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Australian And Other Foreign Trees And Plants In Arran—All Unprotected

Rev. David Landsborough

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MEETING OF THE SOCIETY,

Thursday, February 13, 1896.

Dr. WILLIAM CRAIG, Vice-President, in the Chair.

The CHAIRMAN made intimation of the death of the Rev. THOMAS ANDERSON and of Dr. JAMES CARTER, Resident Fellows of the Society.

Professor BAYLEY BALFOUR informed the Society that Major Sprott, of Stravithie, had presented the Herbarium of the late Dr. Cleghorn to the Royal Botanic Garden.

Mr. R. STEWART MACDOUGALL exhibited specimens of the Larva of *Sirex juvenescens* (Pine-Wood Wasp), also specimens of the Imago and Larva of *Rhagium bifasciatum*, with examples of the damage done by them to timber.

Specimens of plants in flower in open air in Mr. CAMPBELL'S Garden at Ledaig were exhibited.

Mr. RUTHERFORD HILL exhibited a pale coloured variety of Ergot of Rye from the Canary Islands.

Specimens in flower of *Masdevallia leontoglossa*, *M. Hinkseiana*, *Brassavola grandiflora*, *Saccolabium bellinum*, and *Tecoma Smithii*, were exhibited from the Royal Botanic Garden.

The following papers were read:—

AUSTRALIAN AND OTHER FOREIGN TREES AND PLANTS
IN ARRAN—ALL UNPROTECTED. By Rev. DAVID LANDS-
BOROUGH.

Introduction, p. 508.

Palms, p. 510.

Tree-Ferns, etc., p. 511.

Palm-Lilies, p. 513.

Acacia, Agalma, Grevillea, Lomatia, Rhododendron, p. 514.

Eucalypts in Scotland, p. 515.

Additional Trees and Shrubs, p. 527.

South of Arran, p. 518.

Girth measured, unless otherwise stated, at 5 feet, 1895. Revised 1896—
Measurements unchanged.

INTRODUCTION.

The winter of 1879-80 was so severe that it occurred to the late Mr. Sadler, Curator of the Royal Botanic Garden, Edinburgh, to request persons in various parts of Scotland, who took an interest in plants, to send him reports regarding the effects of the frost in their districts, that from these he might prepare for the Botanical Society of Edinburgh a condensed report of the effect produced throughout Scotland.* The writer, though not residing in Arran, having been long associated with the island, was requested to report for it. The Arran report so interested Mr. Sadler that he asked the writer to make one yearly. This was done until 1885, when one more detailed than any previous was given, with the intimation that now the reports for a time would cease, but at the end of six years the writer hoped to send another. The year named arrived, but found him so busy as to be unable to carry out his intention. The frost, however, of last winter (1894-95) has been so severe and so protracted as to recall his promise, for a report immediately after such a winter ought to be one of peculiar value. Besides, during the intervening ten years, many additional plants have been tried in Arran, and thus much new information can be given. The object of this paper will be threefold,—Firstly, to mention the rare plants that have been tried in Arran; Secondly, to relate how they have succeeded; Thirdly, to give the intensity of frost to which those killed have succumbed.

* See Transactions and Proceedings of Edin. Bot. Soc., 1879, 1885-86.

ARRAN.—The Island of Arran, in the Firth of Clyde, $55\frac{1}{2}$ latitude, is $20\frac{1}{8}$ miles in length by $10\frac{1}{4}$ at greatest breadth. It is nearly equally divided into a hilly and a flat portion. The northern part is mountainous, several summits rising above 2500 feet; the highest (Goatfell) being 2866 feet. The southern part is more flat, the mountains being not more than half the height of those in the north. On the east side, Arran is from ten to thirteen miles from Ayrshire, and six from Bute. On the west side, it is from three to four miles (narrowest at Dougrie) from the Peninsula of Cantyre. The north of Arran is opposite to the mouth of Loch Fyne; the south lies open to the North Channel. The bed of the surrounding sea is deep, especially around the north of the island, and remains deep to within a short distance from land, and thus tells powerfully in preventing great cold, especially on the coast.

SITUATION OF THE GARDENS IN ARRAN.—The trees and shrubs to be mentioned, excepting those at Pirn Mill and Whitefarland, all grow on the east side of Arran and in grounds adjoining the sea, those at Cooper Lodge, Whiting Bay, and at Cromla, Corrie, being separated from it at high tide by only the breadth of the highway; Craigard, Lamash, has only a narrow field between it and the sea; while Brodick Castle grounds are also in close proximity to the waters of Brodick Bay. Pirn Mill and Whitefarland are also alongside of the sea. All of them derive the fullest advantage from the sea. The garden at Cooper Lodge, Whiting Bay, is on level ground, and the soil light and well drained. That of Cromla is also level, and like the other thoroughly drained, but here the soil has in it more clay. The Brodick Castle Garden is on sloping ground lying eastward, and averaging 100 feet above sea-level—soil neither light nor heavy. The plants at Craigard, Lamash, grow on a steep, moist, well drained bank. Whitefarland, on the west coast, is a beautiful and sheltered spot.

TEMPERATURE—WINTER.—The temperature of Craigard, Lamash, can be given exactly, as alongside of it is a coast-guard station where this is recorded daily at 6.30 A.M. and 4 P.M., the hours in mid-winter of maximum and minimum temperature. Here the greatest cold last winter (1894-95)

was on the morning of 9th February, when the thermometer fell to 22° . It was probably a degree lower in the winter of 1880-81, but a record was not then kept. At the Queen's Park, Glasgow, temperature recorded in 1880-81 was 2° lower than in 1894-95, having been at zero, whilst last winter it was 2° above zero. All the gardens have, probably, nearly the same temperature, except that of Brodick Castle, which must be several degrees lower; but the difference of the places lies more in shelter than in mildness.

TEMPERATURE—SUMMER.—The summer temperature of Arran is higher than might have been expected. In the coldest weather in winter the temperature at Lamlash is 12° higher than at Girvan, the warmest place in Ayrshire; and 20° higher than at the Queen's Park, Glasgow. But the temperature of summer in Arran is little below that of either of these places. Mr. Whitton, superintendent of the public parks, Glasgow, informs me that the highest shade temperature at the Queen's Park (144 feet above sea-level) in the summer of 1894 was on 1st July, when it reached 79° . The temperature of Lamlash on the same day, at 4 P.M., was only 3° lower. In the previous year the highest shade temperature at the Queen's Park, Glasgow, was 74° , while at Lamlash, at 4 P.M., it was 73° , only 1° degree lower. In 1894, at Lamlash, it reached on one occasion at noon 114° in the sun.

PALMS.

It is highly interesting that one species of palm, *Chamærops excelsa*, which in its native countries of China and Japan attains the height of 30 feet, has proved perfectly hardy in Arran and in the sea-lochs of the Clyde.

I. CHAMÆROPS EXCELSA.—1. Ardchapel, near the water, Gareloch. Planted about 1866. In the spring of 1896, height 8 feet 3 inches; girth, 3 feet 9 inches; length of leaf-stalk, 2 feet 8 inches; breadth of lamina, 4 feet 2 inches. Bloomed in 1881 and onward.

2. Craigard, Lamlash. Planted 1886. Height of stem, 3 inches; girth, 1 foot; length of leaf-stalk, 8 inches; breadth of lamina, 2 feet 6 inches. Untouched. Did not grow in height until six years after planting.

3. *Cromla*, Corrie. Planted 1892. Grows at the same rate as No. 2. Untouched.

II. *C. HUMILIS* (Gibraltar Palm).—The rock is covered with it. The wild monkeys eat the fruit. Planted 1892. Leaves injured, 1895. Died the following year.

III. *CORYPHA AUSTRALIS*.—*Cromla*, Corrie. Planted 1874. Lived for several years, but made no progress.

Planted by Mr. Fullarton at Pirn Mill, west side of Arran. Three years old in 1896.

IV. *PRITCHARDIA FILIFERA*.—*Cromla*, Corrie. Did not succeed.

TREE-FERNS, ETC.

Arran takes the first place in Britain for a tree-fern growing in the open air without protection of any kind of soil, stem, or crown—not even moss to its stem.

I. *DICKSONIA ANTARCTICA* (Great Bush-Fern of Australia).—*Cromla*, Corrie. Sown 1865. Planted 1867. In 1871, fronds 3 feet by 1 foot 4 inches. In 1875 the plant changed its habit, and instead of producing about half a dozen fronds in spring and almost an equal number in autumn, it nearly doubled the spring fronds, while few were sent forth in autumn. In a year or two after this change, spores were produced. In 1892 spores were sent to Edinburgh Royal Botanic Garden, from which plants were raised, one of which is now growing on the north side of *Cromla House*; the original plant being on the south side, and thus in a much warmer situation.

