Mr. John Faulkner
from the Author.

Jan

A
CLASSIFICATION AND DESCRIPTION
OF SOME
NEWLY-DISCOVERED FERNS,
COLLECTED IN
THE NORTHERN ISLAND
OF
NEW ZEALAND,
IN THE SUMMER OF 1841-2.

LIBRARY
NEW YORK
BOTANICAL
GARDEN

BY WILLIAM COLENSO, Esq.

Launceston, V. B. Land:

PRINTED AT THE OFFICE OF THE LAUNCESTON EXAMINER.

1845.

QK
531.5
.C65

LIBRARY
NEW YORK
BOTANICAL
GARDEN

FILICES NOVÆ,

NOVÆ ZELANDIÆ.

A Classification and Description of some newly discovered Ferns, collected in the Northern Island of New Zealand, in the summer of 1841—2.

It is now nearly seven years since a monograph on the then known botany of the islands of New Zealand, from the pen of the late Allan Cunningham, Esq., first appeared in the pages of the second volume of the *Companion to the Botanical Magazine*, which paper was continued and completed (on the discontinuance of that work) in Vols. I.—IV. of *Annals of Natural History*. This “precursor” of the botany of this increasingly interesting country contained 639 species* of plants, nearly the whole of which have hitherto been detected only in these islands. This enumeration embraced the published discoveries of those truly eminent men, Sir Joseph Banks and Dr. Solander, who accompanied our illustrious

* “If to this aggregate number of species thus got together and here enumerated sixty be added, as in all probability comprehending the remaining number of plants of the first voyage of Cook, which are preserved in the Banksian Herbarium and continue yet unpublished, seven hundred distinct plants may be said to be the number at present known of the flora of these islands.”—A. Cunn, in *Comp. Bot. Mag.*, vol. ii., p. 230.

circumnavigator, Cook, on his first voyage to these seas in 1769 ; as well as those of the Forsters who also accompanied Cook on his second voyage of discovery in 1772 ; of Menzies, who, in Vancouver's ship, visited these islands in 1791 ; of M. Achille Richard in 1822 ; of D'Urville and M. Lesson in 1827 ; and other later botanists. More, however, than a fourth part of the whole number, comprising several new and interesting genera, was discovered by the two brothers, Messrs. Allan and Richard Cunningham ; of whom, indefatigably attached as they both were to the pursuit of their favourite science, it may be truly said they fell victims in their laudable attempts to make known the botanical treasures of a fair portion of the southern hemisphere. To this number Mr. Allan Cunningham in his last visit to New Zealand, in the year 1838, made an addition of several plants peculiar to the northernmost part of New Zealand.

The number of species of Ferns published in the "*Precursor*" amounts to eighty-five ; from which, I venture to hazard an opinion, at least two species—*Niphobolus bicolor* and *Doodia caudata*—will have to be deducted ; as, I believe, these will be found to be merely varieties of *N. rupestris* and *D. aspera*. To the total number Mr. C. added four more on his last visit ; namely, *Gleichenia arachnoidea* and three species of *Lomaria*—*L. crenulata*, *L. gigantea*, and *L. polymorpha*. During the few remaining months of Mr. C's. life I had the pleasure of discovering and forwarding to him a few additional species of the following genera, *Nothochlæna*, *Cheilanthes*, *Aspidium*, *Adiantum*, *Lomaria*, *Marattia*, and *Hymenophyllum*. Since that period I have been fortunate enough to discover a few others, which have been sent to England to Sir W. J. Hooker, by whom they have, without doubt, been fully investigated and published ere this. It was, however, in a journey which I undertook in the summer of last year that I discovered the majority of these contained in this paper.

I am not aware of any one of these Ferns now described by me ever being seen by any botanist; they certainly are not mentioned in any works on botany at present in my possession; and considering the localities whence they were obtained, together with my never having noticed them in the many parts of New Zealand in which I have at various times travelled, I can but deem them new to science.

The arrangement I have adopted is that of Sir W. J. Hooker and Dr. Lindley, as given in the second edition of *A Natural System of Botany* by the latter gentleman.

The total number of New Zealand Ferns now known, exclusive of varieties, is about 140 species, of these I have very nearly 120 species in my herbarium.

ORDER—POLYPODIACEÆ.

(I. *Nude.*)

§. POLYPODIEÆ, *Bory.*

Polypodium, *Sw.*

Sporangia venis imposita, in *soros* subrotundos sparsos seriatosve collecta. *Indusium* nullum. *Endl.*

1. *P. SYLVATICUM*, n. sp. *Plant*, few fronded, erect, villous, terrestrial. *Frond*, lanceolate, acuminate, acute, bipinnate, 16—24 inches; colour, dark green. *Pinnules*; *primaries*, oblong-lanceolate, acute, subacuminate, petiolate, alternate, remote: *secondaries*, trapezio-falcate, setose, cuneate at base, petiolate, alternate, sub-pinnatifid, 7—9 lobed: *lobes*, oblong and somewhat falcate, mucronate, serrate, less serratures on lower edge than on upper, decurrent, alternate. *Sori*, rotund, *Aspidium*-like, thickly set, 2—3 on a lobe. *Rachis*, *Stipe*, and *Petioles*, channelled on upper surface, and densely scaled. *Stipe*, 6—8 inches long. *Scales*, at base, very long and bordered. *Root*, fibrous.

Hab. In rich alluvial soil, low, shaded, and damp woods, near Tolaga Bay, E. Coast; Dec., 1841.

Obs. A smaller variety of this Fern was also obtained by

the discoverer from the forests on the mountains near Waikare Lake, the fronds of which (including stipe) measured only 6—9 inches in length; it was, moreover, more acuminate, and serratures of lobes more spinous.

This Fern has very much the appearance of an *Aspidium*, to which genus it was supposed it must belong. From a close investigation, however, of several fronds in different stages of fructification without meeting with any vestige of an *indusium*, it has been referred to *Polypodium*. It possesses several characters in common with *Aspidium Waikareense*, (n. sp., vide n. 7, seq.) with which plant it is very likely at first sight to be confounded.

2. *P. VISCIDUM*, n. sp. *Plant*, sub-erect, drooping, somewhat lax, thickly tomentose, viscid and villous, terrestrial. *Frond*, oblong-lanceolate, sub-acuminate, bipinnate, 8—24 inches; reddish-green. *Pinnules*; *primaries*, oblong-lanceolate, acuminate, sub-acute, broadest at base, petiolate, alternate, very remote: lowermost sub-opposite: *secondaries*, linear-oblong, sub-acute, alternate and sub-opposite, distant, somewhat reflexed; uppermost pinnatifid; lowermost petiolate: *segments*, oblong, broadest at base, crenate, sessile, sub-opposite, sub-revolute; *veins*, transparent. *Sori*, rotund, sub-marginal, regular, bifariously disposed on each segment of frond; generally a *sorus* at every sinus. *Stipe*, 4—8 inches, channelled on upper surface, brittle, reddish brown. *Caudex*, creeping, thickly tomentose.

Hab. Dry sandy places, on mountains near Waikare Lake; Dec., 1841. Also, neighbourhood of Bay of Islands, in elevated and dry spots, margins of woods; 1838.

