

OCCURRENCE OF FOSSILIFEROUS UPPER CRETACEOUS SEDIMENTS AT CAPE MARSH, ROBERTSON ISLAND

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ROBERTSON ISLAND, the largest of the Seal Nunataks, is situated at the easternmost edge of the Larsen Ice Shelf on the east coast of Graham Land (Fig. 1). It differs from the other Seal Nunataks in that it is almost completely ice-covered and rock is exposed at only two places: Oceana Nunatak and Cape Marsh. In 1962 Cape Marsh, which is at the south-eastern end of the island, projected into the Weddell Sea from the Larsen Ice Shelf. It is on this part of the coast that Upper Cretaceous sediments containing the serpulid *Rotularia callosa* Ball and lamellibranchs are exposed.

Upper Cretaceous sediments are exposed at a number of localities in north-east Graham Land (Fig. 1). However, the occurrence at Cape Marsh is the most southerly known so far on the east coast of Graham Land. The stratigraphy of the Upper Cretaceous sediments of James Ross, Snow Hill, Seymour and Cockburn Islands has been described by Bibby (1966). Cretaceous conglomerates are exposed at Sobral Peninsula and Pedersen Nunatak (personal communication from D. H. Elliot). The presence of sediments beneath the Seal Nunataks is indicated by the occurrence in lavas of the James Ross Island Volcanic Group of buchite fragments at Bull Nunatak and a variety of quartzite at Pollux Nunatak.

At Cape Marsh the sediments form several closely related outcrops in which about 500 ft. (152 m.) are exposed (Fig. 2). They consist of grey-brown, thin-bedded siltstones (Fig. 3), which are generally soft except for harder bands which occur regularly throughout the outcrop. Some of the bands contain concretions but in the central part of the outcrop there are white calcareous bands, about 3-6 in. (8-15 cm.) thick, which recur at intervals of approximately 5 ft. (1.5 m.). No fossils were discovered in association with the hard bands, although the exposure was not examined in sufficient detail to state definitely that the hard bands are unfossiliferous. At the top of the outcrop, where the sediments dip gently north-westward beneath the ice-domed summit of Robertson Island, dispersed fragments of highly vesicular basic lava were observed. For this reason, it is considered that the summit of Robertson Island is composed of rocks of the James Ross Island Volcanic Group. Oceana Nunatak and the other members of the Seal Nunataks all consist of rocks of the James Ross Island Volcanic Group.

Fossil serpulids and lamellibranchs were discovered at only one locality (station D.4724), approximately in the centre of the outcrop (Fig. 2), above and to the west of the Argentine refuge. An hour's search yielded approximately 50 specimens. These were found in a bedding surface and were loose in the rubble. The collection was sent to Dr. H. W. Ball, British Museum (Nat. Hist.), who identified the majority of the specimens as *Rotularia callosa* Ball. Two lamellibranch specimens also present in the collection have been identified as *Trigonia* aff. *antarctica* Wilckens. These beds can therefore be correlated with the Snow Hill Island Series of James Ross Island (Bibby, 1966).

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REFERENCE

- BIBBY, J. S. 1966. The Stratigraphy of Part of North-east Graham Land and the James Ross Island Group. *British Antarctic Survey Scientific Reports*, No. 53.

