

The first specimens obtained in 1935 were found at Brighton by H. C. D. Collyer, a local resident. These comprised two *D. chlororhyncha* and one *D. melanophris*, together with a Giant Petrel (*Macronectes giganteus*). These were forwarded to the Museum on 23rd June and following days after the heavy weather around the coasts of southern Australia.

The same gentleman had forwarded a *D. chlororhyncha* also on 23rd June in 1929.

Other specimens, including three Prions (two *Pachyptila vittata* and one *P. desolata*) and two Giant Petrels were also sent in by people resident along the shores of St. Vincent Gulf.

The writer also made visits to various parts of the coast, when the remains of twenty Albatrosses were gathered (comprising four species) and three Giant Petrels, five Prions (*Pachyptila vittata* and *desolata*) and a Fairy Penguin (*Eudyptula undina*).

The majority were taken at Sellick's Beach, which was visited on the 25th June and 4th August, 1935. Situated immediately opposite the entrance of St. Vincent Gulf this beach is favourably situated for the reception of specimens of all descriptions when the wind blows from a westerly direction.

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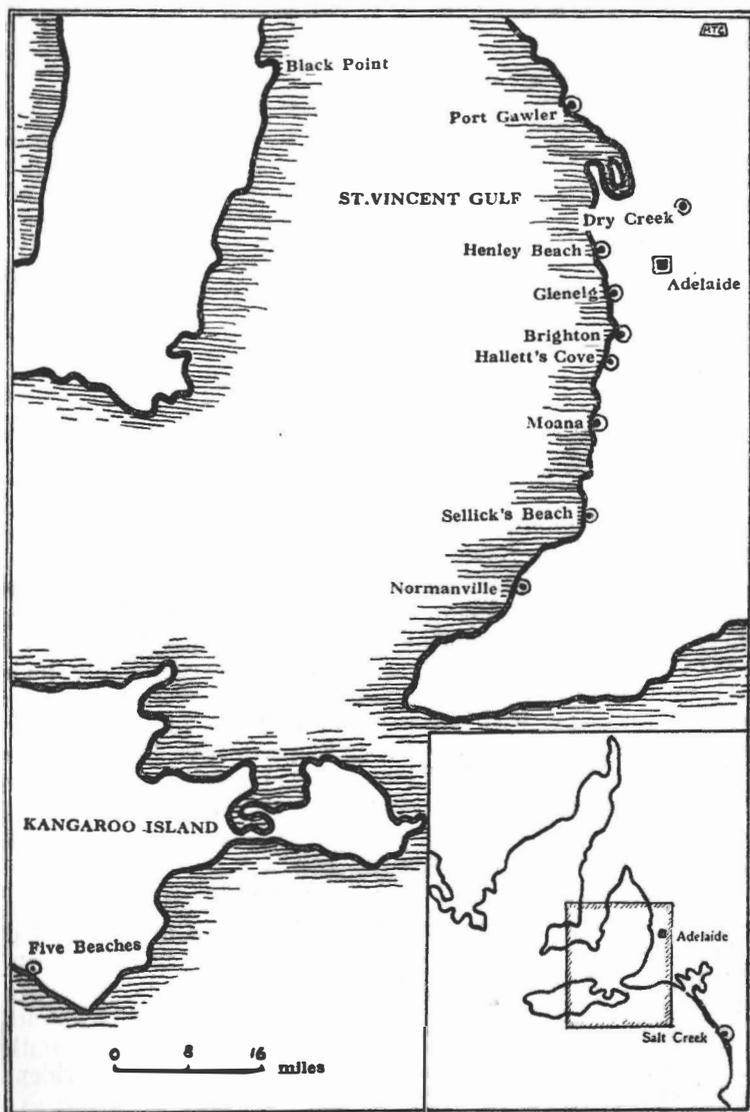


Fig. 1—Enlarged portion of South Australia, showing localities where Albatrosses have been found.

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The whole of the beach, which is nearly five miles long, was traversed and the bodies of thirteen birds (including five Petrels) were found above the highest tide mark at irregular intervals all the way along.

Another locality where many birds were found was the Younghusband Peninsula, which separates the Coorong from the sea. On its ocean beach, which is at least ninety miles long, can be found all manner of debris, and many birds must be washed on to its shores from time to time. While on a collecting trip to the Salt Creek district with Mr. D. W. Brummitt, an opportunity was taken to visit this beach on the 17th August, 1935. Twelve miles of beach were traversed resulting in the finding of the remains of eleven Albatrosses and two Prions.

It may be incidentally remarked that among the other specimens of interest taken during these visits were a Cape Petrel (*Daption capense*) at Hallett's Cove on 29th June and a White-fronted Tern (*Sterna striata*) on 4th August at Sellick's Beach.

In the accompanying sketch map (fig. 1) all places where specimens have been found are indicated.

From their peculiar distribution it would appear that only a very special set of circumstances would result in the casting ashore of so many specimens on the comparatively sheltered beaches of St. Vincent Gulf. Apparently exceptionally high tides, westerly winds, and ocean currents are responsible. The whole of the coast from Normanville to north of Port Gawler was visited during 1935, but the most productive beaches were at Sellick's, Moana, and Brighton, local conditions at many promising-looking beaches being unfavourable.

Identification.

Diomedeidae are at once distinguished from other Tubinares because although they possess nasal tubes, these are not united as in all the Petrels, but are situated on each side of the culmen.