Obs. I have, with some hesitation, referred this Fern to *Polypodium*; from its not having, however, any *indusium*, &c., I have been led to assign it to that genus. Both this and the preceding species differ widely in habit from the species of *Polypodium* hitherto discovered in New Zealand. The whole plant is very glutinous, from which cause it is ge-

nerally found covered with the *Cypselæ* of *Compositæ*, small moths and flies, and other insects; insomuch that it is rather a difficult matter to procure good specimens for an herbarium. In general the lower pinnules on the fertile fronds are found in a withered and circinnate state, whilst the upper part of the frond has scarcely gained maturity.

§. HEMIONITIDÆ, Freyc. et Kaulf.

Gymnogramma, Desv.

Sporangia venis primariis furcatis pinnatisve imposita, in soros lineares oblongosve collecta. *Indusium* nullum. Endl.

3. G. NOVÆ ZELANDIÆ, n. sp. *Plant*, small, cæspitose, erect, glabrous, terrestrial. *Frond*, ovate or ovate-lanceolate, or deltoid-ovate, obtuse, membranaceous, bi-pinnate or pinnate-pinnatifid, 6—20 lines long. *Pinnules*; *primaries*, trapezio-ovate, obtuse or emarginate, petiolate, margined, alternate, remote: *secondaries*, flabelliform, mostly deeply three-cleft, alternate petiolate; petioles short: *segments*, bifid: *lobes*, somewhat cuneate-linear, emarginate or obtuse, entire; *veins*, simple, forked. *Sori*, oblong, forked, thick and confluent, on furcate veins of lobes, nearly covering the whole under surface of segments. *Sporangium*, obovate, reticulated, sub-sessile, membranaceous, whitish; *annulus*, incomplete, cinnamon-coloured. *Sporules*, sub-deltoid, triangular, obtusely angled, dotted, glossy, blackish. *Rachis* and *Stipe*, semi-terete, brittle, deeply channelled on upper surface, shining, red; *Stipe*, 1—2 inches. *Root*, fibrous; *fibres*, densely clothed with long silky hairs.

Hab. In sheltered grassy spots among scorix, on dry volcanic hills, between Manukau Bay and Tamaki Creek, about ten miles from Auckland; 1842.

Obs. This elegant little Fern is the only species of *Gymnogramma* yet discovered in New Zealand. It grows plentifully on those hills, where it is an annual, being invariably withered up and destroyed with the heats of summer.

Grammitis, Sw.

Sporangia venulis simplicibus v. bifurcarum cruri superiori imposita, in soros lineares v. subrotundos collecta. *Indusium* nullum. *Endl.*

4. *G. CILIATA*, n. sp. *Plant*, small, cæspitose, sub-membranaceous, epiphytical. *Fronde*, simple, linear-lanceolate, obtuse, much attenuated at base, sub-sessile, 1—2 inches long, 2—3 lines broad, margin entire, sub-revolute, and beautifully ciliated with white translucent hair; upper surface slightly, and lower thickly, villous, with long white hair; colour, light green: *mid-rib*, sub-flexuose, blackish. *Sori*, oval or oblong, large, thick and crowded. *Root*, fibrous and tomentose.

Hab. On trunks of living trees, humid woods, Bay of Islands; 1841. And, in similar situations, shores of Waikare Lake, in the mountainous district in the interior, five days journey W. S. W. from Poverty Bay, E. Coast; Dec., 1841.

Obs. A species, in affinity, very near *G. australis*, R. Br.; from which, however, it differs, in being villous and ciliated, in having its *sori* more prominent and crowded, as well as in its being a much smaller plant. The fine ciliated hairs on its margin present a most beautiful appearance in the living plant, but unfortunately they fall off with the most careful handling.

(II. *Indusiatae*.)

§. ASPIDEÆ, Bory.

Aspidium, Sw.

Sporangia receptaculo columnari, ex apice, medio v. anastomosi venularum tumescenti imposita, in soros subrotundos sparsos seriatosve collecta. *Indusia* receptaculo continua, subrotunda, pellata, margine undique libera. *Endl.*

5. *A. CUNNINGHAMIANUM*, n. sp. *Plant*, climbing, few-fronded, pendulous, coriaceous, glabrous, epiphytical. *Fronde*, triangular or rhombic-ovate, acuminate, bipinnate; length,

fourteen inches ; breadth at base, nine inches ; very remote from each other on caudex ; colour, light green. *Pinnules* ; *primaries*, ovate or triangular-falcate, acuminate, acute, petiolate, alternate, distant ; lowermost sub-opposite ; uppermost pinnatifid and decurrent : *secondaries*, oblong-lanceolate somewhat falcate, acute, not crowded, petiolate, sub-opposite ; upper ones sessile, crenate, and lobed : *segments* and *lobes*, bi. tri. and quadri-fid, acute and obtuse. *Sori*, semi-sphæroidal, very prominent, on extremities of smaller veins, not marginal, pitted, sub-opposite, not crowded. *Indusium*, peltate, corrugated. *Capsules*, numerous. *Petioles* and *Rachis* towards apex, margined and scaled. *Scales*, very long, light brown. *Stipe*, smooth, brittle, channelled, scaled, 12—14 inches long ; colour, light yellow-brown : *base of Stipe and Caudex*, densely clothed with large scales imbricated and adpressed. *Caudex*, creeping, succulent.

Hab. On small living trees in the shaded dense and damp forests near Ruatahuna, a village in the mountainous district in the interior, five days journey S. S. W. from Wakatane, Bay of Plenty, E. Coast ; Jan., 1842.

Obs. This climbing Fern, by far the largest yet detected in New Zealand, (some fronds measuring, including stipe, near three feet in length) appeared to be very scarce, a few plants only being seen. It has been named by the discoverer in memory of his much lamented friend, that amiable and indefatigable botanist, the late Allan Cunningham, Esq.

6. *A. PULCHERRIMUM*, n. sp. *Plant*, well fronded, tall, somewhat squarrose, flaccid, terrestrial. *Frond*, lanceolate, bipinnate, sub-membranaceous, villous underneath, 24—30 inches. *Pinnules* ; *primaries*, linear-lanceolate, acute, mucronate, petiolate, alternate, remote, brachiate ; uppermost much flaccid ; *petiole*, channelled and densely scaled : *secondaries*, trapezio-rhomboid, slightly falcate, cuneate at base, acute, mucronate, cut-serrate, petiolate, alternate, remote, regular ; lowest *lobes*, bi-tri-serrate and obtuse ; upper-

most confluent and decurrent ; slightly striated on upper surface. *Sori*, small, ranged alternately in two rows, one row on either side of mid-rib of segment, 5—7 on each segment, not crowded. *Involucre*, orbiculate, peltate, delicately wrinkled. *Rachis*, channelled, densely covered with hair, and large and beautiful scales. *Stipe*, thickly scaled, 9—15 inches long. *Scales*, ovate, acuminate, bordered, those at base laterally plaited ; 1—2½ inches in length. *Root*, fibrous.

Hab. In decomposed sandstone soil, dense shaded forests, on the mountainous range near Waikare Lake ; Dec., 1841.

Obs. This beautiful Fern grows to a large size in its native forests, some fronds measuring (including stipe) near four feet in length. The outer fronds of the plant spread outwards, depressed in a most graceful manner, while the inner young and very flaccid fronds retain an elegant sub-erect position. One of the most enchanting woodland scenes I ever witnessed was on those mountains where this beautiful Fern, with its elegant congeners, *Todea superba*, (n. sp., vide n. 33, seq.,) and *Lomaria rotundifolia*, (n. sp. vide n. 22, seq.,) heightened with their lovely foliage the surpassing beauty of the scene.

