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BIOLOGICAL NOTES ON A SEA VOYAGE FROM AUCKLAND TO SINGAPORE

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Several bird logs for trans-Pacific voyages to and from Panama were published by Fleming (1950) and a further one by Laird (1951), but with the exception of a summer log for the Sydney - Wellington crossing (Sibson, 1951) and Falla's records for the final stages of a trip from Panama to Brisbane (February - March) which are included in Fleming's paper we know little concerning seabird distribution in the waters between New Zealand and Australia. As only occasional cargo vessels having limited passenger accommodation travel between New Zealand and Queensland, there are few opportunities for observations in the northern Tasman. Records of birds sighted were thus kept during a direct voyage from Auckland to Singapore in September 1954, the first landfall being near Brisbane (M.V. *Wairimu*, Union Steam Ship Co. of N.Z. Ltd.). These records, together with others including some of more general biological interest for the remainder of the trip, are detailed herein.

The log abbreviations are those employed by Fleming (1950), the information in parentheses following each date being the noon readings for position, sea surface temperature (s.t.) and air temperature (a.t.) in degrees Fahrenheit, wind direction, wind force (Beaufort Scale) and weather. I have also followed Fleming's interpretation of the growth stages of the Wandering Albatross. Subspecific names are not used in the text for the obvious reason that birds seen only in flight can hardly be identified with accuracy below the specific level. Insofar as locality may serve as a guide to subspecific status, most of the relevant names and authorities are to be found in Mathews and Iredale (1921), Alexander (1928) and Fleming et al. (1953). My thanks are due to Captain C. Burgess for furnishing the log readings and for securing a sample of *Trichodesmium* in the Java Sea.

SEPTEMBER 8: Sailed from Auckland, 10.07 p.m.

SEPTEMBER 9: (34° 19′ S, 172° 53′ E; s.t. 61°; a.t. 59°; SE2, fine.) 9 a.m. – 1 'leopard stage' Wandering Albatross (*Diomedea exulans*), 10 Nellies (*Macronectes giganteus*) and 14 mature and immature Black-backed Gulls (*Larus dominicanus*) close astern. 3 mature Red-billed Gulls (*Larus novaehollandiae*) settled at mastheads. Several unidentified dark petrels in distance. 12 noon – North Cape about 8 miles astern. 4 'leopard stage' *D. exulans*, 2 *M. giganteus*, 1 mature *L. dominicanus*, 1 Black-browed Mollymawk (*Diomedea melanophris*) and 3 Cape Pigeons (*Daption capensis*) patrolling wake. A flock of 9 prions, *Pachyptila* sp., flew by, and a school of porpoises appeared close to port. 2 p.m. – North Cape and Te Reinga barely visible astern, the Three Kings from 4 miles to port. 11 *D. exulans* (6 young mature birds and 5 'leopard stage'), 1 *D. melanophris*, 8 *M. giganteus*, 1 mature *L. dominicanus* and 2 mature *L. novaehollandiae* astern, the gulls flying much higher than the other birds at altitudes of up to about 100ft. 3 p.m. – Approximately 8 miles north of the Three Kings. 5 *D. exulans* and 2 *M. giganteus* far astern. 2 Buller's Shearwaters (*Puffinus bulleri*) flew

alongside, the white underparts and inverted W of the dark brown feathers on the wing coverts and back (c.f. Alexander, 1928) showing clearly. The *L. novaehollandiae* were no longer in sight, and the last remaining *L. dominicanus* was now noticed for the last time. 5 p.m. – Out of sight of land. 6 *D. exulans* and 8 *M. giganteus* in distance, 1 *D. melanophris* and 2 *D. capensis* close astern. A flock of upwards of 30 unidentified shearwaters (dark above, whitish beneath; possibly *P. bulleri*) in middle distance. 5.45 p.m. – Sunset. 20 *D. exulans* including 1 immature bird entirely dark above but with white belly and dark chest band, 8 *M. giganteus*, 1 *D. melanophris* and 1 *D. capensis*, all close astern.

SEPTEMBER 10: (31° 39′ S, 166° 41′ E; s.t. 64°; a.t. 61°; WSW4, fine.) 9 a.m. – 14 *D. exulans*, including 2 'snowy phase' adults and 1 immature (Fleming's queried second year bird) as for yesterday's 5.45 p.m. record, 1 *D. melanophris*, 1 *M. giganteus*, 10 *D. capensis* (circling ship below bridge height) and 16 *P. bulleri*, all patrolling wake. Other petrels and albatrosses far out towards limit of visibility, but a slight chop prevented an accurate count of these. 12 noon – 16 *D. exulans*, including 2 in second year (?) and 1 in fledgling plumage, 1 *D. melanophris* and 1 *M. giganteus* astern, upwards of 12 *D. capensis* circling ship. 5 p.m. – 17 *D. exulans*, including 2 in second year (?) and 2 in fledgling plumage, 2 *D. melanophris* and 8 *P. bulleri* astern. The last *M. giganteus* disappeared shortly after midday. 5.45 p.m. – Sunset. 15 *D. exulans*, including 2 in second year (?) and 2 in fledgling plumage, 2 *D. melanophris* and 4 *D. capensis* close astern, and 2 unidentified shearwaters far to starboard.

SEPTEMBER 11: (29° 04′ S, 160° 35′ E; s.t. 69°; a.t. 68°; SE2, fine.) 9 a.m. – 3 *D. exulans*, 2 'leopard stage' and 1 second year bird (?), 1 *D. melanophris* and 6 unidentified shearwaters, the *D. melanophris* approaching the stern very closely. 12 noon – 2 *D. exulans*, 1 'leopard stage' and 1 second year bird (?), close astern. 2 unidentified shearwaters far to port and 1 *D. capensis* circling ship. 3 p.m. – 5 *D. exulans*, 2 'leopard stage', 2 second year birds (?) and 1 fledgling, 1 *D. melanophris*, 4 *D. capensis* and 1 *P. bulleri* all close astern. 5 p.m. – 7 *D. exulans*, 4 'leopard stage', 2 second year birds (?) and 1 fledgling, and 1 *D. melanophris* following ship. 5.50 p.m. – Sunset. 10 *D. exulans*, 6 'leopard stage', 2 second year birds (?) and 2 fledglings, 1 *D. melanophris*, 1 *D. capensis* and 2 *P. bulleri*.

SEPTEMBER 12: (27° 16′ S, 154° 18′ E; s.t. 71°; a.t. 70°; ENE3, fine.) 9 a.m. – 7 *D. exulans*, 1 'leopard stage' and 1 in fledgling plumage, and 3 *D. melanophris* close astern. A flock of upwards of 50 Wedge-tailed Shearwaters (*Puffinus pacificus*) passed within 100 yards of the ship. 12 noon – 7 *D. exulans*, 1 'leopard stage' and 1 in fledgling plumage, and 2 *D. melanophris* close astern. 1 unidentified medium-sized brown shearwater (*P. pacificus*?) in distance. 1 p.m. – Australian coast in sight. No birds logged. 3 p.m. – Close inshore, Cape Moreton, Queensland. 2 Crested Terns (*Sterna bergii*) flew past, distinguishable by large size and separated from Caspian Tern by their greenish-yellow bill and black feet. 4 p.m. – Approaching Caloundra Heads. 1 *D. melanophris* following ship. 2 Humpback Whales (*Megaptera nodosa*), their blow tall, narrow and vertical and the long flippers showing from time to time, sighted heading south four miles from shore. 4.30 p.m. – Hove to for pilot, close inshore at Caloundra Heads. 3 mature Red-billed Gulls settled on aerial, several more flying about the ship. Upwards of 100 Masked Boobies (*Sula dactylatra*) diving for fish nearby. 5 *S. bergii* and 3 Pied Shags (*Phalacrocorax varius*) observed at close range. Another Humpback and a school of porpoises in sight to seawards. 5.45 p.m. – Sunset. No birds in company.

SEPTEMBER 13: (22° 50′ S, 151° 48′ E; s.t. 71°; a.t. 71°; SE3, fine.) Inside southern end of Great Barrier Reef. No birds observed during the day. A total of 17 Humpback Whales sighted, all heading south; mostly in pairs, one group of 4, 3 having tall blows and a calf with a small and weak one.

