

Bird Notes from a Summer Trip to Davis, Antarctica

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Notes on birds observed during a visit to the Antarctic in summer 1971-72 are presented, with special emphasis on the breeding populations near Davis Station.

These notes stem from a visit I made to Davis Station (68° 35' S., 77° 57' E.) on the coast of the Antarctic continent from 14 January to 14 February 1972. The purpose of the visit was to make a biological survey of the station area, nearby islands and the Vestfold Hills which lie between the coast and the polar ice-sheet 20 km inland.

The voyage to Davis was indirect and took five weeks, although the direct route can be accomplished in ten days. Leaving Melbourne on 9 December, we arrived at the edge of the sea-ice some 50 km north of Mawson Station on Boxing Day. Here summer field parties disembarked, and they and their equipment were flown in to the station. Groups of 20 or so Adelie Penguins rested at the water's edge. Occasional Emperor Penguins appeared from the sea and disappeared walking steadily south-east in the direction of the Auster Islands rookery, about 56 km away. Groups of two and 15 Emperor Penguin chicks materialised beside the ship with varying amounts of down still hiding their feathers; they had presumably walked from the rookery and would soon be floating out to sea on ice-floes as the sea-ice broke up, the usual method of dispersal for this remarkable bird.

Garbage gradually accumulated around the ship and soon there was an oily slick of calm water trailing out behind us, probably produced by fat and oil from the waste food. Wilson's Storm-Petrels came to feed, delicately picking tiny food morsels from the surface. The largest count was 40 on New Year's Day. Up to 54 Silver-grey Petrels also capitalised on the ship's refuse, settling on the water and squabbling noisily. One was seen to eat a piece of bread. They were

joined by a few Cape Petrels (up to five at one time). Giant, Snow and Antarctic Petrels although present in the area never came to feed beside the ship. To my surprise neither did the McCormick's Skuas despite their role as active scavengers around Antarctic stations. They never alighted closer than 200 m away, and seemed more wary than the Southern Skuas *C.s. lombergi* of Macquarie Island.

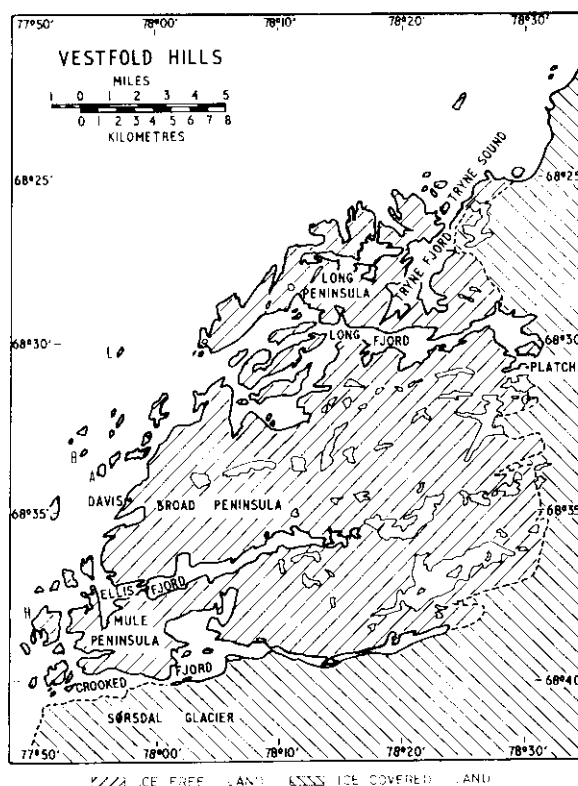
Nella Dan left her mooring in early January and headed east towards Davis but became trapped in an open lead; for over a week it was hemmed in on all sides by heavy pack-ice which had drifted in to block the route taken through the pack earlier. So we had ample opportunity to observe the bird-life around us: frequent parties of Adelies and occasional Emperors on ice-floes and swimming past; many Wilson's Storm-Petrels flitting over the water, mostly along the edge of the pack; Snow Petrels flew back and forth, Silver-grey and Cape Petrels less commonly; the occasional Giant Petrel flapped heavily by; Antarctic Petrels were least often seen. It was noticeable that when these last did occur they were usually in small groups of up to 10 or so, unlike the other petrels which were more commonly single. The weather was calm and pleasant with a cloudless sky and 24 hours' sunshine daily. Cape Petrels sometimes settled on the water in twos and threes, displaying together and chattering, their peculiar call sounding like a high-pitched Laughing Kookaburra *Dacelo gigas*.

