NEW ZEALAND NATIVE ORCHID GROUP

Newsletter no.6
June 1983

Dear Member,

Many, many thanks to all those keen souls who have taken time to put pen to paper and send me articles. I even have a couple left over after this increased-sized newsletter - a nice position for any editor to be in. However, it takes a lot of writing to fill up one newsletter, so please if you have experienced anything at all on our native orchids, do let us share your 'finds'.

I have just returned from a seminar run by North Shore Orchid Society in Auckland, for their 10th Anniversary. I must say it was marvellous to 'talk' orchids for almost a week and I'd love it to be my full-time occupation. It was nice too to add a few more faces to names; - I was told I was supposed to be 97 years old, a large woman in tweeds and brogues! These meetings are very stimulating and I'm sure that a similar venture for native orchids would be equally so. How about a conference in Rotorua this year? or Wellington? and in Christchurch next year or the year after? Anyone interested let me know. I'm sure that with over 100 members we could arrange something. In fact, if I make a definite plea, could all those who would attend a conference in Rotorua or Wellington, say one weekend in November, please let me know and we can then see if there is sufficient interest. Any other ideas will be welcome.

By all reports, this last season was a poor one for native orchids, here's hoping for a better one coming up. It would make an interesting study for someone (or everyone!) to concentrate on a certain area from season to season, taking notes on weather conditions, number and condition of orchids etc., and it would make a very interesting article for this newsletter!

Dorothy Cooper,
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Lower Hutt.

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Pterostylis cardiostigma D.Cooper sp.nov. - a new species of Orchidaceae from Wellington.

The following is a summary of a paper published in the N.Z. Journal of Botany. 1983, Vol.21:97~100. Anyone wanting a reprint of the whole paper write to me and I will send you one.

This species is distinguished from other species of the genus by its characteristic heart-shaped stigma, red markings, and upright habit of both the leaves and flower. Plants are 6-35 (40)cm tall, internodes are very short, stem is thickish, the lower portion is covered by pink to red overlapping leaf sheaths with darker red stripes. There are 5-7 sessile leaves, often very upright, especially in young plants. Leaves are 8-23cm by 1-2cm, with a red midrib; they are slightly grooved above and have a prominent keel below. Lateral yellow veins are often prominent.

The flower is tall and narrow, the dorsal sepal is 7cm long, has a red tip, is vertical in the lower half, and in its upper half is steeply inclined or very occasionally more horizontal. Lateral sepals diverge at a very narrow angle and the long red caudae overtop the hood by 2cm. Petals are slightly shorter than the dorsal sepal, and the tips are red. The labellum is long and triangular, arched in the upper third. The distal part is red and there is a darker red dorsal median ridge. It is grooved beneath. The stigma is heart-shaped and very prominent.

The species has been found in the eastern hills of Wellington, and in the southern Tararuas. There is an unconfirmed report of it from the eastern Tararuas. It grows about 30m higher than the P.banksii zone in Wellington, and main populations range from 60m above sea level to the ridge crest at 300m. The main flowering period is from early October to late November.

Anyone who thinks they can extend the range of this new species, please contact me.

For illustrations, see back page.

E.D. Hatch writes: re Microtis unifolia - I found some last spring growing in ironsand and on the coast at Whatipu. This black sand gets so hot that you can't stand on it with bare feet and even the dog goes yelping from one clump of marram grass to the next. Tough? !! It does seem so.

Notes from Gill Nendick, Wellington, report that Microtis unifolia was still well in flower in the Korokoro area on 17th April, and again "lots of it, in flower, 30th April on the Akatarawa summit road". I know it has been a mild winter so far, but my book lists it as flowering until the end of February, sc this extends the record by two months! Thanks Gill.

Further notes from Newsletter no.5: Lucy Moore writes:

p.1. Gastrodia; "Black, long column" see H.D. Wilson, "Field Guide to Stewart Island Plants" (1982). Found in at least one other Southland locality by John Thompson of Canterbury Botanical Society.

G. cunninghamii; Montgomery Bush, Banks Peninsula, at Hilltop looking down on Akaroa. Tall flowering plant flourishing not on ground but on horizontal fallen log, about 60cm above ground, in shrubby growth under forest - some years ago.

