THE SNARES WESTERN CHAIN

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ABSTRACT

A description of the geography and superficial geology of the five islands forming the western chain of the Snares group is given with observations and illustrations of the birds and seals, based on landing on 2 December 1972. Other visits in 1947 and 1964 are noted.

For many New Zealand naturalists, the bridge and saloon windows of Mr A. J. Black's new research vessel *Acheron* have already become " charm'd magic casements opening on the foam of magic seas in faery lands folorn." In November 1972 we sailed in *Acheron* into the subantarctic ocean with the main object of visiting the Auckland Islands. An unexpected bonus on this voyage was a call at the Snares Islands on the way home.

On 2 December 1972 we approached the Snares Islands from the south in a gentle swell under an almost cloudless sky. In brilliant morning sunshine we rounded Broughton Island into calm waters off the boat harbour where a raft of Snares Crested Penguins greeted the ship with a mass porpoising display. An hour ashore enabled us to deliver mail to Dr and Mrs D. S. Horning, who had spent the winter at the Canterbury University Field Station, and to see most of the bird species for which the sanctuary is renowned (Black Tit, Fernbird, Snipe, Antarctic Terns, Penguin colonies). There had been considerable changes in vegetation at the station site since 1947 when CAF was last at the Snares, due perhaps to growth of seedling trees formerly inhabited or eradicated (near the buildings) by constant traffic of seals and penguins that have presumably had to seek (or make) fresh fields. Conditions were perfect, with bright sun and high temperatures, reaching 16°C in the meteorological screen, according to Mrs Horning.

When we returned on board, the *Acheron* took us south again and across the 3.6km of strait, interrupted by jagged Vancouver Rock, to the Western Chain, or Western Reef as it has often (misleadingly) been called.

The Western Chain consists of five islets (Figs 1-3) strung out in a NE to SW line, rising steeply out of deep water to rather uniform heights of about 80m. Most of the gaps between the islets are narrow gulches but a wider gap separates the first two (from the north) from the other three (Fig. 4). These islets have never been individually named, but now that three have been visited and found to differ among themselves in their geology and birdlife, separate names are needed. The five islets are here referred to (from N to S) by the

Maori words for the numerals one to five: Tahi, Rua, Toru, Wha, and Rima. There are, in addition, a number of sizeable stacks not yet worth naming.

On 4 December 1947, Mr A. J. Black and Dr R. A. (now Sir Robert) Falla landed from M.V. *Alert* on the SE side of Rua at the bottom of a broad depression leading up to a saddle on the summit ridge of the islet. This was the first recorded landing on the chain since the somewhat legendary visits of sealers, and certainly the first landing by a scientist. A quarter-century later, almost to the day, A. J. Black's son Sandy landed us on the SE side of Toru (Fig 5). The *Acheron* then moved round the group for Sandy Black and Ieon Macdonald to land on the NE end of Tahi.

On 13 January 1964 Elliot Dawson and Dick Singleton of the NZ Oceanographic Institute landed from the cutter of HMNZS *Endeavour* on what is now called Tahi on the point close to Rua.