With the exception of *Diomedea exulans* and *Phoebastria palpebrata*, which are easily distinguished, the smaller species of *Diomedea* (often called Mollymawks) occurring in South Australian waters are superficially much alike, and it is evident that sight records must be treated with caution.

The presence of a dark area above or in front of the eye occurs to a greater or lesser degree in all these species, and in

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some *D. melanophris* (the Black-browed Albatross!) examined only a faint loreal smudge was present. When seen on the wing it must be admitted that birds of different species with obscurely coloured bills could easily be confused. Such birds also give difficulty in the hand unless the salient features of the bill of each species is known and understood.

The cranium alone will yield satisfactory identification, and where the horny beak is intact it is an easy matter to identify the species (see figs. 3-14).

Much interest centres in the colour of the bill, especially in immature and non-breeding birds. Such birds are only identifiable with certainty by referring to the structures of the bill. Breeding adults can be recognized by their bill colourations.

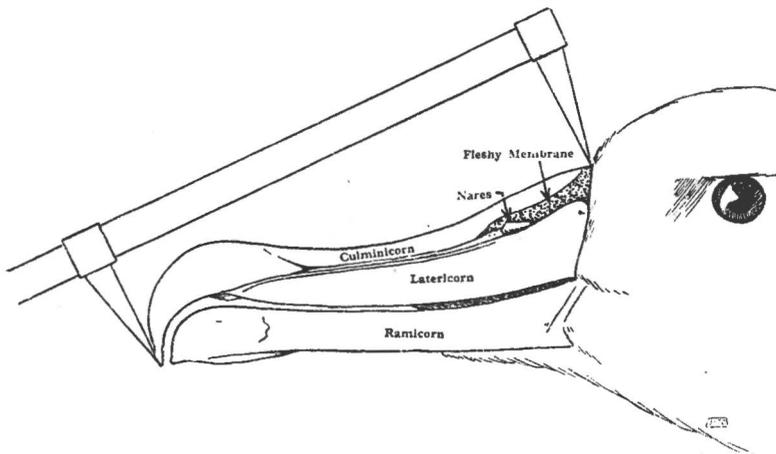


Fig. 2—Method of measuring length of exposed culmen, and parts of bill referred to in text (species shown *D. chrysostoma*).

When referring to the horny structures of the bill the following parts are recognized:—

Culminicorn—dorsal horny portion of upper mandible.

Latericorn—lateral horny portion of upper mandible.

Ramicorn—horny covering of the lower mandible.

Fleshy membrane—occurs in some species between the culminicorn and latericorn at the base of the bill, and varies in extent.

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The above terms are self-explanatory, and the various parts of the bill are conveniently and accurately described when they are employed.

Artificial Key to the Species of Diomedidae found in South Australia (adapted from Loomis).

- I. Bill with ramicorn not grooved.....*Diomedea*.
1. Latericorn not widened greatly at base
.....*exulans* (and *chionopectera*).
 2. Latericorn widened at base.
 - (1) No fleshy membrane visible at base of bill
.....*melanophris*.
 - (2) Fleshy membrane at base of bill.
 - a. Culminicorn narrow and pointed at base
.....*chlororhyncha*.
 - b. Culminicorn broad and rounded at base.
 - (a) Latericorn dark in colour, smaller
.....*chrysostoma*.
 - (b) Latericorn light in colour, larger
.....*cauta*.
- II. Bill with ramicorn grooved.....*Phoebetria*.
1. Back dark brown, line on ramicorn yellow
.....*fusca*.
 2. Back pale brownish-grey, line on ramicorn blue
.....*palpebrata*.

Some authors isolate *melanophris*, *chlororhyncha*, *chrysostoma* and *cauta* in a separate genus *Thalassarche*, but, while it is admitted they form a natural group, the advantages of this practice are not clear. Other authors have divided them into a number of monotypic genera. South Australian ornithologists and zoologists are generally in agreement with Loomis (1918) who says . . . "I feel, however, that too many [genera] have been recognized, especially monotypic ones founded on minor structural characters of species. Subgenera are given no place whatsoever. Where convenience ceases in a classification that is largely arbitrary, it is maintained that no vantage ground is gained by burdening the memory with a multitude of minor divisions and subdivisions."

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Considering the wide range of each species dealt with, no attempt is made to distinguish subspecies in the South Australian examples. In many cases the actual breeding places of Australasian Tubinares are still unknown.

Diomedea exulans Linne (1758), Wandering Albatross.

Range: Southern oceans between lat. 30 deg. and 60 deg. S.

Breeds: Tristan da Cunha, Gough, South Georgia, Marion, Prince Edward, Crozet, Kerguelen, Auckland and Antipodes Islands.

Records in South Australia.

1. Seen between Eucla and Spencer's Gulf, 22nd June, 1919; near Kangaroo Island, 23rd June, 1919 (Dr. W. MacGillivray).

2. One seen in Backstairs Passage, 26th July, 1926 (Prof. F. Wood Jones).

3. Of the four mounted specimens in the Museum, one bears the label "Henley Beach, J. W. Mellor, Feb., 1902" [Reg. No. B. 13179], while the others have no data.

4. Ocean Beach, Younghusband Peninsula; one specimen in bad condition, 17th August, 1935, H. T. Condon. [Reg. No. B. 17975].

Apart from its large size this species, known also as Man-of-War-Bird, and Cape-Sheep is easily distinguished by its large, light-coloured bill (figs. 11, 12). The culminicorn is rounded and greatly widened at the base and is not separated from the latericorn by a fleshy membrane. The feathers form an angle on the ramicorn.

