

THE CATTLE EGRET IN NEW ZEALAND IN 1977

By B. D. HEATHER

ABSTRACT

Results are given of a census made in August 1977 of Cattle Egret and other egrets, spoonbills and ibises in New Zealand. Approximately 300 Cattle Egrets were present. The year's records are given for each region, together with observations on plumage and habits. Features of Cattle Egret distribution and plumage changes are discussed.

INTRODUCTION

After the first reports of Cattle Egret (*Bubulcus ibis coromandus*) in New Zealand in 1963 and 1964, there was an apparent lull, with few birds reported in most years and none in several, until in 1973 small parties of from one to 3 birds were recorded in at least 12 localities from Northland to Southland. In 1975 there was apparently a moderate increase, coinciding with but possibly unrelated to an unusual influx of Glossy Ibis (*Plegadis falcinellus*). In 1976 there were widespread reports of small parties, greatest numbers being in Southland, Nelson and Waikato districts, and the largest flock being 24 at Rangiriri, Waikato, in September/October. Since there was no evidence of breeding in New Zealand, it was generally assumed that these birds were coming from and returning to Australia, as an extension of the post-breeding dispersal that occurs there (Jenkins & Ford 1960, Chalmers 1972).

In 1977, it had become clear by June that even larger numbers had arrived. To clarify the matter, the Council of OSNZ adopted a suggestion to attempt a national count of the Cattle Egret. The weekend of 27-28 August was chosen, at a period when most flocks would have stabilised after the winter but not yet broken up to migrate or breed. At the same time all other egrets, spoonbills and ibises were to be counted, but not the White-faced Heron (*Ardea novaehollandiae*) nor the Reef Heron (*Egretta sacra*).

In the event, over 200 members, Wildlife Service officers and others took part, after publicity and a widespread search to locate birds in the weeks before the count. Most contributors have been mentioned in the OSNZ newsletter and it is hoped that this will be accepted as a personal acknowledgment. The work of Regional Representatives or their deputies was particularly valuable and their contribution to regional summaries is acknowledged in the Regional Records.

RESULTS OF COUNT, 27-28 AUGUST 1977

Table 1 sets out the number of birds recorded in each district, including birds known to be present both before and after count weekend and too far from other birds to have been counted elsewhere. The species included are Cattle Egret (*B. i. coromandus*), White Heron (*Egretta alba*), Little Egret (*E. garzetta*), Glossy Ibis (*Plegadis falcinellus*), Australian White Ibis (*Threskiornis molucca*) and Royal Spoonbill (*Platalea leucorodia*). The Yellow-billed Spoonbill (*P. flavipes*) was recorded at one locality only (Awanui, one bird) and is not listed

	Cattle Egret	White Heron	Little Egret	Royal Spoonbill	Glossy Ibis	White Ibis
Stewart Island						
Southland	21		2	2		
Otago		6	2			
West Coast	20	7	1			
Canterbury	14	13	2		4	1
Marlborough	22	3	1			
Nelson	20	13	2	22		
SOUTH ISLAND	97	42	10	24	4	1
West Wellington			1			
Manawatu	15	2		18	1	
Wanganui	9					
Wairarapa	7	1			1	
Hawkes Bay	1	2	3	2		
Gisborne/Wairoa	5	5		2		
Taranaki	26		2	1		
Rotorua/Taupo						
Bay of Plenty	7	2			1	1
Waikato/Sth Auck.	97	8	1			
Auckland	4	7	3			
Far North	25	14	2	2		2
NORTH ISLAND	196	41	12	25	3	3
GRAND TOTALS	293	83	22	49	7	4

TABLE 1 — Number of birds in New Zealand, 27-28 August 1977, arranged by regions.

on the table. The Lesser (or Plumed or Intermediate) Egret (*E. intermedia*) was watched for but not recorded.

REGIONAL RECORDS

NORTHLAND (north of Helensville)

Aupori Peninsula 5 at Paua in April, feeding on fields and on road side in kikuyu grass; seen to take crickets. Others reported from Shenstone Farms, north of Paua and from Waihopo. 4 south of Te Kao, early May. None at Paua from May to 24 November when one appeared but did not stay.

Awanui In May, northern birds apparently moved south and joined others on farms around Awanui estuary (Unahi and Kumi Roads) where there were flocks totalling 43 birds on 7 May, rising to 52 by end of May. 2 found dead. 31 noted once in May mixed in a dense flock of sheep at Unahi. From 7 June, numbers fell to 15-20 birds and for a time none was reported; however, from about mid-June to mid-August, 25-40 were on a farm about 10 km further east, not far from Lake Ohia. Some of these apparently drifted back to Awanui area where the number built up again to 25 by late August, while the rest presumably moved south. The 25, sometimes in one flock, sometimes split, remained until they left finally about the second or third week of November. One seen about 30 November. Always on farm land, in May with sheep but usually with cattle although not necessarily closely with them. At times at Awanui and near Lake Ohia, associated on fields with White-faced Herons and Pied Stilts (*Himantopus h. leucocephalus*).

Dargaville Birds reported west of Whangarei late April/early May near Mangakahia Bridge, Titoki (2), Waiotira (1) and near Dargaville, one at Maitahi and 2 at Turiwiri. In mid-June, 2 were briefly around Dargaville sewage ponds and another spent part of July at Taingaehe, 30 km south of Dargaville, with White-faced Herons. None of these birds was present on 27-28 August. (A. T. Edgar)

AUCKLAND

4 birds apparently present June to August at Parakai, near Helensville.