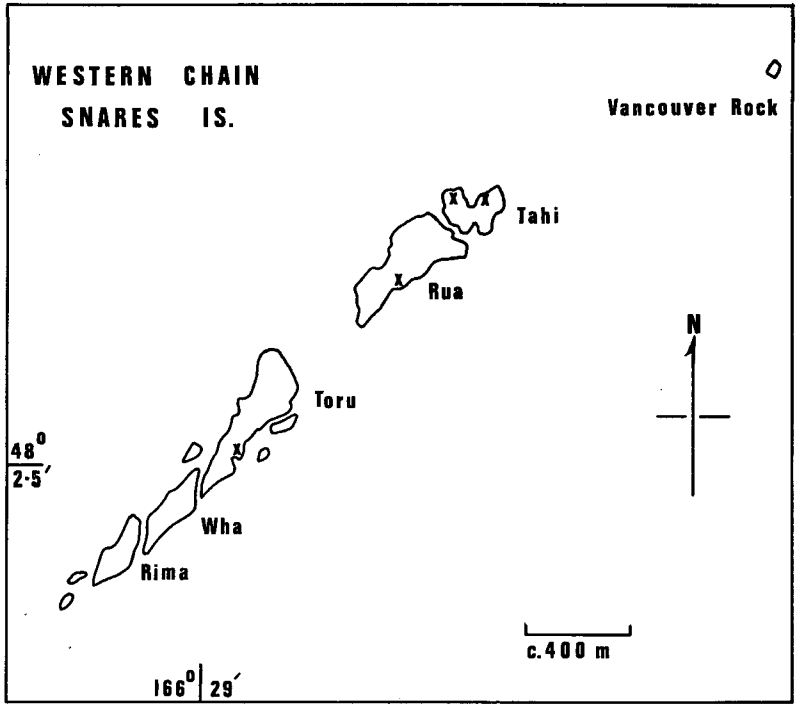

FIGURE 1 — The Western Chain, Snares Islands, New Zealand. Crosses indicate landing sites (modified from a map drawn from air-photographs by R. H. Taylor, Ecology Division, DSIR).

Cape Pigeons were found and collections of marine invertebrates were made (Dawson 1964).

Tahi and Rua have more rounded contours than the jagged Toru and Wha, and are dark rusty brown in colour compared with the pale cream and pinkish grey of Toru. Rock fragments collected on Rua in 1947 include mica schist (Fleming 1953: 20) and a rock specimen from the top of Tahi collected by Sandy Black is severely sheared gneissic granite. Toru, in contrast, is composed of rather weathered strongly jointed, less gneissic granite, confirming suspicions previously expressed that the chain was not entirely made up of

