TERRESTRIAL ORCHIDS OF BARRINGTON TOPS, N.S.W.

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(Five Text-figures.)

[Read 29th August, 1928.]

On January 18, 1928, I left Eccleston, with the late Mr. John Hopson as guide, for an excursion to the Barrington Tops in search of orchids. I had described (These Proc., li, Part 3, 1926) a new species, *Diuris venosa*, from specimens brought to me, and I was anxious to examine this plant in its natural surroundings. Imperfect material of other orchids from the same locality which had come into my hands increased my desire to investigate at first hand, and I also wished to test an opinion I had formed, that a careful examination of this somewhat isolated plateau at an elevation of 5,000 feet might disclose the presence there of orchids hitherto regarded as purely southern forms.

From the point of view of a botanist, the Barrington Tops plateau may be described as consisting of low hills (which are, of course, the summits of the whole range of mountains) divided by broad grassy or swampy moors, which are traversed by streams that give birth to half a dozen rivers.

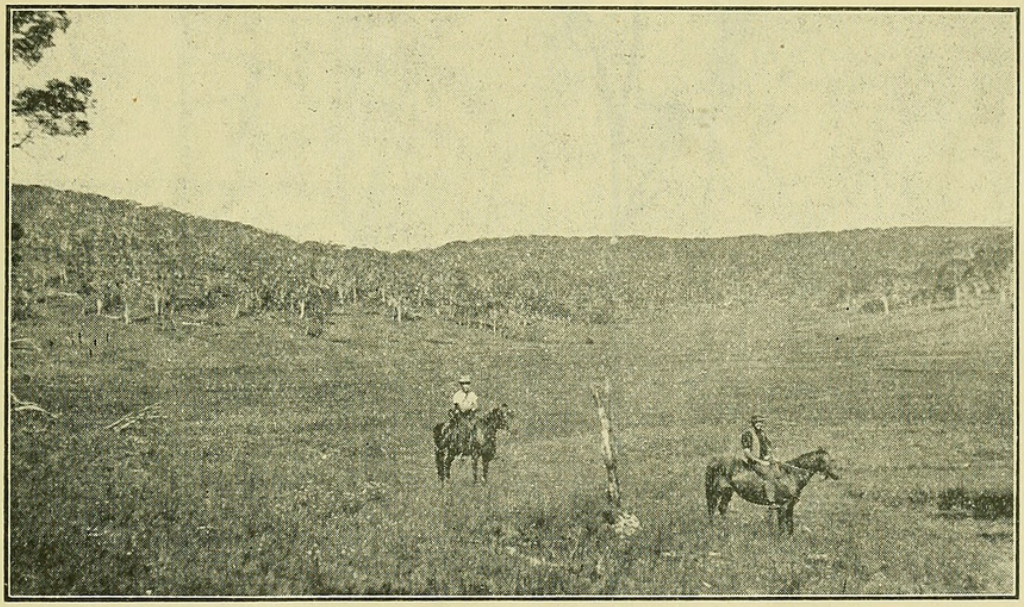
We were compelled to make the ascent from the Allyn River with as little delay as possible, for bad weather was threatening, and I was therefore unable to make a careful search of the mountain slopes until we came down. Epiphytes were visible in the lower brushes, but *Cleisostoma tridentatum* was the only one flowering. Higher up I found one or two fine racemes of *Dipodium punctatum*, and in one place *Chiloglottis reflexa* (presumably) was showing small buds.

The first orchid I saw on the plateau proved to be Fitzgerald's *Pterostylis coccinea*. In many specimens the beautiful reddish tint, which does not seem to be always present, was very marked. Moore and Betche record this species from Grafton—a surprising locality for what appears to be characteristically a highland orchid. Next came *Gastrodia sesamoides*, *Prasophylum brevilabre*, and another *Pterostylis*, referred to below. *Gastrodia* proved to be abundant, extending to the highest elevations. The Barrington form is very robust, and one plant was almost exactly 3 feet in height.

