E W S L E T T E R

AUCKLAND BOTANICAL SOCIETY

22nd. year March 1965

Hon. Editor : E.D.Hatch
583 Tane Road
Laingholm Central S.W.4.

Hon. Acting Secretary : F.M.Warren
126 Benson Road
Remuera S.E.2.

MEETING - 4 November 1964

Mrs. Cassie's 'Phytoplankton in N.Z. Waters' turned out to be rather interesting. The sea it seems, is full of micro - organisms - both plant and animal, broadly designated Plankton The plant or 'phyto' section of this plankton consists of several forms of more or less unicellular algae. If I followed Mrs. Cassie correctly the Diatoms have a siliceous skeleton in two parts (valves) which fit together like the halves of a pill box. They may be circular or elongated and some of the elongated forms are capable of self-propulsion. Reproduction is frequently by division and this has an interesting sequel. Since the two valves fit into one another it follows that one is smaller than the other. During division new valves are formed inside each of the parent valves. With the passage of time and many divisions, these new valves become smaller and smaller until the plant is threatened with extinction. This is overcome by the formation of auxospores which enlarge greatly to the original size before dividing once again. When the plants die the siliceous valves, being relatively indestructible, fall in vast quantities to the bottom of the sea, forming what Mrs. Cassie described with relish as 'ooze' ! This diatomaceous earth has an eventual commercial use as a scouring agent and for insulating and filtering material.

We went on from diatoms to dinoflagellates, some of which have long 'necks' like moas and long whip-like tails - and thence to the flask-shaped Chrysophyceae, complete with stopper.

The role played by the phytoplankton as a primary source of food for small fish and animals, which are in their turn eaten by larger forms and eventually by man, is of major economic importance. Some day perhaps, we may find a method of harvesting this food source direct. I was surprised to find that some diatom species which inhabit the surf beaches of our west coast, actually feed the toheroa. I have always shunned shellfish as muck eaters,

but the toheroa, now proved a vegetarian, has risen in my estimation. Mrs Cassie's talk was illustrated by coloured photomicrograph slides, pointing to perfection the variety and beauty of a group of plants which she has made her particular study. An unusual and memorable evening. (I notice in the ' Herald ' 13 February 1965, a quotation from Dr. R.M. Cassie - '...the oceans of the world produce 100 million tons of plant material a day. This is probably the biggest untapped food resource still existing - if only it could be harvested...') E.D.H.

DECIDUOUS FERNS

On page 8 of the last Newsletter I wondered if Osmunda was the only deciduous fern in New Zealand. Looking into the literature I find both Field (1890.p126) and Dobbie (Edition 4.p272) recording that Athyrium is inclined to die down in the winter, and I have since had two long letters, one from Miss Stocker in Nelson and another from Mrs Duguid in Levin, giving quite a list of deciduous ferns. Both agree that these drop their fronds only when exposed to frosts, and cold or drying winds; and that when they grow in damp, shaded, well sheltered situations they remain green throughout the year. Mrs Duguid reports that winter-green plants of Athyrium australe, transplanted from the bush into the windy open of her garden, invariably become deciduous, but continue to throw viable spores so that she has numerous self-sown plants about the place. Miss Stocker tells me that in Nelson the two Athyriums, with Hypolepis millefolium and distans regularly lose their fronds. ' The dead stipes of Hypolepis remain standing as browned guardians, but alas ' says she, ' the fronds of Athyrium vanish, so that one must mark the place where a plant lies, and not do as I did, casting a great wet slab of Hypolepis distans on top of a poor dormant Athyrium australe '.

Mrs Duguid lists the above 4 also, and adds Pteris tremula, the introduced English species Dryopteris filix-mas, Botrychium, Ophioglossum and Pellaea rotundifolia, which last she says ' is another proposition altogether. Naturally inhabiting dry situations, it should remain leafy throughout all the seasons, and the self-sown plants I have in my garden now, do so; but some years ago I had some very flourishing plants in a different garden which invariably cast off the pinnae, leaving a brush of wiry stalks. As each of these had to be cut off individually to tidy up the plants I have good cause to remember them, though after this lapse of time I cannot guess what circumstances contributed to the fern's behaviour '. Miss Crookes, who confirmed Mrs Duguid's identification of Dryopteris filix-mas, asks about its distribution as a naturalised plant. Quoting Mrs Duguid again - ' The plant I have in cultivation grows luxuriantly, but at the onset of cold weather the fronds lie down flat and die. It came from a friends garden on a Kelburn hillside, where the same family has lived for over sixty years. This fern comes up there in a number of nooks and corners and the owners have no idea of its origin. I have noticed it also under neglected shrubs near the heart of Wellington City, and in an old Christchurch garden '. E.D.H.