7. A. WAIKARENSE, n. sp. *Plant*, few fronded, erect, coriaceous, terrestrial. *Fron*d, lanceolate, acute, bipinnate, 7—16 inches. *Pinnules* ; *primaries*, oblong lanceolate, acute, broadest at base, petiolate, alternate ; lowermost sub-opposite : *secondaries*, sub-rhombic-ovate, falcate, cuneate and slightly auricled at base, mucronate, unequal, petiolate, pitted, bi-serrate ; serratures acute and obtuse ; glabrous, or very slightly villous, above ; slightly villous underneath ; lowermost pinnatifid, flat and sub-imbricated on rachis. *Sori*, large, crowded, ranged alternately in two rows, mostly five on a segment, sometimes 6—2. *Involucre*, peltate, orbicular, and wrinkled. *Stipe*, *Rachis*, and *Petioles*, channelled, villous, and densely scaled to apex. *Stipe*, 2—4 inches.

Scales, large, ovate-acuminate, glossy, striated longitudinally, revolute and sub-imbricated on Stipe and Rachis. *Root*, fibrous.

Hab. In forests near Waikare Lake, with preceding ; Dec., 1841.

Nephrodium, Mich.

Sporangia receptaculo e medio venae intumescenti imposita, soros subrotundos, seriatos formantia. *Indusium* reniforme, hinc sinu affixum. *Endl.*

8. *N. PENTANGULARUM*, n. sp. *Plant*, few fronded, erect, pilose, terrestrial. *Frond*, five-angled, acuminate, sub-acute, bipinnate, 7—10 inches ; nearly as broad across at lateral angles as long. *Pinnules* ; *primaries*, oblong-lanceolate, acuminate, acute, broadest at base, petiolate, alternate, unequal, decurrent near the top ; uppermost confluent ; upper half of uppermost pinnæ largest, lower half of lowermost pair largest ; *secondaries*, oblong-lanceolate, bifid and acute, petiolate, alternate, decurrent, pinnatifid and deeply lobed ; lower secondaries of lowest pair of pinnules sub-pinnate and very long : *lobes*, opposite, serrate, bi-trifid, obtuse and acute. *Sori*, thick, sub-marginal, bifariously disposed on lobes, one being at each sinus. *Stipe*, 8—13 inches, channelled and villous, thinly squamose towards base. *Root*, creeping and fibrous, scaly.

Hab. Low wet grounds, margins of shaded woods, East Coast ; 1841. And, in similar situations, near the Bay of Islands, where it was originally discovered in 1837.

N. pentangularum ; *W. C's.*, *MSS.*, *ined.* ; 1837.

§ *ASPLENIEÆ*, *Frey et Kaulf.*

Asplenium, L.

Sporangia venis transversalibus imposita, in soros lineares collecta. *Indusia* membranacea, e vena lateraliter orta, versus costam libera. *Endl.*

9. *A. HOOKERIANUM*, n. sp. *Plant*, small, flaccid, terrestrial. *Frond*, oblong-lanceolate, bipinnate, 4—5 inches.

Pinnules; *primaries*, rhombic-ovate, obtuse, petiolate; petioles long; alternate, very remote; uppermost pinnatifid: *secondaries*, fan-shaped or obovate, cuneate at base deeply crenate or slightly lobed, petiolate, alternate, distant; *lobes*, 2, 3, 4, in a segment, emarginate obtuse or slightly acute; glaucescent. *Sori*, oval, very thick; lowermost 2—3, uppermost 1, on each segment. *Involucre*, membranaceous. *Rachis*, *Stipe*, and *Petioles*, dry and somewhat chaffy. *Stipe*, $1\frac{1}{2}$ — $2\frac{1}{2}$ inches long, fimbriated at base; whitish. *Root*, fibrous.

Hab. Under volcanic conglomerate rocks, valley of Hinuera, between Tauranga (Bay of Plenty) and the River Waikato; January, 1842.

Obs. I have done myself the very great pleasure of naming this graceful Fern in commemoration of J. D. Hooker, Esq., M. D., &c., &c., who, as assistant-surgeon and botanist, visited this island in H. M. S. *Erebus*, in the winter of 1841: and with whom I had the unalloyed gratification of botanizing in the woods of New Zealand.

10. A. COLENSII, n. sp. *Plant*, small, sub-erect, cæspitose, terrestrial. *Fronde*, lanceolate or (when old) oblong-lanceolate, bi- or sub-tripinnate, floccosely-villous, especially underneath, 3—5 inches. *Pinnules*; *primaries*, oblong-lanceolate, acute, petiolate, alternate or sub-opposite, somewhat remote; lowermost bipinnate; *secondaries*, pinnatifid, acute, bifid, entire, alternate, rather distant; lowermost pinnate, 14—4 on a petiole; uppermost confluent, decurrent; *sub-divisions*, oblong-ovate, bi-tri- and quadrid, 5—9 lobed; *lobes*, ovate or linear-lanceolate; light green. *Sori*, oblong-lanceolate, lowermost 3—4, uppermost 1—2, on a sub-division. *Involucre*, membranaceous. *Rachis*, *Stipe*, and *Petioles*, very villous. *Stipe*, 1—2 inches long; whitish. *Root*, fibrous.

Hab. In clefts and on shaded rocks, dry places, on the borders of Waikare Lake; Dec., 1841.

Obs. In affinity this Fern approaches very nearly the preceding. The fewer and wedge-shaped segments, thick incrassated sori, lax appearance, more distant pinnæ, and much less villosity of *that* species, sufficiently distinguishes it from this.

11. *A. FORSTERIANUM*, n. sp. *Plant*, very long, pendulous, sub-coriaceous, scaley and floccosely-ramentaceous; epiphytical. *Frond*, oblong-lanceolate, acuminate, pinnate, 24—30 inches. *Pinnules*, rhombic-lanceolate, somewhat falcate, much acuminate, caudate, sub-acute, cuneate at base, petiolate, alternate, distant, unequal, veined, cut, 14—20 lobed; lowermost pinnæ sub-opposite: *lobes*, sub-pectinate, decreasing in size and number of teeth to apex; middle lobes of pinnule sub-opposite: *teeth*, in each lobe, upper half of pinnule, 15—1; lower half, 6—1, decreasing proportionately, sub-acute. *Involucre*, linear, very long, entire, diagonal with mid-rib of pinnule, dehiscing in pairs one against another. *Petiole*, *Rachis*, and *Stipe*, densely woolly and scaly; the two latter deeply sulcated on upper surface; brittle, red-brown. *Root*, fibrous.

Hab. On trunks of living trees in the dense forest between Tauranga and Rotorua, near the Bay of Plenty, E. Coast; Jan., 1842.

Obs. Only one frond of this truly elegant Fern was brought away by the discoverer; who, at the time of gathering, supposed it to be a fine specimen of *A. falcatum*, *Forst.*, on careful examination and comparison, however, it was found to be a new and distinct, though closely allied, species. It has been named after that celebrated botanist, who did so much, under such very great disadvantages, in making known the botany of New Zealand.