Young adult: Top of head brownish, forehead, sides of face and throat, white; neck, brownish; breast, mantle, rump, upper and lower tail coverts, white with brownish vermiculations; wings dark brown; tail brown.

Aged adult: The plumage becomes progressively lighter in colour until almost pure white in old birds ($\Rightarrow D. chionoptera?$).

Details of the specimen found at Younghusband Peninsula (Coorong district), are as follows: Iris, dark brown; legs and feet, white with a faint heliotrope tinge at the joints; bill, pinkish yellow. The plumage was that of a young adult. Culmen, 150 mm.; tarsus, 101 mm.; middle toe and claw, 165 mm.

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Diomedea chionoptera Salvin (1896), Snowy Albatross.

Much doubt has recently arisen as to the validity or otherwise of this species. The type specimen described by Salvin was obtained at Kerguelen. It is said to differ from *exulans* in having the head, neck, mantle and back snowy white.

L. Harrison Matthews says, "That the two species, *Diomedea chionoptera* and *exulans*, are identical is proved by the fact that the writer has frequently seen birds of each type pairing together." Lowe and Kinnear also consider it to be "merely the most adult phase of *D. exulans*."

Record in South Australia.

Prof. J. B. Cleland found the dried body of a white-headed bird at King's Point, Encounter Bay ("S.A. Ornithologist," VII, 175, 1924) on 1st January, 1924, and the head and wings are in the Museum (B. 4519), culmen, 174 mm.

Diomedea melanophris Temminck (1828), Black-browed Albatross.

Range: Southern oceans between tropic of Capricorn and lat. 60 deg. S.

Breeds: South Georgia, Falkland, Kerguelen, Auckland and Campbell Islands.

Records in South Australia.

1. A female from Glenelg, 24th November, 1913 [B. 1064].
2. Seen between Eucla and Spencer's Gulf, 22nd June, 1919; near Kangaroo Island, 23rd June, 1919; off Port MacDonnell, 26th June, 1919 (Dr. W. MacGillivray).
3. Seen near Kangaroo Island from 15th-18th April, 1927 (Dr. A. M. Morgan).
4. Five Beaches, Kangaroo Island—specimen found in a rock fissure on 17th December, 1930 (Tindale, N.B., Rec. S. Aust. Mus., IV, 3, p. 275 (1931)).
5. An immature male, Brighton, 24th June, 1935 (B. 17881) (H. C. D. Collyer).
6. An immature male, Moana, 25th June, 1935 (B. 17875) (H. T. Condon).

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7. An immature female, Sellick's Beach, 25th June, 1935 (B. 17877) (H. T. Condon).
8. Specimen in bad condition, Brighton, July, 1935 (B. 17955) (Dr. W. G. Torr).
9. Specimen in bad condition, Port Gawler, 21st July, 1935 (B. 17917) (H. T. Condon).
10. Two crania, Younghusband Peninsula, 17th August, 1935 (B. 17977-8) (H. T. Condon).

The Black-browed Mollymawk has been so called from the dark supra-orbital mark or "brow" which it exhibits. Little reliance can be placed on this character, however, as in some of the specimens examined it is only represented by a mark in front of the eye; *chlororhyncha* and *cauta* also possess similar markings to a greater or lesser extent.

Breeding adults of *melanophris* have bright yellow or orange bills, and there are two specimens in the Museum which are so coloured. These birds are not labelled, but were probably obtained in South Australia. The legs and feet of one (mounted) have been painted blackish, but as the colours of these parts in all fresh specimens examined were white with heliotrope tinges, this is an error. Other interesting features of this bird are the faint "brow" marking and light brownish grey mantle. The mantle in the fresh specimens examined was light slate-grey. Two other examples of *melanophris* in the collection also exhibit this brownish colour in the mantle. One is the immature (?) (dirty yellow bill with black tips) female obtained at Glenelg in November, 1913. The brow marking here is also reduced to a faint "smudge" in front of the eye, and the head and neck are pure white.

The other skin is of an adult bird (B. 6952) with only a very faint dark mark in front of the eye and a white head. The back, wings, and tail are dark brownish-grey and the bill entirely yellow. At the base of the latericorn and ramicorn are the remains of a dark fleshy vertical bar (? black in life).

The oily matter in the legs (? white in life) has coloured them yellowish and in parts blackish. This bird was in the Gawler Institute collection which came to the South Australian Museum in 1926, and was most probably obtained in this State, although it possesses no data.

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All the specimens obtained in 1935 exhibit immature characters, notably dirty yellow beaks with black tips, and a white head and neck washed with grey. Possibly the slate-grey mantle changes to brownish-grey in the adult.

The plumage of an immature or non-breeding male (B. 17881)—testes very small—obtained on the 24th June, 1935, is as follows: Top of head, hind neck washed with a delicate blue-grey, becoming darker on the mantle and back; wings dark slate-grey; breast, abdomen, rump white; tail dark slate grey, with white central shafts to feathers; a dark line in front of and through the eye; sides of face, chin and throat, white; a faint grey collar at base of neck; soft parts: bill dirty ochreous yellow, black tipped on upper and lower mandibles; tongue bright pink, palate pinkish; inside mouth white. Legs and feet white with a heliotrope tinge; iris brown. The immature male and female found on 25th June, 1935, agree with the above description, but the female has less grey on the head and neck and the dark line in front of the eye is less pronounced.

