Orchids of the Wellington District
Notes and Additions (1)

A. P. Druce and J. B. Irwin

Early last summer we made two short trips in the Hutt Valley looking for the orchids that grow in manuka. On the first occasion (November 5) we searched some of the manuka-clad hills adjacent to Silverstream, and noted twenty-three species growing there, including seven of *Pterostylis* and six of *Thelymitra*. The second trip was up the Puffer on the way over to the Tauherenikau Valley (December 19). Here twenty kinds were seen, five of them different from those seen near Silverstream. *Thelymitra* predominated both in species and in number of individuals. Some had pracically finished flowering (*T. pauciflora, T. decora*), others were in full flower (*T. longifolia, T. caesia, T. venosa, T. pachyphylla* var.), while *T. pulchella* was only in bud. *T. venosa* and *T. caesia,* both with brightly coloured flowers, blue-violet streaked with dark blue, were present in large numbers. These plants, with their flowers on tall slender stems, were a striking and beautiful sight, contrasting strongly with the predominant yellow and green of the surrounding scrub.

It is remarkable that so many different orchids of a single genus can exist side by side and stay almost completely separate. Suspected hybrids between various species have occasionally been noted, but none were seen on this occasion. Some species, at least, are self-fertilizing and this may be a factor in keeping each one uniform in character. *T. longifolia* and more particularly *T. pauciflora,* can set seed in the Wellington district without, apparently, the flowers opening at all.

As a result of the two excursions we are able to record three additional orchids for the Wellington district, and to extend the known range of several others. A few records from other parts of the Wellington district have been included in the list that follows. For previous records of the orchids readers are referred to Bulletins No. 22 and 23.

NEW RECORDS

**Thelymitra pulchella.* Manuka scrub on the Puffer and near Kaitoke, rare.

**T. pachyphylla* var. Manuka scrub on the Puffer, on Mt. Rimutaka, and near the Catchpool Stm., frequent.

T. ixioides. Manuka scrub near Silverstream, rare.

T. venosa. Damp hollows in manuka scrub near Silverstream, local.

**Pterostylis irsoniana.* Light forest near the foot of the Puffer, rare.

P. foliata. Manuka scrub near Silverstream, frequent; Western Lake Reserve, M. Simpson! There is also a small colony

in manuka scrub near the Meteorological Office at the top of the Wellington Botanical Gardens.

P. montana typica. Large colonies under manuka in swamp between Plimmerton and Pukerua Bay.

Corybas aconitiflorus. Western Lake Reserve, R. Mason!, M. Simpson!, A.P.D.

(*Not previously recorded from the Wellington district).

Thelymitra pulchella and *T. pachyphylla* var. both have plain blue-purple flower, without spots or lines; in this respect they resemble *T. pauciflora.* In order to make the key to the *Thelymitra* species, published in Bulletin No. 22, take in these two recent additions, section 40 of the key should be rewritten and sections 43 and 44 added as follows:

THELYMITRA SPECIES

40. Flower(s) with dark blue spots 41
Flower(s) with dark blue lines 42
Flower(s) without such spots or lines 43

43. Column-wing hood-shaped, with two tufts of white hairs..... *T. pauciflora*
Column-wing not hood-shaped, tufts of hairs pale-yellow..... 44

44. Column-wing truncate, equalling or overtopping the anther *T. pachyphylla* var.
Column-wing deeply cleft, with the bottom of the cleft lower than the top of the anther .... *T. pulchella*

Mr. E. D. Hatch has informed us that the plants described and illustrated by Cheeseman under the name *T. pulchella* are not *T. pulchella* as originally described by Hooker in 1853. The species recorded here is *T. pulchella* Hook. f., not *T. pulchella* of the Manual.

The group of plants here placed under *T. pachyphylla* as a variety appears to be confined to the North Island, whereas typical *T. pachyphylla* has only been found in the south. The difference between the two will be shown in Mr. E. D. Hatch's forthcoming paper on *Thelymitra.*

Pterostylis irsoniana, which looks a bit like both *P. montana* and *P. graminea,* is noteworthy for the large dark prominent callus at the base of the labellum. It is described and illustrated by E. D. Hatch in *Trans. Roy. Soc. N.Z.,* 78: 101-105.

In the article on orchids in Bulletin No. 22 a variety of *Pterostylis banksii* was listed from the Tararuas. This mountain orchid is actually *P. australis.* At the time of writing the original article, the author was not sure of this.

The two varieties of *Pterostylis trullifolia* found in the Wellington district are *P. t. alobula* and *P. t. rubella.* The first-named appears to be the common one, and is the only one that has been seen by the present writers. *P. t. rubella* was recorded from the Hutt Valley by E. D. Hatch from specimens collected by A. J. Healy.

Note on Chiloglottis in Pine Plantations. *Chiloglottis cornuta* has established a large flourishing colony under a shelter belt of pines at Pukerua Bay. This orchid is also frequent in pine plantations near Silverstream. The association of *C. cornuta* with pine-trees was first noted on the lower slopes of the Kaitake Range near New Plymouth. Though only occasional in the adjacent bush, there were tremendous colonies in the dense mulch of rotting needles in the extensive pine plantations. There may well be some mycorrhizal association between this orchid and one of the pine-forest fungi.

Some Notes on Peat

N. T. Moar

Many unreclaimed peat deposits are a potential asset to the economy of New Zealand. To make use of these deposits it is first necessary that the nature of each deposit be studied.

Mires—bogs, swamps and similar areas formed under high water-table or constant saturation of the soil—are classified according to the nature and source of the water supply. *Topogenous* mires are formed by a topographic barrier, such as sand dunes, causing a ponding back of stream, river, or spring. The mires at Plimmerton, Paekakariki and Gollans Valley, for example, are topogenous mires. Climate is not of primary importance in the formation of this type. *Ombrogenous* mires depend upon direct rainfall for their water supply. The climate is generally cool. *Soligenous* mires receive their water by seepage and drainage from surrounding slopes as well as by direct rainfall.

Peat is a deposit of partially decayed organic material that has accumulated under the anaerobic conditions associated with constant saturation in mires. There are different types of peat formed from the plants characteristic of each type of mire. Six types are recognized: *algal, moss, fern, sedge, rush* and *wood*. A peat can be identified in the field by colour, texture, and the presence of plant fragments, but laboratory examination is often necessary.

By studying successive layers of peat, the sequence of plant communities can be determined and the history of a mire traced. The nature of the substratum is important in the early stages of peat formation. The mire at Plimmerton, for instance, was found to have been an inlet of the sea cut off by a gravel bar, thus forming a shallow lagoon. The lagoon was gradually filled by a clay deposit on which a community of *Phormium tenax* developed. Peat deposition began; and for the greater part sedge peat was formed, indicating the presence of a high water-table swamp vegetation. Seeds of *Eleocharis acuta* and *Carex secta* were found in the peat.

As many New Zealand peat deposits have a high mineral content, it is suggested that they will prove of value for agriculture and horticulture. Before reclamation is attempted the depth of peat and the nature and slope of the underlying strata should be determined—useful knowledge when drainage work begins.