Between 3 p.m. and 3.45 p.m. 4 Humpbacks were observed breaching within half a mile of the ship. Two of these were in close association and leaping clear of the water alternately, rolling over, flippers outspread, as they emerged, and then crashing down on to their backs. A calf followed a mile behind this pair, making an insignificant blow and a relatively slight splash as it fell back into the water. The fourth animal was quite alone. Occasional streaks of reddish-brown water bloom were noticed in the afternoon.

SEPTEMBER 14: (19° 01′ S, 147° 10′ E; s.t. 73°; a.t. 72°; SE3, fine.) 8 a.m. – About 5 miles from the Pelorus Group. 1 *Larus novaehollandiae* circling the ship and settling at the stern post from time to time. 12 noon – 2 more Humpbacks heading south. 4 p.m. – Upwards of 40 Frigate Birds were sighted, leisurely wheeling at an altitude of about 300ft. half a mile from the ship and 5 miles from the nearest land. Both *Fregata minor* and *F. ariel* occur on the Queensland coast (Alexander, 1928), but the birds concerned were much too far away for the identification of the species.

It was pointed out by the Second Officer that the ship's log carries an entry to the effect that an 'albatross' was following behind on the previous southward voyage from Singapore (June 30, 1954) in 19° 34′ S, 148° 06′ E (75 miles ESE of Townsville). Some of those on board remembered the occurrence quite well, and from their descriptions it would appear that the bird was almost certainly a Wandering Albatross. *D. exulans* is listed by Alexander as occasionally ranging as far north as the Tropic of Capricorn, and it is possible that some birds accompany coastwise shipping beyond this limit and for some distance inside the Great Barrier Reef.

SEPTEMBER 15: (14° 05′ S, 144° 17′ E; s.t. 76°; a.t. 77°; SE4, fine.) 9 a.m. – Passing close by reef islets. 8 *L. novaehollandiae* in company, settling at mastheads and on aerial. An Australian Pelican (*Pelecanus conspicillatus*) was identified on the boulder-strewn beach of a flat, scrub-covered islet. Red-billed Gulls were flying about the ship all day, building up to a maximum of 20 at 3 p.m. 5.45 p.m. – Sunset. Only 2 *L. novaehollandiae* still with the ship, upwards of 24 more, also 3 *P. conspicillatus*, settled on the sand of a barely emergent islet. An adult Brown Booby (*Sula leucogastra*) flew past at deck height, being easily identifiable by the wholly brown dorsal surfaces and the white abdomen. No flying fish as yet sighted by anyone aboard. Occasional streaks of reddish-brown water bloom were again noticed from time to time.

SEPTEMBER 16: (10° 46′ S, 141° 00′ E; s.t. 79°; a.t. 78°; SE4, fine.) 7.10 a.m. – Dropped pilot at Goode Island, near Thursday Island. 18 *L. novaehollandiae* about ship, and a few unidentified terns in far distance. 8.10 a.m. – Passing near Booby Island. 11 Red-billed Gulls still following. 1 brown-coloured booby flew by close to the water, but as its underside was not seen it might have been either a *Sula leucogastra* or an immature *S. dactylatra*. 9.15 a.m. – Three mixed flights of terns and noddies, each of upwards of 40 birds, were logged. The terns, being small and black-crowned and having greyish upper surfaces, a white forehead and ventral surfaces, and an orange bill and feet, were identified as Little Terns (*Sterna albifrons*); while the noddies, being appreciably larger and of a uniform blackish-brown colour with the exception of a whitish cap, were considered to be Common Noddies (*Anous stolidus*). Alexander (1928) points out that it is hard to distinguish the latter species in life from the Lesser, White-capped and Hawaiian Noddies. The first of these birds is rare and restricted to the Indian Ocean (Mathews and Iredale, 1921; Alexander, 1928) while the last is obviously ruled out on grounds of locality. I gained the impression that the Noddy in question was decidedly larger than the *S. albifrons* with which it was associated and that its cap was neither pure white in colour nor sharply demarcated from the dark brown plumage of the remainder of the dorsal surfaces. According to Alexander, and Mathews and Iredale, the cap of the White-capped Noddy (*Megalopterus minutus*) is whiter and more clear cut, while this species' measurements suggest that it would not appear strikingly