Jim Forrest, Te Puke, also records Gastrodia under open canopy a few miles from the South coast and 30m above sea level, in Southland. He also reports Waituna Lagoon as a good place to see Thelymitra venosa In : December, and remembers several swamps, now drained, containing colonies of Thelymitra, Caladenia and Chiloglottis.

Ian St George, Dunedin, records Gastrodia as common in beech in Central and coastal Otago. They vary in height from 30cm to 1 metre, in colour from very light fawn to green-and-black, in the number of flowers from 7 to 70! and in the prominence of the tubercles on the flowers. He says they always have a short column. Keep looking Ian!

Ian's latest exciting find is the 'rediscovery' of Drymoanthus adversus in Otago after a gap of nearly 30 years. He writes: many of us had searched long and carefully for it but in vain, nobody from the Otago Orchid Club or from the Dunedin Naturalists Field Club had seen it. We had record of it: G.M. Thomson 1906 (A NZ Naturalist's Calendar'): "..rarest of our orchids..used to grow in the bush..rarely on tree trunks in the bush..". Wm Martin 1924 ("Native Plants of Dunedin and its Environs")".still moderately common at Taieri Mouth..a dozen plants..". H.K.Dalrymple 1937 ('Orchid Hunting in Otago,NZ') found it "up the Leith Valley", but "this orchid had not been collected for a very long time". She found it at the mouth of Sweet Water Creek, Pounawea, S. Otago, and "close to observation rock at Oban". Sheila Natusch 1968('A bunch of wild orchids')mentions it collected from Stewart Island. Otago University Herbarium has specimens 10 to 13 years ago from Fiordland, and one from Manapouri (P.N.Johnson 1969) but only a "single plant .".

Then Prof Francis de Hamel of Otago Medical School told me of two plants he had seen in November 1982 on a miro near Observation Rock, Oban, Stewart Island (descendants of Helen Dairymple's 1937 plants?). I began examining miros, and to my great delight found one plant on a miro, then later 23 or 30 on another, in 2 localities in the South Otago Reserves in December. Most mature plants had old and recent empty floral bracts, but only a few bore fruit. George Thomson, who was a teacher at Otago Boys' High School, deduced a century ago from the slight, fragrance of the flower that there must be an insect pollinator. He noticed too that "a considerable quantity of nectar was secreted" and that if the pollen was removed, the flower's column "at once commences to contract, and this causes the pollen masses to be depressed to a nearly horizontal position.. The time taken by this movement in our species is about 10 seconds".

The little orchid, whose flowers are barely 3mm across, moves like a Venus fly-trap, not in order to kill the insect, but to deposit masses of pollen on the creatures, who "..would upon their first withdrawal from the anther be in such a position as to strike a similar portion of the next flower visited.." Thomson speculated that flies, rather than bees, were the pollinators.

Why is the orchid so rare here? Why had so few flowers on our plants been pollinated to form fruits? Has the pollinating fly become rare in Otago? (or perhaps too quick for the orchid's machinery to work?) I don't know, but it is good to have found Drymoanthus adversus here again.

OBSERVATIONS ON CALADENIA AND OTHER SPECIES IN BIG BUSH STATE FOREST SCRUBLANDS

Mark Moorouse, Ne1son

The area is 10 kms west of Nelson Lakes Nat. Park, hilly with elevations from 1500-2500', deep eroded, gullies, sunny dry faces and ridges with scattered Lycopodium and shady faces with deep moss - all under a heavy stand of manuka and kanuka 60-70 yrs old. Most flat areas are very wet with sphagnum patches. The weather throughout the observation period was drier than usual with many cloudy days and an incessant unseasonal wind. Two falls of snow and several late frosts.

Caladenia lyallli - the colonies are distributed fairly evenly over the area under observation (50 hectares) and would have a density of about 1 per sq.m Flowers on sunny faces opened from Nov. 20th to Dec. 7th and on shady faces from Nov. 25th to Dec. 10th. After the latter dates no more budding plants could be found and already a number of plants had set seed. By Deo. 18th no flowers could be found. About 25% set seed. Most plants (e.95%) had only one flower but about 5% had two - no multiple heads were seen and flower bracts were usually only threes on the average flowers tended to be small (2cms) and very consistent in size regardless of situation. A noticeable feature of all flowers in this area is the very 'tightly closed' labellum which gives the flower the appearance of being pure white - unless prised open. (No coloured barring or calli visible from the outside - the exposed call! on the midlobe being pure white). Petals and lateral sepals are more linear than normal giving the impression of an overgrown C. catenata. This may be due to shading but some schools of thought propound varietal differences between these normal flower usually from snowline areas, and those of montane scrublands.