Adult birds have a white head and neck.

Some authors (Mathews, Lowe and Kinnear) have come to the conclusion that Australasian examples of the Black-browed Albatross average smaller in the measurements of the bill, that the black mark over the eye is darker, and also there is present a greyish wash at the lores which is not generally seen in Atlantic and Kerguelen specimens.

Mathews mentions a narrow fleshy membrane on the bill of this species. Although this is invisible in freshly dead examples and old skins, macerated crania may offer support to this statement, for they exhibit a space between the culminicorn and latericorn where a fleshy membrane would be.

The birds were examined for parasites by Prof. T. Harvey Johnston, of the University of Adelaide. In one instance (B. 17881) small tapeworms were found in the intestine, and abundant nematodes in the stomach, which was otherwise empty.

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Below is a table of measurements of specimens of this species in the Museum collection. The wing spread of one (B. 17881) was 7 ft. 6 inches, and it weighed 5 lb. 2 oz.

DIOMEDEA MELANOPHRIS.

{ S.A.M. No.	B.1064	B.17881	B.17875	B.17877	B.17917	B.17955	B.17977	B.6952
Sex	♀	♂	♂	♀	—	—	—	—
{ Total Length	—	850	859	855	—	—	—	—
{ Wing Spread	—	2250	2209	2181	—	—	—	—
Weight	—	5lb. 2oz.	5lb. 8oz.	4lb. 14oz.	—	—	—	—
Culmen	116 mm.	111	114	115	106	116	120	120
{ Carpal Joint to Wing Tip	510	540	530	520	520	—	—	502
Tarsus	94	85	80	84	80	—	—	76
{ Middle Toe and Claw	135	133	130	125	140	—	—	124
{ Elbow to Carpal Joint	—	—	—	—	290	—	—	—

Diomedea chlororhyncha Gmelin (1789), Yellow-nosed Albatross.

Range: South Atlantic, Indian Ocean and Australian seas.

Breeds: Tristan da Cunha, Gough, Crozet, St. Paul Islands.

Records in South Australia.

1. Seen near Kangaroo Island on 23rd June, 1919, and in St. Vincent Gulf (Dr. W. MacGillivray).

2. Many birds seen in St. Vincent Gulf ("sometimes twelve in sight at one time") on 25th July, 1926 (Prof. F. Wood Jones).

3. Three birds shot in St. Vincent Gulf on 14th August, 1926, by Prof. F. Wood Jones (B. 6883-5).

4. An immature male picked up at Brighton Beach, 23rd June, 1929, by H. C. D. Collyer (B. 11778).

5. Other records at Brighton: one (B. 17866) on 23rd June, 1935 (H. C. D. Collyer), two (B. 17956-7) in July, 1935 (one each Dr. W. G. Torr and H. C. D. Collyer).

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6. Dry Creek, 29th May, 1933 (B. 16850) (J. Whitley).
7. Port Gawler, one example (B. 17918), 21st July, 1935 (H. T. Condon).
8. Sellick's Beach, three on 25th June, 1935 (B. 17926-8) (H. T. Condon), three on 4th August, 1935 (B. 17933-5) (H. T. Condon).
9. Younghusband Peninsula, Coorong district—one by D. W. Brummitt and three by H. T. Condon on 17th August, 1935 (B. 17979-80, B. 18067-8).
10. Black Point, Yorke's Peninsula—a cranium found in September by B. C. Cotton (B. 18017).

The Yellow-nosed Mollymawk is easy to identify. Its bill, which is characteristic, is relatively somewhat longer, more slender and more compressed than in the other species found in South Australia.

The culminicorn is narrow, tapering, and pointed at the base. There is also a large black fleshy membrane at the base which is distinctive in size and shape (see figs. 4, 8).

With one exception (see below) the bills of the twenty specimens examined are uniform in shape and structure.

Immature birds have a black bill. As they approach maturity the middle and basal portions of the culminicorn assume a dirty yellow colour, but the tip is still black. Gradually this dirty yellow changes to a deep clear yellow and extends towards the tip. In the fully adult bird the tip itself becomes orange-red, and there is a deep yellow vertical narrow bar of flesh at the base of the lower mandible; from the upper extremity of this bar a bright yellow line of bare skin is continued backwards from the gape and to about one inch further on to the cheek.

The plumage of an adult male (B. 6883) shot in St. Vincent Gulf on 14th August, 1926, is as follows: Head white with a faint wash of blue-grey on the sides and hind neck; chin, throat, under-surface, under wing-coverts, upper and lower tail-coverts white; mantle greyish-brown, wings brown; tail greyish-brown with white central shafts; a faint grey mark in front of the eye. Soft parts: the bill exhibits fully adult colours. Inside of mouth horn colour; legs light leaden grey, webs very pale grey; toes leaden grey; darker spots at joints. Iris, brown. An

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adult female (B. 6885) shot at the same time agrees with the above description in all details. An immature male (B. 6884) obtained together with the above-mentioned examples agrees in plumage colours, except that its head is pure white and the bill black, with basal half of culminicorn dull yellow.

It is interesting to note that while the faint "grey wash" on the sides of the head and neck is present in the mature birds, this character is not possessed by the immature male taken at the same time.