larger than S. *albifrons* on the wing. 9.30 – Out of sight of land, the last 2 *L. novaehollandiae* flying off towards the Australian coast at an altitude of about 200ft. A small green pigeon came aboard and was observed for a short time at close range before it flew off southwards very close to the water. Having a bluish-grey crown and nape, a white forehead and shoulders and metallic green wings and lower mantle, this bird could only have been the Green-winged Ground Pigeon (*Chalcophaps indica*) from data in Mathews and Iredale (1921) and Delacour (1947). *C. indica* occurs from India through Malaysia to tropical Australia and New Caledonia. Shortly after the pigeon was seen a rather small hawk approached from the north, landed on the forward cargo hatch and fluttered about there for a few seconds, and then continued flying southwards just above the surface of the water. It was noted that the body of this hawk was barred dark and light brown and that a pale spot was apparent on top of each of its wings in flight, but an identification is not attempted in the absence of further information. The occurrence of two such land birds flying in the general direction of the Queensland coast although almost 20 miles from the nearest landfall suggests that a seasonal movement from New Guinea or the islands of Torres Strait was in progress. 12 noon – 2 *Sterna bergii* came close to the ship, diving into a shoal of leaping fish. An unmanned lightship some distance to port appeared white with terns. No other birds were seen during the day.

SEPTEMBER 17: (10° 04′ S, 134° 49′ E; s.t. 80°; a.t. 80°; ESE2, fine.) No birds sighted all day. Flying fish, the first of the voyage, were quite common from midday onwards.

SEPTEMBER 18: (08° 43′ S, 128° 56′ E; s.t. 81°; a.t. 85°; E3, fine.) 8 a.m. – Upwards of 20 storm petrels criss-crossing wake, black above, lighter beneath and flanks whitish, and long legs projecting beyond a square tail. The appearance of this bird in flight strongly suggested that of a large swift. In all probability Wilson's Storm Petrel (*Oceanites oceanicus*), although the diagnostic pale band in the wing referred to by Alexander (1928) could not be made out. *O. oceanicus* has been reported from Malaysian seas according to Delacour (1947). 9.30 a.m. – An adult *Sula leucogastra*, the white breast, abdomen and flanks clearly distinguishable, flew swiftly across the ship at funnel height. 9.45 a.m. – 2 Red-tailed Tropic Birds (*Phaethon rubricauda*) came by at funnel height heading eastwards. 12 noon – No birds observed. 3 p.m. – 2 dark-coloured petrels in far distance. 5 p.m. – A whale was sighted spouting far astern, the blow directed forwards. Some minutes later a second whale broke water within 100 yards of the starboard beam, the square front of its head showing as it sent up a powerful forward-directed spout before sounding. It was more than ten minutes before this (?) animal was seen again, a long way astern. The shape of the head and the forward-angled blow identified these whales as Sperms (*Physeter macrocephalus*). 5.50 p.m. – Sunset. Timor in sight far off on port bow. 3 P. *rubricauda* passed alongside the ship on the same heading, flying at an altitude of about 100ft. Flying fish were abundant throughout the day.

SEPTEMBER 19: (08° 02′ S, 123° 13′ E; s.t. 84°; a.t. 85°; ENE2, fine.) 7.30 a.m. – A marlin leapt clear of the water within 200 yards of the ship. 9.15 a.m. – Kedang Peak, Lomblen, 3 miles to port. 22 *Sula leucogastra* and 2 Great Frigate Birds (*Fregata minor*) seen at close range, the latter species identified by the white underparts and throat of a female. 10.30 a.m. – 2 *F. minor* diving into a flock of more than 50 noddies, probably *A. stolidus*, some of which were forced down almost to the water before they disgorged their fish which were promptly scooped up by the frigate birds. 2.30 p.m. – The eastern end of Flores 14 miles away, and the nearest land. A kingfisher-like bird, predominantly light blue in colour, was seen, although not closely enough for recognition.

SEPTEMBER 20: (06° 12′ S, 117° 31′ E; s.t. 83°; a.t. 87°; E4, fine.) 6 a.m. – Passing 1½ miles north of Postillon Group. Several *Fregata minor* skimming low over the water. No more birds seen until just after sunset,

then, when it was too dark for plumage details to be made out, a single booby flew low across the bows. Flying fish in large schools all day.