Leaves are mostly short and stocky (narrow elliptic to lanceolate) with a tendency to blunt to subacute tips. Average length is about 6cms and up to 1cm wide. Very few linear leaves noticed. The height of flowering plants is 7 to 12cms, a few shorter.

Of the 400-500 plants I observed, two showed an odd characteristic - these were both two flowered plants and both growing in the company of C. catenata. The two plants (well separated) had deep green dorsal sepals, faintly striped, and heavily covered with red-purple glandular pubescence as is normally found on the ovary and to a lesser degree on the medial sections of dorsal sepals on above snowline plants. All normal plants in the area have only a small basal area of green pubescence with little, or nothing extending medially past half way up the dorsal sepal, the rest of the sepal being pure white and without hairs. These two plants also had uncharacteristic 'lax' labellums with a shortened downturned (not recurved) medial lobe which only had a fringe of calli around the edge. The leaves were both much 1onger (abont 15cms) and linear lanceo1ate. I propose that the differing factors from the norm may indicate a natural hybrid between C. lyallli and C. catenata.

Caladenia catenata - All C. catenata specimens are a pale olive green with a completely green dorsal sepal (pubescent) with a maximum span of 8mm many only 5mm across. The flowering periods of C. lyallli and C. catenata only overlap by a few days - the first C. catenata observed opening on the 10th Dec this year on the sunny faces where they are abundant whilst being scarce on shady mossy sections - the moss is very dense and thick and may inhibit germination to a degree. About one third of flowering plants had opened by 20th Dec with sunny weather encouraging them, and despite reasonable growing conditions even the biggest has failed to reach the minimum size stated in L.B.Moore1s FLORA Vol.II, and the leaf width on some is so narrow that the glandular hairs on them almost doubles their width - again the shady climatically exposed situations may be a factor.

Other species observed during the course of my work:
Pterostylis banksii - few plants, open gullies, low elevations, fl late Nov- early Dec.
Pterostylis australis - several patches in moss, fl.mid Dec. often under Lycopodium.
Pterostylis areolata - mid elevations, several colonies in mossy areas on shady sides of ridge tops.
Pterostylis montana - few scattered plants, drier areas in dense short manuka.
Pteroatylis irsoniana - one plant, very vet shaded gully amongst hookgrass.
Chiloglottis cornuta - green flower - numerous throughput in any damp mossy patch

Chiloglottis cornuta - purple flower ~ lip and calli flushed dull purple -moderate distribution throughout, often amongst green spp.

Adenochilus gracilis - 3 patches, mossy areas, tnese plants have a marvellous adaption to climate, one plant I observed waited 27 days for a suitable day to open, they must be prone to pollinia destruction in wet weather.

Aporostylis bifolia ~ 2 patches in deep moss on damp banks, mid elevations, no flcwers.

Corybas trilobus - common around beech forest edges, only one observed in seed,,

Corybas orbiculatus - common on wet banks and boggy gully bottoms, flowered early Nov.

Corybas macranthus - growing in conjunction with C. orbiculatus no flowers, one seed head.

Thelymitra longifolia ~ dry ridges, not common, flowered Dec.

Theltmitra pauciflora - high dry ridges and exposed areas, sun opened them 16th and 171h Dec. common.

Theymitra hatchii - dry ridge, opened 17th Dec - have the unmistakable column of hatchii but on both plants the flowers had blue spots (about 10-15) on both petals and the dorsal sepal situated in a broad 180° band above the column. Old seed heads indicate a more favourable season last year.

Orthoceras strictum - common on exposed ridges, mostly small plants but nearly all preparing to flower; one large plant had atypical leaves being short and more like oversized floral bracts, completely sheathing the stem but the flowering head had the normal semi-flattened appearance of Orthoceras. It should flower about the same time as the other normal plants in the area, mid-Jan. Higher elevations.

