

Unlike the forms mentioned in the early part of this paper, it is a strongly-marked species, as will be seen from the appended description.

**Sonchus grandifolius**, n. s.

A succulent herb, 2ft.—4ft. high, rhizomes stout, fleshy, creeping, sometimes 2½in. diameter. Radical leaves erect, 1½ft.—2ft. long, 4in.—7in. broad, petiole 6in.—9in. long, stout, dilated at base, but not clasping, blade oblong or ovate-oblong, deeply lobed, pinnatifid or pinnate; segments 4–6 on each side, broad, lobulate, often overlapping, coarsely doubly serrate or dentate, almost coriaceous, scabrid above. Lower cauline leaves petiolate, upper broadly sessile, not auriculate. Heads large, 1in.—1½in. diameter, peduncles white, with cottony wool. Involucral leaves in 3–4 series, broad, subacute, outer with a median line of spinous or almost foliaceous processes. Achenes large, broad, with 1 or 2 stout median longitudinal ribs, and about 4 finer ones, margins broad.

*Hab.* Chatham Islands.

The ligulate florets appear to be yellow, tinged at the apices with faint salmon-colour or purple. It is a noble addition to the New Zealand flora, and adds another remarkable species to the singular group of endemic plants on the Chatham Islands.

The fleshy rhizome may possibly prove valuable for cattle-food.

ART. XXV.—*Descriptions of New Native Plants, &c.*

By D. PETRIE, M.A., F.L.S.

[Read before the Otago Institute, 13th June, 1893.]

1. **Ranunculus novæ-zelandiæ**, sp. nov.

A rather small glabrous fleshy glaucous plant. Rootstock covered by the withered fibres of decayed petioles, and sending down many rather stout fibrous roots.

Leaves all radical; petioles about 1in. long, flattened, expanded and provided with broad membranous wings at the base; blades ternately divided, the lower leaflets sessile and subdivided into two or three deeply 3-lobed crenate segments; upper leaflet distant, broadly petiolate, subdivided into three deeply 3-lobed crenate segments.

Scapes solitary, or very few, one-flowered, glabrous, rather stout, 1in. to 2½in. long.

Sepals broadly oblong, obtuse, the back purplish and

bordered with yellow. Petals twice as long as the sepals, cuneate, rounded at the top, the upper part bright-yellow, the lower third greenish and more membranous; veins of the back evident; gland broad, shallow, crescent-shaped near the very base.

Ripe achenes not seen.

*Hab.* Rough shingly stations at the summit of the Rock and Pillar Range, opposite Middlemarch, and similar stations on the Old Man Range, at 4,000ft. and upwards. I found it very plentiful in the former habitat, and rare in the latter. This species seems most nearly allied to *B. gracilipes*, Hook. f. The leaves, are, however, very different, and the stems neither creep nor give off creeping stolons. It flowers during the first half of November.

## 2. *Geum leiospermum*, sp. nov.

A small silky or villous perennial herb, with short rosulate leaves, and slender prostrate or ascending stems.

Leaves  $1\frac{1}{4}$ in. long or less, pinnate; leaflets about eight pairs, gradually diminishing to the base, the terminal one suborbicular or broadly ovate,  $\frac{1}{2}$ in. in diameter or less, all closely, acutely, and unequally toothed at the margin.

Stems few, slender, 4in. long or less, densely clothed with fine villous hairs mixed with rather numerous long soft ones.

Flowers small, white, solitary in the axis of the lower bracts, and subpaniculately arranged at the top of the stem, at first almost sessile, but with slender pedicels  $\frac{1}{3}$ in. long when in fruit.

Stamens 10; achenes about 20, on a nearly flat receptacle which is clothed with long silky hairs, perfectly smooth and glabrous, less than  $\frac{1}{2}$ in. long, narrow elliptic, slightly compressed, and ending in a short slender recurved style about one-third the length of the achene.

*Hab.* Mount Cardrona (4,000ft.), Dunstan Mountains (2,000ft.—4,000ft.), Upper Waipori (1,800ft.).

The smooth glabrous achenes of this species, which strongly resemble those of many kinds of native *Ranunculus*, readily distinguish it from the other two species that are native to our colony. The flowers, so far as I have seen, are invariably white.

## 3. *Coprosma pubens*, sp. nov.

A much-branched, slender, leafy decumbent or rambling shrub.