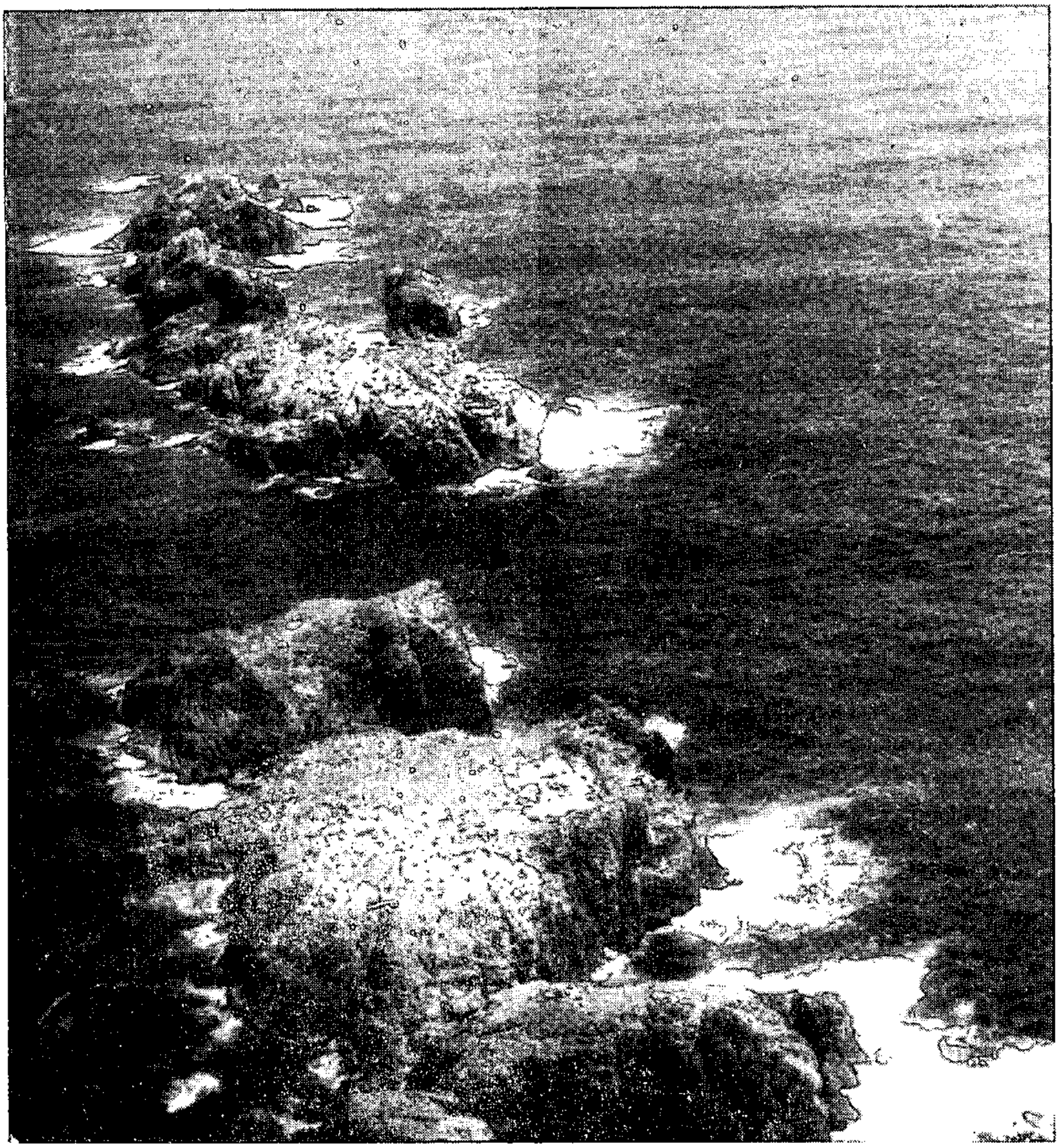

FIGURE 2 — The Snares Western Chain: part of Tahi (front) and Rua in foreground with Tora, Wha and Rima belond, from NE; RNZAF Sortie 190, 16 Jan. 1967. Photo: RNZAF.

