end of the reef at Low Water Mark of Spring Tides and in a pool about three feet higher. Corallina sp. is found exposed in the mid-tidal region, but only in the pools at High Water Mark of Spring Tides.

Such species as Splachnidium rugosum, Scytothamnus australis and Codium adhaerens which grow exposed on the rocks are never found in pools. Hormosira banksii, common in association with Corallina in the mid-tidal zone is found fringing pools and to a depth of about 12 inches in pools at intermediate levels. Common species belonging to pools on the East Coast are:

Green: Enteromorpha procera
Ulva linza

Brown: Hormosira banksii
Ecklonia radiata
Carpophyllum plumosum
C. maschalocarpum
C. phyllanthus
Sargassum sinclairii
Blossvillea torulosum
Calpomenia sinuosa

Red: Corallina sp.
Pterocladia capillacea
Plocamium sp.
Gigartina chapmanii
Laurencia botrychiodies
Ceramium sp.
Rhodymenia leptophylla
Lenormandia coronata

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For those who enjoy their seaweeding under more adventurous conditions, Mr. Hannken has kindly provided a most useful account of our local West Coast zones. Members must remember to take this article with them on our Bethel's excursion!

SEAWEEDS OF THE INTERTIDAL ZONE ON THE WEST COAST

- P.B. Mannken.

The wave-lashed, rocky shores of the Western coastline near Auckland seem an inhospital place for the growth of such delicate plants as seaweeds. However, the wind and waves are constant features so that plants adapted to such conditions are able to grow successfully. The regularity of controlling factors, of which the tidal rise and fall is the most important, leads to, and is clearly illustrated by, the zonation of plants from the lowest to the highest points on the shoreline.

There are a large number of seaweeds growing on these shores, each adapted perfectly to its own station. Many are small and easily overlooked at first, but once one is acquainted with

the vegetation of the West Coast its unique and interesting characteristics make it ever more and more fascinating.

Zonation of the larger Algae at Piha: The red algae, which are characteristic of only the lowest zones on sheltered coasts are the dominant plants here. Most of them are large and leathery; well adapted to resist the lashing they receive from the waves. Even their colour is not a bright red like feathery Reds of sheltered conditions, but is usually an olive-brown.

Spray Zone (above High-Water Mark). The long green threads of Enteromorpha (Green) are common here, being especially thick near fresh water (seepage). Also extending up into this zone is Porphyra (Red) which has a thin, expanded browny-green blade.

High Water Spring - High Water Neap. This zone is covered only a few days each fortnight. Porphyra is the main alga.

High Water Neap - Low Water Neap. Conditions here are more regular than anywhere else on the shore, the tide rising and falling over it every day. Most important of the plants are two Reds, Gigartina alveata and Pachymenia. The Gigartina is a small tufted plant of interlaced, wiry "branches", and grown in the upper half of the zone. Below it occur the strap-like fronds of Pachymenia. A large form of Porphyra is also common.

Below Low Water Neap. At low spring tide the rocks of this zone are covered with long fronds of a great variety of seaweeds hanging down to the water below. The flora varies in composition according to conditions of exposure and wave action. Four important Reds may be mentioned. These are Gigartina cranwellae which is strap-like, the "leaves" being more divided than in Pachymenia; G. atropurpurea with a thick expanded blade; Vidalia with long, narrow, bright red, serrate fronds and the well-known Agar weed, Pterocladia lucida. In the more exposed places the bull-kelp, Durvillea (Brown) has its home. Another well-known Brown which occurs with Vidalia is Carpophyllum maschalocarpum.

Less important at Piha are some seaweeds which I mention because they will be well-known from the East Coast. Wherever the large mussel grows will be found Ulva, the sea-lettuce (Green) often associated with it is Splachnidium (Brown), a branched sausage-like weed and the mop-weed Seytothamnus (Brown).

Animals of Piha Intertidal Zone. The decay of the seaweeds provides, directly or indirectly, a large

amount of food for fixed animals which can feed on small particles. These they waft into their mouths by creating currents in the water by various methods. Like the plants, the animals become adapted to definite conditions and grow in definite belts.

Three barnacles grow in the upper zones, one extending far into the spray zone. About the middle of the Gigartina alveata zone may be found two tube worms growing in narrow bands, one above the other. The upper one, Vermilia, builds a calcareous tube, while the lower one Hermelia has a tube built of sand particles. Extending throughout the mid-tide zone is the tiny black mussel Modiolus (or Volsella), while below low neap tide mark may be found the large mussel, Mytilus.

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SCENERY PRESERVATION

Ever since its inception, the Auckland Botanical Society has endeavoured to attract attention to the threat to the natural vegetation of Rangitoto by animal and vegetable pests. Of recent years pines have become a considerable menace. The Devonport Council has now approached the Botanical Society and suggested that it should undertake the work of locating the pines. As a result the Committee set forth on May 1st and spent a day "pine spotting" on Rangitoto. With the aid of powerful binoculars the more important groups were located and marked on the plan. Dr. Godley has sent in a report of our investigations to the Devonport Council. It is proposed to hold a further excursion to the Island on June 19th, where members will either botanize or investigate pines as the spirit moves them. Those in a crusading mood are strongly urged to bring an axe!

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CONGRATULATIONS

Our hearty congratulations to Mrs. Allen (née Betty Molesworth) on her recent marriage. Mrs. Allen is spending her honeymoon in Burma, prior to settling in Singapore. All members will unite in wishing her every possible happiness. We do not feel that she is altogether lost to the Society as she has promised in due course to send us some of her observations on the fascinating flora of the Malay Peninsula - in this connection it may be noted that she has already discovered a new orchid.