12. *A. OBLONGIFOLIUM*, n. sp. *Plant*, sub-erect, terrestrial. *Frond*, somewhat cordate, five-angled, pinnate, glabrous, villous in dots on under surface and margin, 6—8 inches long. *Pinnules*, 4—5 pairs, linear-oblong, obtuse,

crenulate-serrulate, petiolate, opposite, remote, patent, slightly unequal at base, upper half largest, margin incrassated, revolute, $1\frac{1}{2}$ — $2\frac{3}{4}$ inches long, 4—6 lines wide: *terminal pinnule*, very long, acuminate, serrate, $3\frac{1}{2}$ — $5\frac{1}{2}$ inches: *veins*, pinnate, opposite, simple, rarely forked. *Sori*, linear, thick, distichous, confined to upper pinnæ, intra-marginal. *Involucre*, vaulted, glossy, slightly wrinkled, membranaceous at margin, brown-red, black at base. *Rachis*, slightly margined, villous. *Stipe*, sulcated on upper surface, 4— $5\frac{1}{2}$ inches, somewhat succulent, blackish-green.

Hab. In ravines and dells among scorix, on the dry volcanic range of hills near Manukau Bay; 1842.

Obs. In affinity this species of *Asplenium* approaches very near to *A. obliquum*, Forst., from which, however, it may at first sight be known, by its being a much smaller plant with narrower pinnæ. That species is, moreover, described as possessing pinnules “*acutis basi oblique cuneatis obtuse serratis utrinque striatis.*” I have never yet detected *A. obliquum* in any of my wanderings. A. Richard considers it as identical with *A. lucidum*, Forst.; yet, A. Cunningham states, his having met with it “in dense forests at Wangaroa.”—*Vide, Comp. Bot. Mag.*, vol. 2, p. 364.

§ PTERIDÆ, Freyc. et Kaulf.

Pteris, L.

Sporangia apicibus venularum, in receptaculum nerviforme frondis marginem ambiens combinatis imposita, *sorum* marginalem continuum formantia. *Indusium* margini frondis continuum, scariosum, introrsum liberum. *Endl.*

13. *P. MONTANA*, n. sp. *Plant*, few fronded, erect, glaucous, glabrous, somewhat coriaceous; terrestrial. *Frond*, lanceolate, bipinnate, 12—18 inches. *Pinnules*; *primaries*, ovate-triangular, acuminate, obtuse, sub-opposite, sessile, very remote; uppermost pinnatifid, confluent; terminal lobes acuminate and sub-caudate: *secondaries*, cuneate-falcate, obtuse, broadest at base, entire, sessile,

opposite, much veined ; uppermost confluent ; lowermost on lowest pinnæ, largely crenate and imbricate on rachis ; those nearest to rachis on upper pinnæ diverging from it. *Involucre*, membranaceous, entire, continuous on either side of segments, but not at apex, sub-revolute, gaping. *Stipe*, 6—9 inches, brittle, red-brown. *Root*, fibrous.

Hab. On exposed mountainous situations, in sandy soil, near Waikare Lake ; Dec., 1841.

Obs. In affinity this Fern certainly approaches very near to *P. Brunoniana*, *Endl.*, which, however, is “tripinnate,” and a very much larger species ; notwithstanding it may possibly prove to be a stunted variety of that plant. I do not, however, recollect seeing a single specimen of *P. Brunoniana*, (a common Fern in many parts of New Zealand) in the whole of that hilly district.

Cheilanthes, Sw.

Sporangia apicibus venularum discreti imposita, in soros subrotundos, margini frondis approximatos collecta. *Indusium*, spurium, e margine frondis reflexo. *Endl.*

14. *C. PELLUCIDA*, n. sp. *Plant*, few fronded, tall, sub-erect, sub-membranaceous and flaccid ; terrestrial. *Frond*, oblong or ovate-lanceolate, acute, tri-sub-quadrifid pinnate, 24—36 inches ; light green ; villous on petioles, ribs, and veins. *Pinnules* ; *primaries*, ovate-lanceolate, sub-acuminate, obtuse, petiolate, sub-opposite, distant, confluent towards apex ; lowermost opposite ; *petioles*, somewhat tortuous : *secondaries*, oblong-lanceolate, obtuse, broadest at base, petiolate, somewhat remote ; lowermost opposite : *tertiaries*, oblong-lanceolate, obtuse, sessile, opposite, not crowded ; lowermost pinnate-pinnatifid : *segments*, oblong, somewhat falcate, bi-serrate, obtuse or tridentate, sessile, opposite. *Sori*, sub-rotund, sub-marginal, solitary on upper edges of sinuses of tertiary pinnæ ; sometimes 2—4 on a segment, when so, bifariously disposed. *Involucre*, spurious, large, somewhat cordate, acute, sub-membranaceous towards

apex, irregularly and slightly laciniated, converging and reflected from margin of frond. *Rachis*, deeply channelled on upper surface, scabrous, orange-brown. *Stipe*, 30—40 inches, rough, hairy and shaggy at base. *Hairs*, flattish, tapering, corrugated, pellucid, and jointed. *Root*, fibrous.

Hab. On clayey declivities in dry woods, between Cape Brett and Wangarei Bay, E. Coast; 1839 and 1842.

Obs. I can but consider this plant as intermediate between the two genera, *Lonchitis* and *Cheilanthes*; and as a link uniting both; possessing as it does, the simple venation of the latter, with the sinus-situated sori of the former genus. After some hesitation, however, I have concluded to place it, for the present at least, among the *Cheilanthei*.

This species appears to be a very scarce plant, I only having seen two or three specimens, and these only in that district, near the sea-coast.

§ SCHIZOLOMEÆ, Frey et Gaud.

Lindsæa, Dryand.

Sporangia apicibus venarum imposita, in *sorum* continuum, marginem frondis ambeuntem collecta. *Indusium* membranaceum, continuum, frondem ambiens, extrorsum liberum. Endl.

15. *L. VIRIDIS*, n. sp. *Plant*, somewhat tufted, sub-erect, lax, drooping, membranaceous, glabrous, terrestrial. *Frond*, oblong-lanceolate, acuminate, bipinnate, 6—9 inches, colour, an agreeable light green. *Pinnules*; *primaries*, trapezio-ovate, somewhat falcate, truncate, bifid, petiolate, alternate; lowermost opposite: *secondaries*, triangular-falcate, truncate, petiolate, alternate, sub-pinnatifid: *segments*, cuneate, linear-spathulate, entire, decurrent, bifid, emarginate, toothed and mucronate, 1—2 veined. *Involucre*, emarginate, somewhat præmorse, dilated, slightly plicate. *Rachis*, flexuose, deeply channelled. *Stipe*, semi-angular, 2—3 inches long, brittle, slightly scaled at base. *Root*, fibrous.

Hab. On wet rocks in stony ravines, in the dense forest

between Tauranga and Rotorua, E. Coast; Jan., 1842.

Obs. A truly elegant species, evidently possessing near affinity with *L. trichomanoides*, Willd.; from which, however, it is very distinct.

§ BLECHNEÆ, Freyc. et Kaulf.

Lomaria, Willd.

Sori lineares continui dorsum frondis contractae tegentes.
Indusia marginalia conniventia. Spreng.

16. *L. LATIFOLIA*, n. sp. *Plant*, few fronded, erect, somewhat furfuraceous; terrestrial. *Fronds*, pinnate. *Barren frond*: *pinnules*, 5—10, linear-oblong, somewhat falcate, sub-acuminate, obtuse, sessile, alternate, remote, serrate, margined, somewhat undulate, slightly villous, length 2 inches, breadth 8—9 lines; lowermost petiolate and sub-opposite; terminal pinnule, acuminate, abrupt, mucronate; colour, dull brown-green: *Rachis*, 4 inches; *Stipe*, 5 inches, channelled and scaly; sooty-coloured. *Fertile frond*: *pinnules*, 9—11, linear-lanceolate, caudate, alternate, distant, villous, length 3, 4, inches; lowermost sub-opposite and petiolate: *Rachis*, 3—5 inches; *Stipe*, 7—9 inches, striated and slightly villous on upper surface. *Root*, fibrous.