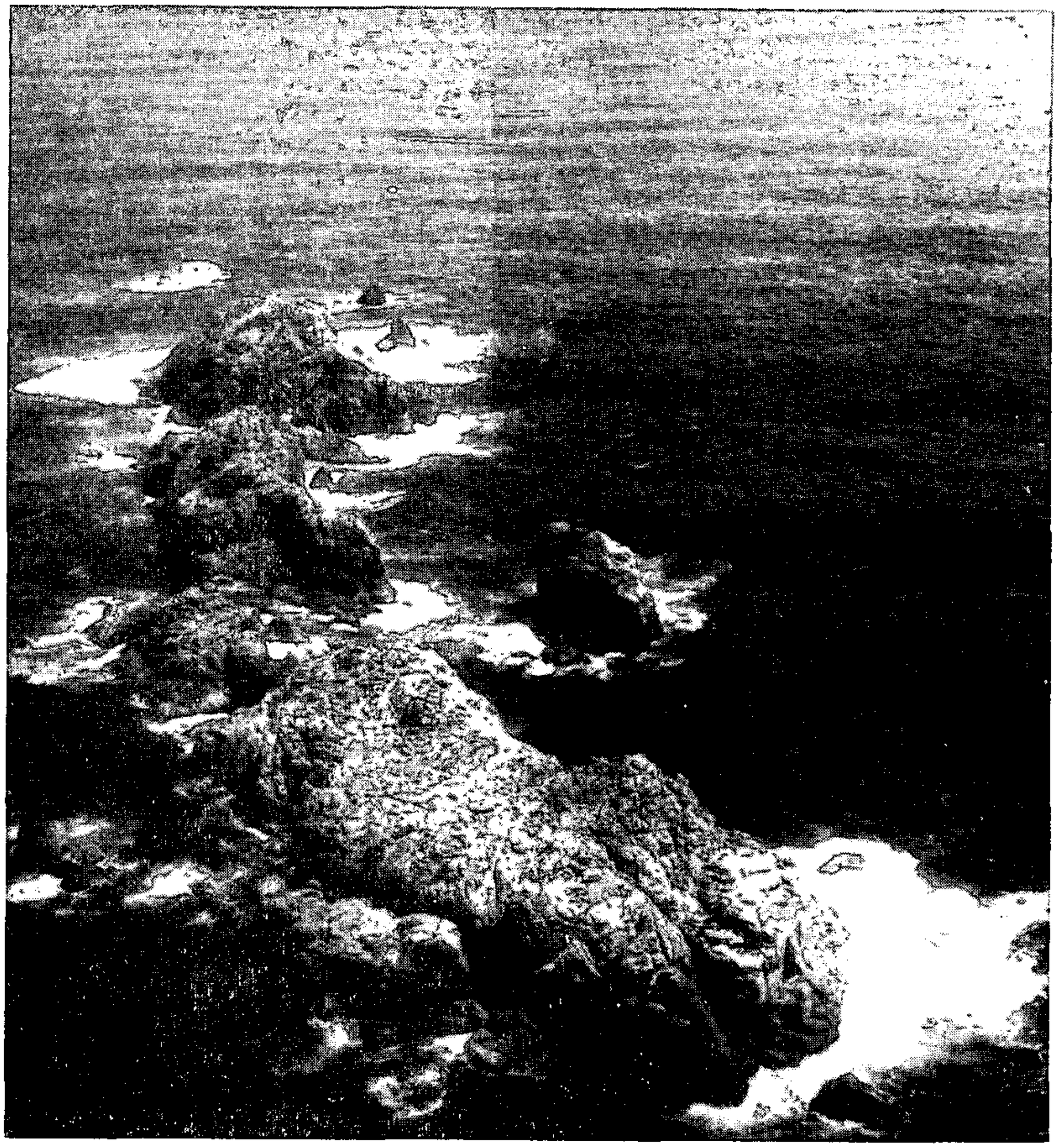

FIGURE 3 — The Snares Western Chain: Toru (foreground), Wha and Rima from NE; RNZAF Sortie 190, 16 Jan. 1967. Photo: RNZAF.

unresistant schist. Geological differences may account for the differences in morphology, colour and bird life between Tahi and Rua and the rest of the chain. At least three systems of joints on Toru have weathered out to form grooves, ledges, pinnacles and gulches. One system defines the sides of the chain, another controls the passages between them and a third forms horizontal ledges and crevices. Tahi has an archway penetrating from side to side. Fritter from the rocks, mixed with guano and other debris, forms a kind of soil in grooves, but in most places no plant cover can grow owing to exposure to the weather and the constant passage of birds and seals. Granite breaks down to a grit, not forming chips like the schist of Rua, beloved of Cape Pigeons for their nests.