Prasophyllum (colensoi?) - one plant, full sun on dry area, mid elevation.

I have prepared this treatise on the orchids of the area because the N.Z.F.S. is at present systematically destroying 1000 hectares cf virgin manuka scrublands (to plant Pinua muricata in the area) with bulldozers and scrubcutters this year alone and more to go next year.

P.S. Despite action by several "green" groups which almost managed to halt the destruction - the N.Z. Forest Service put a match into the blocks of cutover last week. However, being tuberous terrestrial orchids they may be survivors, but will the environment now be too harsh? Who knows?

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My grateful thanks to W.Burke, Nelson, for his generous donation, and to L.Ford, Palmerston North. Thanks too to all those members who added notes on ffinds*, or kind remarks on the newsletter, to their subscriptions. I am sorry I don't seem to get around to writing to you all personally, but your notes will all be very useful as 'part of the whole', when it comes to summarising the localities and descriptions of our orchids.

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Could you please, think: about the group affiliating to the New Zealand Orchid Council. It has oeen pointed out that this may be of use in an emergency; Seriously though, this is the uniting body of orchidists in New Zealand, native or otherwise, it would enable members to attend their conferences, they have no say in the running of societies but are there if needed.

Their objects include:

- assisting in the cultivation and study of orchids in N.Z.;
- to promote the exchange of knowledge pertaining to orchids;
- to negotiate with Government and national Horticultural bodies if necessary;
- to assist member societies in the promotion of shows or exhibitions if required;
- to encourage research in the growing and conservation of orchids.

The only obligation would be an annual affiliation fee cf 30c per member in the society.

Perhaps this could be brought up and voted on at our conference!