Hab. Dense humid woods, mountains, near Waikare Lake, and in rich vegetable mould, near dry woods, Ruatahuna; Jan., 1842.

Obs. In affinity this Fern is very near *L. procera*, Spreng., from which every-where-common species, however, it differs, in its pinnæ being much broader, more deeply serrated, fewer in number, and not decreasing in size downwards, as well as from its much longer stipe, and solitary habit.

17. *L. HETEROPHYLLA*, n. sp. *Plant*, solitary, coriaceous, sub-furfuraceous, dependent, drooping, terrestrial. *Barren frond*, 9—26 inches, pinnatifid, irregularly lobed or lacinated, margin thickened and entire: *lobes*, linear-oblong, acuminate, pointletted, decurrent and alternate, 3—6 inches; lowermost lobes very small and semi-orbicular; terminal lobe

long, 5—9 inches ; some fronds, simple, lanceolate, acuminate and entire, slightly undulate, 8—12 inches ; colour, dark dirty green on upper, and discoloured on under, surface. *Stipe*, channelled, glabrous, black, 5—9 inches, scaly at base. *Fertile frond*, 8—20 inches, pinnatifid : *lobes*, linear-lanceolate, very caudate, sub-acute, irregular, decurrent, alternate, 4—8 inches, twisted in fructification : *Stipe*, channelled, glabrous, 6—12 inches, scaly at base.

Hab. Shaded woods, in decomposing vegetable soil, in the Ruatahuna district ; with preceding ; Jan., 1842.

18. *L. NIGRA*, n.sp. *Plant*, depressed, prostrate, spreading, terrestrial ; colour, dark-green approaching to black. *Sterile frond*, oblong-lanceolate, lyrate-pinnatifid ; length, 6—8 inches ; breadth, 12—15 lines : *lobes*, oblong, obtuse, broadest at base, very irregularly toothed and jagged, sub-revolute, veined, blistered, roughish, and alternate, 6—9 lines long, 3—4 lines broad ; two next to lowest the smallest ; terminal lobe, 1—2 inches long : *Rachis*, tomentose, 5—6½ inches : *Stipe*, channelled, hairy, 1½—2¼ inches ; dark brown. *Fertile frond*, pinnate : *pinnules*, linear, obtuse, tomentose on upper surface, sessile, alternate, 12—15 lines long, 2 lines broad ; terminal pinnule much caudate, 2½—3 inches long : *Rachis*, tomentose and scaly, 3—4 inches : *Stipe*, cylindrical, fibrous, hairy, scaly at base, 3—4 inches. *Root*, fibrous.

Hab. Low and shady humid spots, in the dense forest between Tauranga and Rotorua, E. Coast ; Jan., 1842.

19. *L. LINEARIS*, n. sp. *Plant*, caespitose, terrestrial. *Fronds*, linear-lanceolate. *Sterile frond*, pinnatifid, often decumbent, spreading, 4—6 inches : *lobes*, somewhat oblong, obtuse and sub-acute, revolute, opposite, confluent, smooth, entire, and veined, 4—6 lines in length ; lowermost smallest and semi-circular ; colour, yellowish-green, sometimes reddish : *Rachis*, smooth, with here and there a long scale : *Stipe*, smooth, obtusely angled, scaly at base, 3—4 inches,

red-brown. *Fertile frond*, pinnate, very erect, 4—8 inches : *pinnules*, oblong or oblong-ovate, obtuse, entire, smooth ; lowermost, sub-petiolate, opposite, distant and small ; upper, sessile, alternate, and crowded, 2—3 lines in length ; colour, brown-black : *Rachis*, smooth : *Stipe*, smooth, obtusely angled, channelled, brittle, very closely covered at base with large, light-coloured, half-clasping, obtuse, and membranaceous scales ; 7—10 inches. *Root*, creeping, ramentaceous and downy.

Hab. Plentifully in alluvial soil, on margins of woods near Te Waiiti, a village in the interior, two days journey S. E. from Rotorua ; January, 1842.

Obs. A smaller variety was also found growing in great abundance among grass, on dry heaths near Wakapunake, two days' journey from Poverty Bay, E. Coast ; December, 1841. The fronds of which, including *Stipe*, only measured from two to four inches in length.

20. *L. DELTOIDES*, n. sp. *Plant*, solitary, erect, terrestrial. *Fronds*, somewhat deltoid or oblong-triangular, sub-caudate, pinnate. *Barren frond*, 8—10 inches : *pinnules*, ligulate-oblong, somewhat falcate, obtuse, broadest at base, margined, entire, undulate, veined, puckered, sessile, alternate, and close ; slightly hairy on the veins of under surface, 15—21 lines long, 4—8 lines broad ; lowermost pair opposite, auricled, and deflexed ; uppermost pinnæ confluent ; colour, pale green : *Rachis*, upper surface smooth, under thinly haired : *Stipe*, channelled, smooth, roughish towards base ; base densely clothed with long acuminate brown scales ; 10—12 inches ; straw-coloured. *Fertile frond*, much caudate, 6—8 inches : *pinnules*, linear, obtuse, smooth, entire, slightly decurrent, ciliate at margin, sessile, alternate, distant, $1\frac{1}{2}$ inches long, 3 lines broad ; lowermost opposite ; upper surface, dull green ; midrib of pinnæ prominent and yellow-coloured : *Rachis* and *Stipe*, channelled, smooth ; lower part of *Stipe* rough, and thickly set with long hairs

and scales ; 11—14 inches long ; colour, light yellow : *scales*, crowded and sub-fascicled, shining, brown. *Root*, fibrous.

Hab. In hilly situations, dry woods, in Te Waiiti district, in nearly the same locality as the preceding ; January, 1842.

21. *L. DEFLEXA*, n. sp. *Plant*, small, solitary, abruptly deflexed, glabrous, terrestrial. *Barren frond*, pinnate-pinnatifid, ovate-lanceolate, acuminate, sub-acute, 4—7 inches : *segments*, ligulate-lanceolate, obtuse, somewhat falcate, broadest at base, margined, entire, or slightly crenulate, veined ; lowermost pinnules, pinnate, opposite, sessile, unequal, broadly cordate at base, auricled upwards and imbricated ; upper pinnæ, pinnatifid, alternate, divided almost to rachis ; colour, light red-green : *Rachis*, flexuose towards apex, channelled : *Stipe*, smooth, hairy towards, and thickly scaled at, base, 2—4 inches long : *veins*, pinnate, bifurcate, clavate at apices. *Fertile frond*, pinnate, 3—4 inches long : *pinnules*, ligulate, obtuse, falcate, broadest at base, decurrent upwards and downwards, sessile, opposite ; uppermost confluent ; terminal lobe caudate : *Rachis* and *Stipe*, channelled ; *Stipe*, smooth, hairy, and densely scaled at base ; 3—4 inches long. *Root*, fibrous.

Hab. Dry clayey banks, sides of rivers, country between Turanga and the River Wairoa, E. Coast ; December, 1841.

Obs. A curious little species, in affinity apparently very near *L. deltoides* ; from which, however, it differs, in not being ciliated on the margins of its pinnæ, in being much smaller, in its different venation, and in its very peculiar habit of growth, the barren frond being, almost invariably, abruptly deflexed (as if broken) from the lowermost pinnules. The difference between these two apparently closely-allied species, is easier perceived on comparing them together than described.