SOUTH AUCKLAND - WAIKATO

One at Kawakawa Bay 20-21 June; one at Waitakaruru, Firth of Thames, on 26 June. 4 on Waikato River at Maioro on 24 May.

Aka Aka Muir's Road: 3 on 25 May, 23 from 24 June through to 27-28 August. Only 5 seen on 12 November but all 23 reported present on 16 November by the farmer, Mr Sandy Muir. With Jersey-Friesian cross cattle.

Waitetuna River estuary, Raglan, one on 27 August. Whangamarino, 2 in May. June, 5 at Mercer, 9 to 13 near Meremere. A. Habraken received reports of 4-8 birds, not included in census, which may have wintered in Tuakau district.

Rangiriri Main concentration in this area, where first sighting was of one on 29 April. Number built up to 22 by mid-May, 42 and 51 in June and 66 in August/September. These birds were in two flocks: (a) Te Onetea Road (W. Stone's farm), 23 on 25 June through to 1 October; 12 on 29 October. None on 5 and 30 November. (b) Plantation Road (Henderson's farm), 28 on 25 June, 37 on 28 July, 43 on 28 August through 1 October to about mid-October. 27 on 5 November. None on 30 November.

Waikato birds were mainly with dairy cattle, Jersey or Friesian, sometimes with beef cattle.

Lake Ngaroto (near Te Awamutu) 7 on 17 July and through to 26 October. 2 on 14 November. One on 23 November. With Jersey dairy herd but often on their own on the swampy land near the lake, either resting or feeding along the drainage ditches and on the grass.

Pokeno: one arrived late December and remained through to 1978 winter, passing through breeding plumage. With herd of Black Angus cattle but most often in same field with part-Charolais bull; near Ryburn's Lagoon. (J. H. & B. H. Seddon; B. Brown)

BAY OF PLENTY

None reported or found in Rotorua/Taupo/Turangi region. First seen was one on 19 and 25 June on and near Kaituna Cut lagoon and Maketu Lagoon. Presumably shifted to join others east of Matata in area bounded by Tarawera River, Awaite Wetlands Reserve, Greig Road and Main Road. Here there were 7 on 17 July and through to 27-28 August and 8 on 22 October. 3 only on 6 November. Not seen thereafter. Seen feeding with Jersey, Friesian and Aberdeen Angus cattle. (P. C. Latham; A. Palliser)

TARANAKI

North Taranaki 3 seen on 29 April at a farm on Ngatimaru Road, Waitara, after a report of 5 having been present about a week. Newspaper report of 5, possibly the same birds, among cows at Tikorangi, not far from first locality. Still present on 27-28 August and until early November. One on 6-7 May with a White Heron on a backwater near mouth of Waitara River. One on 4 May among heifer cattle on a farm on Kaihihi Road, Okato.

South Taranaki Newspaper report and photograph of 3 with sheep on Watino Road farm between Opunake and Pihama on 10 June; these birds stayed until late June. One present with dairy herd during June and up to late July on Mangapoua Road, Normanby. 3 with dairy herd on Hauroto Road, west of Hawera from May to July. R. Honeyfield's farm, Power House Road, Kakaramaea, near Patea, 4 arrived on 20 June, joined by 3 more two weeks later. Stayed among sheep until 29 August. 6 returned briefly on 16 and 19 September. Not seen again. Lake Waikato, Russell Road, Nukumarua, near Waitotara, 14 from at least early June. Present up to mid-November when 9 left.

5 up to 11 December. 2 stayed through to 1978 winter, passing through breeding plumage but without breeding activity. Fed among several neighbouring dairy herds. (R. W. Wheeler; B. D. Heather)

GISBORNE/WAIROA

2 on Kirkpatrick Road and 2 on Fox Street in Gisborne district on 27-28 August. One with a dairy herd at Awamate, near Wairoa, from mid-July to late August. No further information.

(J. C. Henley; G. Foreman)

HAWKES BAY

2 on Ahuriri estuary, Napier, in June/July. One in Hurimoana Swamp, Fernhill on 28 August. (N. B. Mackenzie, K. V. Todd)

WANGANUI

Farm 3 miles south of Wanganui, one on 25 April, 4 on 7-8 May, 6 on 14-15 May. 9 at Lake Whiritoa on 27-28 August. No further information.

MANAWATU/WELLINGTON

Opiki, 15 km west of Palmerston North, 6 from 6 August (already present for several months) to early November. Lake Koputara, Himitungi, 3 from 24 July to 28 August. Turnbull's Lagoon, Waiterere, 6 from 19 June (present for two weeks) to 15 October. 4 on 13 November. None on 11 December. Often with cattle or sheep, often alone. At Turnbull's, were sometimes accompanied by a Glossy Ibis. Otaki Beach, 4 on 8 May, on farm land with cows. Reports of between 5 and 8 at and near Lake Horowhenua could not be confirmed. Pauatahanui Inlet, one on 9 July at low tide, not feeding but fiddling with sticks. Several later reports not confirmed. Manawatu estuary, one in breeding plumage on 7 January; not seen again. Feilding, 2 reported on farm on Colyton Road on 7 December; not seen again.

(L. J. Davies; M. L. Falconer)

WAIRARAPA

One on 9 May on farm near Masterton where 2 had been for one day only on 19 April 1973; stayed 2 days. 2 near Gladstone on 27 July. B. Monk's farm between Featherston and Lake Wairarapa, 3 on 12 June (already present a month), 5 on 22 August and through to 20 October. One on 22 October; none thereafter. With several neighbouring dairy herds.

