INTRODUCTION

THE stratigraphy and structure of the area from Sandy Bay to Pakaurangi Point on the south-eastern side of Hukatere Peninsula, in Kaipara Harbour, have been described by the writer (Jones, 1969). In that paper the Waitemata Group in the area has been divided into the Pakaurangi and Puketi formations.

(1) The fossiliferous Pakaurangi Formation consists dominantly of silty sandstones, with occasional "concretionary" limestone bands and andesite-derived hydroclastic grits. This formation has been subdivided into six distinct members (Waiteroa, Tapu, Hollands, Waipukua, Pakaurangi, and Funnel Members in ascending stratigraphic order), each of which has a distinctive lithology and fauna.

(2) The volcanic-derived Puketi Formation consists of a series of shallow-water andesitic and pumiceous tuffs overlying the andesitic Waititi Tuff Breccia and the Yellow Point Sandstone. The Pakaurangi *Miogypsina* Sandstone above the unconformity on Pakaurangi Point has also been included in the Puketi Formation on stratigraphical and petrological grounds.

This paper embodies the results of a detailed paleontological study of the six members of the Pakaurangi Formation, together with a more generalised study of the sparsely fossiliferous Puketi Formation. This is followed by a section giving paleoecological deductions of the conditions of deposition of the Waitemata Group in the Pakaurangi area.

PALEONTOLOGY OF THE WAITEMATA GROUP

Paleontological studies have been concentrated on the Pakaurangi Formation, where the large and extensive fauna has been studied in detail. The resulting faunal lists are given in Table I. Microfaunal identifications were undertaken by Mr G. H. Scott, N.Z. Geological Survey, and his results are given in Table II. Macro- and microfaunas were also obtained from the Pakaurangi *Miogypsina* Sandstone. Lignite seams in the Puketi Formation yielded a good microflora (Table IV), identified by Dr W. F. Harris, N.Z. Geological Survey, and also some identifiable leaf impressions and silicified wood.

Fossil locality numbers refer to New Zealand Fossil Record Sheet Numbers for Sheet N28 (Maungaturoto) of the N.Z.M.S. 1 series (see Appendix for locality grid references). The stratigraphic position of the fossil localities has been indicated previously by the writer (Jones, 1969, fig. 2).

PALEONTOLOGY OF THE PAKAURANGI FORMATION

The six members of the Pakaurangi Formation were all subdivided into smaller fossil localities on the basis of lithology and fossil content. The fauna of each of these localities was studied separately and relative specific abundances were noted.

Waiteroa Member

The Waiteroa Member has been subdivided into 12 localities. N28/849–853 represent the upwards succession of Waiteroa beds on the west side of Coates Bay, and N28/855–859 represent the same succession on the east side of Coates Bay. N28/860 and N28/861 represent the Waiteroa outcrops west and east of Hollands Point respectively. The relative abundance of the various faunal elements is given in Tables I, II, and III. (Tables I and II will be found at the end of the text.)

Rare corals occur scattered through most of the localities but they are only abundant in the Upper Waiteroa Shellbed on the east side of Coates Bay. Polyzoans are rare in N28/848–854 but common in N28/855–860—especially *Idmonea, Melicerita,* and *Salicornaria* (terminology follows Stoliczka, 1864). Dominant Foraminifera include *Amphistegina, Cibicides, Alabamina, Astrononion,* and *Nonionella.* The percentage of planktonic Foraminifers varies between 15 and 50. Brachiopods, especially terebratellids, are infrequent but widely scattered through the member. Gastropods are fairly abundant in this member, but most