

Obs. A fine species, having some slight affinity with our other described indigenous ones (most so, perhaps, with *G. coronatus*, Col., "Trans. N.Z. Inst.," vol. xvi., p. 362); also with those of Tasmania and Australia; but it is very distinct from them all. I have received several specimens, and they generally agree in size, form, cuttings, and markings. This is by far the largest indigenous species known to me in a *perfect* state; but I have found at various times, in travelling, deposited on both river-mouth- and sea-beaches, the detached outer peridium of a much larger and coarser species, but could never meet with a perfect specimen.

ART. LVIII.—*A Description of some Newly-discovered Indigenous Cryptogamic Plants.*

By W. COLENZO, F.R.S., F.L.S., &c.

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CLASS III. CRYPTOGRAMIA.

Order I. FILICES.

Genus 18.* *Asplenium*, Linn.

1. *A. ornatum*, sp. nov.

Plant tufted; caudex short sub lin. high, very scaly; scales black, 4–5 lines long, subulate, very acuminate, tips flexuous, with a few minute scattered weak sub-ciliate-like lateral lobes, cancellate, sub 20 cells wide at base; cells parallelogrammic, irregular, their walls very thick and coarse; few-fronded (4–6), sub-erect, membranaceous, flaccid, drooping, dark-green, 11in.–13in. high, thickly scaly throughout on stipe, rhachises, and petioles with blackish veined scales, similar to basal ones but much smaller. Stipe very slender, 4in.–5in. long, about $\frac{1}{10}$ in. wide, dryish, striate, deeply sulcate, pale greyish-green. Frond 6in.–8in. long, oblong-lanceolate (sometimes broadly ovate), sub-tri-pinnate, glabrous; pinnæ alternate, distant on main rhachis 1in. apart, 4in. long; pinnules very distant on secondary rhachises sub $\frac{1}{2}$ in. apart, with long capillary petiolules 3–4 lines long, usually oblong-lanceolate, 4–5 lines long, with narrow thickened white margins, the upper half sharply toothed sub-laciniate and narrow-lobed, sometimes cut into 3 segments with their tips sharply toothed-laciniate, the middle segment narrow rhombic-cuneate, the two outer ones linear and petiolulate; veins few, narrow, sub-flabelliform, simple rarely once-forked, thickened

* The numbers in this paper attached to both orders and genera are those of "The Handbook of the New Zealand Flora."

(lanceolate shape) at apices, and there very prominent on the upper surface, not extending to margin. Involucre very membranous, intramarginal, 2 (sometimes 3) on the larger segments, only 1 on the smaller ones, narrow-linear sub 2 lines long, ends sub-acute. Sori light reddish-brown, largely appearing.

Hab. On dry hilly ground at Kuripapañgo, County of Hawke's Bay; 1889: *Mr. Pinckney*.

Obs. It is not without some hesitation, and only after a long and protracted examination, that I advance this fern as a *sp. nov.*, for certainly it is pretty closely allied to *A. hookerianum*, mihi (var. *adiantoides*, Raoul); but it differs from that fern in several characters, which, moreover, are constant in all the specimens I have seen. *A. hookerianum* in all its forms (whether the larger var. figured by Raoul, "Choix de Plantes de la Nouvelle-Zélande," pl. i.,—or the smaller ones figured by Hooker, "Icones Plantarum," vol. x., tab. 983) has very broad segments, thus described by Raoul: "flabellato-rotundatis crenatis" (*l.c.*); by J. D. Hooker, "rhombéo-subrotund," "Handbook N.Z. Flora," p. 373; and by Baker, "rounded and crenate," "Synopsis Filicum," p. 213,—who also says, "the pinnae and pinnules in shape resemble those of *Asplenium ruta-muraria*," which characters, however, are not in this plant. The narrow sharply-toothed segments of this fern are also margined white with peculiar apical terminations to their veins, which are also very conspicuous and more simple; the large basal scales are without the clear intramarginal continuous line so striking in *A. hookerianum*, and are irregularly and coarsely cancellate; while the very long capillary and distant petiolules, together with their narrow segments, give this fern a light, airy, and graceful appearance, which is also very attractive.

2. *A. gracillimum*, sp. nov.