3 at Pirinoa on 25 May, one on 17 July. These few birds moved about within a restricted area near the eastern side of Lake Wairarapa, 5 being seen in late July/early August, and 2 through to early September. Thus there were at least 7 birds in Wairarapa on 22 August and presumably on 27 August when severe flooding hindered the census.

(D. Sim)

MARLBOROUGH

Northern Marlborough 2 at Lake Elterwater on 7 July; one at Dog Hill, Ward, on 8 July. Blenheim: second-hand report of 22 on the old bend

of the Wairau River during May. This flock apparently broke up in stages, with several reports of one or two at Rai Valley and near Fairhall School, leaving 12 which remained on lush pasture in the area close to the old ox-bow lake of the Wairau at Grovetown. Apart from a sighting of 15 in late July, 12 stayed, feeding among sheep, sometimes in company with White-faced Herons and Black-backed Gulls (*Larus dominicanus*), up to 13 November. 2 on 27 November. One well-coloured bird on 24 December near Blenheim sewage pond on Hardings Road, feeding with sheep on dry, salty pasture near a drying pond.

Kaikoura First seen were 4 on 28 May on M. Davidson's farm with town-supply herd, near Kowhai railway siding south of Kaikoura. About 9 June, shifted to R. Mackle's farm on Mt Fyffe Road in Kaikoura suburbs. 6 on 20 June and through to late July. In early August, shifted a kilometre to L. Weaver's and J. People's farms on Mill Road. Stayed there, occasionally on neighbouring farms, up to 27 November, when 5 left. The last bird went on 4 December. From early November, conditions became generally dry and the wet area they had used became a small pond heavily used by domestic ducks and geese.

2 birds of a second flock were seen on 6 August on P. Lawson's farm, Inland Road, on west bank of Kowhai River. By late August, there were 4, now a kilometre westward on O. Gray's farm. Last reported early September. (J. A. Cowie; R. N. Holdaway)

NELSON

Takaka: 15 on Whitwell's farm, Rotatai, on 7 and 25 August. No other information. March 20, one near Rough Island, not seen in April; May, one at Waimea Inlet; 5 among horses at Monaco, one with injured leg trailing in flight; one for several days at Atawhai, with sheep or cattle, or alone on tidal mudflats; 5 at Motueka, which disappeared early in June and may have been the 5 at Waimea Inlet 11 June to 4 July. **Appleby:** area of Pea Vine corner, Cottrells and Landsdowne Roads, 5 from June to August, 8 on 3 September, 10 for most of September. Reports of 7, 9 and 10 up to late October. Usually among cattle. (J. Hawkins; K. Owen)

WEST COAST

Very scattered reports, with few major flocks. **Cape Foulwind,** Westport, one on 7 September. **Punakaiki,** one in May. **Inchbonnie** (Arthur's Pass Road), one on 7 August, 2 on 27-28 August. **Matai,** north-east of Greymouth, 2 on 27-28 August. **Rotomanu,** east of Lake Brunner, 7 on 27-28 August, 12 in late October. All birds usually with cattle. **Whataroa** 3, **Harihari** 3, **Okarito** one on 27-28 August. **Taramakau** settlement, 2 in June. **Hokitika** River, one on 16 April, killed by car on 17 July. **Waiho** River flats, 4 in early May (one later recorded to have died). **Kowhiterangi-Kokatahi** area, two groups of 6 and 3 on 30 May, 7 and one in July, 7 on 2 August. **Fox:** Cook River flats, 2 in March, 3 in April/May; **Fox Glacier** township, 4 in April. **Matitahi** Valley, near Bruce Bay, 2 on 27-28 August. No further information after August. (D. P. Murray; C. S. Lauder)

CANTERBURY

Waikuku, north of Christchurch, one late April to June, in field of long grass, together with many White-faced Herons; 2 in September and up to 26 October.

Lakeside: an apparently resident population in an area covering 6-8 farms about 4 km from south end of Lake Ellesmere. Reported to have been continuously present since August 1974, the number seen varying from 2 to 6 but breeding has not been seen. From August 1976 to late July 1977, 12 remained in one flock. Occasionally up to 4 would leave and spend a few days with herds of cattle up to 12 km away. At end of July, number dropped to 10, later to 8, which was the number up to early December, apart from 9 on 27 August and 3 at Selwyn Huts in early September. 8 in early February, 9 on 25 March 1978, feeding among Friesian cattle.

Lake Wainono: 2 in April/May. Also seen on 27 August. 1 in October, reported by farmers to be present throughout October and until at least mid-November. Foraging in flooded fields and on grassy edge of the lake. Not attached to cattle.

(W. R. Mawson; R. J. Pierce; P. M. Sagar)

OTAGO

No Cattle Egrets reported or found.

(J. B. Hamel)

SOUTHLAND

21 birds located during census of 27-28 August were not in major flocks: 2 at Wallacetown, one at North Makarewa, 2 at Bay Road, Invercargill, one at Otatara, 3 at Menzies Ferry, one at Seaward Downs, 7 at Gorge Road and 4 at Te Anau. The Gorge Road birds arrived in May, stayed together until early August, thereafter in small groups of 2 or 3 up to early September; one on 10 November, 3 in mid-November. The Menzies Ferry 3 arrived in early April and stayed until early September; seen with cattle, calves, sheep, horses or alone. 2 appeared in early September on a tree-lined field behind Kew Hospital, Invercargill. Stayed 8 days, on three of which sheep were present.

(R. R. Sutton; M. L. Barlow)

STEWART ISLAND

No birds reported or seen in the few likely places.