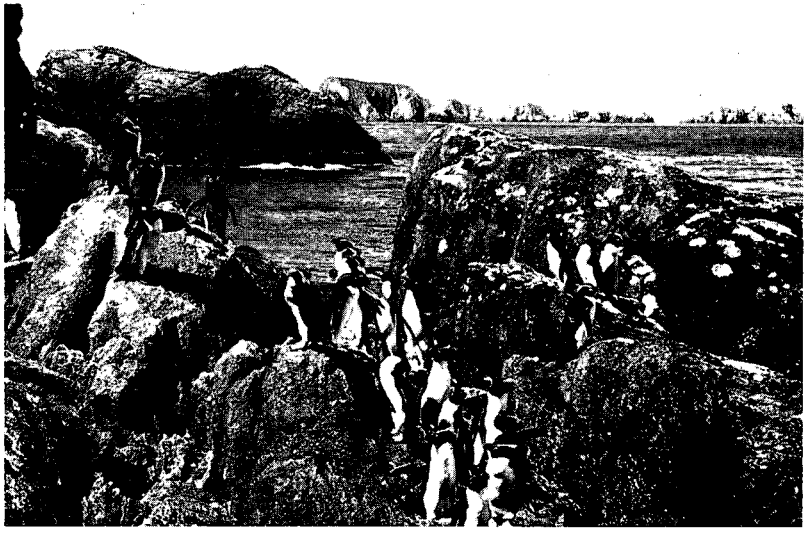

FIGURE 4 — Idle Snares Crested Penguins on Toru. In the gap between Toru and Rua (left) a raft of Cape Pigeons has settled. In the background is the main Snares Island and Broughton Island (right). Photo: C. A. Fleming.

FIGURE 5 — Toru (with Wha and Rima, left) seen from SE. Photo: C. A. Fleming.

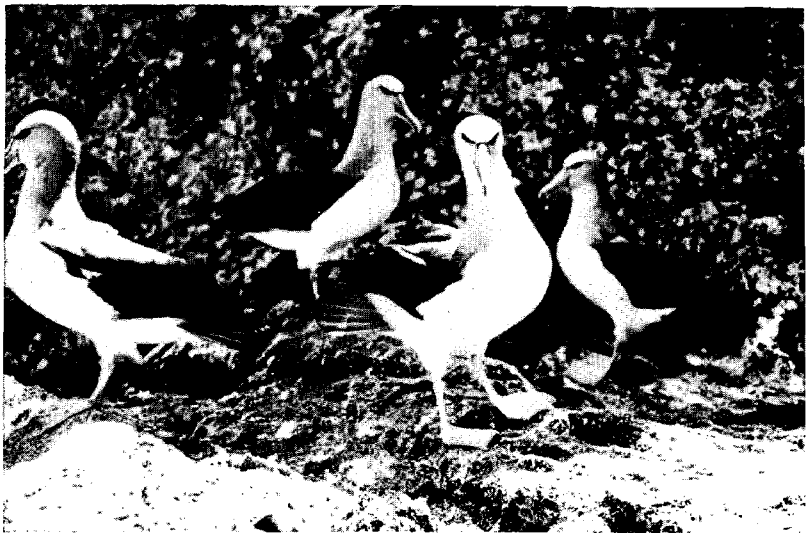

FIGURE 6 — A group of Salvin's Mollymawks *(Diomedea cauta salvini)* on Toru. Photo: C. A. Fleming.

FIGURE 7 — Salvin's Mollymawk on Toru. Photo: C. A. Fleming.

Two species of higher plant were found during the 1972 visit. One, a creeping succulent herb *(Tillaea moschata)*, has already been recorded from specimens collected on Rua by R. A. Falla (Fineran 1969). It is known from all three islets so far visited, living in joint fissures too narrow or on too steep a surface to be trampled by birds and seals. It has a circumpolar subantarctic distribution. The other species, a grass *(Poa astoni)* was apparently not collected on Rua. It forms a gently undulating sloping area about 8m square near the top of Tahi but on Toru is reduced to individual tussocks at the summit. There is also a notable sward of low vegetation on the steep-sided stack on the east side of Toru.

Several kinds of shellfish were collected above the bull kelp *(Durvillea)* on Toru and littoral algae and bags of organic debris from joint fissures near Mollymawk nests were collected for the Dominion (National) Museum.