Twigs pale-brown, finely and densely pubescent.

Leaves very uniform, about  $\frac{1}{3}$ in. long and  $\frac{1}{8}$ in. wide, narrow obovate, broadly rounded at the apex and often submucronate, the edges slightly recurved when dry, and the lower half

gradually narrowing into a sort of petiole; veinless above, the veins below indistinct and diverging but slightly from the midrib.

Stipules prominent, white, membranous, connate into a rather long ciliate triangular lobe between the petioles; in age ruptured by the growth of the twigs.

Flowers not seen.

Drupes solitary, often in opposite pairs, sessile or subsessile in the axils of the opposite leaves on the younger lateral shoots, deep-red, but not so dark as the drupes of *C. rhamnoides*, A. Cunn., which they closely resemble but somewhat excel in size.

*Hab.* Arthur's Pass (3,000ft.), and Kelly's Hill (2,500ft. to 3,500ft.), both in Westland.

This is a very distinct plant. It is, perhaps, most closely related to *C. depressa*, Colenso—a species which also occurs on Kelly's Hill, differing in its broader obtuse leaves, long white stipules, red drupe, and rambling habit. It has been compared at Kew with the plants recently described as new species by Mr. Colenso, F.R.S., but it has no resemblance to any of these forms of the genus.

#### 4. *Coprosma retusa*, sp. nov.

A slender, sparingly-branched, procumbent shrub, emitting a very disagreeable odour when crushed.

Bark of twigs pale-grey, marked by two opposite broad bands of pubescence, the planes of which lie at right angles in successive internodes.

Leaves  $\frac{1}{2}$ in. long and about half as broad, close-set, spreading, obovate-cuneate, retuse, coriaceous, nerveless, recurved at the edges, and fringed by a delicately erose membranous border; depressed above, and strongly keeled below. Stipules coriaceous, connate into short broad ciliated sheaths investing the twigs, 3-lobed, the lobes forming prominent, pale, horn-like processes.

Flowers terminal on the short lateral shoots of the main twigs, rather large; males,  $\frac{1}{2}$ in. long; calyx cupular, 4-lobed, two opposite lobes rather long and acute, the others short and subulate; corolla campanulate deeply 4- or 5-lobed; filaments long, anthers pendulous: females rather larger than the males; calyx tubular, short, with 4 remote subulate teeth on the limb; corolla narrow campanulate, deeply divided into 4 narrow acute lobes; styles 2, long, stout, diverging.

Drupes orange, ovoid,  $\frac{3}{8}$ in. long, the top crowned by the persistent calyx teeth.

*Hab.* Clinton Saddle, Lake Te Anau (3,000ft.), and Kelly's Hill, Otira River, Westland (3,500ft.).

The present species is intermediate between *C. cuneata*,

Hk. f., and *C. serrulata*, Buchanan. Its disagreeable odour recalls *C. foetidissima*, which it further resembles in its large terminal flowers. Mr. L. Cockayne informs me that the drupes smell as vilely as the crushed leaves. The erose membranous margins of the leaves distinguish the present plant from all the native species except *C. serrulata*, from which its smaller retuse leaves at once mark it off.

5. *Celmisia armstrongii*, sp. nov.

A species growing in large tufts, with very many leaves, and numerous flower-scapes.

Leaves 9in. to 12in. long (exclusive of the sheaths),  $\frac{1}{2}$ in. to  $\frac{2}{3}$ in. wide, linear-ensiform, tapering regularly from below the middle to the acute point, rigid, entire, strongly recurved at and near the top, the lower part less recurved, longitudinally wrinkled when dry, midrib stiff and prominent; upper surface greenish-yellow, with a broad yellow band down the middle, and covered by a very delicate pellicle of greenish-grey tomentum; under surface not wrinkled, clothed except on the midrib with a dense layer of white smoothly-appressed tomentum; midrib broad and ribbed at the base, and tapering uniformly to the apex; sheaths broad, many-nerved, glabrous on the inner surface, the back densely covered with white cottony hairs which are continued beyond the edge as a delicate fringe.

Scapes as long as, or slightly longer than, the leaves, rather slender, everywhere clothed with white cobwebby tomentum; bracts numerous, linear, acute, fringed with a membranous border of tomentum.