(C. O'Donnell)

DISCUSSION

Birds began to arrive in New Zealand in late April/early May, with a few exceptions recorded near Hokitika and Fox Glacier in March and early April. The build-up continued well into May. Although many birds made their landfall in the Far North, the dates suggest that many others may have reached other western localities directly, without a major dispersal from northern to southern regions. In several districts birds occurred in small, scattered parties until June

when they came together into fewer, larger groups which stayed together until at least late September, often well into November. In several districts (e.g. Southland, West Coast), birds were in scattered small groups until at least late August.

Birds began to depart from mid-October, with the main exodus during November, and a few lingering through to mid-December. There was no evidence of any movement northward or of a build-up of flock sizes before leaving, birds seeming to leave piecemeal and in mixed parties of birds whose plumage varied from well-coloured to all-white. Apart from the Ellesmere group, only 6 birds were seen after mid-December: one on 24 December near Blenheim, one on 29-31 December near Benmore, one on 7 January near Foxton, one in Pokeno Valley from late December, and two in South Taranaki. The last three are the only birds known to have stayed over the summer to the 1978 winter season.

The New Zealand dates accord well with the published dates of Cattle Egret dispersal to southern Australia. The 1959 irruption into the south of Western Australia documented by Jenkins & Ford (1960) began in April, built up during May and birds remained in numbers until September. In the years 1965-1971, birds near Sale in eastern Victoria appeared generally in late April/early May, except for 6 on 1 April 1971, and they left in early November (Chalmers 1972). Near Orbost, eastern Victoria, a few birds appeared in late April/early May, numbers built up during May and birds left in late November, none being seen after the first week of December (Hollands 1972).

Australian breeding dates have not been clearly stated but, since Cattle Egrets often breed in large colonies of egrets and shags whose timing varies according to climate, particularly rainfall, the breeding dates vary from year to year. Over 10 000 were reported nesting in December 1957 on Adelaide River, Northern Territory (Frith & Davies 1961); birds have been seen on eggs in November in the swamps near Ulmarra, coastal northern New South Wales (Sharland 1957); nesting at Ulmarra began in early December in 1968-69, with chicks in early January (Hindwood *et al.* 1969); nestlings were seen in late February near Ulmarra in 1972, with flying young and nesting apparently finished in late March (Wheeler 1973). At the colony at Gattton, west of Brisbane, nesting began in mid-November 1977 and all birds were flying by 19 February 1978. 992 nests were counted, about one-third fewer than in the 1976/77 season (Walter 1978). At the colony near Murwillumbah, near the New South Wales border, by 8 October 1977, the first few birds had appeared; by 22 October, "hundreds" had appeared and some 50 pairs were renovating old nests in the centre of the colony; by 26 November, "hundreds" were on eggs while others were building nests; by 24 December, older chicks were well-feathered and about half grown (generally three chicks per nest) and 700-800 nests were estimated; by 19 January 1978, many young were on the ground; by 10 February, about two-thirds of the

birds had gone but some young were still in nests and on the ground (Pratt 1978).

The assumption is made here that, except perhaps for the small Canterbury population, birds are migrating to and from Australian breeding colonies. There is no direct evidence for this assumption, except that the pattern of movement has continued from the first winter records of the 1960s, merely the numbers increasing. This pattern also closely matches the dates of dispersal in southern Australia. It seems highly unlikely that New Zealand birds should be from the large Northern Territory colonies; more likely from north-eastern New South Wales where the Ulmarra colonies had grown from 6 nests in 1954 to between 250 and 300 in 1967 and may be more extensive by now; or from colonies in south-east Queensland. Colour marking of New Zealand birds would be a desirable but difficult exercise.

There is no evidence of breeding in New Zealand, despite a considerable search by land and air in likely areas. The reported probable breeding of a pair near Balclutha, Otago, in 1972 (Westerskov 1974) seems now by hindsight highly improbable, both the dates and the colour of soft parts of the adults suggesting that their breeding season had not yet arrived, particularly as they were not seen after 23 November. It is indeed surprising that birds have not bred in New Zealand where there are ample apparently suitable sites. However, unless there is an undetected major colony in northern New Zealand, an annual migration across the Tasman Sea is no less remarkable than the lack of breeding.

DISTRIBUTION — ATTACHMENT TO FARMS

The main localities of concentration have been in the Far North and the Waikato, with a good scattering of flocks in most other western regions, and in the north and south of the South Island. There were none in the central North Island, a scattered few in the eastern North Island and a noticeable gap in the eastern South Island from Ellesmere to Southland, apart from two birds at Wainono. One might speculate on a western landfall of birds followed by a limited movement eastward, deterred in places by the central mountain chain, particularly the Southern Alps (see Fig. 1).

More significant is the reappearance of birds on the same farms in successive years, even though New Zealand provides an extensive area of suitable farm habitat in most regions. In some cases, flocks occurred on farms close to lakes, less often coastal lagoons or land-locked estuaries, which may therefore act as landmarks and provide the roosting sites they are said to prefer, in trees beside lakes or swamps. In other cases, although there is no apparent reason why one farm is selected out of many similar farms in a district, birds have returned in successive years, usually accompanied by more birds. Examples of both types: Aka Aka, 5 in 1974, up to 11 in 1975, 23 in 1977; Henderson's, Rangiriri, 14 rising to 19 in 1975, 24 in 1976, 43 in 1977;

