HOT ROCK FERNS of the PORT HILLS

Peter Mahan

The Port Hills would not be thought of as the most exciting area in the country for the fern enthusiast. Nevertheless the numbers of species which have been found there reaches one third of New Zealand's total species list. Arnold Wall found 37 species. John Thompson after intensive searching brought the total to at least 50 species. (see Journal 13, pp 20-25)

Of this number three grow in dry areas on or among rocks where they are exposed to full sun. Two belonging to the genus *Cheilanthes, C. sieberi* and *C. distans* are not uncommon, especially on the eastern Port Hills. *C. sieberi* is a small tufted ground fern c. 25cm tall, with narrow, smooth fronds* each with a number of pairs of more finely divided pinnae. The pinnae are subopposite. On the Hills it is the commonest of the three, and can also be found at the upper end of Orton Bradley Park and along the coastal track from Diamond Harbour to Church Bay. The last locality is one mentioned by Arnold Wall. It also occurs in Australia and New Caledonia. *C. sieberi* grows well in cultivation and becomes a handsome specimen with new fronds appearing in early spring.

I have not yet become familiar with *C. distans* but it grows in the same localities as *C. sieberi* and is distinguished by being covered in reddish scales. It has a similar distribution, with the addition of Norfolk Island.

The third fern, *Pleurosorus rutifolius* ,calls for special attention. It is one of our truly rare ferns and one of its most secure geographical areas appears to be the Port Hills.

On 25 May 1968 Gordon Ogilvie wrote an article for the Press, called the 'Persistent Professor and Elusive Fern', which makes interesting reading. The early Canterbury naturalist T.H. Potts, who lived in Governors Bay, found a few specimens of *P. rutifolius* on the Port Hills. When he died in 1888 only Robert Brown knew the exact location. Brown was described by Dr. Cockayne as the most zealous naturalist he had ever come across. Brown arrived in New Zealand in 1876, when he was in his mid fifties. He undertook a vigorous examination of Banks Peninsula's mosses and ferns and published at least 21 papers on mosses alone. By the time Brown died in 1926 his Merivale garden was a show place for rare native and exotic plants.

The locality of Potts' finding of *P. rutifolius* , then named *Gymnogramma* was a secret Brown continued to guard zealously, even from his close friends. If someone wanted a specimen he arose early in the morning and was back with

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* Populations of *Cheilanthes sieberi* at Kaitorete Spit and at Evans Pass bear numerous fine hairs on the stipes. (Observation by JohnThompson.)

the fern by breakfast. This state of affairs continued until Professor Arnold Wall determined to solve Brown's *Gymnogramma* mystery.

Wall began an exhaustive search making use of every clue he could. By the time he had finished he had located Robert Brown's secret locality above Heathcote Valley and also colonies on the Tors, on the flanks of Mt Herbert, and on Mt Evans above Purau, Gordon Ogilvie accompanied Wall, after the Professor's retirement to view *P. rutifolius,* and records,

'It was not enough for the Professor to merely point out where the fern was. There were lots of rock faces about and he was determined to show us the exact place. . . It was hard to credit he was 87 years old and with nine years left of a life which stretched back to the opening of the Suez Canal and the commencement of the Franco-Prussian war'.

My first encounter with this fern was on 13 May 1987 when botanising in Lyttelton Reserve with John and Phyllis Thompson. I said, I would love to see *P. rutifolius.* We went to a spot where John had seen one previously. Although he knew the location well, we had all walked slowly past the place with eyes alert, and it was not until our return, still searching, that John spotted it. At that time of the year it was fresh and green and growing well.

Two weeks later I again visited the spot with my wife and daughter. My daughter's sharp eyes spotted another plant growing a metre away. The first specimen was against basalt rock sited so as to obtain maximum sunlight.

This fern occurs in Australia and is frequently found on basalt escarpments of Western Victoria. Basalts are rich in iron, magnesium, and calcium oxides. Perhaps these elements are a factor in its growth. *P.rutifolius* is present at Mt Cavendish , and with the possibility of a gondola being erected in the neighbourhood, the fate of these ferns will need monitoring.

Comment from Ross Elder and John Thompson

In discussing these ferns we had cause to consult the authorities and found some differences of opinion as to whether *C. distans* had hairs or scales and where they were distributed. We have listed below the authorities we have consulted and after each a quotation which substantially gives their views on the presence or absence of hairs and or scales, and their distribution.

Thompson, G.M. 1882 *The Ferns and Fern Allies of New Zealand. Wih instructions for their collection, and hints on their cultivation.* Wise, Dunedin. **(Thompson knew *C. distans* as *Notochlaena distans). Stipes, lower surface of fronds and rachis clothed in linear, reddish scales.***

Stevenson, G. 1954. *A Book of Ferns.* McIndoe, Dunedin. ***Dark-brown stipes are usually scaly. Distinguished by being densely hairy, especially on young fronds and on the underside of mature fronds.***

Allan, H.H. 1961 *Flora of New Zealand Vol.1.* Government Printer, Wellington. ***Stipes and rachis clad in pale brown to ferruginous subulate-attenuate paleae c.4 mm. long. Pinnae, lower surface clad in similar paleae, upper surface more or less paleate. (From glossary: p. 988. 'palea: (c) scales on various parts of ferns; hence paleate, paleaceous')***

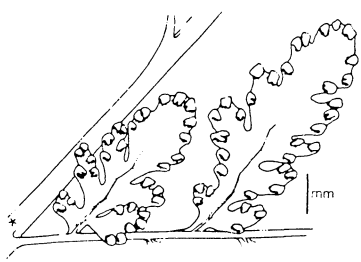
Crookes, M.E. 1963. *New Zealand Ferns.* Ed 6. Incorporating illustrations and original work by H.B. Dobbie. Whitcombe & Tombs, Christchurch. ***Fronds slightly hairy above densely so below.***

Heath , E. & Chinnock, R.J. 1974 *Ferns and Fern Allies of New Zealand.* Reed, Wellington. ***Stipe, rachis, and underside of pinna covered with buff-coloured to brown scales. Upper surface of pinnae scaly or glabrous.***

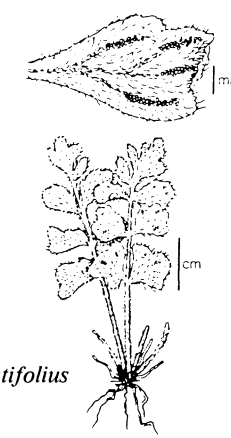
Quirk, H., Chambers, T.C. & Regan,M. 1983 The Fern Genus *Cheilanthes* in Australia. *Australian Journal of Botany 31,* 501-553. ***Upper surfaces bear sparse hairs, the lower sparse to dense scales.***

(The plants in John Thompson's Glass House agree with this description.)

Brownsey, P.J. & Galloway, T.N.J. 1987. *A Key to the Genera of New Zealand Ferns and Allied Plants.* National Museum of New Zealand, Misc. Series 15. ***An enlarged drawing shows scales on a primary pinna.***



Cheilanthes sieberi



Pleurosorus rutifolius