Heads  $1\frac{1}{2}$ in. across, or less; involucre scales glabrous, linear-subulate, more or less reflexed, pale-brown. Achenes finely pubescent, grooved.

*Hab.* Arthur's Pass (3,000ft.) and Kelly's Hill (3,000ft.—4,000ft.). This is the most abundant species above the bush-line in Westland.

I have long had it from Mr. J. B. Armstrong, who referred it to *C. munroi*, Hk. f., but I learn from the Director of the Kew Herbarium that it is quite distinct from that species.

6. *Euphrasia cockayniana*, sp. nov.

A short sparingly-branched plant, 2in.—3in. high, and everywhere more or less pubescent with articulate glandular hairs. Branches solitary, or in opposite pairs.

Leaves in opposite pairs, sessile, quadrate-ovate in outline, about  $\frac{1}{3}$ in. long by  $\frac{1}{4}$ in. broad, the lower half cuneate and entire, the upper cut into 5–7 short obtusely rounded teeth, glandular pubescent, especially at the slightly-recurved margin.

Flowers  $\frac{1}{2}$  in. long, shortly pedicelled, in opposite pairs in the axils of the upper leaves, bright yellow. Calyx campanulate, divided to the middle into 4 lanceolate acute lobes, not recurved, rather membranous, clothed with articulate glandular hairs which form a ciliate fringe all round the edge. Corolla about twice the length of the calyx, funnel-shaped, with narrow tube and widely-dilated throat; lower lip large, deeply 3-fid; upper erect, hooded, shortly and broadly 2-lobed.

Anthers shortly mucronate, the lower cell of the lower anther spurred. Apex of style linear and somewhat crotchet-shaped.

Capsule as long as the tube of the calyx, broad, shortly mucronate at the apex, which is never retuse.

*Hab.* Kelly's Hill, Otira River (4,000ft.).

A very pretty little species, easily distinguished from its New Zealand congeners by its conspicuous yellow flowers. I found but a few flowering specimens on Kelly's Hill. Mr. Cockayne has kindly sent me ripe capsules, and he mentions that the plant grows abundantly on the low spurs leading up to Mount Rolleston from Arthur's Pass.

#### 7. *Pterostylis oliveri*, sp. nov.

A rather stout leafy species 6 in. to 12 in. high. Leaves reticulately veined, bright glossy-green, amplexicaul or shortly sheathing; radical several, narrow-ovate, acute, narrowed into a rather broad petiole,  $2\frac{1}{2}$  in. to  $3\frac{1}{2}$  in. long,  $\frac{3}{8}$  in. to  $\frac{7}{8}$  in. wide; cauline several, amplexicaul, sessile, almost acuminate, the upper gradually diminishing in size.

Flowers usually solitary and terminal, a second flower occurring but rarely in the axil of the uppermost cauline leaf, about 2 in. long, curved forward and downward in front almost to the level of the ovary. Upper sepal boat-shaped, broad, tapering gradually to an acute point, the free lobes of the lower sepals broadly obtuse and produced into very slender erect filaments  $1\frac{1}{4}$  in. in length. Petals falcate,  $1\frac{1}{4}$  in. long,  $\frac{1}{4}$  in. broad, acuminate. Claw broadly linear, brown, of nearly uniform width to the base; appendage much narrower than the claw, terminating in numerous very narrow filaments. Column  $\frac{3}{4}$  in. long.

*Hab.* Open scrub and low bush on the banks of Kelly's Creek, Otira River (1,100ft.). In flower in the early part of January.

I have much pleasure in dedicating this plant to Professor D. Oliver, F.R.S., of Kew, in acknowledgment of valued assistance in my botanical studies.

8. *Danthonia pallida*, sp. nov.

A short densely-tufted alpine grass.

Culms branched at the base, leafy below, slender, erect, smooth, 10in. high or less.

Leaves distichous, glabrous, about one-third the length of the culms; sheaths inflated, slightly grooved; blades involute, wiry, tapering to a very slender point, deeply grooved above, rough at the edges; ligule a narrow ciliate or jagged ridge with a few long ciliate hairs at each end.

Panicle ovate,  $1\frac{1}{2}$ in. long or less; branches few, solitary, filiform, smooth, bearing one or two spikelets, and having a few ciliate hairs at their origin.