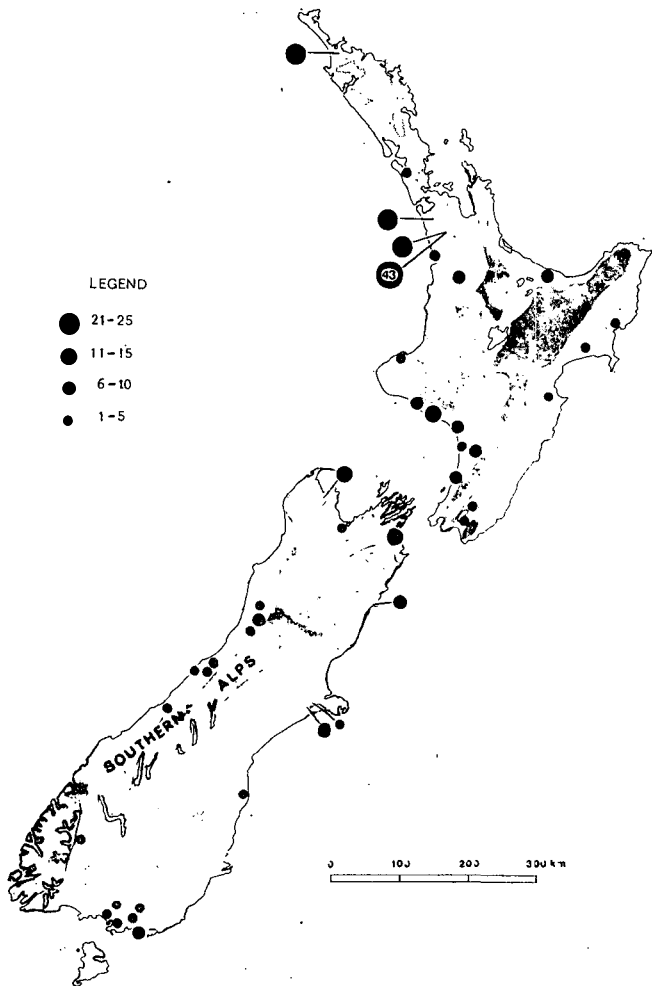


FIGURE 1—Distribution of Cattle Egret in New Zealand 27-28 August 1977. Shaded areas represent mountains and/or forest.

Lake Ngaroto, 2 in 1976, 7 in 1977; Normanby, Taranaki, one in 1976, one in 1977; Kakaramaea, Patea, one in 1975 and 1976, 7 in 1977; Waitotara, 6 in 1976, 14 in 1977; Opiki, Manawatu, 2 in 1976, 6 in 1977; Turnbull's, Manawatu, 6 in 1977, birds present in previous years; Takaka, 6-8 in 1976, 15 in 1977; Kaikoura, 2 each year since 1973, 6 in 1977; Lakeside, 2-6 since 1974, 8-12 in 1977; Menzies Ferry, Southland, 3 in 1976, 3 in 1977. According to farmers, birds have

been present on some farms near Greymouth and Hokitika for several years but in this and other districts there is little clear information from previous years.

PLUMAGE CHANGES

The authors of works which deal with regions where the eastern subspecies *B. i. coromandus* occurs state or imply that both adults and immatures in the non-breeding period are wholly white. On the other hand, adults of the nominate race *B. i. ibis* of Africa, southern Europe and the western Palearctic have in non-breeding plumage a pale buff crown, together with slightly elongated creamy feathers on lower throat and mantle in males; immatures are wholly white but develop the buffy crown at 5 months (Siegfried 1971, Cramp & Simmons 1977).

In New Zealand, birds have usually been difficult to approach closely, particularly to see any yellowish wash on the crown, but it does seem that all birds on arrival are wholly white and that a yellowish wash appears on the crown of all birds, both adult and immature, only late in winter, certainly no earlier than July, and usually much later. More careful field observation and a range of skins are needed to confirm this.

The following notes were made on plumage changes in 1977.
Awanui: of 25 on 27-28 August, one noted as faintly buffy (M. Hows). Of 11 on 7 November, one very faintly coloured, 8 moderately well coloured, 2 very well coloured, with buffy-orange head, breast and back plumes, bill more orange than yellow, legs grey-green, paler on tibia and darker on feet. (J. H. & B. H. Seddon)

Far North: a bird found dead in May had a round patch of yellowish down on the breast, hidden by the lower-neck feathers. (A. T. Edgar)

Taingaohe, near Dargaville: the bird of July was all-white but with red instead of yellow iris. (C. D. Clunie)

Pokeno Valley, South Auckland: a single bird which appeared in late December and over-summered had on 31 December orange plumes, deep red bill and dark yellowish-orange legs; by 12 February it had lost most of the plumes, had yellowish-red bill and greenish-yellow legs; on 2 March 1978 it had a faint tinge of colour still on sides and back of head, a small patch of buff on upper breast, dark yellow bill, slightly reddish near base, and grey-green legs. (D. A. Lawrie)

Aka Aka: 21 of the 23 on 28 August were pure white, with yellow bills and blackish legs; the other two were distinctly orange on the head and slightly coloured down the neck. (A. Habraken)

Onetea Stream: of 23 on 28 August, one with buff on head. Of 23 on 1 October, 14 with well coloured crown and plumes, orange-red bill, apparently darker blackish legs; 3 with some colour; 6 all-white.

Of 12 on 29 October, all with some colour, varying to 2 fairly pale birds.

Plantation Road: of 43 on 28 August, 4 with some buff on head and breast. Of 43 on 1 October, 11 with well coloured crown and plumes and orange bill; 5 with some colour; 27 apparently all-white, although rain prevented detailed study. Of 27 on 5 November, only 4 very pale in colour; rest well coloured, bills deepening to reddish-orange, legs from grey-green to reddish-brown.