After passing Carey's Peak (5,260 feet) we went down a gentle slope to the moors of the Upper Barrington River. Among the innumerable flowers that studded these moors, I recognized *Diuris venosa* (Text-fig. 1). In my former text-figures of this species, drawn from scanty material, the labellum appears relatively narrow. While this is not exactly incorrect, I should now say that the typical form has a decidedly broad labellum, the colour of which ranges from the palest lilac to dark purplish-brown. The veining on the surface of the lamina is irregular and often absent, but it is constant and very striking on the back of all segments except the lower sepals. The flowers have a somewhat nodding habit, and are delicately fragrant. On the authority of a friend I had described the plant as

occurring "in bogs and wet places," but I can hardly confirm this. It grows in great profusion on these moors, often near the swamps, but quite as frequently well back on rising ground. It does not extend to the hillsides.

Even more abundant than *Diuris venosa* was Dr. Rogers' *Prasophyllum odoratum*. This species seems to have an extensive range, having been confused with *P. patens* for many years. In one or two details the Barrington Tops flower does not conform to the type, but the differences hardly justify any separation. *P. odoratum* is an attractive Prasophyll, and its fragrance perfumed the very air in some places on the Barrington moors. Like the Diuris, it does not seem to extend to the hillsides. *P. brevilabre* is more generally distributed, but is nowhere in great quantities. On the margins of the swamps and in boggy places, *Thelymitra venosa* was abundant. A hope I had entertained of finding the Blue



Text-fig. A.—A typical moor on Barrington Tops. (Photograph lent by P. Laney.)

Mountains form of this species was not realized, though the Barrington form is hardly typical. Dr. Rogers has made the following comment on it: "The lateral appendages of the column are barely involute, and the beak of the anther is more or less depressed and does not appear to be bifid". Equally abundant, and rarely far from water, was a rather robust and almost leafless form of *Pterostylis parviflora*, with very dark red-brown flowers. This species exhibits some perplexing variations in habit and season, and I am not satisfied of the identity of one or two forms at present included under it.

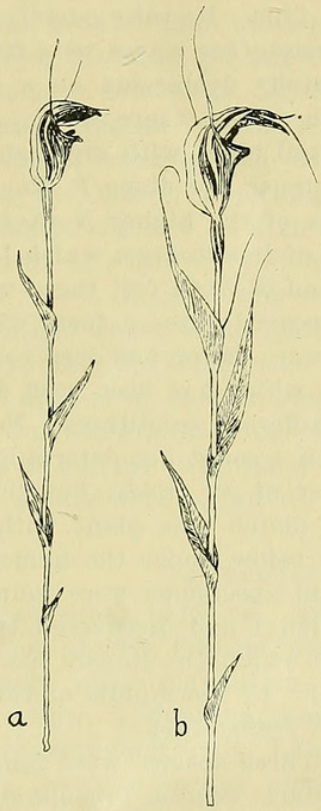
On our second day on the plateau three orchids of great interest were found. The first was Lindley's *Chiloglottis Gunnii*, the presence of which (in abundance) confirmed my opinion that southern orchids might occur on these northern highlands. So far as I can learn, this species has not been previously recorded north of the Australian Alps, which lie some 350 miles to the south of Barrington Tops. The Barrington plant appears to conform in all respects to the southern type; the flowers are of good size and colour, and elongation of the fruiting stalk is well marked. Many plants were growing in sphagnum at the mouths of gullies dis-

charging into the moor-swamps, and only these were flowering. Leaves were abundant in places on the hillsides, without flower or fruit, and it is just possible that they belong to another species. The second discovery was made above the mouth of the gully where the *Chiloglottis* was found. In the sphagnum numerous solitary leaves invited further investigation; and a careful search brought a few fruiting stalks and some very withered flowers of Fitzgerald's rare *Adenochilus Nortonii*, hitherto only known in a few Blue Mountains localities. It is not impossible that the Barrington plant may prove to be distinct, for the fragmentary specimens obtained (Text-fig. 2), while leaving no room for doubt as to the generic character, are of little use for further determination. Since *A. Nortonii* is the only known species in Australia, we may leave it at that for the present. I should say that the Barrington plant would probably be found flowering in November.

