

folia in paribus oppositis disposita, \pm approximata punctata, anguste obovata, subspathulata, connata, culmos \pm vaginantia, sub apice obtuse breviterque 3-dentata, obtusa; culmus florigerus ascendens, deinde erectus; bracteae sessiles, in paribus duobus distantibus dispositae, subtriangulares apicibus breviter 3-lobae; flores majusculi, solitarii, ex superiorum bractearum axillis orientes; pedicellis capillaribus simplicibus, \pm pendulis; calyx corollae tubo lato $\frac{1}{2}$ brevior, ad medium in segmenta obtusa 4 secta; corollae labium superius alte 3-loba, inferius fere ad basim 2-laba, lobis obtusis; capsula anguste ovata, acuta; pistillum capsulam subaequans.

Branches several from the root, spreading and rooting, 8 cm. (3 in.) long or more, light brown, terete, glabrous, giving off short lateral branches from axils of leaves and terminating in a slender ascending or erect inflorescence; leaves in opposite pairs 1.5 cm. ($\frac{1}{2}$ in.) apart or less, narrow obovate-spathulate, connate, and stem-clasping at base; petiolar part thin, rather broad, flat or slightly incurved at scantily ciliate edges, about $\frac{1}{2}$ as long as entire leaf; laminar part thicker, narrow obovate with 2 shallow rounded teeth near obtuse tip, punctate on both surfaces, glabrous, vivid green above, paler below, the edges slightly recurved; midrib evident above and below; flowering-stems erect or ascending from the ends of branches, very slender, dark brown; cauline leaves in 3-4 distant pairs, sessile or the lowermost nearly so, coriaceous, subtriangular shortly 3-lobed at tips; flowers large, springing singly from axils of uppermost bracts, pedicels capillary about 2.5 cm. (1 in.) long, dark, simple, drooping more or less; calyx about $\frac{3}{4}$ as long as the broad corolla-tube, cut half-way down into 4 oblong obtuse segments; corolla white, large, 2 cm. ($\frac{3}{4}$ in.) long and nearly as broad, upper lip deeply 3-lobed, lobes obtuse, lower 2-lobed to base, lobes obtuse; capsules (rather immature) as long as sepals, narrow ovate acute; pistil about equalling capsule; seeds not seen.

Hab.—Haast Valley, South Westland: R. A. Wilson!

The specimen described is incomplete, but the characters above set forth show it to be very distinct. The specimen was forwarded to me by Mr. B. C. Aston, F.N.Z.Inst.

***Petalochilus*: a New Genus of New Zealand Orchids.**

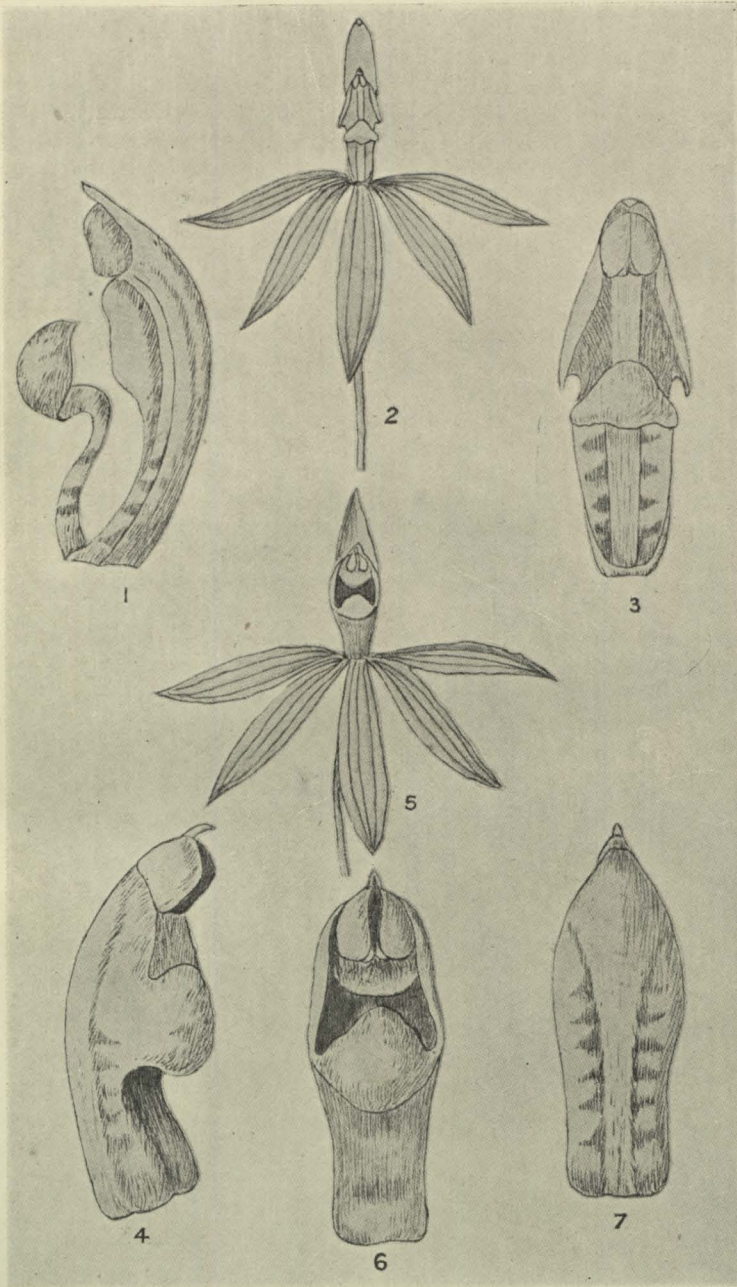
By R. S. ROGERS, M.A., M.D.