Plant tufted; caudex short, composed of coalescent stipites, very scaly; scales membranaceous, softish, shining, subulate, $\frac{1}{2}$ in. long, 2 lines broad at base, cells there sub 40 wide, more sub-ciliate with smaller and narrower cells than in *A. ornatum* (*supra*). Fronds 8–10, erect, drooping, 12 in.—14 in. high, membranous, soft, flaccid, glabrous, darkish-green. Stipe 4 in.—5 in. long, slender, pale, dryish, sulcated, densely scaly; scales persistent, red-brown, of various sizes. Frond 8 in.—9 in. long, oblong-ovate, tripinnate, rhachises and petioles of pinnules scaly; pinnae alternate, regular, distant (1 in.—1 $\frac{1}{2}$ in. apart on main rhachis), 3 in. long at middle of frond, the 3 lower pairs slightly decreasing in size; pinnules distant, petiolate; petioles slender, rather long, decurrent to next pinnule (sub-pinnatifid), margin thickened; the basal pin-

nules usually containing 5 segments, their sides entire, bases cuneate excised; tips largely toothed or sub-lobed, each lobe containing a single sorus, but 2 on the larger lower lobes; veins few, somewhat sub-flabellate and simple, not extending to margin, their tips thickened. Sori sub-marginal, situated on the inner vein of segment. Involucre small, 1 line long, linear-oblong, very membranous, transparent, filled with numerous closely-crikkled veinlets having double walls; margin crenulate.

Hab. Dry sides of hills, shady woods south of Dannevirke, County of Waipawa (where it is plentiful); 1888, 1889: *W. C.*

Obs. A very symmetrical neat species, differing considerably from other known New Zealand species of this genus, though approaching the preceding one (*A. ornatum*), and also *A. hookerianum*, var. *adiantoides*; and somewhat distantly resembling small specimens of *A. bulbiferum*, but very dissimilar from that plant in texture, colour, and dense persistent scales, in its slender and dry stipes, its narrower and more distant stipitate segments, which are also laciniate-lobed, &c., and in the position of its sori, with their peculiarly-veined involucre.

Order V. HEPATICÆ.

Genus 7. *Gottschea*, Nees.

1. *G. clandestina*, sp. nov.

Plant small, $\frac{3}{4}$ in.—1 in. high, 3–4 lines wide at top, sub-obovate tapering, sub-erect, scattered; stems simple, white, succulent, glossy, the smaller specimens leafy to base, the larger ones with numerous dark-purple rootlets on their lower half; leaves ovate-dimidiolate, with 2 small plaits at each apical margin; anterior margin laciniate-serrate, the basal half largely so; posterior margin almost entire, with 3 (or 4) distant minute teeth; the lower leaves distant, smaller and sub-falcate, their tips rounded entire; the upper leaves imbricated, sub-acute, their tips finely serrate; dorsal lobe two-thirds length of leaf, its anterior margin entire rounded and produced beyond leaf, the lower margin straight, at some distance within that of leaf, its junction-ridge thickened, produced, serrulate; tip truncate, entire. Stipule large for plant, broadly elliptic, $1\frac{1}{4}$ lines long, margined, bifid, each lobe largely trifid at top, with 1–2 coarse teeth on each side; lacinia large, irregular, margins sinuate, acute not ciliate; sinus long, narrow, irregular, with 2 teeth at bottom near base, 1 on each side. Cells large, sub-quadrate-orbicular, irregular, distant, not clear, filled, guttulate and many-beaded.

Hab. Scattered among dense patches of *Aneura polymorpha*, Col. (*infra*), low wet woods south of Dannevirke, County of Waipawa; 1889: *W. C.*

Obs. A very neat little species, allied to *G. marginata*, Col. ("Trans. N.Z. Inst.," vol. xviii., p. 241), but differing in several characters. Its place and manner of growth, nearly hidden among the close-growing and erect *Aneura*, is peculiar; and it is not easily detected.

Genus 8. *Chiloscyphus*; Corda.

1. *C. involucrata*, sp. nov.

Plant creeping, 2in.—3in. long, 1–1¼ lines broad, symmetrical, regular, distantly branched; light-green. Branches very few, alternate, divergent, simple rarely sinuate, rooting largely at stipules; roots long, tubular, white, hyaline. Leaves numerous, very close throughout, densely imbricate, decurrent, broadly ovate-deltoid with apex truncate; margins sub-sinuate; tips 2-horned, a horn at each extreme angle, long, divergent, broad, 4-celled transversely at base, the upper horn usually longer; sinus deep, sides sinuate, the centre (at base) notched. Cells large, orbicular with beaded centres, and minute triangular intermediate cellules; cell-walls stout, conspicuous. Stipules large, extending across stem, connate with leaves below, 4-fid, each of the two inner lobes having a small lobule or tooth on its outer margin. Fruit terminal on a short basal branch; sometimes two such branches are near each other on the same side of stem. Involucral leaves large, connate, spreading, and (with perianth) darker green, their tips lacinate; laciniae long, flexuous. Fruit-stalk slender, erect, ½in. long; capsule small, elliptic, blackish.