Lake Ngaroto: no colour on the 7 of 27 August. On 6 October, 2 well coloured, 3 slightly coloured, 2 all-white. Bills of coloured birds orange-red, legs slightly darker grey-green. On 26 October, 5 medium to well coloured, 2 faintly coloured. On 14 November, 2 well coloured, with buff-orange plumes on head, breast and back; bill orange-red, legs darker than usual grey-green; feet black. (J. H. & B. H. Seddon)

Bay of Plenty: of 8 on 22 October, 5 well coloured. Of 3 on 6 November, one well coloured, with pink bill, one with buffy neck, one all-white. (P. C. Latham)

Opiki: of 6 on 28 August, 5 showed varying colour — one with buff on head, breast and back, others with pale buff on crown or lower breast. On 15 November, 2 were well coloured, 3 slightly coloured, one all-white. The two well-coloured birds left early in November, over a week before the others.

Turnbull's Lagoon: the 6 on 30 July were noted (M. D. Dennison) to have beginnings of buff feathers on crown; a search of one area where they preened produced feathers with a light buff edging. Late August, 2 with some colour. On 15 October, 2 well coloured, 3 slightly, one all-white. (L. J. Davies; M. D. Dennison; H. A. Robertson.)

Kakaramaea: of 6 seen on 27 August, 4 with flesh-pink bills.

Waitotara: of 14 on 28 August, 2 with creamy-buff wash on crown and chest and pinkish-yellow bills. 2 on 11 December well coloured; on 19 December described by farmer Mr F. M. Rees as having bright reddish-orange bills and brownish-yellow legs; on 23 March 1978, were all-white with yellow bills, one still with traces of orange down the back. (B. D. Heather)

Featherston: of 5 on 9 October, one yellowish on crown and back, 2 with yellowish wash on crown and nape, 2 all-white. One remaining on 22 October had orange-buff back plumes, yellowish wash on head and nape. (B. D. Heather; S. Cook)

Nelson: the 15 at Takaka on 25 August were noted as "coming into breeding plumage." However, no colour was seen on the 8 near Nelson in early September, nor on the 10 at same locality on 27 September. (J. Hawkins) An immature female from Richmond, dated

1 May 1977 (Nelson Acclimatisation Society), in National Museum, is wholly white, not in moult, with faint yellowish tinge on crown — probably not visible in the field. o

Blenheim: of 12 on 31 October and 6 November, some noted to be very buff on head and neck, but could not be approached closely. On 13 November, 6 well coloured, 3 with buff head, 3 all-white. (R. N. Holdaway)

Kaikoura: at least 3 of the 6 still present in mid-November had conspicuous colour on head and neck. (J. A. Cowie)

Waikuku: of 2 on 26 October, one well coloured, one all-white. (P. M. Sagar)

Matai, Greymouth: 2 on 28 August showing yellowish tinge; legs grey, bill yellow, paler in one bird. (C. S. Lauder)

Gorge Road, Southland: 2 on 28 August had a buff flush on crown. (M. L. Barlow)

Hokitika: bird killed by car on 17 July, now in Canterbury Museum, described as white, without plumes, orange-brown on crown; bill lemon yellow, facial skin lemon yellow with slight green tinge; outer three primaries showing distinct wear; no moult in progress; shafts of tail