Text-fig. 1.—*Diuris venosa* Rupp (× ½). Barrington Tops.
Text-fig. 2.—Leaves, fruiting stalk, and withered flowering stalk of *Adenochilus* from Barrington Tops. (× ½).

At the mouth of the next gully, and practically growing in water, was a large colony of the fine *Pterostylis falcata*—another species hitherto supposed to belong to the south. I think that its discovery on Barrington Tops should be credited to the late Professor Launcelot Harrison. In a letter written shortly after the University excursion to this locality in 1925, Professor Harrison told me that he

believed he had found *P. Baptistii* on the plateau; but he had lost his specimens. I have no doubt that the supposed *P. Baptistii* (a lowland plant of warm climates) was really *P. falcata*; and the Professor wrote to me only a few days before his death, accepting this view. Among all our "Greenhoods" in Australia, *P. falcata* is the only serious rival to *P. Baptistii* in the size of the flower, and the two plants have much in common superficially. I had last seen *P. falcata* in bogs near Mt. Barrow in Tasmania, and there seem to be no differences of importance between the northern and the southern form.



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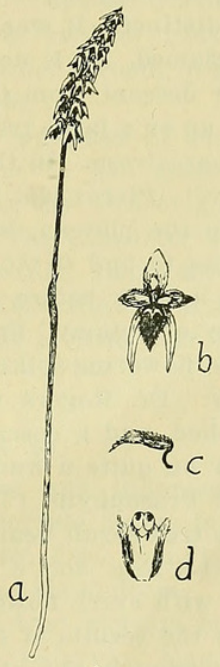

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Text-fig. 3.—The Barrington Tops *Pterostylis decurva* Rogers (*b*), compared with *P. obtusa* R. Br. (*a*) and a typical *P. decurva* (*c*). (× ⅓).

Text-fig. 4.—*Prasophyllum Ruppii* Rogers, from the mountain-slopes below Barrington Tops. (*a*) Plant (× ½); (*b*) Flower opened up, from the front; (*c*) Labellum from the side; (*d*) Column from the front. (*b*), (*c*), (*d*) variously enlarged.

Another *Pterostylis* abundant on the plateau was *P. cycnocephala*. This brings us to the last member of the genus which I found—alluded to above as having been seen soon after we reached the plateau. In 1926 Mr. Charles Barrett brought me a few half-pressed specimens of this plant, which I took to be a leafy form of Dr. Rogers' *P. decurva*. Mr. W. H. Nicholls and others pointed out that it seemed to differ in some important respects from the type of that species, and I was glad to have the opportunity of inspecting it *in situ*, and of collecting ample material for examination (Text-fig. 3). It is very plentiful on the hillsides, and ascends to the very summit of Carey's Peak; I also traced it down the mountain-slopes to 3,500 feet. Dr. Rogers and other workers have carefully examined the material sent by

me, and I have done the same with a large number of specimens. It appears to vary so greatly, even in this restricted area of Barrington Tops, that we do not think it wise at present to separate it from *P. decurva*. Some of the large plants show apparently constant features which would appear to justify separation, but they are linked up with almost typical *P. decurva* by numerous intermediates; and until more exhaustive investigation is made on the spot, it is better to include it under this species than to give cause for confusion by attempting to raise it to specific rank.

Thelymitra ixioides was nearly past flowering. This plant does not grow tall here, but the flowers are even larger than the type. *Microtis parviflora* was fairly common in many places. A few undoubted *Corysanthes* leaves were found, but they were insufficient for identification. In a marshy depression on a hillside some distance down the Barrington Valley from our camp, there was a *Prasophyllum* which seemed distinct. It was a moderately tall plant with greenish flowers, just perceptibly perfumed. It is described below under the name *P. Rogersii*.

During our descent from the Tops, in one of the higher *Nothofagus* brushes, I noticed, high up on a large tree, a fine clump of *Dendrobium* which I was satisfied must be *D. falcorostrum*. In the neighbourhood of 3,000 feet there was very good "orchid country." *Pterostylis parviflora* reappeared here—a form with flowers as red as those on the plateau, but the plants were taller and less robust. It was rather surprising to find *Orthoceras strictum*, which had been seen during a visit to Bullahdelah a week before under totally different conditions. Near by was a scattered colony of "pigmy" Prasophylls which I could not determine; in general appearance the flowering-spike resembles that of *P. viride*, but the likeness is superficial only. Dr. Rogers was unable to match this plant with any species hitherto published, and a description appears below under the name *P. Hopsonii*. A little further on quite a number of excellent specimens were found of another of these pigmy Prasophylls (Text-fig. 4), which I had discovered twelve months earlier in a tea-tree scrub near Paterson, and which Dr. Rogers has described as *P. Ruppii* (*Trans. Roy. Soc. S. Aust.*, li, 1927). In the middle of this colony was a single plant, with every flower perfect, of *P. fimbriatum*.

To sum up the results of the excursion: Three species were found which are not known at present in any other locality—*Diuris venosa*, *Prasophyllum Rogersii*, and *P. Hopsonii*. The range of habitat has been considerably extended to the north in the case of *Chiloglottis Gunnii*, *Pterostylis falcata*, *P. decurva*, *Thelymitra venosa*, and *Adenochilus*; to which should perhaps be added *Prasophyllum fimbriatum*. Within the limits of four days, evidence was secured of the existence in this locality of 23 species of terrestrial orchids. (Long-withered specimens of a second *Diuris*, not mentioned above, are included in this total.) I think it is probable that a visit in November or early December would be rewarded by the discovery of other species which were not flowering in January, though the late Mr. Hopson considered that the latter month is the time to see the Barrington Tops flora at its best.

Descriptions of Two New Species of Prasophyllum.

PRASOPHYLLUM ROGERSII, n. sp.

Planta gracilis, 30-45 cm. alta. Folium erectum, non inflorescentiam excedens. Spica laxa cum 12-20 floribus subsessilibus. Flores virides, vix tandem odorati. Sepalum dorsale fere erectum, latum, ovatum, acutum, 5·5 mm. longum, 5-nervium. Sepala lateralia separata, lanceolata, 5·5 mm. longa, 3-nervia. Petala erecta, obtusa, lata, 5-5·5 mm. longa. Labellum ovatum marginibus integris, basi fere erectum, in

parte tertia ad apicem flexum: pars callosa prominens et lata, supra flexum extendens. Columna brevis, laciniis parvis. Anthera altior laciniis, humilior rostello.

Plant comparatively slender, 30-45 cm. high, with the leaf-sheath produced into a lamina apparently not exceeding the inflorescence. Flowers 12-20 in a loose spike, almost sessile, greenish, faintly perfumed. Dorsal sepal nearly straight, broadly ovate, acute, 5·5 mm. long, with three prominent nerves and a finer one on each side. Lateral sepals free, spreading, lanceolate, equal to or somewhat longer than the dorsal one, hardly acute, 3-nerved. Petals erect, obtuse, nearly or quite as long as the dorsal sepal, broader than the lateral sepals. Labellum straight for two-thirds of its length from the base; the anterior third merely curved, not sharply reflexed; the whole labellum somewhat broadly ovate, but contracted towards the apex, margins entire; greatest width about 2·75 mm. Callus portion prominent, especially where it extends just beyond the curve, broader towards the base. Column short, the lateral appendages small. Anther broad, higher than the lateral appendages, scarcely as high as the rostellum.

In examining this and the following species for purposes of description, I am indebted to Dr. R. S. Rogers, who sent me the notes he had made on specimens forwarded to him. These made the task of checking my own original notes with moistened herbarium material much less difficult. The character of the labellum of the present species at once marks it as very distinct, and I have ventured to name it after our recognized leader in the field of Australian orchidology. It was growing along a marshy depression on a hillside at a little over 5,000 feet, and about a dozen plants were collected.

PRASOPHYLLUM HOPSONII, n. sp.