Eventually *Nella Dan* broke through the pack and on the evening of 13 January we dropped anchor one km offshore from Davis, the brownish-black Vestfold Hills rising behind the station.

The area of the Vestfold Hills (Fig. 1) is almost unique in Antarctica—a snow and ice-free “oasis” bounded on the east by the polar ice-sheet, on the south by the Sorsdal Glacier, and to the north and west by sea. The only other places like it are the Bunge Hills, 1000 km further east along the coast, and in Victoria Land on the west coast of the Ross Sea where the glaciers have retreated up the valleys of the Transantarctic Mountains. It is rough country of rugged hills up to 158 m above sea level, studded with lakes and tarns, some of them very saline and lying as much as 56 m below sea level. These latter originated as arms of the sea which became isolated when the ice retreated and the land rose, perhaps 8000 years ago. The vast area of the rest of the Antarctic continent is almost entirely covered by the great polar ice-cap, a dynamic sheet of ice several kilometres thick in some parts, sweeping from the pole down to the coast where it forms either ice cliffs or continues out from the land as an ice shelf, as in the Ross and Weddell Seas. Mountain ranges pierce the ice-sheet in places, and especially near the coast rocky peaks (nunataks) thrust up above the ice to form refuges for the few forms of life—lichens and algae—which occur there. But an extensive area from which the ice has retreated, such as the Vestfold Hills is a rarity, and for that reason much interest attaches to it and its ecology.

Apart from the mainland nunataks and oases, the islands which fringe much of the Antarctic coastline form a third, and very important, ice-free terrestrial environment. And it is the islands which support much of the Antarctic bird fauna. Even at Davis with such an unusually large ice-free mainland area, most of the six breeding species nest on the islands in preference to the mainland (Table 1). The reason for this preference for the islands as breeding sites may be due to their proximity to the rich feeding-grounds in the surrounding water. For the Adelie Penguins preferred sites may be on islands from which the sea-ice breaks away earliest in the season. Their rookeries are located on the outer islands and on the north-west coast of Long Peninsula, abutting open sea.

While *Nella Dan* was at Davis I was able to make brief visits to several islands by ship's boat. At Hawker Island I visited the only Giant Petrel rookery in the area, the most southerly known. The colony comprises about 200 adults,



● Figure 1. Map of Vestfold Hills, Antarctica showing place names mentioned in the text. (L. = Lucas I., B. = Bluff I., A. = Anchorage I., H. = Hawker I.)

but numbers breeding apparently vary from year to year. On 20 December 1970, the first of 70 chicks was in the process of hatching. On 16 January 1972, the last of 30 chicks had just hatched (it was still wet) and there was one addled egg. These records date the start and close of hatching in two successive seasons and indicate that Hawker Island Giant Petrels breed earlier than most other populations in the Antarctic for which records exist. For example at Signy Island (60° 43' S., 45° 36' W.) in the South Orkney Islands, eight degrees of latitude further north, the hatching period is about 5-25 January (Conroy, in press). The Hawker Island birds hatch about four weeks later than the Macquarie Island population (54° 34' S., 159° 53' E.), and one might have predicted that the former would be slightly later than populations at intermediate latitudes. Presumably climatic and

other environmental factors have a greater influence than latitude *per se*. It was interesting to note that in the absence of vegetation nests were built of pebbles—at Macquarie Island the usual material is grass and other plant debris. I banded only 16 chicks, the remainder being still too small. One adult female guarding a small chick bore a Russian band—she had been banded at sea 2500 km to the north-west in 1958 (see 'Recovery Round-up', page 63).

