

are attached at surf level; the short cylindrical stipe is extremely strong, and the wide leathery blade is broader in relatively sheltered places. Xiphophora likes about the same level as Durvillea, Lessonia, Cystophora and Sargassum are all found near low tide level, while Landsburgia quercifolia and the two species of Marginaria are usually in deeper water, as are the rose red sheets of Laingia hookeri. Too much light can injure delicate seaweeds, and bleached tips are often seen after days of bright sunshine at spring tides. Then water temperature is another controlling factor in the distribution of species. To increase their buoyancy and hold the fronds up to the light when the tide is in, plants of Carpophyllum, Macrocystis, Marginaria and Sargassum have gas-filled vesicles amongst their leaves. Hollow organs filled with watery or mucilaginous matter are seen in Hormosira, Adenocystis and Splachnidium. These may help to resist undue desiccation (as well as making useful squirts for children!).

The seaweed population changes with latitude, and only some species can tolerate the increased fresh water of estuaries and river mouths. Like the higher plants, seaweeds may be annual or perennial, parasites, epiphytes, or endophytes. On the two species of Pterocladia I have found nearly twenty different kinds of epiphytes. And when looking for seaweeds do not neglect those peculiar, often circular, brownish patches on rocks and stones. They look like stains, but they are algae too, of such genera as Ralfsia and Petrospongium.

The Wellington coast provides excellent collecting grounds and Lyall Bay is the type locality for many species. One afternoon in a small baylet between Kerehiana and Maori Bays I noted 40 species. Stewart Island is a veritable paradise, and so is Hokianga Heads with its huge black rocks. Generally the east coast has been more explored than the west, possibly because it is safer. The number of species described for New Zealand is now a little over 500, and of these a large number are endemic.

We have still much to learn botanically about our algal flora; but there are as well, I feel convinced, vast commercial possibilities for seaweeds generally. Economic scientists are turning to new sources for materials for experimentation, and the world of seaweeds is but little touched though it is amazing to see the multitudinous small ways in which seaweeds have been used. For food we have heard of the various Oriental kinds, the Karengo (Porphyra sp.) of the Maori, and the carrageen types (Gigartina spp.) that have proved so profitable to the Stewart Island gatherers recently, and what more delectable green is there than Chaetomorpha darwinii -- for those who can pick it fresh? From seaweeds, potash, soda, and iodine have been extracted, and certain kinds can be highly recommended for garden manure. In medicines and in textiles, in cosmetics and in glue, seaweed products are being or will be used. As a more or less problematical use Laing suggested in 1926 "the production of a kind of gelatine". This has actually become a reality and today a firm in Christchurch is manufacturing all New Zealand's requirements of agar, using as raw material two species of Pterocladia collected from our own shores.

RIMUTAKAS.

February 3 dawned with threatening summer showers but two enthusiasts packed their mackintoshes with their lunches and made the journey to the Rimutaka Summit. They were rewarded by a beautiful calm day of warm sunshine. Walking back down the railway line they saw the interesting assortment of plants covering the railway cuttings. Dwarfed ferns, Gnaphalium, Wahlenbergia hanging sprays of graceful bluebells, Gaultheria - how different from the cuttings a few miles down the line! A track led down through the beech forest to the river bank where there were rimu and other trees among the beech. One fine large rimu lay prone on a beach where it had been felled by a picnic party, "for fun", a disgusted railwayman informed us. We saw Jovellana and Rubus schmideloides here. This place is well worth visiting again.

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