BOTANISING IN THE VINCENT COUNTY, CENTRAL OTAGO, IN SUMMER-TIME.

This arid country is astounding, though it has a charm all of it own. It is strikingly beautiful in colour, ruggedness and warmth - but no native trees, I was going to say for hundreds of miles, but it is worse than that -- there are none at all. Yet everywhere there ar enormous poplars and willow trees, they and the fruit trees the only green. I don't know if native trees would grow, or whether these exotic trees shedding their leaves in winter, or closing up shop as it were, have nothing to lose as an evergreen would have. Right up the craggy scorching hillsides you can pick out patches of green -willows I don't think we will ever quite recover from this surprise. We thought willows and poplars belonged to green England, not arid Central Otago.

On a deserted plateau over the Kawarau River opposite Cromwell a far as the eye could reach, the only trees were two lines of about twentyfive gnarled blackened trees, their tops laden with thousands of green almonds and their sheltering green leaves. The ground was covered with a native tussock (Poa maniototo), so small that it didn't appear to be there at all, and the seabweed Raoulia lutescens which really appears to be painted on the earth. A beautiful picture it makes too, its use seemingly to hold the drifting soil and act as a nurse plant to young native grasses and some times other small plants.

Once or twice we felt impelled to scramble up the steep scorching hillsides above the swift-flowing Molyneux to identify a rather faded sickly-looking tree, and in each case it was a straggling kowhai; but in some of these hot rocky outposts hardy wild Spaniards, Aciphylla, and the Matagouri or wild Irishman did raise their heads aggressively.

In Alexandra amongst the hot bare rock no other trees but beautiful green Walnuts bearing hundreds of large green fuits which would be ripe at Easter-time, the usual willows and poplars lining the river banks and the wide acres of cultivated fruit trees.

At Clyde there were the willows, the poplars, the walnuts and rowan trees ablaze with scarlet berries, but in all these places on the sides that lie away from the blazing sun the hills were painted gold with our own Chrysobactron. The other side of the hills being tawny colour made wonderful pictures all day long, as the sun travelled from east to zenith and then to setting west.

One unforgettable scene was from across the Molyneux from Clyde, looking up this wide, blue-green, turbulent, deep, treacherous river to the Nobbies, so well-named, drenched to a hazy yet penetrating blue by the high mid-day sun. A rather startling sight at Clyde, in a small steep valley at the back of an orchard was a stretch of acres of ripe red and yellow gooseberries, their young seedlings forming a green mat, all mixed up with matagouri and sweet-briar at the lower levels, and with Chrysobactron higher up, although I am glad to be able to report that the Chrysobactron marched on to the real heights alone. Here also we found Asparagus 6 feet high, possibly taking advantage of a trickle of underground water, growing out from under Muehlenbeckia ephedroides. All over this country there seemed to be enough briar hips to supply all the babies and kill all the rabbits in New Zealand.

Vincent County is very well stocked with thistles of all sizes, shapes, varieties, and smells; you meet them everywhere in high places and low places. To do this county justice I must say in places it is aglow with wild flowers seemingly from the four corners of the earth, so strange and beautiful they are. For miles and miles, if it were not for the high hills with their Chrysobactron covering you would not know you were in New Zealand. But I must admit that after a hair-raising ride in a lorry on a steep narrow road, over 2000 feet up the Roaring Meg we did find Anisotome brevistylis, and Celmisia gracilenta, the dainty Coriaria angustissima, tussocks and other small interesting native herbs and grasses.

The Old Man Range gave our own country back to us again, with its precious plant life in unstinted variety, although it did wet us through with rain, hail, mist, and snow, and deafen us with loud

cracking thunder in the middle of January while Alexandra, eleven or twelve miles away on the plain was basking in hot sunshine. But seeing six different species of Celmisia at our feet, with a profusion of flowers and seed heads, and innumerable other fascinating native plants, we made no complaints, but stepped into our waiting taxi at the foothills the happiest of mortals, our eyes not even seeing the high-handed colourful exotics lining the roadway.

All over this county a feature that never ceased to seem unusual was the presence of ferns! One time we counted seven different species of hard ferns fresh and green on the shady side of a rock that was hot to touch. On shelves, in crevices, and at the foot of rocks these ferns thrived. Cheilanthes tenuifolia, frail looking but really very tough, abounded everywhere, brown and curled up in the heat, unfurled, jaunty and green in the slightest vestige of shade.

On the hot hillsides, in company usually with four or five species of native grasses, we often found Pimelea aridula looking silvery-green and fresh, a Carmichaelia, which one farmer called 'five-finger broom', always chewed off and sorry-looking, and Hymenanthera alpina, tough, scrambling, yet compact.

The floor of one small valley was dense with a Coriaria, waist-high and heavy with fruit and dozens of feasting birds. These hot brown hillsides never seemed to lack bird life and coveys of quail were continually being disturbed. The rabbits! well we would have tripped over him all day long if he hadn't been so nimble. Goats we did not see, except a pathetic Billie and Nannie standing alone in one of the sheep-pens awaiting their doom. The station-owner told us that fifty had been mustered with the sheep from the high hills.

The soil on these barren hills appeared to be quite good. Surely a rich land that could be richer yet.

M. P. SAMSON.

KOWHAI.

For some years Dr. L.H.Briggs and his students in the Chemistry Department, Auckland University College, have been investigating some compounds in the seeds of the genus Sophora. The following summary shows how interesting their results are to the botanist.

S.microphylla and S.tetraptera both contain as the major alkaloids in the seeds, Matrine and methylcytisine, but in greatly differing proportions. S.chathamica (?) (done on a small scale) also contains the same two alkaloids, and there is insufficient chemical evidence to distinguish it clearly from S.microphylla. S.chrysophylla from Hawaii, which has also been examined in Auckland, contains a different series of alkaloids, mostly cytisine and anagyrine. There are others from the U.S.S.R. which have been examined elsewhere and are different again. The next one to be investigated is a compact-leaved form hitherto included under S. microphylla. It will be interesting to see whether chemical analysis confirms the botanist's suspicion that this is specifically distinct. In Australia Baker and Smith found chemical differences in Eucalypts which on morphological grounds were regarded as belonging to one species.

In order to complete his studies on the alkaloids of New Zealand kowhais Dr. Briggs needs seeds of species that are not obtainable near Auckland, and he would greatly appreciate contributions from members of our Society forwarded direct or through the Editor. In order to get about an ounce of the alkaloid to test, he requires about 2 lbs. of seed of each species. As is well known, the seed keeps almost indefinitely, so that supplies may be built up from year to year, and even the smallest contribution, authentically identified, is welcome. The two species most required are S.prostrata, and Treadwell's kowhai, recently described as S.longi-carinata.

The following summary shows the main distinguishing characters of the five named species: