

The Moss Collector

A very great shock it is to find in the pocket
Of a shirt I have washed, rinsed and spun
A morsel of moss. I hope John won't be cross
When he finds out what Phyllis has done.

RHABDOTHAMNUS - NEW ZEALAND'S ONLY GESNERIAD By L.J. Metcalf.

The Gesneriaceae is a fairly large family of plants comprising about 85 genera and more than 1,100 species. It is mainly confined to the tropics and sub-tropics, although some genera extend into the temperate zones of both hemispheres. Three of them, notably Ramonda, Jankaea and Haberlea, occurring in the alpine regions of southern Europe. In the Southern Hemisphere the family is distributed throughout most countries and finds its southernmost limits in New Zealand (Rhabdothamnus) and Chile (Asteranthera, Mitraria and Sarmienta).

Rhabdothamnus is a monotypic* genus which is confined to the North Island of New Zealand. It is closely allied to another monotypic genus on Lord Howe Island (Negria) and to the New Caledonian Coronanthera which contains about 10 species. All three of these genera are closely related to Cyrtandra, a genus, of about 250 species of trees and shrubs, which is found throughout China, Malaysia and the warmer Pacific Islands. However, Rhabdothamnus has apparently been in isolation for so long that, although closely related to other genera, it is quite distinct from any of them.

The generic name is derived from the Greek rhabdos, a rod or wand, and thamnos, bush, and alludes to its slender stems and twiggy habit. The specific name naturally commemorating Dr. Solander who, during Captain Cook's first voyage, discovered it on the bank of a forest stream in Mercury Bay. At least four Maori names (waiuatua, taurepo, matata and kaikaiatua) have been ascribed to it, the first two being the ones most generally accepted. In the European vernacular, two names have unfortunately been coined for it - New Zealand abutilon, for a plant which does not resemble and is in no way related Abutilon, is singularly inappropriate, and New Zealand gloxinia, for a shrub which is neither tuberous nor herbaceous, and has only distant family ties with Gloxinia, is little better.

Rhabdothamnus was originally named Columna scabrosa by Dr. Solander, who described and figured it in his "Primitiae Florae Novae Zelandiae". However, his manuscript was never published and so nothing further was heard of Rhabdothamnus until Allan Cunningham landed in the Bay of Islands in 1826. Cunningham spent over five months in the area and rediscovered Rhabdothamnus in both the Bay of Islands and Whangaroa districts. It is recorded as having been introduced into cultivation in England as early as 1831, but just by whom does not appear to be known.

In nature it forms a much-branched twiggy shrub up to 6 feet or so in height. The opposite leaves are rounded, a dull green colour with darker markings on them and the margins are coarsely and irregularly toothed. Both leaves and branches are rough to the

* Contains but a single species.

touch with short, stiff hairs. The bell shaped flowers are up to an inch long and are more or less nodding on slender pedicels. They are borne singly or in pairs from the leaf axils and on rare occasions are produced in threes. Generally the flowers are described as being orange with red stripes in the throat, however there is a surprising amount of colour variation for such a plant. On what may be regarded as one of the commonest forms, the flower colour is as follows - the tube and ground colour of the lobes is yellow ochre, the lobes being rather heavily flushed with Brick Red, while the tube and basal half of the lobes are heavily striped with cardinal red. When the flowers first open they are much paler and full colouration does not develop until they have been open for two or three days.

About three years ago some flowers on a potted specimen in the Christchurch Botanic Gardens were pollinated with pollen from the same plant and about thirty of the resultant seedlings were grown on to flowering size. The results were very interesting, and even in foliage and habit there was considerable variation. The leaves varied from a light yellow-green to dark green with varying degrees of marbling, while the habit varied from bushy and compact to open and spreading.

This year the plants flowered for the first time and there was an equal amount of variation in the flower colour. However, there appears to be no connection between the colour of the foliage and the colour of the flowers.

About 1921 a yellow-flowered plant was found on the property of a Mrs. Osborne of Tryphena Harbour, Great Barrier Island. A few years after its discovery it was washed away by a flood and as nothing had been propagated from it, the yellow-flowered form was thought to be lost forever. However, in the late 1930's another yellow-flowered plant was found by Mr. V.C. Davies on the property of a Dr. Blackley on the northern slopes of the Kaitake Range near New Plymouth. Mr. Davies took cuttings back to his nursery and grew them, so that this time the plant was fortunately not lost to cultivation, because the following year a bush fire destroyed the parent plant. This yellow-flowered form subsequently received a cultivar name and is known as R. solandri 'Aureus'.

Although Rhabdothamnus is found throughout the North Island, in coastal to the lower hill country forests, it is rare and local to the south of Wanganui. It ranges from sea level to 2000 feet and is usually found on the shaded sides of gullies and rocky faces where the forest is more open and where the soil is light and well drained. In the King Country stunted bushes may be found growing out of crevices in the numerous limestone rock formations which occur in that district. In cultivation it should be planted in shade or semi-shade and given an open soil which has had plenty of humus worked into it. It is rather tender and will tolerate only a few degrees of frost. Propagation is most easily effected by semi-hardwood cuttings.

The pollination of the flowers is most interesting and was fairly fully described by D. Petrie in 1903. Briefly, it is as follows. The flower has four stamens which are inserted near the bottom of the corolla tube. The filaments of the upper two are almost straight and lie directly along the tube while the filaments of the two lower ones sweep downwards along the lower surface of the tube.

in a bow-like curve and bend sharply at their ends so that they nearly meet the apices of the upper pair. The anthers are joined in the unopened flower into a cruciform or more or less horseshoe-shaped disc. When the flower opens the anther disc lies at the mouth of the tube almost touching its upper border and it is so placed that the front of the pollen sacs faces the axis of the flower. As soon as the flower opens the pollen sacs dehisce and expose the pollen. At that stage the style is only about half the length of the corolla and ends in a blunt point.

During the course of a few days the filaments gradually shrivel, and the shrivelling causes the anther disc to move down across the centre of the flower so that it finally rests against the middle lobe of the lower lip of the corolla. While the anther disc is moving in to position the style grows longer but keeps close to the upper part of the corolla tube. The top of the style then bends sharply towards the axis of the flower and expands into a rather broad rounded stigmatic surface. When ready for pollination the style is longer than the corolla tube with the stigma standing a little above the centre of the flower. At that stage the anther disc is appressed to the surface of the bottom lip and in that position cannot be touched by the stigma. While those changes are in progress copious quantities of nectar are being secreted at the bottom of the corolla tube.

From the foregoing it can be seen that the flower cannot be pollinated with its own pollen and that cross-pollination must occur. Petrie deduced that the flowers must be pollinated by birds and although he spent some time watching for the pollinating agent he never saw a single flower being pollinated. From the structure of the flower and its mechanism, Petrie supposed that birds visiting the newly opened flowers would have pollen dusted on their foreheads from the ripe anther disc and then on visiting the older flowers this pollen would come into contact with the large stigma which would at that stage occupy the position previously held by the anther disc. Strangely enough, no other person appears to have placed on record whether birds have been observed pollinating the flowers.

REFERENCES

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"Bringing thee chosen plants and blossoms blown among
the distant mountains."

William Wordsworth.

PLANTS IN ABUNDANCE IN THE MAGDALENE VALLEY

by Yvonne H. Elder

Magdalene Valley.- up the Boyle River, holds masses of rather hard to find plants, *Stackhousia minima* and *Botrychium australe*. Perhaps some people have seen plenty of both growing, but to members