On re-examination it has occurred to me, that this species may be yet found to have an alliance with the genus *Blechnum* ; as, in some young fronds which I have examined, the

involucre appears scarcely marginal. With that genus, however, I am totally unacquainted, never having seen a specimen.

22. *L. ROTUNDIFOLIA*, n. sp. *Plant*, spreading, squarrose, terrestrial. *Fronde*s, linear-lanceolate, pinnate. *Barren frond*, sub-deflexed, patent, 6—20 inches : *pinnules*, sub-rotund or oblong, membranaceous, slightly crenulate, sessile, opposite, 6—9 lines long, uppermost alternate and confluent ; colour, light green : *Rachis*, densely clothed with long scales : *Stipe*, cylindrical, 1—4 inches ; brown. *Fertile frond*, very erect, 4—14 inches : *pinnules*, linear-lanceolate, obtuse, entire, sub-sessile, alternate, distant, 6—12 lines long, 2—3 lines broad ; lowermost petiolate ; brownish red : *Rachis* and *Stipe*, channelled, and thickly covered with scales ; 2—9 inches ; light brown. *Root*, fibrous.

Hab. Dense humid woods, near Waikare Lake, in decomposed sandstone soil ; December, 1841.

Obs. This Fern in its native forests, presents a very graceful appearance. It there attains a large size, some fronds having been observed between two and three feet in length. The fertile fronds, generally three in number in each plant, are invariably very erect, ascending directly from the centre ; while the numerous barren fronds spread out horizontally in a half-procumbent manner, enchant the eye of the observer with a most elegant circle of delicate and ever-living green.

A smaller variety of this species was also detected in alluvial soil, in the low woods in the first day's journey from Turanga towards Waikare.

§ *DICKSONIÆ*, Freyc. et Kaulf.

Dicksonia, L'Herit.

Sporangia apice venarum imposita, soros subrotundos marginales formantia. *Indusium* duplex, verum membranaceum venae continuum, spurium e lobulo frondis reflexo alterum equitans. *Endl.*

23. *D. FIBROSA*, n. sp. *Plant*, arboreous, terrestrial. *Frond*, oblong-lanceolate, apex acute, bipinnate, 5—7 feet ;

colour, light green. *Pinnules*; *primaries*, oblong-lanceolate, acuminate, sub-acute, broadest at base, petiolate, alternate: *secondaries*, oblong-lanceolate, acute, slightly approximate, deeply pinnatifid, petiolate, alternate: *lobes*, oblong-ovate, somewhat falcate, acute, bi-trifid, serrate, sessile, alternate, decurrent, revolute, glabrous; lowermost, sub-petiolate; *veins*, pellucid. *Sori*, sub-marginal, mostly four on a lobe, bifariously disposed. *Involucre*, inflated, entire or slightly uneven. *Rachis*, *Stipe*, *Petioles*, and *Ribs*, densely tomentose; *Rachis* and *Stipe*, channelled; *Stipe*, 1—2 feet. *Caudex*, erect, bulky, 12—18 feet high. *Cortice*, fibrous, dry, and enormously thick.

Hab. In rich alluvial soil, on the banks of rivers, in Te Waiiti district; January, 1842.

Obs. This fine arborescent Fern attains in its native forests to the height of eighteen feet. In affinity it approaches very near to *D. squarrosa*, Sw.; from which species, however, it may, even at a distance, be readily distinguished; its trunk not being studded with broken-off and decayed petioles, as in that species, but, on the contrary, thickly covered with fibres, which resemble those of the fibrous interior of the husk of the cocoa-nut. This fibrous epidermis increases in thickness with the age of the plant; and, in time, causes it to appear unusually bulky. Some trees were noticed from fourteen to sixteen inches in diameter. The natives cut away the fibrous outside in thick slices, which they use for many purposes in the construction of their dwelling-houses, and, especially, their stores for food. Being easier cut by them than wood, a peice resembling a small plank may speedily be obtained. It is also found much more effectual than such timber as they with their limited means could cut, for excluding of rats and mice; as these animals cannot gnaw through this dry fibrous substance so readily as through wood. Its living fronds are few in number, spreading, and deciduous. When dead they remain hanging for a long while thickly around

the trunk, giving the plant a peculiar bushy appearance. Its foliage, when living, is much softer than that of *D. squarrosa*, which is very harsh and spiny, and much more deeply veined. The natives call this species, *Wekiponga*; a word worth noticing, as showing the acuteness of their observation of natural productions; it being evidently derived from *Weki*, the name given by them to *D. squarrosa*, and *Ponga*, their name for *Cyathea dealbata*, Sw., the common arborescent Fern of New Zealand. *D. fibrosa*, being, according to their idea, intermediate between those two species: or, possessing characters common to both. Which, undoubtedly, it has in general appearance, uniting the *softness* of the foliage of the one, with the *rough caudex* and *deciduous fronds* of the other. It has been named from the very dense fibrousness of its cortice, combined with the admirable uses to which that substance is so efficiently applied by the New Zealanders.

24. *D. LANATA*, n. sp. *Plant*, sub-erect, somewhat drooping, coriaceous, terrestrial. *Frond*, ovate, bi-tripinnate, densely woolly on veins, ribs, and rachis, 12—30 inches; colour, yellowish green. *Pinnules*; *primaries*, ovate-lanceolate, acuminate, sub-acute, petiolate, alternate, crowded; uppermost, pinnatifid; lowermost, bipinnate: *secondaries*, lanceolate, somewhat falcate, sub-acute, broadest at base, petiolate, alternate; uppermost, confluent: *segments*, ovate-oblong, sub-acute, serrate, sessile, decurrent; crenate, when fruited; lowermost, sub-petiolate. *Sori*, sub-marginal, bifariously disposed on segments of frond, numerous; base of frond most thickly fruited, seldom any on apex. *Involucre*, sub-globose, inflated, converging, somewhat retuse. *Stipe*, deeply channelled and furrowed on upper surface, succulent, very woolly, thickly matted with shaggy hair at base; 9—16 inches long. *Hairs*, regularly articulated, deciduous; yellow-brown. *Root*, fibrous.

Hab. Declivities, cleared woods, on the high shores of the E. side of Waikare Lake; December, 1841.

Obs. The old fronds of this plant become, in time, quite glabrous, and pinnæ more distant.

Var. hispida ; a variety which is much larger, grows on the mountain range of Wananake, near Wanganei Bay, E. Coast. This variety attains to the height of 5—6 feet, including stipe, and is nearly quadripinnate ; its pinnules, too, are more distant, segments oblong-linear and pinnatifid, and hair of stipe and frond much more rigid, and of a dark brown-black colour. I am almost inclined to consider it a distinct species, but wait the examination of better specimens than those at present in my possession. Observed at Wananake, 1839 ; and, again, in 1842. *MSS., W. C.*

Davallia, Sm.