Idle groups of Snares Crested Penguins stood on ledges on the lower slopes of Toru (Fig 4) but nests were mainly sheltered in caverns and corridors between rock masses. At this date nests on the main Snares Island all had downy chicks, many half-grown, but no chicks at all were seen on Toru, where adults sat tight on nests (on eggs in two cases checked). It seems that the breeding season is significantly delayed in this bleak locality. In a brief mention of the 1947 landing on Rua (" C.A.F." 1948) the phrase " spectacular

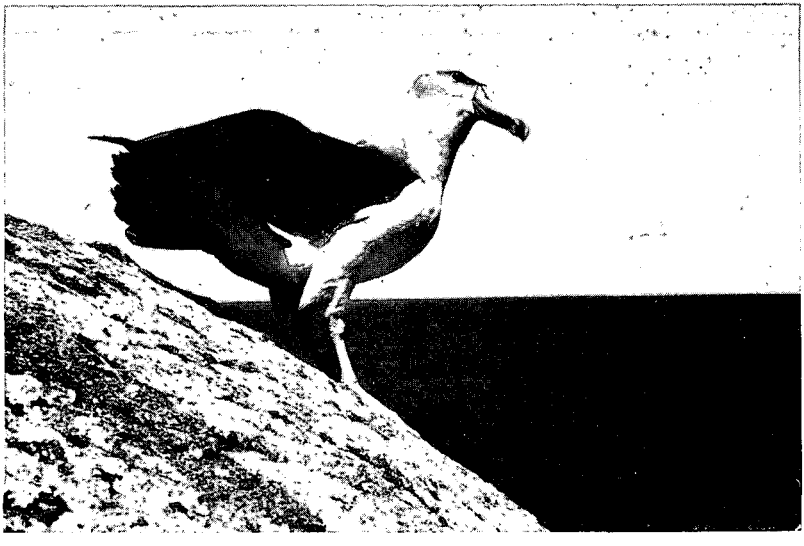

FIGURE 8 — Salvin's Mollymawk, Toru. Photo: C. A. Fleming.

penguin colonies" is misleading as there are no penguins on Tahi and Rua and those seen lining the terrace of Toru are now known to be idle birds, the nests being largely out of sight in the shelter of crevices. A few solitary penguins were present on the very summit of Toru (88m).

A large colony (over 1000 pairs) of Salvin's Mollymawks *(Diomedea cauta salvini)* nests on the Western Chain. They are absent from Tahi and Rua, preferring the crags and ledges of Toru, Wha and Rima which provide a modicum of shelter. They had downy chicks some 15 to 30cm in height. There were some hundreds on the SE side of Toru (Figs 6-8); 200 are visible on an air photo of Rima, and the total population must exceed a thousand nests. This subspecies was first recorded breeding on the Western Chain in 1947 when they were seen by Falla and a specimen from Toru was collected from the *Alert*.

Sealers' reports of breeding Cape Pigeons *(Daption capensis australis)* were confirmed on Rua by Black and Falla in 1947, on Tahi by Dawson and Singleton in 1964, and on Tahi and Toru during the 1972 visit. On Toru, they seem to be largely confined to deep crevices near the summit by competition for space and are fewer than on Tahi and Rua. A new record from the Snares is the Fulmar Prion *(Pachyptila crassirostris)* which we found perching on ledges and nesting in crevices as at Bounty Islands and the Pyramid (Chatham Is). They were flying ashore by day, settling on the water and feeding

FIGURE 9 — Fulmar Prion *(Pachyptila crassirostris)* flying close off its breeding crevices, Toru, Western Chain. Photo: C. A. Fleming.

close in-shore (Fig 9). Regurgitated bones collected from Tahi suggest that Diving Petrels may nest in the burrows below the tussock patch; they were close to a nest territory of the only skuas seen. We also saw a pair of Antarctic Terns *(Sterna vittata)* with young flying over Toru.

Seventeen fur seal *(Arctocephalus forseteri)* and one large sea lion *(Phocarctos hookeri)* were observed near the landing site on Toru. The seals were mostly young-of-the-year and sub-adults.

The afternoon sun was still shining from a clear sky as the *Acheron* sailed from the Snares, " while birds of storm sat brooding on the calmed wave " (with apologies to Milton) — a raft of Cape Pigeons and prions had settled on the water near Tahi.

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