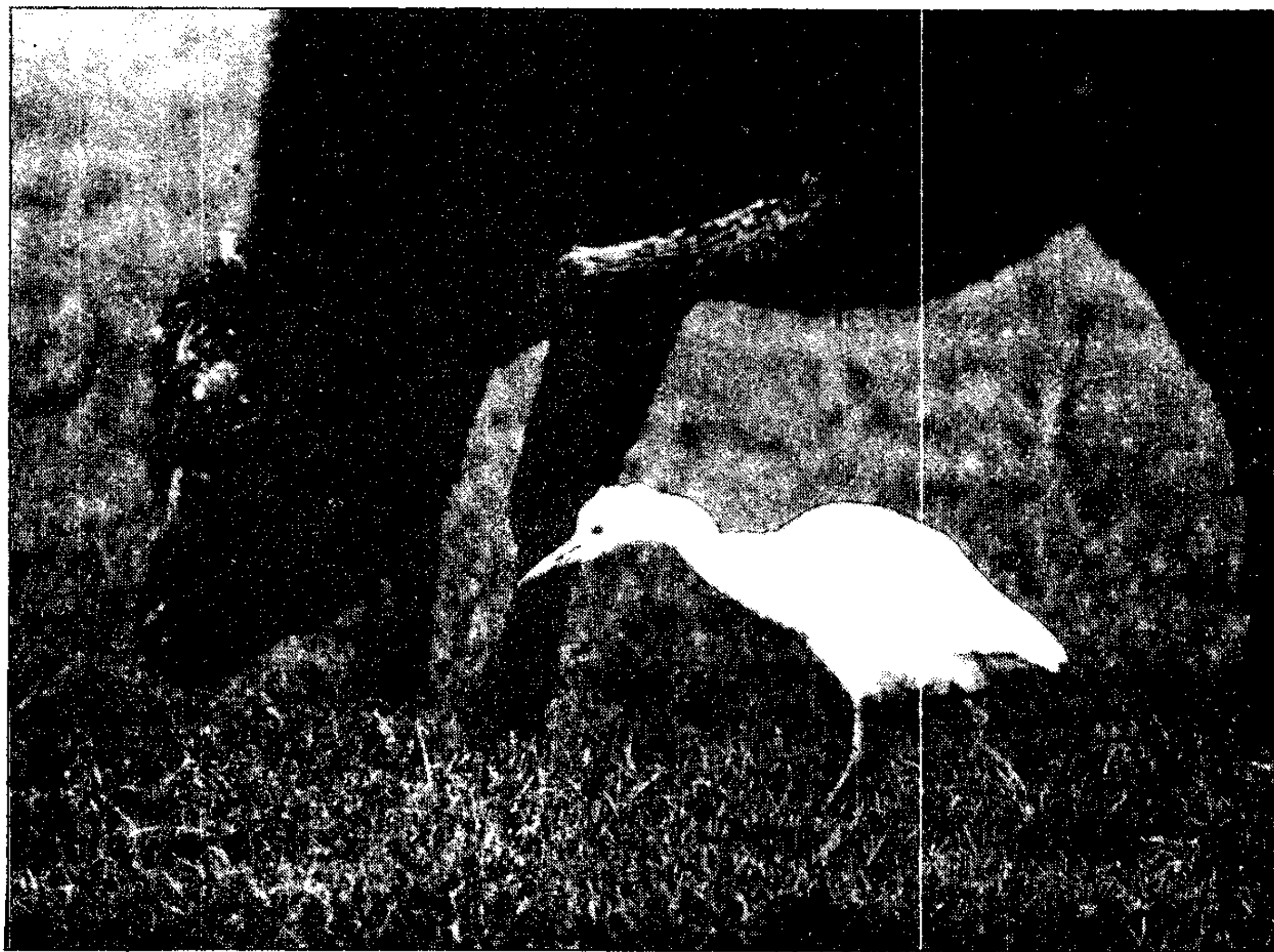


FIGURE 2 — Cattle Egret in New Zealand, 1977.

Photo: New Zealand Herald

feathers protruding at tips, suggesting immaturity. (G. A. Tunnicliffe) A badly decomposed bird found in Waihopai Valley, Marlborough, in May 1976, now in Canterbury Museum, was all-white; soles of feet yellow-green. Based on bones, a sub-adult. (R. J. Scarlett)

DISCUSSION

Birds on arrival in New Zealand completely lacked colour in the field (Fig. 2). By late August, occasionally earlier, a few birds were seen to have acquired a light yellowish wash on the crown, sometimes described as buffy. Sometimes this wash was on neck or breast as well. By early October, flocks were showing a wide range of colouring from brilliant orange plumes and orange-red bill to all-white with yellow bill. By late October, when birds were departing, many were medium to fully coloured and by mid-November most but not all were well coloured.

In the Sale area of Victoria, Chalmers (1972) noted that almost all birds, although they were not breeding in the area, developed nuptial plumage by early September, somewhat earlier than in New Zealand, and that on their return in April/May, they had shed their breeding plumes. Hollands (1972) mentioned that birds in eastern Victoria were in breeding plumage by late November. Several of the few birds which stayed over in New Zealand until March 1978 or returned before the end of March still showed traces of colour on chest or back, but their crowns were all-white and without elongated feathers. This contrasts with *B. i. ibis* where a buffy crown is retained in adults.

In South Africa, it has been shown that young birds of *B. i. ibis* in their first year develop nuptial plumes rather later than adults and a few may even breed without full plumes (Siegfried 1971). If this is true also of *B. i. coromandus*, it is possible that birds in New Zealand which develop nuptial plumes late are young of the year. For example, in early October, out of the 78 birds examined carefully at Waikato and Wairarapa localities, 27 were well coloured (35%), 14 slightly coloured (18%) and 37 wholly white (47%). Perhaps, therefore, at least 47% of these birds were immature.

There is much confusion and some error in literature on the colour of the soft parts of the Cattle Egret and this could profitably be studied in New Zealand, particularly with birds that stay over summer and pass through the rapid pre-breeding stages. In South Africa, it has been shown that the red bill, red facial skin, iris and legs are temporary colours, assumed for only the several weeks of intensive sexual activity before egg-laying. These colours then fade to yellow, the legs then finally returning to black (Siegfried 1971). However, at Ulmarra, New South Wales, in late November, the bills of adults were noted as leaden or greyish-black, some with yellow at the base, a few completely dull yellow. The legs were brownish, paler on the tibia (Sharland 1957). This stage has not been noted in New

Zealand. Hindwood *et al.* (1969), after several seasons of study at Ulmarra, described the peak of colour changes as follows. Bill fleshy-red with yellowish tip, changing through orange to yellow; iris red at peak of sexual activity, otherwise yellow; facial skin deep fleshy-red at peak of sexual activity, changing to yellow; legs, tarsus blackish with a dull red tinge, tibia flesh-pink to reddish.

In New Zealand, the bird at Pokeno Valley on 31 December had a deep red bill and dark yellowish-orange legs, fading by 12 February to yellowish-red and greenish-yellow respectively (D. A. Lawrie). The two Waitotara birds had on 19 December bright reddish-orange bills and brownish-yellow legs (R. M. Rees, pers. comm.). Before departing from other districts, birds were described as having often an orange-red bill and blackish legs. The Dargaville bird in July with red iris was unusual, as apparently were the various birds described as having pink bills.

It seems that confusion persists and that only an almost daily account of colours of individual birds over-summering in New Zealand can make clear the full sequence of colour changes that occur before and after the onset of breeding.

