

of our group, it was a great joy and pleasure to find such large quantities. I recall one Easter, down south, a well known botanist and an artist crawling round on hands and knees for twenty minutes trying to find just one little ripe fruit of Stackhousia to paint. In this wide open valley, we had walked about two chain from the cottage to find the fruits of Stackhousia giving the ground a golden tinge, so dense were they. This was so, over a vast area of the valley, mostly on dry parts and on the mounds of long fallen trees. Even up the north face of the steep hill behind the cottage it grew in abundance. To any one who knows the flower and scent of this inch high, mat forming herb, it is a must to see in bloom. It was satisfactory to know that within a few days of my sending specimens to Botany Dept. D.S.I.R., it was able to fulfil a request from Australia.

Botrychium australe was just as plentiful, growing on more varied places-dry, not so dry, in damp areas, and up the face of the hill. Every few yards, as we walked around, we could see two or three fertile fronds of this delightful fern. I am sure we could have counted up to a thousand plants in this sheep and cattle grazed country. I have seen other places where Botrychium is growing; Tourist Spur, Lake Rubicon, Upper Kowai River, Mt Peel, but only one or two plants at most.

Another thrill was to find a shaded bank, about twelve by six yards, of Celmisia traversii, - hundreds of plants or so it looked. There were very few seed heads, but one can imagine the beauty in a good celmisia flowering year.

"....let Autumn bold With universal tinge of sober gold
Be all about me...."

John Keats

ORCHIDS GALORE

by John Thompson

Last summer, quite by chance, we came across a host of orchids, Thelymitra pauciflorus we are told. Thousands of these were growing happily on the floor of a pine plantation only 15 miles away from Cathedral Square.

If you too would like to see these orchids travel along the old, shingle surfaced, West Coast Road that runs parallel to the Waimakariri River until you come to a cross roads at which a sign is erected informing you that you are 13½ miles from Christchurch.

Follow the rough right hand road which heads in the direction of the River. This road leads to an extensive pine plantation. After driving half a mile from a right angled bend in this road you may step out of your car and see the orchids growing under the pine trees on both sides of the road. You can walk quite a distance along this road with the orchids still to be found adjacent to it.

They cannot be seen, however, in that part of the plantation where poplars have been established.

In the few places tested the soil consisted of a mixture of sand and decaying pine needles from 1½ inches to 2 inches deep on top of tightly packed river stones. It is in this thin bed of loam

that the orchids flourish.

At our first visit during the second week in November a few buds had opened. Our second visit was delayed until Christmas time. By then a dry spell of weather had been enjoyed. All the orchids had finished flowering and the majority had completely dried off. It would appear that late November or early December would be the time at which the orchids could be seen at their best.

"Wan orchids strange as ghosts of tropic night."

William Pember Reeves

FLORA AND VEGETATION OF THE SHORES OF LAKE ELLESMERE

by Colin Burrows

In the 1969 Journal I wrote about Kaitorete Spit. During the Society's field day and on several other excursions to Birdlings Flat and the Spit, numbers of species have been added to the known flora and they are listed at the end of the present article. The greater part of this article, however, deals with the area round the shores of Lake Ellesmere.

A brief account of the history of the lake would not be out of place here. About 4000 years ago sea level was at least 10 ft above its present limit and the area now occupied by the lake was a shallow bay, at times forming the estuary of the Rakaia and Waimakariri rivers. As sea level fell, about 2000 years ago, the shingle bar which is now Kaitorete Spit was formed and the lake was dammed behind it. High lake levels led to the development of extensive swamps dominated by Phormium, Typha and Carex species north and west of the lake. Mosaics of podocarp forest were also present and forest remains are plentiful round the lake. When the Maori settled the area Waihora (Lake Ellesmere) became very important in their economy because of the rich supplies of eels, other fish, fresh-water mussels and water birds. The Taumutu (western) and Kaituna and Te Puia (eastern) settlements were strategically situated. The Maori found it necessary to release the lake into the sea when ever the Taumutu settlement became flooded (about 10 ft above m.s.l.).

After about 1845 European settlement began. The vegetation, already modified by Maori fires, has been continually disturbed since then, notably by burning and draining of swampland and its conversion into farmland. Nevertheless the vegetation immediately round the lake retains its character even though there has been a long history of grazing by stock.

There is a very large bird population on the lake, adding to the botanical interest. Apart from the ubiquitous introduced birds, black swan, canada geese and mallard there are many native birds including ducks and waders. Some interesting or unusual bird species include welcome swallows, sooty shearwaters, knots, sandpipers and marsh crake.

The lake is a large, shallow body of brackish water. Its sides are very gently sloping so that small changes in water levels cause large changes in area and the shoreline is of correspondingly different length. The maximum depth is about 6 ft below mean sea level. When the lake level is equal to the mean sea level the lake area is 38,000 acres but at 4 ft above m.s.l., the area is 54,000 acres.