

Introduction

The specimens and field data on which the papers in this Bulletin are based were collected on the Cocos-Keeling Islands between about 20 December 1940 and 10 November 1941, while I was working in the group as resident Medical Officer. The islands lie out in the eastern portion of the Indian Ocean, approximately 600 miles south-west of Java Head, and 530 miles from Christmas Island, where I had been living from September 1938 to December 1940.

The Cocos-Keeling group consists of an atoll of about 25 islands surrounding a pear-shaped lagoon, approximately 7 miles wide and 9 miles long, and a single island (North Keeling), 1,250 yards wide and 2,250 yards long, fifteen miles further north. The group was discovered early in the seventeenth century, and remained without permanent inhabitants until 1827, when the present settlement was established on the main atoll. The islands were incorporated in the British dominions in 1857. At first they formed an independent unit under the crown. Later, in November 1878, the control was transferred to the Government of Ceylon, and in August 1886 to the Government of the Straits Settlements. In September 1903 they were formally incorporated in the latter (Ordinance No. 84), and are now administered as a dependency of the Colony of Singapore.

In 1941 the islands had a population of about 1,450 "Malays". The people are descended from the men and women of the original settlement of 1827, and in part from Javan labourers (mostly Bantamese) imported during the last half of the nineteenth century to assist in working the coconut plantations. They live in a village on Pulo Selma (Home Island) on the east side of the main atoll. In 1941 there were also two families and about 20 young girls between the ages of fifteen and sixteen on Pulo Luar (Horsburgh Island), at the north end of the atoll: a few acres of this island were being worked as a vegetable farm run on the labour of the girls, who were sent over from Pulo Selma to prevent them succumbing to their natural inclinations at too young an age. Finally there is a relay station for the trans Indian Ocean submarine cable, established in 1901, on the neighbouring island of Pulo Tikus (Direction Island): in 1941 it had a staff of about 30 men.

During my stay on the islands I lived in quarters in the Cable Station on Pulo Tikus. My official duties occupied a relatively small amount of my time, and I was able to make fairly comprehensive collections covering the terrestrial and reef fauna of the main atoll, and the fish occurring inside the lagoon

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and in the adjacent waters outside it. In addition I was able to pay two visits to North Keeling, one on 30 January and the other of two days on 7 and 8 July. The specimens and field notes obtained over the whole period were deposited in the Raffles Museum during the course of 1941. The greater part of the material in these sections survived the war, but some small portions, noted below, and four of the field diaries could not be traced when I returned to Singapore after my post-internment leave.

Previous to my residence on Pulo Tikus the islands had been visited by four naturalists who have left descriptions of them. The references to their accounts are given in the selected bibliography at the end of the first paper in this Bulletin (pp. 27-28). The earliest of the visitors was Charles Darwin, who spent eleven days on the atoll in April, 1836, during the voyage of the *Beagle* (1845: Chap. 20); it is interesting to note that this is the only coral island on which he ever landed. The next visitor was H. O. Forbes, who was there for three weeks in January and February 1879 (1885: 11-47). He was followed in 1888 by H. B. Guppy (1889), who stayed for about ten weeks between August and October. Finally F. Wood-Jones resided as Medical Officer on Pulo Tikus from June 1905 to the end of September 1906 (1909: 132-160; and 1912). Wood-Jones attempted to compile systematic lists of at least some sections of the fauna of the islands, but unfortunately he does not appear to have been a very persistent collector, and in part at least he seems to have relied on visual records of species with which he was not familiar. In October 1912 H. C. Robinson, of the Selangor Museum, made a four-day tour of inspection to report on the condition of the settlement, but his official duties seem to have left him little time for collecting. In October 1923 the Raffles Museum sent two Dayak collectors on a visit of 36 hours, and in addition a few specimens have been sent to this Museum at different times by members of the Clunies-Ross family. I have examined at least the majority of these, but they do not add anything to the 1941 lists. Finally in 1939 the island was visited for several days by Mr. Richard Archbold, during the course of a flight across the Indian Ocean from Australia to South Africa, but nothing has so far been published on the material collected for him during his stay.

It had been hoped that we would be able to establish two things from the 1941 collections. One was the terrestrial and reef fauna as it stood at that time. The other was the extent to which there could be said to be similarities between the fauna of the Cocos-Keeling Islands and that of Christmas Island. The latter is about 530 miles further east, and of a very different formation, being a single, steep-sided, thickly wooded island,

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with an area of about 75 square miles, the greater part of which is occupied by a plateau 600-1,000 feet above sea level. Nevertheless it is the nearest point of land, and in approximately the same latitude ($1^{\circ} 30'$ nearer to the equator). In addition (*vide infra* pp. 13-14) the Cocos-Keeling Islanders were formerly in the habit of visiting Christmas Island, and for over ten years had a small settlement there. Unfortunately the war has prevented the production of an adequate estimate. Obviously the most significant portions of the fauna in this respect are the terrestrial invertebrates. Nearly all my Christmas Island collections in these groups were lost before the identifications had been worked out, when the Selangor Museum was destroyed by bombing in 1945. Ironically the only major group that had been completed was the Arachnida, on which Mr. T. H. Savory published a paper in 1943 (*Ann. Mag. Nat. Hist.*, (11) 10, May 1943: 355-360), and this is one of the few sections of the Cocos-Keeling collections which disappeared completely between 1942 and 1947.

In some measure it is still possible to establish the fauna of the Cocos-Keeling Islands as far as it was collected in the 1941 survey. This is done by the papers in this Bulletin. In addition the following collections were made:—

Coelenterata. Nearly all the specimens of soft corals and anemones have disappeared, and both copies of the field notes on them.

Echinodermata. The majority of the Holothurians have disappeared, but a copy of the field catalogue remains, which in part at least could probably be equated against a future collection.

Annelida. Both specimens and field notes have disappeared. There is at least one terrestrial Oligochaeta, which is widespread on the main atoll, but not plentiful. Naturally there are a number of reef Polychaetes, but no data on them survives, except a note that *Chloeia flava*, or a very similar species, is plentiful and troublesome.

Myriapoda. The specimens cannot now be located, but the field notes survive. *Scolopendra subspinipes* Leach was fairly plentiful in the roofs of houses on Pulo Selma, and among piles of fallen nuts on the other islands. Specimens were taken of a further 3 centipedes, and of 2 millipedes; one of the latter, closely resembling a species common on Christmas Island, was extremely plentiful.

Arachnida. The specimens appear to have disappeared, but the field catalogue remains. A small flat scorpion, probably *Isometrus maculatus* De Geer, was fairly plentiful in much the same situations as the large centipede. Specimens were

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also taken of 2 Chelifera and about 27 Araneidae; the latter include *Nephila nigritarsis* L. Koch and *Heteropoda listeri* Pocock, or closely similar species. A large tick is very plentiful, and troublesome, on the island of North Keeling, where it apparently normally attaches itself to the sea birds, generally one of the boobies (*Sula* spp.).

Insecta. The field notes and nearly all the specimens of insects survived the war, but in a few cases it has not been possible to find specialists to report on the material in time for this Bulletin. In addition to the orders listed later there are specimens of the following available for identification: ORTHOPTERA, Gryllidae 4 species including a mole cricket and one closely similar to *Gryllacris rufovaria* Kirby of Christmas Island, Tettigoniidae 3 species, Acridiidae 2 species and Blattidae about 6 species; DERMAPTERA, about 4 species, only one of which, ? *Anisolaris annulipes* Luc., is at all plentiful.

C. A. Gibson-Hill.

Raffles Museum,
December 1949.

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