For the non-breeding period, Hindwood *et al.* (1969) gave the following description: bill yellow, iris pale yellow, facial skin yellow, legs dark slate on tarsus, shading to slaty-grey on tibia. Cramp & Simmons (1977), referring to *ibis*, stated bill, iris and facial skin yellow, leg dark green, foot darkest, tibia and sole yellowish; juvenile, leg black, dark green later. Baker (1929), referring to *coromandus*, stated bill yellow, iris golden-yellow, facial skin greenish-yellow, tarsi and feet black, the upper part of the tibia and soles yellow or greenish-yellow. In New Zealand, the bill and iris of all birds described after their arrival were pale or lemon yellow, facial skin yellow or greenish-yellow and legs described variously as slate-grey, greenish-grey or grey-green, paler on tibia (upper leg) and soles of feet. Yellowish on tibia or soles has been noted only on the Canterbury Museum skin and may not be apparent in the field.

HABITS

Cattle Egret behaviour was for the most part noted only incidentally and almost all aspects remain open for careful study in New Zealand conditions.

Birds associated chiefly with cattle, often with sheep, occasionally with pigs or horses. They were often loosely associated with other birds which in winter often feed on wet pasture with long grass, chiefly the White-faced Heron (*Ardea novaehollandiae*), the Black-backed Gull (*Larus dominicanus*), and less often the Spur-winged Plover (*Lobibyx novaehollandiae*) and the Pied Stilt (*Himantopus himantopus*). The egrets did not necessarily follow the mammals about in the classical

manner for disturbed insects, being seen often alone in fields or at a lake edge away from any herd. When with mammals, they tended to feed among or near them, seldom actually following them directly, taking food either from the ground, by snatching from the surface of tall grass or weeds or by snapping at flying insects. Although, for example, two birds were once seen at Turnbull's Lagoon chasing after a cattle beast, running after it as it broke into a trot, this was the only such occasion noted (L. J. Davies). There are many accounts of egrets in Asia feeding on the ectoparasites of mammals but in other parts of the world it is considered that this is an unimportant habit and that birds perched on beasts are using them as vantage points rather than as a food source. One bird near Lakeside in 1974 was noted to be apparently feeding on the flies on and around a Hereford bull while it was lying down, occasionally jumping on to its flank and sliding down again. This bird selected a Hereford bull on two farms in preference to a Jersey bull and an Aberdeen Angus bull on one farm and a herd of Friesian cows on the other. Perhaps this was because, with its longer hair, the Hereford was more tolerant of flies and thus a better food source for the egret (W. P. Mawson). There have been no reports of egrets feeding on cattle ticks in New Zealand. Near Lakeside, birds were noted to favour areas where spray irrigation was being applied. At Aka Aka, birds favoured damp hollows and drains on undulating pasture, places where docks were abundant. They moved to a herd only when disturbed (A. Habraken).

In general, because of the rough ground and long grass often favoured, little could be seen of their feeding habits. 5 birds at Paua in April were seen to take crickets in kikuyu grass (A. T. Edgar). At Lake Wainono (R. J. Pierce) and at Opiki (M. D. Dennison) birds were seen apparently taking water-boatmen from pools. At Lake Ngaroto a bird was seen to catch a mouse which it killed by crushing the head and then swallowed head first (J. H. Seddon). 6 were seen on two occasions extracting worms from wet pasture at Turnbull's Lagoon (L. J. Davies; M. D. Dennison). Neck-swaying was reported once, when two birds at Lake Ngaroto fed in this way beside a drainage ditch and in pasture; neck stretched upwards, then lowered until whole body horizontal, then head swayed from side to side, followed by a dart forward to snatch up prey (J. H. Seddon).

Aggressive behaviour was not seen except on one occasion at Turnbull's Lagoon when birds sometimes made a half-hearted lunge at another which had successfully picked up a worm. Magpies (*Gymnorhina tibicen*) showed hostility to egrets on several occasions. When disturbed, egrets would fly 20-30 m further into the herd, or to the top of the nearest line of macrocarpas or pines; sometimes to a water trough, to fence posts or to a hay shed roof; sometimes to the shore of the lake or pond that was often part of their habitat. In several cases the same piece of shore was used as a refuge. Night roosting was reported, mostly from farmer accounts, to be usually in trees with

White-faced Herons or in trees beside or overhanging a lake, lagoon or pond. The Pokeno bird in January and February 1978 roosted in macrocarpas near a small pool. The Lakeside birds were said to fly 2-3 km to a large area of willows on very wet ground beside Lake Ellesmere. The South Taranaki birds roosted in the end-most of a line of macrocarpas, the tree which overhung the water in winter; in April 1978, with the lake largely dry, they were roosting on fence posts in the water. Aka Aka birds were said to roost generally in macrocarpas and also to fly by day to a sandy bay on the Waikato River to bathe. Rangiriri birds were said to fly westward to roost, across the Waikato River to where there are many small lakes as well as the margins of the river itself.

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B. D. HEATHER, 10 Jocelyn Crescent, Silverstream



SHORT NOTE

WADERS AT SEA

The following records were made on voyages between Auckland and Suva during October 1977.

4/10/77 1600 hours Position 21°55'S 177°28'E.

One Knot (*C. canutus*) flew around the ship for about five minutes and then flew off to the westward.

22/10/77 1100 hours Position 27°27'S 176°38'E.

One Turnstone (*A. interpres*) tried to land on board for about twenty minutes, but the combination of the ship's movement and the wind prevented this. Direction of departure was not seen.

22/10/77 1600 hours Position 26°21'S 176°47'E.

One Golden Plover (*P. dominica*) flew around the ship three times and then flew away to the southward.

JOHN JENKINS, 14 Lochiel Road, Remuera, Auckland