Planta gracillima, 10-25 cm. alta, cum bractea sub inflorescentia. Flores 4-12, minutissimi, virides, labellis fuscis. Sepalum dorsale 2 mm. longum, ovatum, cucullatum, saepe apice glanduloso. Sepala lateralia 2-2·5 mm. longa, separata, basi gibbosa, supra aliquantum concava, apicibus glandulosis. Petala erecta, brevissima, fere triangula, acuta. Labellum unguiculatum, ovatum, supra convexum cum notatione fusco in medio, mucronatum apice recurvo. Margines depressi, breviter ciliati. Columna brevis et lata, laciniis bifidis altioribus rostello; chele anterior breviter ciliata, longior et angustior posteriore. Anthera erecta, lata, altior rostello. Ovarium magnum, longius flore.

A very slender plant, 10-25 cm. high, with a sheathing leafy bract just under the flowering spike. Flowers 4-12, minute, greenish, the labellum darker than the other segments. Dorsal sepal broadly ovate, rather strikingly cucullate, acute, often with an obscure gland at the tip. Lateral sepals quite free, gibbous at the base, somewhat concave on the inside, slightly longer than the dorsal sepal, prominently gland-tipped. Petals erect, acute, almost triangular, very short (about 1·5 mm.). Labellum on a movable curved claw, ovate, convex above with a dark median line not well defined, mucronate with a sharply recurved apex. Margins depressed, very shortly and irregularly ciliate. Column short and broad, with bifid lateral appendages higher than the rostellum; anterior segment slightly ciliate, longer and narrower than the blunt posterior segment. Anther erect and broad but acute, higher than the rostellum. Ovary rather large, longer than the flower.

Dr. R. S. Rogers (*Trans. Roy. Soc. S. Australia*, li, 1927, p. 294) has tabulated the published species of *Prasophyllum* which possess ciliated floral segments. The

new species would occupy a place in this table near *P. intricatum* Stuart; but while it agrees with the latter in the incidence of ciliation (labellum and column-appendages), the cilia are developed far more vigorously in *P. intricatum*, and there is little resemblance between the two otherwise. I have named the present species after the late Mr. John Hopson of Eccleston, N.S.W., who located several specimens for me, and to whom I was much indebted for assistance in collecting other orchids of the district.

A List of the Terrestrial Orchids Recorded in this Paper, with References to Illustrations.

Dipodium punctatum R. Br. (Fitzgerald, I, 7).
Gastrodia sesamoides R. Br. (Fitzg., II, 5).
Thelymitra ixioides Swz. (Fitz., II, 3; Hook., *Fl. Tas.*, II).
venosa R. Br.
Diuris venosa Rupp. (Proc. Linn. Soc. N.S.W., li, 3, 1926, and this paper).
sp. ? (withered).
Orthoceras strictum R. Br. (Fitzg., I, 3).
Prasophyllum odoratum Rogers (Rogers, "South Australian Orchids", Plate 6).
brevilabre Hook., f. (Fitzg., II, 1).
fimbriatum R. Br. (Fitzg., I, 5).
Hopsonii Rupp.
Rogersii Rupp.
Ruppii Rogers (this paper).
Microtis parviflora, R. Br. (Fitzg., II, 1).
Corysanthes (leaves only).
Pterostylis falcata Rogers (*Proc. Roy. Soc. Vict.*, 28 (N.S.), I, 1915).
coccinea Fitzg. (Fitzg., I, 4).
decurva Rogers (*Trans. Roy. Soc. S. Aust.*, xlvii, 1923, and this paper).
parviflora R. Br. (Fitzg. I, 7).
cycnocephala Fitzg. (Fitzg., I, 2).
Adenochilus Nortonii Fitzg. (Fitzg., I, 2, and this paper).
Chiloglottis Gunnii Lindl. (Fitzg., II, 2; Rodway, *Fl. Tas.*, p. 208).
reflexa (Cheel). (Fitzg. and Rodway, *loc. cit.*, as *C. diphylla* R. Br.).
References thus (Fitzg., II, 5) are to R. D. Fitzgerald, Australian Orchids, Sydney, 1882. 2 vols.