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Plate 4.

PETALOCILUS nov. gen.

Herbae terrestres, hirsutae, tuberibus globulosis parvis, caule simplici 1-foliato. Folium ad basin, lineare. Flores pedicellati, 1 vel 2. Segmenta perianthii subaequilonga, fere similia, angustiuscula; posticum erectum vel leviter incurvum, cetera plana et patentia. *Labellum ceteris segmentis simile* sed breviusculum. Columna elongata, leviter incurva; in parte superiore late alata; inferiore anguste alata. Anthera suberecta,



FIGS. 1-3.—*P. calyciformis*. FIGS. 4-7.—*P. saccatus*.

1, Column from the side, showing appendage; 2, front view of the flower (the artist has represented the labellar segment too long); 3, column from the front, showing appendage; 4, column from side, showing anterior union of the columnar wings; 5, front view of flower (the artist has shown the labellar segment too long); 6, column from the front, showing the union of the wings to form a pouch; 7, column from the back. All details much enlarged.



bilocularis, mucronata; pollinia pulverea; caudiculae nullae. Stigma sub antheram, concavum.

Species nobis notae 2, Novae Zelandiae incolae.

Leaf basal, linear. Flowers pedicellated, 1 or 2. Segments of perianth subequal, similar, rather narrow; the dorsal one erect or slightly incurved over the column, the others flat and spreading; labellum similar to the other segments but slightly shorter. Column elongated, slightly incurved, widely winged above, narrowly below. Anther suberect, 2-celled, mucronate; pollinia powdery; caudicles absent. Stigma concave, just below the anther.

Terrestrial hairy herbs, with small globular tubers.

The outstanding feature of the new genus is, of course, the ancestral form of the labellum.

The excellent vernacular names, *cup* and *pouch orchid*, originally applied by the discoverer, Mr. H. B. Matthews, have been latinized and retained as specific designations for its two representatives.

The plants are endemic to New Zealand, and, so far as is known, are restricted to the neighbourhood of the little town of Kaitaia, situated in the extreme north-east of the Dominion.

The peculiar appendage in the first species is probably staminodial in origin, and occupies the position of stamen a_3 of the inner whorl. In *P. saccatus* the size and shape of the capacious pouch suggest that the wings of the column are not its sole constituents, but that the staminode is also a component part.

Superficially both species bear a striking resemblance to the diminutive orchid *Caladenia minor* Hook. f., which is likewise endemic to the same islands.