Most of the islands I visited had rookeries of Adelie Penguins with rapidly growing chicks beginning to gather in creches; the adult/chick ratio was roughly 1:1. While not every island supports Adelies, some such as Lucas Island are literally smothered in them. It was impossible to make any proper counts in the time available, but from my rough estimates and more detailed counts by expeditioners in previous years the breeding population from Long Peninsula in the north to the Sorsdal Glacier in the south is of the order of 85,000 pairs. The evidence from earlier years indicates that most colonies have occupied the same areas from year to year. However, in some cases entire colonies have moved their locations by up to one km. The deserted rookery areas are marked by deep deposits of guano and the dried carcasses of chicks. These occurrences are surprising in view of the fidelity to nest site normally shown by Adelies, particularly males (Penney, 1968)



● Cape Petrel on nest on Bluff Island off Davis.
ANARE photograph by G. W. Johnstone

Travelling by boat amongst the islands I noticed a single adult Emperor Penguin swimming by. Emperors have been recorded every month in the area and are most commonly seen in summer, with up to 14 in one group. The nearest rookery is 100 km south-west on the sea-ice in Prydz Bay.

TABLE 1

Status of birds in the Davis area.

Species	Mainland Peninsulas Occupied			Number of Islands Occupied
	Mule	Broad	Long	
Breeding Species				
Adelie Penguin <i>Pygoscelis adeliae</i>				12
Southern Giant Petrel <i>Macronectes giganteus</i>				1
Cape Petrel <i>Daption capense</i>				6-8
Snow Petrel <i>Pagoaroma nivea</i>	1	1		At least 8
Wilson's Storm-Petrel <i>Oceanites oceanicus</i>			2	Probably all (20+)
McCormick's Skua <i>Catharacta skua maccormicki</i>	2	1	1	Most (about 20)
Non-breeding Species				
Emperor Penguin <i>Aptenodytes forsteri</i>				Regular visitor
Silver-grey Petrel <i>Fulmarus glacialisoides</i>				Frequent throughout summer
Antarctic Petrel <i>Thalassolica antarctica</i>				Occasional visitor
Dominican Gull <i>Larus dominicanus</i>				Single record (January 1972)



• Islands off Davis. Bluff Island is on the right and Adelie Penguin rookery in the foreground.

ANARE photograph by G. W. Johnston.

Cape Petrels have been recorded nesting on at least eight islands in the area. The total breeding population is only about 400-500 pairs, but being a surface nester on steep rocky slopes breeders are conspicuous and readily observed. The largest colony of 200-300 pairs is on the south end of Bluff Island which rises steeply to a height of 69 m. I visited this island on 15 January and all eggs I saw were intact. Next day at a small colony on an unnamed island near the Sorsdal Glacier the first chick had hatched. This species has a latitudinal breeding distribution greater than any other Antarctic procellariid, with colonies as far north as the Snares Islands (48° 02' S., 166° 30' E.) (Fleming, 1948) south of New Zealand. It offers an interesting contrast to the Giant Petrel in that breeding dates are remarkably similar throughout its range—the earliest hatching date at Heard Island (53° 07' S., 73° 20' E.), was 9 January (Downes, Faley, Gwynn and Young, 1959) and the earliest elsewhere was 5 January at Terre Adelie (66° 40' S., 140° 01' E.) (Prevost, 1964). For all populations the median hatching date is about mid-January (Pinder, 1966).

