ART. XLIII.—*Campbell Island and its Flora.* By J. BUCHANAN, F.L.S.

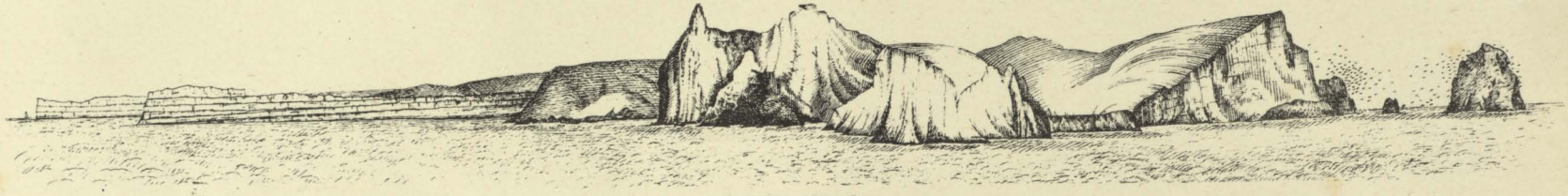
[*Read before the Wellington Philosophical Society, 13th February*, 1884.]

Plate XXXVIII.

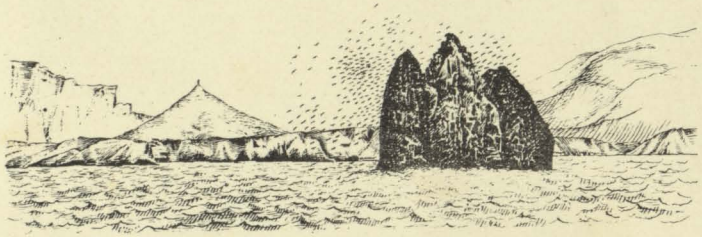
IN December last, the colonial s.s. "Stella" being ordered to Campbell Island in search of lost seamen, an opportunity was offered to procure a collection of live plants for the various botanical gardens, and also to make an herbarium collection for the Museum. Having been instructed to undertake the duty, and being granted the privilege of a passage by the Marine Department, I provided myself with abundance of paper for plant-drying purposes, carefully packed in a tin box, and other necessaries for plant-collecting. After a favourable passage of three days, Campbell Island was sighted in the early morning of 20th December. This island, as stated in Ross's Voyage, is in lat. 52½° South and long. 169° East. It was first discovered by Frederick Hazelberg in 1810; it is thirty miles in circumference; when approached from the north, it presents a precipitous rocky coast, without any apparent landing-place. As the morning mists lifted and cleared away, numerous outlying rocks and little islands came into view swarming with flocks of sea-fowl, the whole offering to the artist picture-subjects of great beauty. The accompanying sketch (No. 1., pl. xxxviii.) presents a morning scene from the north-east.

The higher coast-lands show rough broken trachy-dolerite precipices, the haunt of sea-fowl, the snowy appearance of the hill ridges being due to innumerable birds (chiefly the albatross) nesting. The rock sections seen in the sea-cliffs have a peculiar red lined character, produced by the contact of alternate layers of clays or soils with lava beds, thus presenting remarkable parallel red lines on a dark groundwork of trachy-dolerite. The whole coast-line is rugged in the extreme, although inland large flat areas may be seen apparently covered by grasses, and indicating rich pasture; this appearance, however, on closer examination is found to be deceptive, as but few grasses exist, and a coarse wet cyperaceous pasture prevails, which would prove worthless as feed, unless for cattle of a hardy breed that would stand the rigours of the climate. There is no doubt however that, on the lower levels where soil can accumulate, a rich though coarse vegetation exists, but the land is so spongy and wet that the finer grasses cannot thrive. The extreme wetness of the soil is shown by the fact that wherever a plant is dug out with a knife, the hole immediately fills with water, and an indication is thus obtained of the treatment such plants should receive when it is attempted to grow them in a drier climate.

Peat is abundant everywhere on the hill slopes, and in such places the great beauty of the Antarctic flora is seen to best advantage when contrasted with the dark coloured peaty soil. Plants such as *Celmisia vernicosa*,



CAMPBELL ISLAND.
N.E.



CAMPBELL ISLAND
N.

ANCHORAGE
PERSEVERANCE HARBOUR.