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THE HISTORY OF THE DISCOVERY OF YOANIA AUSTRALIS

E.D. Hatch,
Laingholm, Auckland

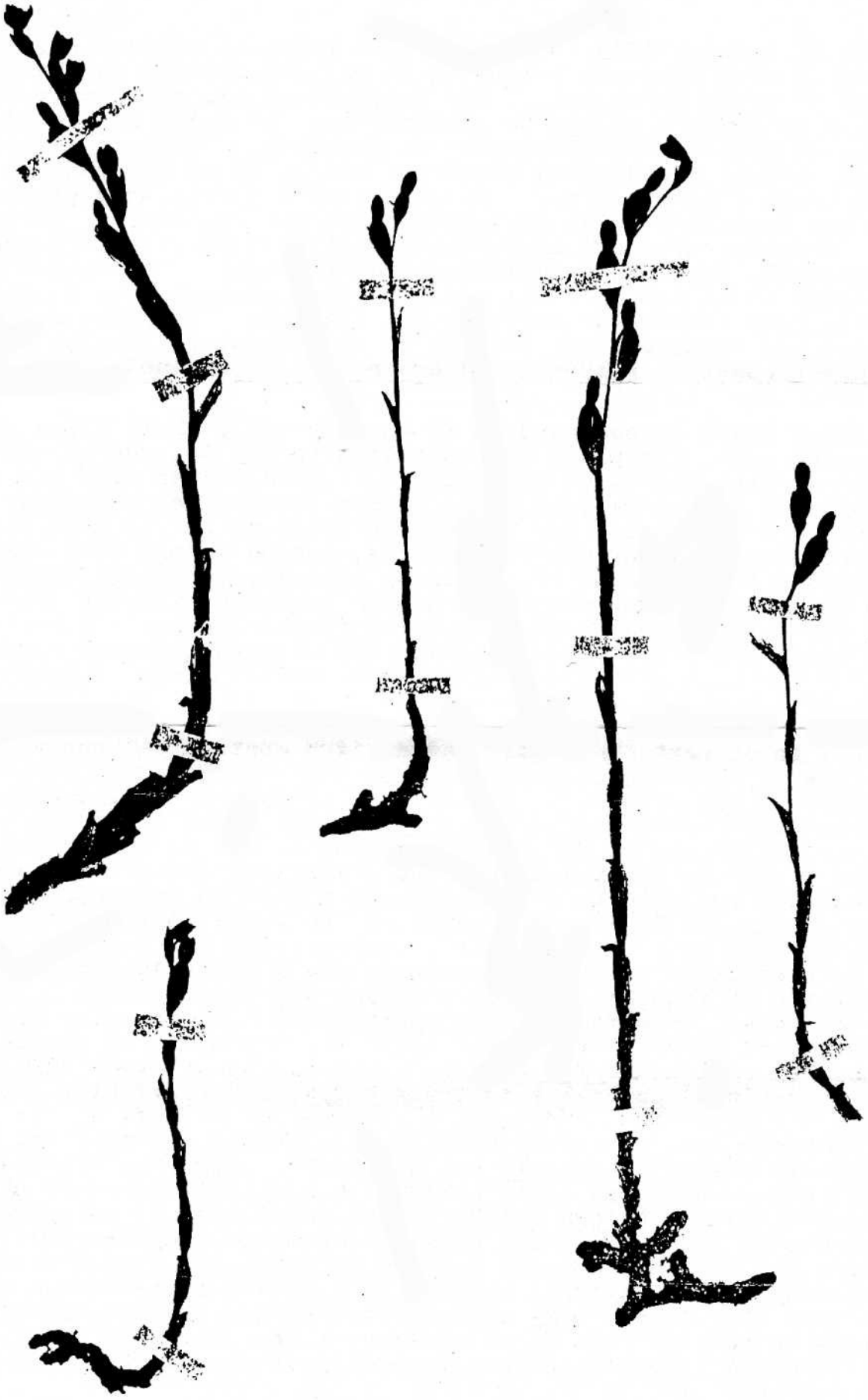
On 28 January 1955 Elisabeth Kulka found an odd and soliiary; orchid growing in deep, leaf mould beneath an old man taraire on the banks of the Waipoua River in Northland. She gathered it up, slipped it into her Listener or Womans weekly or whatever she was using as a holdall, and brought it back to the University at Auckland,. Here it passed from band to hand, poked, prodded and dissected until, on 28 May 1955 it came to Colwyn Trevarthen's notice. He scribbled a pencil note (which I still have) and sent Miss Kulka down to me with the specimen. It was certainly odd. A series of small leaf-bracts scattered up a reddish pubescent stem with 4 small, much-dissected flowers at the top. The seed capsule proclaimed it an orchid but I was sure that nothing like it had ever been reported from either Australia or New Zealand. I made a sketch of the specimen and wrote a brief account of its discovery for the Auck. Bot. Soc. Newsletter (September 1955. p3) and repeated this under the heading 'The Waipoua Orchid in Auckland's Orchids 1959. I could do no more.

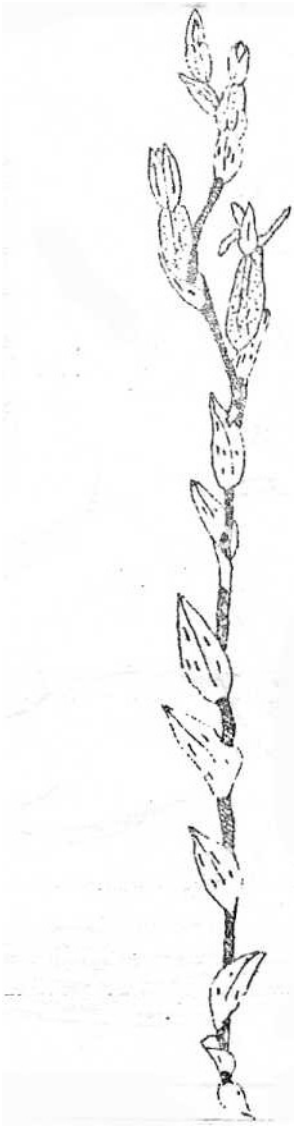
Light years passed, and on 10 January 1963» Phy11 Hynes rang me from the Museum (AK). A plant corresponding to the Waipoua orchid had been brought in from Glorit on the Kaipara. Mr J.Beever with his son Ross, had gathered it (still from under mature taraire) on Christmas Eve 1962 and had nursed it carefully for 3 weeks in order to get it back alive. A block of assorted leaf and root debris, tucked into a foil strawberry chip, contained a tangled mass of branching rhizome, totalling 62cm in length, or which were 3 flowering stems and 4 more just breaking the surface. The whole was intertwined with long white fungal hyphae. The most striking thing about the plant (and something the original Waipoua specimen had not told me was that it had no chlorophyll - not a trace of green anywhere. Obviously saprophytic and mycorrhizal, probably in association with the taraire. From this material I made a drawing and drew up a description but what to do next? I still had no idea what it was nor where it had come from. What I needed was someone with an extensive and world-wide knowledge of the orchids. The obvious answer was Leslie Garay, with whom I had earlier worked on Corybas cryptanthus But Garay had disappeared from the University of Toronto and noone seemed to know where he had gone. I wrote a note to Garay and enclosed a xerox of the drawing and description and sent the whole to an old friend and mentor in Arizona, Dr Lucy Cranwell-Smith. Lucy ran Dr Garay to earth at the Oakes Ames Herbarium in Harvard University and sent the stuff on. Garay, with his usual whole heartedness, sent me a stack of notes and drawings, and a definite opinion - 'it is a new species of Yoania'. After studying all the material I began to doubt that this was a true Yoania, but what to do? No one else had any clues at all and I had already sat on the plant for 8 years. I proposed as a loophole the subgenus Tarairea and described the Glorit material as Yoania (Tarairea) australis in Trans. R.S.N.Z. Bot. 2:1963 p.185.