Snow Petrels nest on many of the islands, usually higher than Cape Petrels and in nests concealed under rocks. They also nest on the mainland in several places. During the three weeks between *Nella Dan's* departure and her return from Fremantle I covered about 370 km on foot through the Vestfold Hills and around the coast. Snow Petrels are common along Long Fjord, on islands and in clefts and cracks in cliffs as far east as Platcha, a small field station below the ice cliffs of the plateau. They also nest on high exposed ridges south and east of Platcha and at several sites on the western end of Mule Peninsula. Here I found them nesting under rocks only 4 m above the calm water of Crooked Fjord. There were nests at 155 m, just below the summit of the highest peak in the Vestfolds. Populations on Anchorage Island and around Platcha were studied by Brown (1966). Nest material from the former location provided the first specimens of the Antarctic Flea *Glaciopsyllus antarcticus* from Snow Petrels; it was originally discovered on a Silver-grey Petrel chick from near Wilkes Station (Murray, Orton and Cameron, 1967).

The most abundant procellariiform in the Antarctic is also the smallest, Wilson's Storm-Petrel. It nests in all parts of the Vestfold Hills and on all islands, in usually inaccessible sites at the end of tortuous passages dug in the sand and gravel under rocks and boulders. The total population of the area can only be guessed at. A conservative estimate of one pair per hectare (2½ acres) gives about 40,000 pairs.

Silver-grey and Antarctic Petrels occur in the area but there are no records of breeding. I saw a few Silver-grey Petrels near the Sorsdal Glacier on several occasions. Most reports are from this area, prompting the suggestion that there may be a breeding ground in the Rauer Islands to the south.

The only other species breeding in the Davis area is McCormick's Skua, common on the islands amongst the Adélie Penguin rookeries but nesting at only a few scattered localities on the mainland, near the sea and fjords. They have been found nesting near Platcha, and I found a pair beside Ellis Fjord still incubating two addled eggs on 1 February; but by 7 February the eggs had gone and a second pair was present—previously the resident pair had vigorously chased intruders. Normally eggs hatch during late December and early January (earliest record 19 December). Up to 70 skuas may be seen at seal carcasses in summer. Apart from Adélie eggs and chicks, their summer diet includes Snow Petrels taken at the breeding grounds and the occasional sea-urchin or starfish washed up on the beaches.

Only one other species of bird has been recorded—a single Dominican Gull, seen by me on a small unnamed island near the Sorsdal Glacier (Johnstone and Murray, 1972).

On 14 February I boarded *Nella Dan* for the last time and next morning we were on our way back through the pack towards Mawson; a month later I arrived in Melbourne.

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• Antarctic Petrels nesting on Ardery Island.

ANARE photograph by M. D. Murray

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References

- Brown, D. A. (1966). 'Breeding Biology of the Snow Petrel *Pagodroma nivea* Forster', *ANARE Sci. Rep.* (B) 1, Publication No. 89.
- Conroy, J. W. H. (In press). 'Some Ecological Aspects of the Giant Petrel *Macronectes giganteus* (Gmelin) in the Maritime Antarctic', *Br. Antarct. Surv. Rep.*
- Downes, M. C., Ealey, F. H. M., Gwynn, A. M., and Young, P. S. (1959). 'The Birds of Heard Island', *ANARE Sci. Rep.* (B) 1, Publication No. 51.
- Fleming, C. A. (1948). 'The Snares Islands Expedition 1947', *N.Z. Bird Notes*, 2:181-184.
- Johnstone, G. W and Murray, M. D. (1972). 'Dominican Gulls in the Australian Antarctic Territory', *Aust. Bird Bander*, 10: 59-60.
- Murray, M. D., Orton, M. N. and Cameron, A. S. (1967). 'The Antarctic Flea *Glaciopsyllus antarcticus* Smit and Dunnet', *Antarct. Res. Series*, 10: 393-395.
- Penney, R. L. (1968). 'Territorial and Social Behaviour in the Adélie Penguin', *Antarct. Res. Series*, 12:83-131.
- Pinder, R. (1966). 'The Cape Pigeon *Daption capensis* Linnaeus at Signy Island, South Orkney Islands', *Br. Antarct. Surv. Bull.* 8:19-47.
- Prévost, J. (1964). 'Remarques écologiques sur quelques Procellariens antarctiques', *Oiseau. Revue Jr. Orn.*, 34, No spécial: 91-112.

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