Sporangium apicibus venarum imposita, soros sub-rotundus, margini approximatos formantia. *Indusium* venae continuum, lata basi v. etiam marginibus adnatum, vertice extrorsum liberum. *Endl.*

25. D. NOVÆ-ZELANDIÆ, n. sp. *Plant*, few fronded, sub-erect, lax, sub-membranaceous, terrestrial. *Frond*, ovate-lanceolate or deltoid, bi- tripinnate, upper surface glabrous, under slightly villous, 7—10 inches. *Pinnules* ; *primaries*, ovate-lanceolate, somewhat falcate, acuminate, acute, unequal, petiolate, alternate ; *petiole*, channelled, margined towards apex : *secondaries*, oblong-lanceolate, acute, unequal, petiolate, alternate ; uppermost decurrent, margined : *subdivisions*, falcate-lanceolate, cuneate at base, slightly petiolate and pinnatifid : *lobes*, entire, acuminate, acute, decurrent, somewhat bordered : *veins*, pinnate-pinnatifid, simple, terminating abruptly within margin. *Sori*, sub-marginal, on inner margins and near apices of secondary and lower lobes, never terminal. *Involucre*, triangular-ovate, membranaceous, truncate, laciniated ; lacinations sub-acute ; apex of lobe revolute, sub-laciniated, and converging. *Rachis*, channelled, slightly flexuose, glabrous. *Stipe*, brittle, channelled, roughish hispid and scaly at base, 5—8 inches. *Caudex*, creeping.

Hab. In shaded damp woods, in Te Waiiti district ; Jan., 1842.

Obs. A variety of this graceful Fern, possessing a much smaller frond, was gathered by the discoverer in the woods between the E. Cape and Poverty Bay, in November, 1841. Only two or three plants were observed in both those localities, and, as it has not been noticed growing in any other parts, it is concluded to be a scarce species.

ORDER—GLEICHENIACEÆ.

§ HYMENOPHYLLÆ, Bory.

Hymenophyllum, Sm.

Sporangia circa venam ultra frondis marginem in columnellam subclavatam productam sessilia, *indusio* frondi continuo bivalvi cincta. *Endl.*

26. *H. FRANKLINIANUM*, n. sp. *Plant*, climbing, fronds numerous, pendulous, regular, pellucid, silky, epiphytical. *Frond*, ovate-lanceolate, acuminate, bipinnate, margined, 3—5 inches long, 1—1½ inches broad ; colour, reddish-green. *Pinnules* ; *primaries*, oblong-falcate, obtuse and bifid, petiolate, sub-opposite, margined : *secondaries*, cuneate, 2, 3, and 4-lobed ; *lobes*, linear, forked and obtuse. *Involucré*, small, sub-globose, shallow, supra-axillary and terminal, solitary and in pairs, densely bearded and ciliated ; orange-coloured. *Rachis*, downy. *Stipe*, cylindrical, filiform, tomentose, brittle, 1—2 inches long ; brown. *Hairs*, articulated, coloured, branched into 3, 4, and 5 rays ; rays acute. *Caudex*, brittle, creeping, and villous.

Hymenophyllum Frankliniæ. *W. Colenso in Tasm. Jour.* Vol. 1. p. 378.

Hab. On living trees in shaded forests, on the banks of Waikare Lake ; December, 1841.

Obs. This truly elegant and new species of *Hymenophyllum*, literally clothes the trunks of the trees on which it lives in its native woods, with the excessive profusion of its fronds.

On several fine trees of *Laurus* and *Ixerba*, it was noticed as having attained the height of 20—25 feet. Viewed through a microscope, the cellular tissue, pores, and branched hairs of the frond, present a most splendid appearance. It has been named by the discoverer, in order to commemorate the condescending and intrepid tour made by Lady Franklin in New Zealand, as well as the kind patronage ever afforded by her ladyship to the different departments of natural science.

27. *H. SPATHULATUM*, n. sp. *Plant*, climbing, fronds numerous, pendulous, membranaceous, glabrous, epiphytcal. *Frond*, ovate, acuminate, obtuse, tripinnate, margined, serrate, 6—8 inches. *Pinnules*; *primaries*, ovate-lanceolate, falcate, acuminate, obtuse, margined, petiolate, alternate, unequal: *secondaries*, rhombic-lanceolate, cuneate at base, obtuse or slightly truncate, margined, petiolate, alternate, and unequal: *tertiaries*, cuneate and linear, sessile, alternate, pinnatifid, 2—6 lobed; *lobes*, obtuse and slightly truncate, serrate, margined, decurrent. *Involucre*, obovate-spathulate, inflated, entire, pedicelled; pedicel, winged; supra-axillary in axillæ of sub-divisions and sub-terminal, solitary, sometimes in pairs, very numerous: *Valves*, large, open: *Receptacle*, short, included. *Rachis*, slightly flexuose, margined: margin less serrated than lobes of frond. *Stipe*, filiform, cylindrical, brittle, 3—4½ inches. *Caudex*, creeping.

Hab. On living trees, shores of Waikare Lake, (with preceding); December, 1841.

Obs. This handsome Fern is very subject to a peculiar disease, which appears in black botryoidal masses on the under part of the lower and terminal lobes of the frond, sometimes at the base of the involucre, giving the plant a curious appearance. These clusters are chiefly found on the barren fronds. At first glance, I supposed I had gained, indeed, a prize, and that my discovery would prove the type of a new genus. But, after diligent examination with such

means as I have here at command, I arrive at the conclusion, that these clusters (which are evidently formed beneath the cuticle) are, in all probability, analogous to the *galls* on the oak and willow; and like them, too, may owe their origin to the punctures of some yet unknown insect of the *Hymenopterous* order.

28. *H. VILLOSUM*, n. sp. *Plant*, climbing, few fronded, reclinate and pendulous, glabrous, epiphytical. *Fron*d, ovate, sub-acuminate, tripinnate, 3 inches long; colour, tawny green. *Pinnules*; *primaries*, somewhat trapeziorhombic-lanceolate, acuminate, obtuse, petiolate, alternate, unequal; midrib, sub-flexuose: *secondaries*, somewhat rhombic-ovate, obtuse, petiolate, alternate: *tertiaries*, sub-pinnatifid, cuneate petiolate, alternate: *segments*, deeply incised, 2—6 lobed: *lobes*, linear, entire, truncate or slightly emarginate. *Involucre*, ovate, sub-acute and obtuse, solitary, sometimes in pairs, axillary in axillæ of tertiary pinnules and lobes, pedicelled: *Valves*, large, entire, and much open. *Rachis*, *Petioles*, and *Ribs*, villous underneath, and margined; margin, entire, and slightly ciliated; *Rachis*, flexuose. *Stipe*, two inches long, winged to base, brittle and villous. *Caudex*, creeping.

Hab. On reclining and prostrate trees, dense shaded forests near Ruatahuna; January, 1842.

Obs. This Fern has a peculiarly strong smell, especially when dry. It appeared to be a scarce species, a few plants only being detected, and these in one locality.

29. *H. PULCHERRIMUM*, n. sp. *Plant*, climbing, fronds numerous, sub-erect, spreading, pendulous, glabrous, very membranaceous, epiphytical. *Fron*d, rhombic-lanceolate, lax, margined, tripinnate; grass-green. *Pinnules*; *primaries*, rhombic-ovate, sub-acute, petiolate, alternate, remote, unequal: *secondaries*, triangular- or trapeziorhombic-ovate, retuse, petiolate, alternate: *tertiaries*, trapeziform, cuneate, and pinnatifid: *segments*, entire, linear, bifid, emarginate and

retuse. *Involucre*, small, globose, sub-pedicelled, solitary, sub-terminal in sinuses of tertiary pinnules and segments, numerous, scattered: *Valves*, large, and entire. *Rachis*, winged, 8—11 inches; margin entire. *Stipe*, semi-terete, flattish, somewhat fleshy, brittle, winged to caudex, glabrous, densely fimbriated at base; margin entire. *Caudex*, creeping.