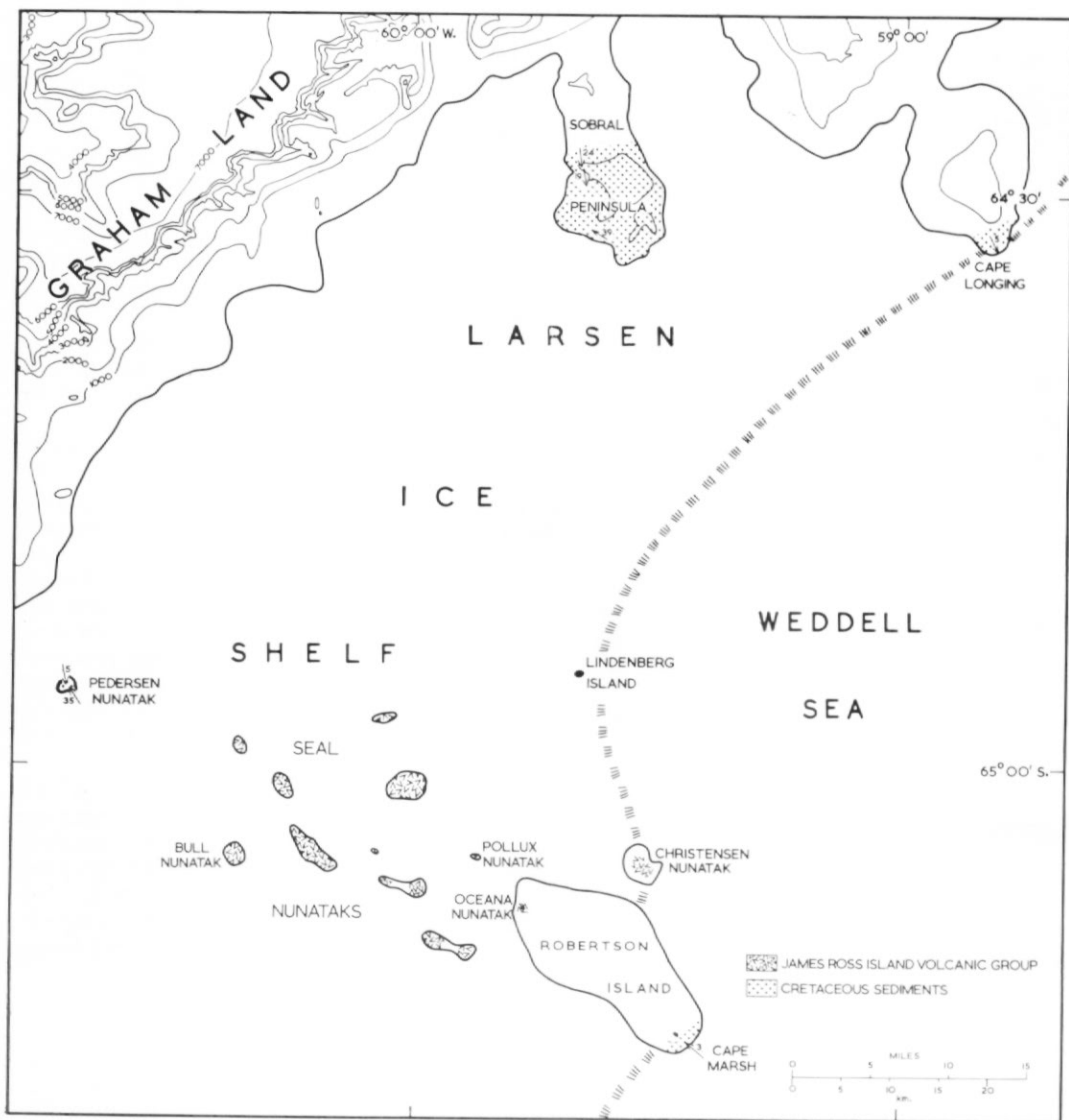


Fig. 1. Sketch map of part of north-east Graham Land, showing the localities where Cretaceous rocks are exposed.

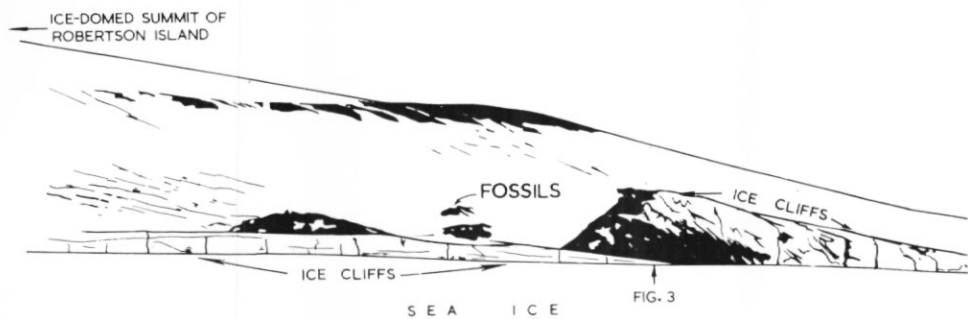


Fig. 2. The exposures of Upper Cretaceous sediments at Cape Marsh, Robertson Island, seen from the east. Fossils were found in the position indicated.



Fig. 3. Thinly bedded siltstones exposed at Cape Marsh, Robertson Island. About 30 ft. (9.1 m.) of sediments are shown in the photograph. The position of this exposure is indicated in Fig. 2.