Hab. Rooting, mostly hidden, among, and epiphytal on, small caespitose *Aneura polymorpha*, Col. (*infra*), on rotten logs, low wet woods south of Dannevirke, County of Waipawa; 1889: W. C.

Obs. A neat species; pretty closely allied to *C. spruceana*, Col. ("Trans. N.Z. Inst.," vol. xxi., p. 59).

Genus 13. *Lepidozia*, Nees.

1. *L. retrusa*, sp. nov.

Plant small, single, sub-erect, 1in. high (rarely above, mostly under), 3–6 lines wide; main stem brownish; cells parallelogrammic, pinnate (very rarely bipinnate), branches alternate, distant, tips flagellate; flagellæ long, capillary, flexuous, pale, with small scattered bundles of long white hyaline rootlets. Leaves numerous close imbricate concave, pale-green their margins darker green, sub-quadrate, 4-fid; lobes extending one-third of leaf, broad, triangular, divergent; margins slightly sub-sinuate; sinuses wide; cells distinct, sub-quadrate-orbicular, regular in size, guttulate, obscure. Stipules rather distant, small, broadly ovate; tips slightly 2–3-toothed; cells

connected, regular, clear, parallelogrammic; walls narrow, black. Fruit at base of branch near middle of main stem, solitary, rarely 2 on a plant, and when so then near each other. Involucral leaves adpressed, broadly elliptic, nearly entire, their tips mucronulate. Perianth white, oblong, 1 line long, sub-acute, plaited, tip slightly toothed; cells as in stipule. Capsule narrow-oblong, tip obtuse, base truncate broader than fruit-stalk; elaters nearly straight, closely twisted, ends obtuse.

Hab. On rotten logs, completely hidden among patches of *Aneura polymorpha*, Col. (*infra*), low wet woods south of Dannevirke, County of Waipawa; 1889: *W. C.*

Obs. This is a neat little species; the great regularity of its concave leaves, with their coloured margins, give it a pleasing and striking as well as distinct appearance. Its affinities, however, are with small specimens of *L. capilligera*, Lindb., and *L. laevifolia*, Hook. f., and also *L. minuta*, Col. ("Trans. N.Z. Inst.," vol. xviii., p. 245).

2. *L. occulta*, sp. nov.

Plant small, very slender, prostrate, lanceolate, pinnate, main stem $1\frac{1}{2}$ in.—2 in. long, 4–5 lines wide at middle, much and very closely branched; branches opposite and alternate, usually short, simple rarely pinnate, decreasing gradually in length towards apex and base. Leaves and stipules close, spreading, 3-fid to base, their lobes long setaceous, usually 5-jointed; tips sub-imbricate, finely capillary, flexuous. Fruit sub-sessile on main stem at base, also about the middle. Involucral leaves adpressed, sub 3 rows, tips laciniate; laciniæ narrow, their tips obtuse. Perianth large for plant, darkish-green, linear-ovate, 2 lines long, slightly curved, tip acuminate sub-acute, laciniate and ciliate; cells long, narrow, parallelogrammic.

Hab. Rooting concealed (with preceding species, *L. retrusa*) among patches of *Aneura polymorpha* (*infra*), low wet woods south of Dannevirke; 1889: *W. C.*

Obs. A distinct neat little species; in general appearance approaching small plants of *L. capilligera*, Lindb., and *L. lindenbergii*, Gottsche.

Genus 32. *Aneura*, Dumort.

1. *A. perpusilla*, sp. nov.

Plant very small, dark emerald-green, of densely-compact growth; main stem horizontal, creeping, closely appressed and thickly rooted, 3–4 lines long, $\frac{1}{2}$ in. wide, bipinnatifid; branches (fronds) $1\frac{1}{2}$ lines long, erect, closely compacted, 3–5-fid (usually 3-fid at tip), segments about one line long, linear-subulate, obtuse, incurved. Fruit at base of frond,

usually solitary, sometimes two together. Involucre minute, very shallow, irregularly and distantly toothed; teeth acute. Calyptra $1\frac{1}{2}$ lines long (nearly as high as frond), white, glabrous, cylindrical, erect, obtuse; tip urceolate. Seta 3 lines long, white, hyaline, glossy. Capsule narrow-oblong, brown; valves narrow-linear, striate, sub-acute; elaters brown, forming large pencilled masses at tips.

Hab. On very rotten wet logs, low woods south of Dannevirke, County of Waipawa; 1889: *W. C.*

Obs. A curious minute species, forming extensive patches completely covering the surface of log, and somewhat resembling coarse green plush. It is allied to *A. muscoides*, Col. ("Trans. N.Z. Inst.," vol. xviii., p. 251), but is very distinct.