Hab. On reclining and prostrate trees, humid woods, shores of Waikare Lake; December, 1841.

Obs. This fine and very beautiful species becomes circinnate as it gets old. In affinity it somewhat approaches *H. flexuosum*, *R. Cunn.*; from which, however, it may at first sight be discriminated, by its being tripinnate, and by its winged stipe and rachis being destitute of undulations, &c.

30. *H. REVOLUTUM*, n. sp. *Plant*, small, climbing, few fronded, sub-erect and spreading, glabrous, epiphytical. *Frond*, ovate or oblong-lanceolate, obtuse, pinnate-pinnatifid or sub-bipinnate, 2—5 inches; dusky green. *Pinnules*; somewhat trapezio-falcate, petiolate, alternate, distant, pinnatifid, 3—12 lobed: *lobes*, linear-oblong, truncate, deeply serrate or sub-laciniate; serratures acute and somewhat hooked; mostly four lacinations at apex, decurrent, revolute; lowermost wedge-shaped and deeply bifid. *Involucre*, ob-ovate or sub-rotund, inflated, lacinated, supra-axillary, solitary, pedicelled; pedicel, margined: *Valves*, large, open: *Receptacle*, exserted. *Rachis*, flexuose, margined towards apex; margin, serrate; serratures, distant. *Stipe*, filiform, cylindrical, brittle, finely striated, tortuous, 1—1½ inches long. *Caudex*, creeping.

Hab. On sides of prostrate and reclining trees, shores of Waikare Lake; December, 1841.

Obs. A species possessing very close affinity with *H. Tunbridgense*, *Sm.*

31. *H. ATROVIRENS*, n. sp. *Plant*, small, few fronded, erect, glabrous, terrestrial. *Frond*, oblong-ovate, sub-acu-

minate, obtuse, tripinnatifid, 2—3 inches ; colour, blackish-green. *Lobes*, linear, bifid, sub-retuse, decurrent, entire. *Involucre*, deltoid-ovate, obtuse and toothed, in pairs, terminal : *Valves*, gaping. *Rachis* and *Stipe*, margined, entire ; *Stipe*, somewhat succulent, 1—1½ inches. *Caudex*, creeping.

Hab. On rocks and stones, in low places and water-courses, in wet woods, shores of Waikare Lake ; December, 1841.

Obs. A species apparently very near *H. flexuosum*, *R. Cunn.* ; from which, however, it differs in the involucre, &c. The involucre in that species being “orbiculate”.

32. *H. IMBRICATUM*, n. sp. *Plant*, small, very caespitose, creeping, reclining or pendulous, glabrous, glaucescent. *Frond*, sub-pinnate-pinnatifid, oblong or ligulate, very obtuse, 8—15 lines long. *Pinnules*, sub-flabelliform or cuneate, somewhat falcate, obtuse, sub-sessile, alternate, decurrent, much imbricated on each other, lower margins somewhat involute, lobed ; *lobes*, secund, 4—5 on each pinnule, linear or sub-cuneate, bifid obtuse or slightly emarginate, entire. *Involucre*, large, orbicular, compressed, terminal on upper segments, solitary, half immersed in lobe of frond : *Valves*, large, entire : *Receptacle*, included. *Rachis*, sub-flexuose, margined. *Stipe*, cylindrical, filiform, flexuose, glabrous, 1—2 inches. *Caudex*, creeping, slightly villous.

Hab. On edges of rocky precipices, in dry spots overhanging water, at Pataua, near Wangarei, E. Coast ; 1842. And on reclining timber, in woods between Wangarei and the Bay of Islands ; 1840.

Obs. A small species, having close affinity with *H. secundum*, *Rich.*, and *H. semibivalve*, *Hook.* ; differing, however, from the former species, in not being “serrated,” and in not possessing an “oval involucre ;” and from the latter, in its frond not being “lanceolate,” and in not having an “urceolate involucre with short lips,” as well as from the very pe-

cular and close manner in which its pinnæ overlap one another.

At Pataua, E. Coast, it grows abundantly in dense patches on the edges of the indurated clayey cliffs overhanging the sides of the salt-water inlet. Its fertile fronds, are, however, very few.

ORDER—OSMUNDACEÆ.

§ OSMUNDEÆ, *Hook.*

Todea, Sw.

Capsules globosae pedicellatae reticulatae, gibbere dorsali pellucido, lateraliter dehiscentes, venulis frondis infer. insidentes. *Spreng.*

33. *TODEA SUPERBA*, n. sp. *Plant*, large, sub-erect, spreading, membranaceous, crisped, terrestrial. *Fron*d, lanceolate, attenuated at base, sub-acuminate, acute, bipinnate, 20—40 inches, dark green. *Pinnules*; *primaries*, linear, elongated, sub-acuminate, bifid, broadest at base, petiolate, alternate and sub-opposite, not crowded, 4—6 inches long, 6—10 lines broad, decreasing in size towards base, lowermost very small; base of pinnule appendiculated on upper surface of petiole with a large sub-capillaceo-multifid segment, somewhat adpressed on rachis; petioles short: *secondaries*, somewhat trapezio-falcate, bifid and obtuse, deeply pinnatifid, sub-petiolate, alternate, appendiculated at base with a bi-tri- or quadrifid linear cut segment, sub-depressed on petiole: *Segments*, narrow, linear, bifid or forked, sub-acute, decurrent, sub-opposite, entire, glabrous, somewhat crisped and curled. *Capsules*, small, clustered on lower segments of pinnules, numerous, never terminal. *Stipe*, *Rachis*, *Petioles*, and *Ribs*, densely villous underneath, canaliculated and sulcated on upper surface, dark green. *Stipe*, somewhat fleshy; dilated, winged and half-clasping at base, 1—1½ inches long. *Caudex*, erect, short, sub-coales-

cent. *Root*, fibrous.—*Todea superba*, (W. C., MSS.,) in lett. to Sir W. J. Hook. ; July, 1841.

Hab. In dells, in shaded forests, on the mountainous range near Waikare Lake, in decomposed sandstone soil ; December, 1841. And, on Tongauro Mountain ; 1838.

Obs. This truly magnificent Fern has only hitherto been met with in those mountainous localities, where it attains to a large size, some fronds measuring upwards of four feet in length. The old fronds spread outwards, forming a complete circle of dark perennial green, while the younger ones, (generally three in number) circinnate and of a lighter green, rise in the most graceful sub-erect manner from the centre. Words, however, fail to describe the elegant appearance of this plant, heightened by its numerous multifid crisped-and-curved moss-like segments, meeting across and partially concealing its petioles on which they grow. I passed through those secluded mountainous recesses where these lovely plants abound, in tremendously heavy rain, which, as if caused by the guardian Dryades of these woods, almost precluded my bringing away any specimens ; notwithstanding, however, I succeeded in securing and drying two dripping-wet fronds, which I brought in safety to the Bay of Islands. One of these has subsequently been sent to Sir W. J. Hooker, for his herbarium.

Paihia, January 3, 1843.

Note.—Six species of Ferns contained in the preceding list have already appeared in the *Tasmanian Journal*, Vol. 1, pp. 375—9, but it has been deemed desirable to republish them, in connexion with the other and allied species, from Mr. Colenso's amended MS. Those already published are *Aspidium Cunninghamianum*, (as *A. Cunninghamii*,) *Lomaria nigra*, *L. linearis*, *L. deltoides*, *L. rotundifolia*, and *Hymenophyllum Franklinianum*, (as *H. Frankliniæ*.)—ED.