The affinities of the new genus are certainly with *Caladenia* rather than with *Thelymitra*, with which it has few features in common beyond the hitherto unique distinction of an undifferentiated labellum. The Apostasiae, in which, of course, the labellum is also undifferentiated, must be regarded only as doubtful members of the Orchidaceae. It also approaches very closely to *Glossodia*, especially if it be admitted that the pouch in *P. saccatus* represents a fusion between the wings of the column and the staminode. In the living state, however, there is little that is reminiscent of that genus in which the labellum, although almost quite plain, is nevertheless very dissimilar in appearance to the petals, and the basal appendage is either bifid or distinctly dual in character.

Mr. Matthews has had these orchids under observation since the year 1912. He says that both species were plentiful, that they seeded freely, and showed practically no variations. On one occasion he collected about a hundred specimens of *P. calyciformis* and seventy of *P. saccatus*. In January, 1919, he wrote stating that he had recently visited Kaitaia, and found that in all three places where previously he had been accustomed to collect the *cup-orchid*, the tea-tree (*Leptospermum scoparium*), among which it grew, had been cleared for agricultural purposes. Thus, unless a fresh locality should be discovered, this interesting plant will be no longer available to students of botany.

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|---|-----------------------------|
| Column-wings open anteriorly, not connate; a linear sigmoid appendage, with a cup-shaped summit, erect against the column | 1. <i>P. calyciformis</i> . |
| Column-wings connate anteriorly throughout their entire length, forming a pouch | 2. <i>P. saccatus</i> . |

1. *P. calyciformis* n. sp.

Gracillima, circiter 7-22 cm. alta. Folium anguste lineare, fere glabrum, circiter 4-15 cm. longum. Caulis gracillimus, hirsutus, infra vel ad medium bractea lineari-lanceolata intractus. Flores 1 vel 2, subvirides, circiter 12-13 mm. in diametro. Ovarium elongatum subvillosum. Segmenta perianthii subacuta, 5-nervosa, circiter 6 mm. longa; labellum ceteris segmentis breviusculum et aliquando latiusculum. Columna circiter 5 mm. longa, in parte superiore late alata. Appendix longiuscula linearis sigmoidea, apice calyculo instructa, ante columnam erecta.

N.Z.: Kaitaia, County Mongonui, H. B. Matthews, 27 Oct.-15 Nov., 1916.

A very slender plant, about 7-22 cm. high. Leaf very narrow linear, nearly glabrous, basal, from 4-15 cm. long. Stem very slender, hairy, a loose linear-lanceolate bract at, or a little below, the middle. Flowers greenish, about 12-13 mm. in diameter, usually single, but occasionally 2, the very slender pedicel subtended by a narrow acute bract. Ovary elongated, rather hairy. Segments of the perianth not very acute, pubescent-glandular on the outside, 5-nerved; the dorsal one erect or slightly incurved, the others spreading; about 6 mm. long; the labellar segment a little shorter than the rest and sometimes a little wider. Column about 5 mm. high; winged throughout, rather widely in the upper half, narrowly below. A linear appendage with sigmoid flexure, furnished with a little cup at the apex, erect in front of the column.

2. *P. saccatus* n. sp.

Gracillima, circiter 7-14 cm. alta. Folium anguste lineare, fere glabrum, cauli subaequilongum. Caulis hirsutus, supra medium bractea acuta intractus. Flos solitarius, carneus, circiter 2 cm. in diametro. Ovarium elongatum, villosum. Segmenta perianthii subacuta, 5-nervosa, circiter 10 mm. longa; labellum breviusculum et aliquando latiusculum. Columna circiter 4.75 mm. longa; alae antice connatae, saccum membranaceum formantes.

A very slender species, about 7-14 cm. high. Leaf almost glabrous, narrowly linear, usually about as long as the stem. Stem very slender, hairy, with an acute bract above the middle. Flower pink, solitary, about 2 cm. in diameter, its pedicel subtended by a narrow acute bract. Ovary elongated, rather hairy. Segments of perianth not very acute, the sepals glandular-pubescent on the outside, 5-nerved, a pink stripe down the middle; the dorsal one erect or slightly incurved, the others spreading; about 10 mm. long; the labellar segment a little shorter than the rest and sometimes a little wider. Column about 4.75 mm. high with transverse pink bars; the wings uniting behind the anther, coalescing throughout anteriorly, so as to form a well-marked membranous pouch below the stigma.

N.Z.: Kaitaia, Mr. H. B. Matthews, 10-31 Oct., 1917.