Lowe and Kinnear are of the opinion that this "grey wash" occurs in Australasian specimens obtained in August, and is due to the fact that they are freshly moulted individuals. Their opinion is based on one August specimen. According to these authors the head and neck of adults at other times is pure white in Australasian birds, but in birds from Tristan da Cunha the sides of the face and hind neck are "very distinctly washed with grey." Also the "ocular streak" and loreal "smudge" are of a "darker and more decided tone" in the latter examples than in Australasian specimens.

While the young birds of *D. melanophris* and *D. chrysosoma* (see below) have dark or grey heads, this character does not seem to appear in *D. chlororhyncha* in the young, as is borne out by the immature birds in the Museum.

There is a specimen in the collection which was found alive at Dry Creek, a place north of Adelaide and about five miles from the sea in May, 1933. This bird lived for a few days in captivity. It is much smaller than any of the other nineteen birds examined and has a very small, dark coloured bill (the top of the culmen was pale yellow in life, but no colour remains) which suggests that it may be similar to *D. carteri* now regarded as a young example of *D. chlororhyncha*. The legs and feet were light flesh colour (? white) with joints darker in life. Since these colours were taken they have changed to a pale yellow or parchment colour—the colour given for *carteri* in the standard works. The bill has a distinctly *chlororhyncha*-like appearance and any differences which it may show are probably due to individual variation and age. The plumage of this bird is similar to that of an adult, and the head and neck is pure white. From its size it may be a young bird, but the plumage affords no clue in this direction as it is now considered that the young of this species is like the adult, at least in Australasian examples.

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All the specimens found during 1935 were sub-adults. Various stages of bill colourations from pure black to bright yellow culmens occur, the plumages are alike in every case, with the head and neck pure white, and in every case the feet were white with a heliotrope tinge. When viewed from beneath the wings are white with a narrow dark margin on both sides.

The rapidity with which the fugitive colours of the feet change is indicated by their complete disappearance, within a week, from all the specimens we examined in the flesh. The feet of the two birds shot in 1926 have changed from a leaden-grey to a deep yellowish-brown, but, after nine years, the colours of the bills remain practically unaltered.

DIOMEDEA CHLORORHYNCHA.

{ S.A.M. No.	B6883	B6884	B6885	B11778	B16850	B17866	B17918	B17956	B17597	B17926
Date	14.8.26	14.8.26	14.8.26	23.6.29	29.5.33	23.6.35	21.7.35	-7.35	-7.35	25.6.35
{ Sex	♂	♂ imm.	♀	♂ imm.	♂	crania only preserved		crania only preserved		♀
{ Colour of Bill	culmen yellow, reddish tip	culmen tinged yellow	culmen yellow, reddish tip	culmen grey, black tip	culmen light yellow, black tip	culmen bright yellow, black tip	culmen bright yellow, black tip	culmen yellow, black, tip	culmen dirty yellow, black tip	culmen yellow tinge
{ Total Length	810	810	800	806	773	—	—	—	—	745
{ Wing Spread	1940	1940	1940	2050	1980	—	—	—	—	1943
Weight	5lb. 13oz.	4lb. 12	5lb. 12	3lb. 4	2lb. 12	—	—	—	—	3lb. 8
Culmen	116	120	115	115	109	115	114	113	110	113
{ Carpal Joint to Tip	490	453	445	520	460	—	470	—	—	450
Tarsus	75	84	72	76	74	—	80	—	—	75
{ Middle Toe and Claw	115	116	107	111	110	—	105	—	—	120

*CONDON—Notes on Albatrosses in S.A. Waters.***Diomedea chrysostoma Forster (1785), Grey-headed Albatross.**

Range: Southern oceans.

Breeds: South Georgia, Kerguelen, Marion, Crozet, Campbell and Diego Ramirez Islands, and Cape Horn.

Records in South Australia.

1. Seen off Cape Jervis and Northumberland, 1838 (John Gould).

2. Seen off Kangaroo Island, 23rd June, 1919 (Dr. W. MacGillivray).

3. Immature ♂ (B. 17876) at Moana, 25th June, 1935 (H. T. Condon).

4. Two immature ♂ (B. 17976, B. 17972) on ocean beach, Youngusband Peninsula, Coorong district, 17th August, 1935 (H. T. Condon and D. W. Brummitt).

Known as the Flat-billed, Culminated and Grey-headed Mollymawk, this species is superficially more like *D. melanophris* than the others. A close examination shows definite differences in the two species. The culminicorn is broader and flatter when viewed from above and there is a wide fleshy membrane (see figs. 5, 9). Adult birds with fully coloured bills and dark heads could never be confused with adult *D. melanophris*, but the immature examples of both species which were gathered at the same time do resemble each other. The feathers of the mantle and wings in each are blue-grey and not brownish-grey as in *D. chlororhyncha*, but the head of *D. chrysostoma* is a darker grey. The culminicorn and lower edge of the ramicorn is bright yellow in maturity, and these colours are indicated in younger phases by a faint dirty yellow.

A striking example of a young male (B. 17876) found at Moana on 25th June, 1935, was as follows:—Plumage: General colour slate grey (bluish) above, pure white beneath; top and sides of head, neck, and face slate grey; a darker patch in front of the eye; sides of upper breast slate grey; chin and front of neck lighter grey; scapulars and back, dark slate; breast, abdomen, under tail coverts and rump, pure white; tail feathers dark slate with white central shafts; wings very dark slate. Soft parts: Bill very dark, nearly black, culminicorn and lower edge of ramicorn lighter; inside of mouth white; legs and feet white; iris brown. The culmen is not markedly flattened from above in this specimen.