28 years later it would still seem that the plant is not a Yoania. Nor does it belong in Galeola (as Garay once suggested) which has winged (split) seeds which are quite unlike the neottioid seeds of astralis. Dr Moore's opinion (Flora 2:1970, p. 165) would seem to be sound; "on many counts the NZ plant would not seem out of place in Tribe Neottieae." Dressler and Dodson's comment (Annals Missouri Bot. Gard, 47; 1960. p. 52) ' ... an autogamous saprophyte is nearly the ultimate in taxonomic difficulty! is perhaps some salve to my dissatisfaction and left to myself I would raiss Tarairea to generic rank as an endemic, monotypic genus of unknown affinity But this would entail electron-microscopic study of the seed, which is out of my province.

The plant has proved, as I originally suspected, to have much the same range as the taraire, on which it appears to be epiparasitic by way of the puffball Lycoperdon perlatum (E. O. Campbe11 Trans. R.S. N.Z. 12:1970.p.5).

Yoania australis Atuanui State Forest - Glorit.





Dried specimen of Waipoua Orchid
x 1½.
E.D.H.
6 1955

Distribution (first record) - in every instance with taraire.
28.1.1955 Waipoua State Forest, Northland; E.Kulka
24.12.1962 Atuanui State Forest, Kaipara (Glorit) ;R.E. Beaver
1.1.1967 Kirk's Bush, Papakura; J.Horsman
18.2.1967 Kaukapakapa, Kaipara; L.H.Moore
15.12.1973 Karekare, Waitakere Ra., R.E. Beaver
10,1.1982 Taiharuru Bay, N.E. Coromandels; J.Smith-Dodsworth
4.1.1963 Burrill's Bay, Great Barrier Island; A.B.Grace

There are voucher specimens in AK from all these localities except Kaukapakapa, which are in CHR. Oddly enough, in spite of a mass of taraire and a number of botanically-minded foresters, only the one specimen has ever come out of Waipoua.

Yoania australis is a very difficult plant to find, even in areas from which it has been recorded. It would seem to flower at erratic intervals, sometimes not appearing for several seasons at a time. This would seem to be related to the epiparasitical habit. Green-leaved plants (Pterostylis banksii for instance), must come up each year, not only to flower and set seed, but to make a new tuber so that they may continue to survive. Yoania and its fellow epiparasites are under no such compulsion, to speak, have to come up to eat and only flower when they feel sufficiently robust. Another problem is their rapidity of development - 12-18 days from the fertilisation of the flower to the dispersal of the ripe seed. One plant I examined with 7 flowers, the uppermost open and still unpollinated, the second uppermost open but with pollen on the stigma, had its lowest flower with the seed-capsule dehisced and empty and all the seed dispersed. Alick Dockrill told me of plants of Gastrodia queens1andica he observed, which took only 4 days from the first appearance of the plant above the ground to the dispersal of the ripe seed. The botanist in these cases needs to be literally standing waiting when the plant shoots through.