2. *A. polymorpha*, sp. nov.

Plant of densely-cæspitose growth, firm, somewhat brittle, bright emerald-green; roots brownish, thickish, succulent, irregular, spreading; fronds erect, of nearly uniform height in appearance, 6–9 lines high, $\frac{1}{2}$ line to 2 rarely 3 (usually $1\frac{1}{2}$) lines wide, of various shapes and sizes, simple narrow-linear cuneate and oblong-obovate, two-branched from base, sub-palmate and flabelliform with 3–5 branchlets; branchlets irregular and spreading, subpinnatifid, margins distantly and slightly incised, sinuate, sub-crenately knobbed and notched, tips incurved, always broader and crenulate. Cells numerous, small, oblong-lanceolate, each having a free central oblong dot. Fruit usually single at base of frond, sometimes 2, rarely 3–4, together, yet, in one specimen, 7 near each other. Involucre short, pubescent, margin sharply sub-serrulate. Calyptra cylindrical, erect, 2 lines long, white minutely speckled, puberulent, the tips slightly produced and ragged; hairs light reddish-brown. Seta 9–12 lines long, slender, curved, shining, hyaline, striate, multi-septate and closely so at top. Capsule narrow-oblong; valves linear-oblong, subacute and sub-mucronulate, dark-brown, darker at tip and at base, margined, thickly striate, with dark linear dots in regular lines between striae. Elaters closely twisted, tips very acuminate, acute.

Hab. On rotten logs, low wet woods south of Dannevirke, with preceding species (*A. perpusilla*), but forming separate patches; 1889: *W. C.*

Obs. This plant forms large spreading patches, very closely growing like a short moss, covering the whole surface of the log. It changes its colour soon after removal, even when kept alive in water. It has intermixed with it two minute species of sub-erect *Lepidozia*, which are always lower than the *Aneura*, and are not found without breaking it up—*L. retrusa*, and *L. occulta*, Col. (*supra*).

Order VIII. FUNGI.

Genus 60. *Peziza*, Dillenius. (§ *Lachnea*.)1. *P. (L.) spencerii*, sp. nov.

Gregarious, often sub-coalescent and adhering at base in small clusters, partly imbedded in the soil, and fixed by the centre and by a few small divergent rootlets. Cup sessile, of various shapes and sizes, usually more or less globular depressed, $\frac{1}{2}$ in.— $1\frac{1}{2}$ in. diameter, urceolate, at first nearly closed, afterward opening circularly, and often becoming explanate, breaking into several irregular and large ragged lobes; thickish, fleshy, somewhat brittle; margin thin, slightly and irregularly lacerate and toothed, recurved: *outwardly* dirty-white inclining to a lightish-brown, roughish, deeply wrinkled below; wrinkles smooth, sub-radiating from the centre, slightly yet thickly puberulent in depressions, particularly about the base; hairs white: *inwardly* light reddish-brown, very largely wrinkled yet smooth; ascus broadly linear, cylindrical, regular, $\frac{1}{1300}$ in., containing 8 sporidia; sporidia elliptic, free, distinct, obliquely posited, $\frac{1}{1200}$ in.; nucleus (apparently) single, as in some other of our described New Zealand species, or 0; paraphyses slender, $\frac{1}{400}$ in., 3-septate at top.

Hab. On the bare ground in the garden of W. I. Spencer, Esq., F.L.S., Scinde Island, Napier; Sept., 1889.

Obs. I. This is the largest species of *Peziza* yet found in New Zealand. It has a very striking appearance when fresh, and grew pretty plentifully in one spot of a few square yards. Dr. Spencer (to whom I am again indebted both for specimens and the accurate microscopical measurements given above) informs me that, though plentiful, he had only noticed them in that part of his garden which had lately received a quantity of fresh stable-manure; and also, "with respect to the nuclei, mine show no nucleus, but a quantity of granular matter; they also exhibit a very distinct *hilum*, with faint concentric elliptical lines, not unlike what is seen in starch-grains; however, they do not polarize light, so they are not starch-granules: others are filled with fine granular matter, and do not show the *hilum*. I examined sporidia not only in the asci, but also many that had been extruded, and which I therefore presumed to be mature. It would be interesting to know whether these intercellular bodies ever make their appearance, and, if so, at what stage." (Dr. Spencer, *in lit.*)

II. While my specimens were drying I observed, on my placing them in strong sunlight, that their sporidia were ejected in cloudy puffs, with apparently elastic force, and this was caused by the least agitation in carefully removing them.