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Two larger birds (both ♂) were found on Younghusband Peninsula, Coorong district, on 17th August. The plumage is the same as that of the bird described above, except that the head and neck are a lighter shade. The bill in each is dark grey, the culmicorn and lower edge of ramicorn lighter with a yellowish tinge. The legs and feet are white with heliotrope tinges at the joints. Much confusion exists in the literature of this species, many authors seeming to associate it with *chlororhyncha*. Loomis considers *eximius* which is now regarded as a variant of *chlororhyncha*, to be the same as *chrystoma*, but the published figures (Verrill, Salvadori) do not support this idea, and at once suggest *chlororhyncha*. The species was named *culminata* by Gould (1843).

When viewed from beneath, the wings of this species are dark with a narrow central white band.

DIOMEDEA CHRYSOSTOMA.

	B. 17876	B. 17976	B. 17972
Sex	♂	♂	♂
Total length	808 mm.	846	837
Wing spread	2120	2138	2129
Weight	3 lb. 14 oz.	5 lb. 8 oz.	5 lb. 0 oz.
Culmen	106	110	110
Carpal joint to tip	490	530	510
Tarsus	85	80	90
Middle toe and claw	123	122	125
Width of wing at carpal joint	—	165	150

Diomedea cauta Gould (1841), White-capped Albatross.

Range: South Pacific and Australian seas, South Indian Ocean.

Breeds: Albatross Island, Bass Strait; Bounty Island; Pyramid Rock, Chatham Islands.

Records in South Australia.

1. Seen off Port MacDonnell, 26th June, 1919 (Dr. W. MacGillivray).

The White-capped or Shy Mollymawk is essentially an Australasian species.

The Museum collection possesses one mounted specimen and two crania without data which may possibly have been taken in South Australia.

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D. cauta is second in size only to *D. exulans* from which, however, it is easily distinguished. Its bill is distinctive, being relatively very deep at the base, giving the bird a peculiar appearance. The bill is light in colour with the fleshy membrane black and extending along the base of the latericorn and on to the ramicorn. When viewed from above the culmicorn is broad, and rounded or nearly square in outline at the base. These characters are readily distinguishable in photographs, and a bird figured as *D. melanophris* by Waite (Vertebrata of Subantarctic Islands of New Zealand, Art. XXV, Aves, p. 574, fig. 18, 1909) is really of this species.

The plumage of the mounted bird in our collection is as follows:—Head, neck, rump, upper tail coverts, and entire under surface, white; back and scapulars dark ashy grey; wings dark ashy grey with black tips; mantle and tail brownish grey, bill light grey, with yellowish tips; legs and feet nearly black (? an error in colouring). There is a dark grey streak in front of and over the eye and the sides of the face and neck are tinged with grey. This gives the bird the appearance of having a white cap, as the top of the head is white.

A good account of this species is given by North (Nests and Eggs of Australian Birds, Vol. 4, p. 378, 1913-1914) and some excellent photographs shown. This author states that the legs and feet are "fleshy white tinged with blue." These colours appear to be based on fresh material.

With regard to the colours of legs and feet in other species, some authors have given them for *chlororhyncha* as flesh pink (a deep pink in one plate) or yellowish white, and "grey" and "blue-grey" for *chrysostoma* and *melanophris* (Mathews, Godman, etc.).

In the fresh specimens of each species of *Diomedea* examined the legs have been white with a bluish or heliotrope tinge.

A cranium (B. 6432—no data) has culmen 124 mm.

Phoebetria fusca Hilsenberg (1822), Sooty Albatross.

Range: Wanders in the South Atlantic and western Indian Oceans (Peters).

Breeds: Inaccessible, Gough and Tristan da Cunha Islands.

Records in South Australia.

1. Three seen in the Great Australian Bight, very close to S.A. waters, 23rd June, 1919. (Dr. W. MacGillivray).

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2. Three seen within sight of the coast, Port MacDonnell, 20th October, 1926. (Dr. W. MacGillivray).

Little is known of the movements of Sooty Albatrosses in South Australian waters. According to the latest authority, Peters, the normal range of this species is the South Atlantic and western Indian Oceans. Dr. MacGillivray, who always endeavoured to distinguish between *Phoebetria fusca* and *Phoebetria palpebrata*, Grey-mantled Albatross (see below), records both species in Australian seas, but only the former as occurring in our waters.

The genus *Phoebetria* is at once distinguished by the dark plumage, smaller size, and wedge-shaped tail, which latter is rounded in all other Albatrosses. In the cranium (see figs. 13, 14) the pointed culminicorn running into the feathers of the forehead, the narrow latericorn, and grooved ramicorn are distinctive. The Sooty Albatross has a sooty-brown back, and there is a white mark above and behind the eye. There is a yellow fleshy line in the groove of the ramicorn in life.

(There are no examples of *fusca* in the Museum.)

Phoebetria palpebrata Forster (1785), Grey-mantled Albatross.

Range: Southern oceans north to lat. 33 deg. S.

Breeds: South Georgia, Kerguelen, sub-antarctic Islands of New Zealand.

The Grey-mantled Albatross has *not* been distinguished in South Australian waters, but as they were seen by Dr. MacGillivray in the western portion of the Great Australian Bight there is no doubt that they do frequent our seas also. *Phoebetria palpebrata* differs from *P. fusca* in that the back is pale brownish-grey instead of dark brown, the head is very dark brown, and the line of flesh in the groove of the ramicorn is *blue* instead of yellow in life.