Hook. f., with its beautiful purple-tinted flowers, and *Pleurophyllum speciosum*, Hook. f., with its brilliant racemes of purple flowers, may be considered the gems of the southern flora. The numerous tall spikes of *Pleurophyllum criniferum*, Hook. f., and *P. hookeri*, n. sp., mihi, give a peculiar character to both the Campbell and Auckland Islands' flora. No doubt much of this floral luxuriance is due to the richness of the moist vegetable soil and to the fog-shaded atmosphere, the climate during summer being not unlike a moist forcing house; hence it is doubtful if in the absence of these moist conditions much success will attend the cultivation in New Zealand of plants removed there. The large showy plants of Campbell Island are probably confined within an altitudinal range of 500 feet above sea level, but the shrubby or small trees such as species of *Coprosma*, *Dracophyllum*, *Veronica*, and *Myrsine* range from sea-level where they are most abundant to the highest altitudes (1,500 feet), although they are all sparsely distributed everywhere. A very prominent and showy plant *Chrysobactron rossi*, Hook. f., with its bright yellow racemes of flowers may be seen everywhere; the raceme in this plant is often found globe shaped.

The smaller grasses are rare, but several large and noble grasses are abundant, the most conspicuous being *Poa foliosa*, Hook. f., *Danthonia antarctica*, Hook. f., *Hierochloe brunonis*, Hook. f., and *Hierochloe redolens*, Br., but the chief feature of the flora is the abundance of Cyperaceous plants and species of Juncaceæ, most prominent being *Rostkovia gracilis*; this plant also characterises the subalpine flora of New Zealand up to 6,000 feet.

An alpine flora may also be recognized in Campbell Island, as a few plants are only found at the highest altitude, such as *Gentiana concinna*, Hook. f., and that curious little inconspicuous plant *Trineuron spathulatum*, Hook. f., collected in fine flower at an altitude of 1,500 feet.

The only plants collected on this occasion not previously known on Campbell Island were *Pleurophyllum hookeri*, n. s., mihi, *Cotula australis*, Hook. f., *Nertera depressa*, Banks and Sol., *Chenopodium* sp., and *Lagenophora* sp.

It would be an error to assume that the botany of Campbell Island has been exhausted because a few collectors have visited the Island and spent some days there; but when it is considered how often the weather is unfavourable, and how short a period is devoted to collecting, it is remarkable that so much has been done.

On the present occasion, one day and two half days only were available for collecting, and, out of this, one entire day was devoted to digging up living plants, a very excellent collection of the latter being made, but through some inadvertence they went astray during the return voyage. A large

collection of dried specimens, however, was secured for the Herbarium of the Colonial Museum, at Wellington, which will prove valuable for future reference. No. 2, pl. xxxviii., shows a characteristic outlier of the trachydolerite rock frequented by immense flocks of sea-fowl. No. 3, pl. xxxviii., is the best harbour in the Island, and a favourite anchorage for sealers.

Art. XLIV.—*On the* Lichenographia *of New Zealand.*

By Charles Knight, F.L.S.

[*Read before the Wellington Philosophical Society, 13th February*, 1884.]

Plates XXXIX.–XLI.

1. *Pilophoron colensoi* (Bab.), Knight.

(Syn. *Stereocaulon colensoi* (Bab.), Flora N.Z., vol. ii., p. 294; Nylander, Synopsis Lich., p. 232.)

Thallus cæspitosus e podetiis formatus. Podetia *intus solida dense granulosa*, strato corticali tenuissimo e gonidiis veris constante. Apothecia plura congesta capituliformia intus alba solida lecanorina,* juvenilia crasse marginata; excipulo thallode albo, corticis structura radiatim disposita, gonidiis veris nullis. Sporæ in ascis cylindrico-elongatis octonæ uniseriales oblongo-ellipsoideæ *simplices* subluteolæ, longit. 0·009 mm., crassit 0·0025 mm. Cephalodia plura in apicibus ramorum brevium congesta, glauco-cœrulescentia, *intus e granulis gonimis flavo-viridis, in nodulis* 2 *ad* 4 *dispositis, omnino constantia.*

Supra saxa.

Obs.—The discovery of the spores, now shown to be simple, distinctly shows that Colenso's lichen belongs to the genus *Pilophoron*. Th. Mr. Fries, in his "Monogr. Stereocaulorum et Pilophororum," p. 66, under "*Species minus cognitæ*," remarks that *Stereocaulon colensoi* is perhaps a form of *Ster. argus*. This view must now be abandoned, as the latter plant has cylindrico-fusiform multiseptate spores (see fig. 1*, pl. xxxix). Babington, on the other hand, considers it allied to *Ster. ramulosum*, but the same objection exists to any proposal which would place Colenso's plant under the genus *Stereocaulon*.

2. *Myriangium duriæi* (Mnt. et Berk.).

Thallus nullus. Apothecium tuberculiformis e matrice erumpens (diam. circiter 3 mm. vel amplius) *toro crasso parenchymatico carbonizato marginatum*; epithecium *carbonizatum*; hymenium *parenchymaticum* luteo-fuscum

* Quia margo est thallinus, lecanorina nominatur