

TWO WONDER PLANTS.

Two seaside plants have interested me more than any others that exist on our coasts. They are the *pingao*, *Scirpus frondosus*, and the large seaweed *Durvillea antarctica*. Both look like plants of ancient times. Both are built to withstand violence, the *scirpus* for withstanding sand blast, the *Durvillea* for resisting violence of the water. Like the waves of the sea, the sand, driven by the wind, invades the land plant *pingao* whose leaves are adapted to oppose it and do so quite successfully. Even when covered by sand the tendency of the growing point to seek the light combines with rapid growth to enable the plant to cope with its natural enemy. One has only to note the rope-like stems often forming a network to realize how the sand is prevented from drifting. The branches are given off so closely that the leaves of separate branches touch, giving a tussock-like effect. In the setting sun the vivid orange, green, and red colours of the leaves always command admiration.

The bull-kelp *Durvillea antarctica* is a surf plant which has to meet the strongest wave impact, violent wind, and the great weight of its lamina. Consequently it has to be firmly attached to the substratum, and to be tough and yet pliable. It meets the first condition by a large and circular holdfast, growing over and adhering to the rock like a leather sucker. From this disc, often over 18 inches in diameter, rises a solid trunk up to a yard long. This trunk or stipe passes into a palmately segmented frond sometimes 20 inches wide and many feet long.

Guthrie Smith has admired this gigantic seaweed in calm and rough hours. "When heaved on the rise of a long ground swell, the restless fringe of bull-kelp would toss its shining skirts like wantons in a dance, then in the downward draw become a roaring slope of gleaming writhing slippery brown." "There were calm days when the kelp streamed evenly this way and that in the current's flow."

This plant lives under conditions that no land plant could endure yet it is very successful. The male sperms and female eggs borne on separate plants can be collected, placed in a watch-glass of water and observed under the microscope. Only one sperm, as far as I have observed, fertilizes the egg. The others drop off. The egg proved too opaque for further observations. The sperms are very small but extremely active.

Durvillea does not enter harbours, neither does it grow in pools. In gales the unyielding holdfast, tough stipe and thick pliable lamina take a force of water that may rise above a ton to the square foot. What it can withstand we may gather from its distribution, Chile, Cape Horn, Falklands, Bounty Is., Auckland, and Campbell Is., etc.

Looking up my notes I find the following "*Durvillea* grows in such immense masses that the excretions must be considerable. I think it will be agreed that renewal of water dissipates substances excreted by plants and animals and that this is beneficial." Possibly this is the reason for its liking for the surf."

So far as we know it is a fact that a plant grows best in the situation where it can reproduce most easily. For *Durvillea*, sunlight, violent movement of water, daily exposure to air, and a fairly constant temperature are needed. The surf is the only place where these occur, and to protect itself from the violent beating a tough epidermis has been evolved.

The number of spores and sperms given out by such a huge plant baffles computation. Calculations in a single plant of *Laminaria saccharina* reach the unimaginable total of 11890 million spores, while *L. digitata* emits 26719 million. It has been calculated that only 4% of eggs of *Fucus serratus* become fertilized, while of a hundred thousand sperms only one or two succeed in fusing with an egg.

W.A. Scarfe.

XERONEMA FLOWERS AGAIN.

Last year several members visited Seatoun to see Dr Oliver's *Xeronema* plant which then for the first time produced a spike of flowers. This year the same plant had three bright red inflorescences as large and showy as they are on the Poor Knights and Hen Islands to which the species is endemic.