According to Lowe and Kinnear the plumage colours are variable, so that if the colour of the line on the lower mandible is not visible, the species could be confused with *fusca*.

There are two examples of this species in the Museum collection obtained at Macquarie Island in 1912.

The plumage of one, a male (B. 1105) is as follows:—Top and sides of head dark brown; back of head, chin and throat slightly lighter brown; hind neck, back, mantle, and under surface

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pale ashy- (or brownish-) grey; the wings are darker brownish-grey; the tail brownish-grey with white central shafts. Soft parts: bill black; legs and feet yellowish-brown (? white in life). Measurements:—Culmen, ~~189~~¹⁸³ mm.; wing, 530; tarsus, 89; middle toe and claw, 135.

The plumage of the other example, also a male (B. 1104) agrees with the description given above. Measurements:—Culmen, ~~180~~¹⁰⁶ mm.; wing, 550; tarsus, 83; middle toe and claw, 130.

Acknowledgments.

In conclusion, I wish to thank Mr. J. Sutton (Museum Ornithologist) for much help and encouragement in the preparation of this account and for data and references to South Australian records.

The parasites were found and will be described by Professor T. Harvey Johnston, to whom our best thanks are due.

I also wish to thank the Museum authorities for permission to visit the local beaches on 25th June, 1935, and the Young-husband Peninsula near Salt Creek on 17th August, 1935.

Summary.

An account is given of all records of Albatrosses (*Diomedidae*) occurring in South Australia, including the finding of an unusually large number of birds on beaches near Adelaide during 1935.

Descriptions and measurements are given of all available specimens, which are now in the South Australian Museum collection.

Photographs of the dorsal and lateral views of the bill of each species are given to show their distinguishing features. Colours of soft parts are given and the descriptions include those of a large number of immature birds. Immature examples of *D. melanophris* with grey heads are described, and the sequence of the bill colours are given for *D. chlororhyncha*.

Literature Consulted.

1. Alexander, W. B., Birds of the Ocean, 1926.
2. British Museum, Catalogue of Birds, v. 25, 1896.

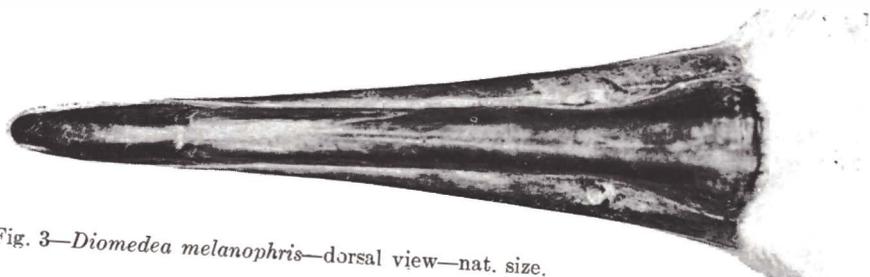


Fig. 3—*Diomedea melanophris*—dorsal view—nat. size.

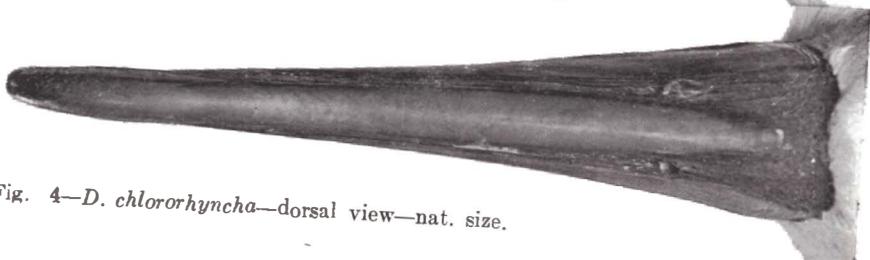


Fig. 4—*D. chlororhyncha*—dorsal view—nat. size.

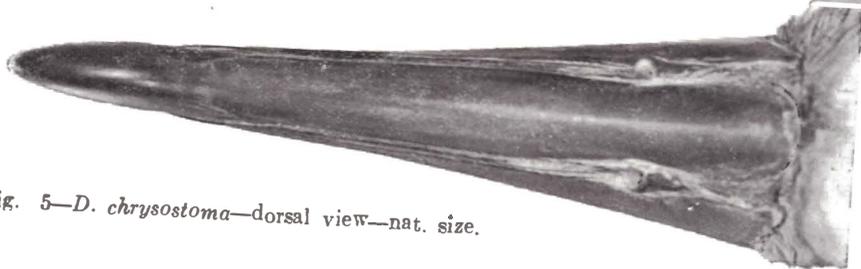


Fig. 5—*D. chrysostoma*—dorsal view—nat. size.

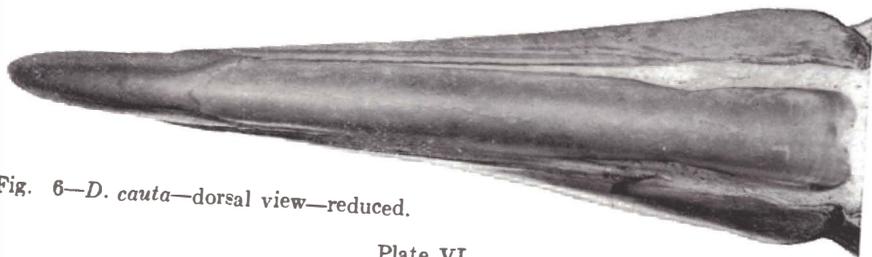


Fig. 6—*D. cauta*—dorsal view—reduced.