SEPTEMBER 21: (04° 26′ S, 111° 43′ E; s.t. 83°; a.t. 82°; SE5, fine.) Neither birds nor flying fish sighted all day. At 4 p.m., when approaching the Karimata Straits and at a distance of some 60 miles from the nearest land, south-western Borneo, we crossed a very clearly marked convergence (04° 08′ S, 110° 47′ E; s.t. 83°; a.t. 86°). The bottom in this area is at only 20 fathoms. The zone of convergence was notable for numerous streaks of water bloom of muddy appearance and ochreous colour. Individual streaks were as much as a mile in length, although of a width of a mere 15 to 30 yards, and when broken up by the bow wave they appeared to be only 2 or 3 inches in thickness. A considerable amount of floatage, mainly composed of small branches and coconuts, was in evidence in the area.

From time to time patches of bloom ebbed back against the side of the ship towards the stern, so a bucket was lowered there and a sample obtained. After the water had been allowed to stand for a few minutes, great numbers of tiny, wedge-shaped objects, somewhat curved towards the tip and of a greenish colour, appeared at the surface. Each of them measured 3 or 4 mm. in length and about 0.5 mm. in width at the base. Specimens were bottled in whisky for want of a better preservative. Many weeks later, when examined microscopically in the laboratory, they proved to be fascicles of algal filaments and to have withstood plasmolysis remarkably well! Professor G. W. Prescott, of Michigan State College, to whom specimens were sent, recognized the alga as a species of *Trichodesmium* (Cyanophyta: Oscillatoriaceae) distinct, however, from *T. erythraeum* Ehrenberg. In 1823 Ehrenberg showed that it is the periodic blooming of *T. erythraeum* which causes the surface coloration from which the Red Sea derives its name (Montagne, 1844). In an appendix to his interesting survey of the subject Montagne drew attention to similar blooms, but of a yellow or brownish-yellow rather than a red colour, which had been described from tropical seas by various authorities including Banks, Solander and Darwin. He stated that Cook's seamen had referred to such blooms in New Guinea waters by the not inappropriate name of 'sea saw-dust'. Moseley (1879) later described the massing of *Trichodesmium* in extensive streaks and bands in the Arafura Sea north of Australia, calling attention to the strong smell given off from the bloom 'as from a pond covered with vegetation'. Such a smell was also associated with the bloom under consideration.

Two species of *Trichodesmium*, *T. erythraeum* and *T. Hildebrandtii* Gomont, are listed from Indonesian waters by de Wildeman (1900). According to this author the fascicles of *T. erythraeum* are about 1 mm. long and individual filaments range from 7 to 11 mu. in diameter, while the cells are sometimes as high as they are broad. The second species, on the other hand, has fascicles ranging from 2 to 5 mm. in length and filaments of from 12 to 22 mu. in diameter; individual cells are always short, and their diameter is often three times their height. As already stated, fascicles of the present species measure from 3 to 4 mm. in length. The diameter of individual filaments ranges from 15.3 to 21 mu. (average for 50 filaments, 18.8 mu.), and is always about three times the height of the separate cells. This alga is accordingly considered to be referable to *Trichodesmium Hildebrandtii* Gomont.

SEPTEMBER 22: (00° 55′ S, 107° 32′ E; s.t. 84°; a.t. 82°; SSW2, fine.) Neither birds nor flying fish all day.

SEPTEMBER 23: At Singapore. 7 a.m. — 2 White-bellied Sea Eagles (*Haliaeetus leucogaster*) the only birds sighted.