Spikelets  $\frac{5}{8}$ in. long and half as broad, pale, 4-5-flowered, cuneate in outline. Outer glumes unequal, subacute, membranous and hyaline, nerves very obscure or wanting, almost as long as the spikelets. Flowering-glumes very membranous, with many faint nerves, cut at the top into two subtriangular acute nerveless lobes, between which lies the rather broad reflexed untwisted awn, lower edges fringed with long ciliate hairs, which also sparingly clothe the lower half of the midrib; basal pedicel densely pilose. Palea bifid at the top, with ciliate nerves and long delicate hairs fringing its lower edges.

*Hab.* Kelly's Hill, Otira River (4,000ft.).

This plant differs from its nearest ally, *D. australis*, J. Buchanan, in its untwisted awn, the unawned lobes of the flowering-glume, and the glabrous branches of the panicle. It flowers very sparingly.

9. *Poa dipsacea*, sp. nov.

Culms stout, smooth, glabrous, 6in. to 18in. high, leafy below, branched and decumbent at the base, and rooting at the lower joints.

Leaves considerably shorter than the culms, narrow involute, or incurved at the edges, smooth, deeply striate, sheaths inflated, twice as broad as the blades; ligule broad, very short, rather membranous.

Panicle broadly ovate,  $2\frac{1}{2}$ in. to  $4\frac{1}{2}$ in. long; the branches usually in pairs, divaricating, glabrous, bearing few large spikelets near their ends.

Spikelets pale-brown, about  $\frac{3}{4}$ in. long and half as broad, 5-8-flowered. Outer glumes as long as the flowering, membranous, pale-brown, acute or subacute, obscurely 3-nerved. Flowering-glumes yellowish-brown, acute or subacute, 5- to 7-nerved, membranous at the sides, the base with a tuft of long straight hairs reaching to the middle of the midrib, the upper half of which is finely scabrid; the outer nerves more or less clothed with fine hairs. Palea somewhat shorter than the glume, with strongly-ciliate nerves.

*Hab.* Sources of Broken River, Canterbury alps (4,000ft.).

This grass attains great luxuriance of growth on spray-washed rocky faces. In wet ground with inferior drainage more stunted forms are found. It is somewhat closely allied to *Poa mackayi*, Buchanan, from which it is distinguished by the involute or incurved leaves, the short ligule, the broad panicle with smooth divaricating branches, the larger size of the spikelets, and the different colour, clothing, and texture of the flowering-glumes. The nerves are much less prominent than in that species, and the glumes are never scabrid. I have to record my thanks to Mr. Buchanan for allowing me to compare it with the type of his species.

10. *Asprella aristata*, sp. nov.

Culms slender, smooth, leafy below, 10in. to 20in. long. Leaves bluish-green, much shorter than the culms, narrow, flat, membranous, softly villous (especially on the sheaths); cauline leaves nearly glabrous; ligule short, membranous, irregularly toothed or jagged.

Spike 2in. to 4in. long, broadly linear, of 15 or fewer spikelets.

Spikelets pale bluish-green, sessile, solitary, 2- to 4-flowered. Empty glumes narrow, obliquely falcate, concave, strongly nerved, aristate, usually toothed on one side only, membranous at the edges; the midrib and edges of the arista scabrid.

Flowering-glumes lanceolate, coriaceous, rounded on the back, smooth, 3- to 5-nerved, the apex shortly and in general obliquely toothed and produced into a tapering scabrid arista half as long as the glume; the upper half of the midrib scabrid and more or less keeled.

Palea coriaceous, nearly as long as the glume, with finely-ciliate nerves.

Upper half of ovary densely villous; styles two plumose to the base. Scales broadly triangular, entire, glabrous.

*Hab.* Sources of Broken River (4,000ft.), and valleys of Mount Torlesse (3,500ft.), Alps of North Canterbury.

This species is well marked by its soft villous leaves, short and rather stout spike, broader falcate nerved outer glumes, and the larger number of flowers in the spikelet. I am not sure that it should be included in *Asprella*, as it has many characters in common with the genus *Agropyrum*, Beauv. It may even be doubted if any of the New Zealand grasses referred to *Asprella* are really members of that genus.

11. *Gastrodia sesamoides*, R. Br.