Fig. 7—*Diomedea melanophris*—lateral view—nat. size.

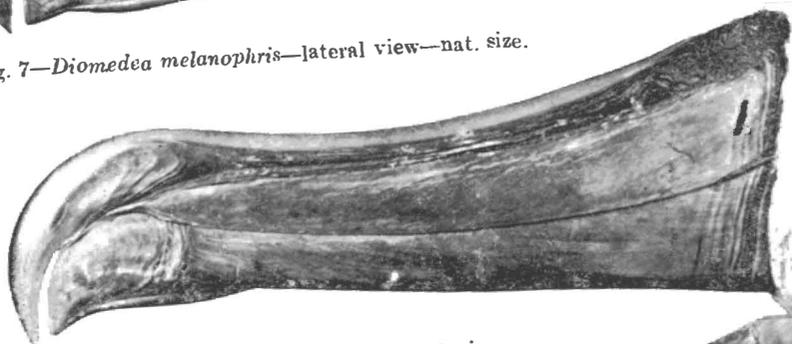


Fig. 8—*D. chlororhyncha*—lateral view—nat. size.

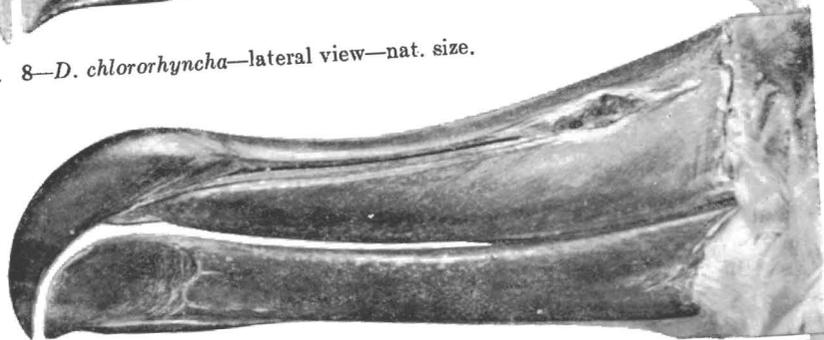


Fig. 9—*D. chrysostoma*—lateral view—nat. size.

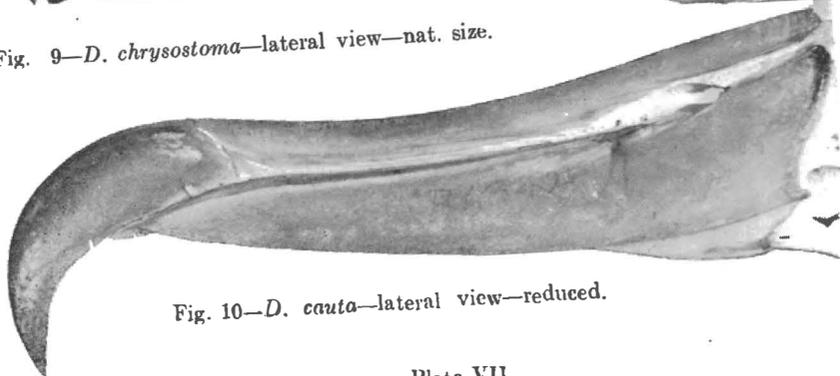


Fig. 10—*D. cauta*—lateral view—reduced.

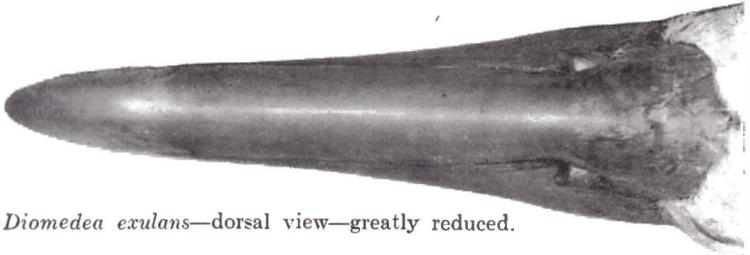


Fig. 11—*Diomedea exulans*—dorsal view—greatly reduced.



Fig. 12—*D. exulans*—lateral view—greatly reduced.



Fig. 13—*Phoebetria palpebrata*—dorsal view—nat. size.

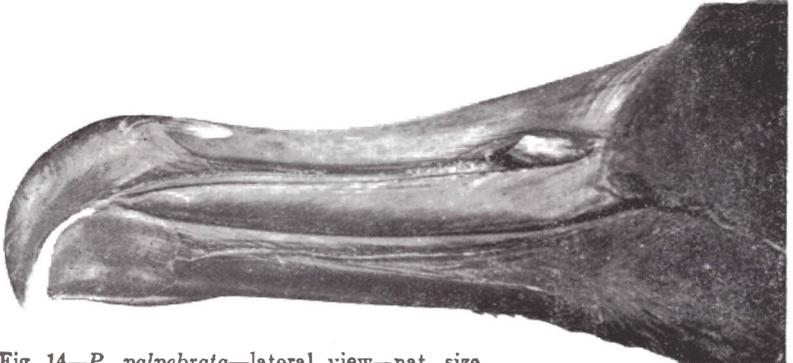


Fig. 14—*P. palpebrata*—lateral view—nat. size.