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Cooper—Plerostylis Figure 1
A, side view of type specimen; B, front view of type specimen.

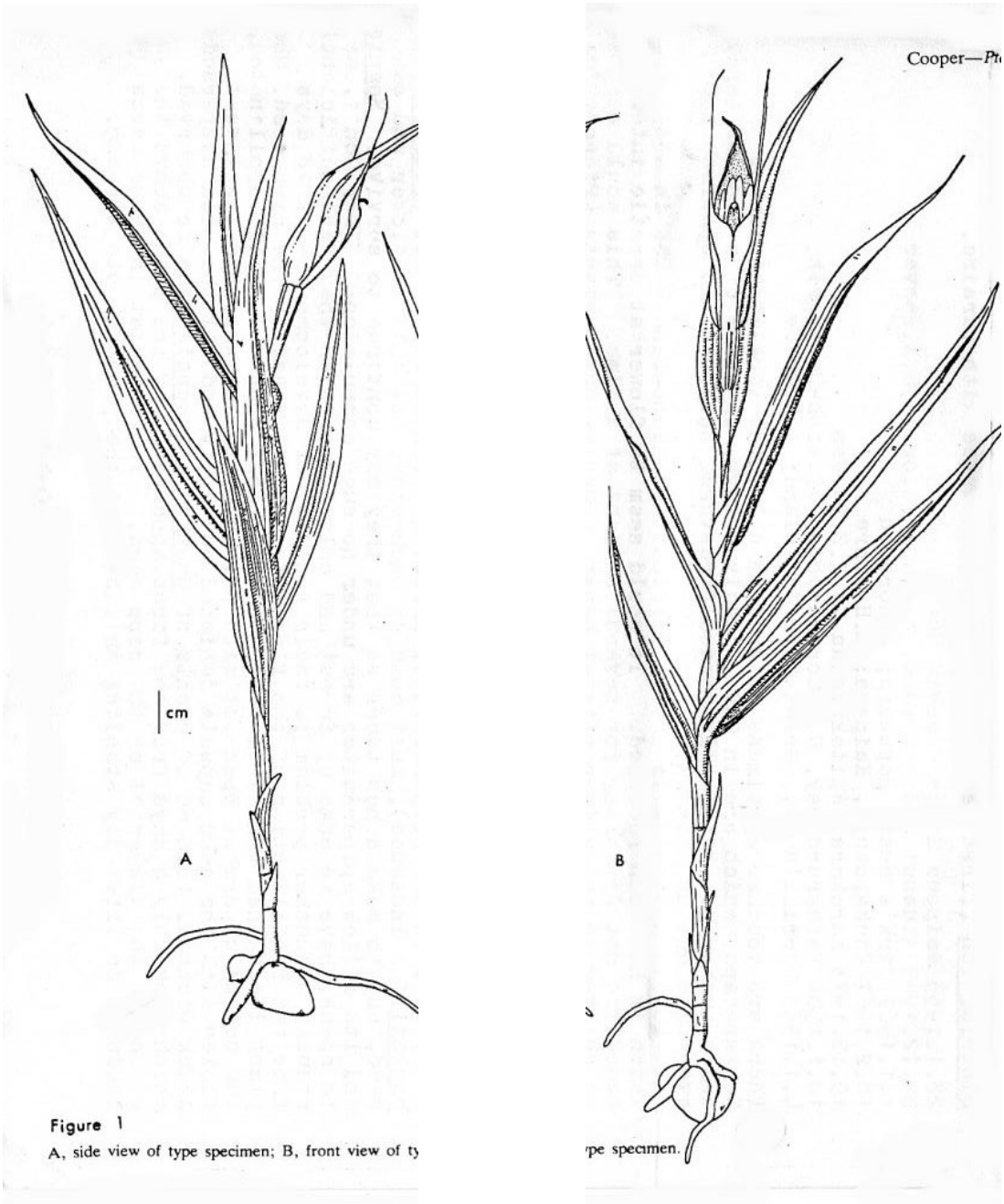
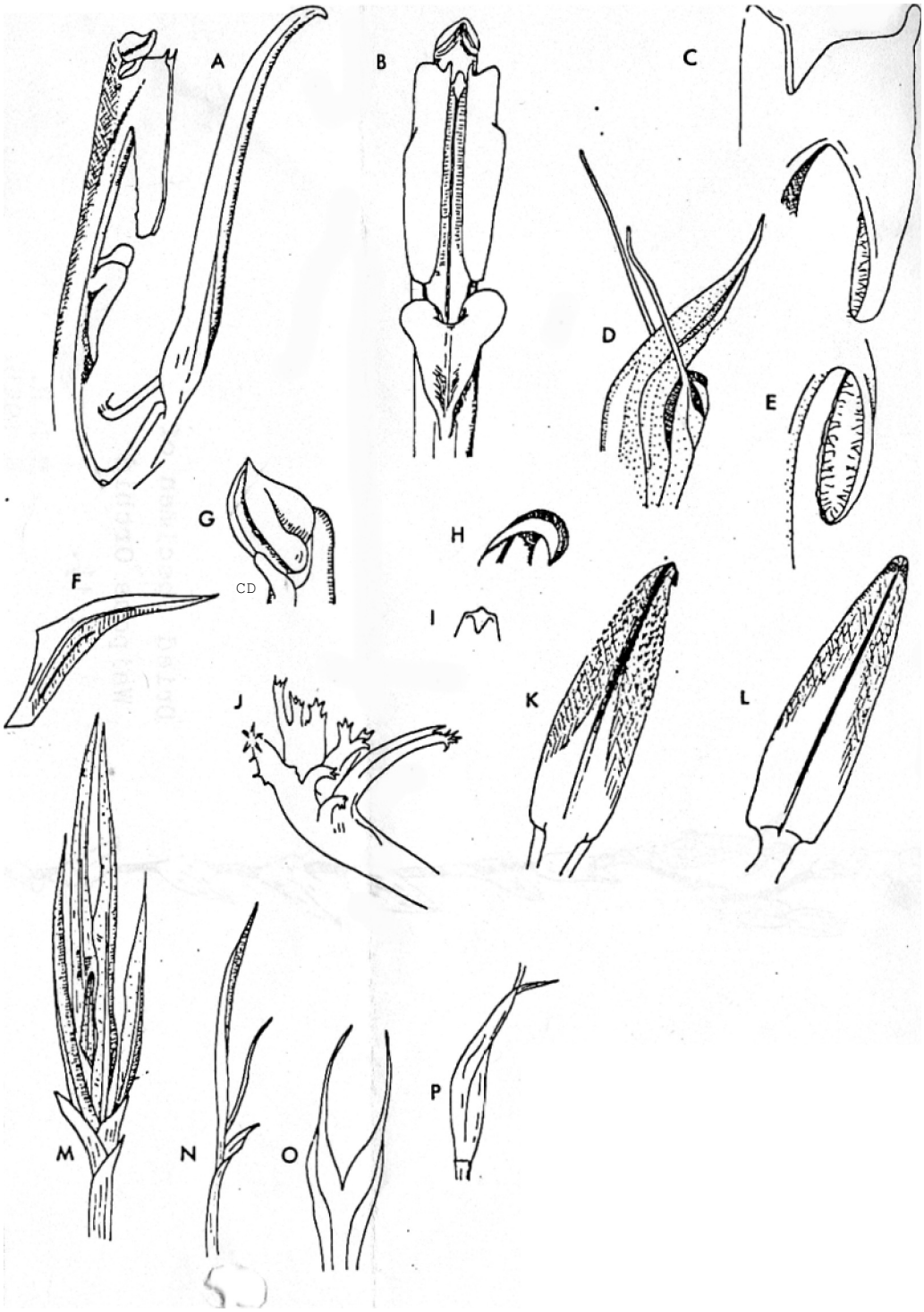


Figure 1
A, side view of type specimen; B, front view of ty



A. side view of column and labellum;

B. front view of column;

C. column wing;

D. side view of upper part of flower;

E lower lobe of column wing;

F. petal;

G. anther cap, pollinia, and rostellum;

H. side view of tip of labellum;

I. front view of tip of labellum;

J. labellum appendage;

K. dorsal view of labellum;

L. ventral view of labellum;

M. young plant with flower bud;

N seedling;

O. front view of lateral sepals;

P. flower before opening.