This Australian orchid has not hitherto been recorded from New Zealand, but I am now able to add it to the species

truly native to our Islands. I found it growing in considerable abundance in sparse scrub, at Kelly's Creek, Otira River (1,100ft.), in January of the present year. *G. cunninghamii*, Hook. f., grows pretty plentifully in the same district, but it flowers some weeks earlier. It was this difference in the time of flowering that led me to examine critically the flowers of the present plant, and recognise its independence. Unfortunately but one or two spikes had come into flower when I had to leave Kelly's Creek, but these exactly match the excellent figure given in Sir Joseph Hooker's "Flora Tasmaniae."

*G. sesamoides* is very similar to *G. cunninghamii*, but an observer is at once struck by its stouter stems, and their paler mottled-grey colour. It is not so tall as Hooker's plant, and does not seem to affect such deep shade.

The undoubted species of *Gastrodia* occurring in New Zealand are thus raised to three, for Mr. Buchanan's *G. hectori* clearly does not belong to this genus, and it seems doubtful if the species described by Mr. Colenso, F.R.S., are really different from *G. cunninghamii* and the present plant.

## 12. *Helichrysum purdiei*, D. Petrie.

This pretty plant has been in cultivation for some years in several gardens in Dunedin. It forms large circular patches of densely-compacted twigs, spread flat on the ground. The patches reach a diameter of 3ft. or 4ft. in three or four years, and as the prostrate branches, which are often as stout as a goose-quill, readily strike root, they give promise of growing to a much larger size. The plant is found wild only near the seaside, and it is very sensitive to frost, which, in situations that are at all exposed, kills off the younger growth every winter. In habit it differs widely from the other species of *Helichrysum* native to New Zealand. Mr. W. T. Thiselton Dyer, F.R.S., Director of the Kew Gardens, informs me that its nearest ally is a South African species. It seems to be almost extinct about Dunedin, where it was plentiful on seaside slopes in the early days, as Mr. A. C. Purdie informs me. From its slight power of resisting frost, it is not unlikely that its head-quarters lie more to the north, though it has not yet been reported from any other place than the shores of Otago Harbour. In cultivation it shows no sign of want of constitutional vigour, but it flowers much more sparingly than in a wild state.

## 13. *Juncus obtusiflorus*, Ehrhart.

This European rush was found by me some years ago at Lake Waihola, and this year I met with it again near the mouth of the Avon River, at New Brighton, a suburb of



Christchurch. In both stations it occurs near long-frequented routes of traffic, and is most likely introduced, though it is quite possible that it may be native. It will, however, have to be found under less equivocal conditions before its indigenous character can be regarded as certain. In both localities it is firmly established.

14. *Juncus gerardi*, Loisel.

This European species is now well established on the muddy beaches of Otago Harbour, near Anderson's Bay. I have watched it for some seasons, but have never found it set fruit, a peculiarity for which I am unable to account. Mr. A. C. Purdie informs me that in former years it grew at the mouth of the Kaikorai Lagoon, in the Green Island district, but I have not had opportunity to verify his observation.

15. *Gastrodia minor*, D. Petrie.

In the fruiting state of this species, the flowers, which are at first almost pendulous, become erect and parallel with the axis of the spike. It seems to be parasitic on the roots of *Leptospermum ericoides*, A. Rich., but I have not been able to satisfy myself on this point. It has flowered very sparingly this season.

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ART. XXVI.—*On Four New Species of New Zealand Musci.*

By T. W. NAYLOR BECKETT, F.L.S.

[Read before the Philosophical Institute of Canterbury, 4th October, 1893.]

Plates XXV.—XXVIII.

***Phascum austro-crispum*, sp. nov.**

Autoicous. Densely gregarious, minute. Stem short, much divided. Leaves, when dry, curled and contorted, with the margins incurved, curved, from an oval base linear-lanceolate; lower leaves smaller; perichæatial leaves much longer, slightly secund, 2–2½ lines long. Nerve canaliculate, very stout, excurrent in a stout mucro, margins entire. Cells of lower part of leaf hyaline lax long-rectangular, above quadrate and densely chlorophyllose. Seta short, yellow, same length as the capsule. Capsule immersed, oval or roundish-oval (rarely two in one perichætium). Operculum conical, produced into a stout, short, blunt, inclined or straight beak. Calyptra dimidiate, smooth, base entire, reaching below the middle of the capsule. Cladautoicous, the male inflorescence