DISCUSSION

Perhaps the most interesting of the seabird observations are those concerning the northerly extension of the range of albatrosses and the Cape Pigeon. The northernmost limit for *Diomedea exulans* in the South Pacific is given by Fleming (1950) as 29° 20′ S (33° 45′ W: October), while Alexander (1928) states that this species occasionally ranges as far north as the Tropic of Capricorn. My record of 27° 16′ S for September 12 is understandable on the ground of the two birds concerned having accompanied the ship for some time during the Tasman crossing, and the probable record of 19° 34′ S, well north of the Tropic of Capricorn, from the ship's log for June 30, suggests that from time to time Wandering Albatrosses follow vessels up the coast inside the Great Barrier Reef. *Diomedea melanophris* is not listed from further north than 33° 32′ S (153° 04′ W: May) by Fleming (1950), and Mathews and Iredale (1921) only record it from southern Australian seas. This species was not only seen each day from the North Auckland coast throughout the Tasman crossing, but one example was still in company on the Queensland coast at rather less than 27° S on September 12. Finally, *Daption capensis* is not listed by Fleming from further north than 31° S (144° W: July) in the Pacific. This species, which Mathews and Iredale knew only from southern Australian seas, was also logged each day until the evening before the Queensland coast was reached, my northernmost record being close to 28° S.

As regards the factor of temperature, Fleming's highest readings for the three species in question are as follows: — *D. exulans* and *Daption capensis*: s.t. 63°; a.t. 67°. *D. melanophris*: s.t. 61 - 62°. Laird (1951) logged *D. exulans* and *D. melanophris* in 39° 52′ S, 156° 50′ W (March) at s.t. 66° and a.t. 71°, and the former species alone in 36° 52′ S; 143° 43′ W (March) at s.t. 72° and a.t. 69°; while the highest relevant readings recorded herein are s.t. 69° and a.t. 68° for *Daption capensis* and s.t. 71° and a.t. 70° for *D. exulans* and *D. melanophris*. It is apparent, therefore, that Fleming's placing of the northernmost limit of *D. exulans* south-east of Pitcairn Island in sub-tropical waters of a temperature of 63 - 64° F 'just south of a rather abrupt rise of surface temperature to the tropical convergence' is not of general application, and that Southern Ocean albatrosses and petrels range further northwards in the Tasman than is customary in the Central Pacific.

Additional observations from this area are obviously much to be desired, although a dearth of passenger shipping in the northern area of the Tasman raises difficulties. However, cargo vessels follow the Auckland - Brisbane route quite frequently. It has been my experience that ships' officers — who after all are trained observers, and in the matter of natural history observations are quite used to logging whales sighted — are not infrequently positively interested in bird-watching activities going on aboard. While the identification of most of the smaller birds likely to be encountered at sea is admittedly a matter calling for some ornithological background, an interested layman can soon learn the accurate recognition of certain of the larger or conspicuously coloured species. It is thus suggested that the Ornithological Society of New Zealand might perhaps give attention to the preparation of a simple illustrated key featuring the plumage phases of *D. exulans* and the recognition points of a few other easily identifiable species such as *Diomedea melanophris, Macronectes giganteus* and *Daption capensis* — the one-page Australian Commonwealth Fisheries Office 'Appeal for Whale Observers' could serve as a model. It would probably be as well to include a few generic diagrams of other common oceanic birds which those concerned could not be expected to identify specifically, with a note that remarks on these were not required for the purposes of the survey. Through such a key, and an appropriate liaison with shipping companies having Tasman and South Pacific interests, a valuable picture of the northerly distribution of the selected birds might well be available in a very much shorter time than if it had to await the slow and sporadic accumulation of data by sea travellers with ornithological interests.

SUMMARY

A log of bird- and whale sightings is presented, together with a note on water bloom caused by *Trichodesmium Hildebrandtii* Gomont (Cyanophyta: Oscillatoriaceae) in the Java Sea. It is suggested that much could be learned concerning the northerly range of the more easily recognized seabirds, such as the Wandering Albatross, Black-browed Mollymawk, Nelly and Cape Pigeon, by enlisting the aid of interested ships' officers.

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A NOTE ON THE DISAPPEARANCE OF THE WEKA (*GALLIRALLUS AUSTRALIS*) IN NORTHLAND

By FRANK E. GEE

Between 1932 and 1936 I lived in and around the North in an area bounded by Waipu (about 30 miles south of Whangarei) to the north, and Paparoa, on the Dargaville road about 10 miles from Maungaturoto, to the south. During this time, wekas were frequent and common in this area. In particular, at Waipu, where I lived on a farm for some months in 1932, and again in 1933 and 1934, wekas appeared to be numerous. This, I