1894. Height of stem, 2 feet; girth, 2 feet 10 inches at $2\frac{1}{2}$ feet. Fronds, 7 feet 3 inches—from 17 to 19 produced each year, forming with those of previous years a magnificent crown of between 30 and 40 leaves.

1895. All the fronds killed, as also all the frond-buds, excepting one. This one, however, was perfectly sound, and became a well developed frond. By midsummer others shot forth, and the fern speedily recovered its former grandeur. Only one bud, however, was a narrow escape, as one degree more of frost would probably have destroyed it also, and the plant would have been killed. The minimum temperature that the plant will stand in Arran has thus been ascertained; and in future, in a winter of frost equal

to that of last, and especially if of as long continuance, the plant ought to receive a little protection. From what, however, this paper records regarding the increased hardiness of eucalypts raised from Scottish seed, it may be hoped that some of the tree-ferns raised at the Royal Botanic Garden, Edinburgh, from Arran spores will be hardier than their parent, and that in a third or fourth generation such hardiness will be obtained, and the plants will become so acclimatised that the sea-coast dells of Arran will be adorned with tree-ferns well nigh as luxuriant as those which now grace the islands of New Zealand.

II. *DICKSONIA SQUARROSA* (Black-stemmed Tree-Fern).—This plant originally grew near Canterbury, New Zealand. In 1878, when its stem was 4 inches in height, it was brought to this country, and the following year planted at Cromla, Corrie. Whether from being in a colder situation than the Great Tree-Fern,—for it grew in a sheltered corner at the *north* side of the house, while the other occupies a similar situation at the *south*,—or that the plant is itself more delicate, it always suffered more from frost than the other, more frequently losing its fronds.

1894. Height of stem, 1 foot 10 inches; girth, 1 foot 11 inches. Never bore spores. Killed last winter.

III. *CYATHEA DEALBATA* (Silver Tree-Fern). Planted 1875. Uninjured by the following winter. Was stolen in the winter of 1876–77.

IV. *CYATHEA MEDULLARIS* (Pithy Tree-Fern).—Planted 1878. The following winter was decidedly severe, but, protected by a heap of leaves and a heavy fall of snow, the fern came up fresh in spring. The next winter was very severe, and no protection of leaves having been given, and there being little snow, the fern was killed. It would stand if protected in winter by a heap of hedge cuttings.

V. *TODEA SUPERBA* (Moss Fern).—Planted 1879. Is in good health, and with a little attention would grow luxuriantly.

VI. *TODEA HYMENOPHYLLOIDES* (Filmy Moss-Fern).—Planted 1879. Grew luxuriantly, but died the winter before last through the crown having become bare.

VII. *TRICHOMANES RADICANS* (Killarney Fern).—Planted 1879. Throve for many years. Was at length killed by

a cart of lime being emptied and allowed to remain upon it. This was the more to be regretted, as it was an offshoot of the native plant found between Corrie and Sannox in 1863. I am happy to be able to add that Cromla is still to have a native plant,—an offshoot of one found on the opposite side of Arran by Mr. Robert Kidston, F.G.S. He found two plants, took one and left the other.

PALM-LILIES.

I. *CORDYLINE AUSTRALIS* (Blue-seeded).—Sown 1872. Planted at Cromla 1874. 1895, height, 22 feet 8 inches; girth, 1 foot 11 inches; at base, 3 feet 3 inches. Bloomed and bore seed 1890.

Ardchapel, Gareloch. A large plant cut to the ground last winter.

II. *CORDYLINE VEITCHII*.—Brought from Canterbury, New Zealand, in 1878. Planted at Cromla, 1879. Height, 20 feet; girth, 2 feet; at base, 4 feet. Bloomed 1892.

Pirn Mill and Whitefarland (west side of Arran). Sown from 1890–94. Planted 1894, '95, and '96.

III. *CORDYLINE COOKII* (Blue-seeded).—Brought from near Canterbury, New Zealand, in 1878. Planted at Cromla, Corrie, 1879. Is not so vigorous as the other two.

IV. *CORDYLINE LINEATA*. — Whitefarland. Sown 1890–93. Planted 1896. Seven plants.

These cordylines so much resemble palms that they generally receive this name, being called “Club Palms,” in reference to the shape of their crown, and “Cabbage Palms,” from the buds being in spring used in New Zealand and Australia for the table. This edible quality was discovered by the deer in Arran, the heart of one planted in a wood having been eaten by them. The stem of No. 2 was eaten by a goat, which resulted in shoots coming from the upper part of the wound, and stout rootlets from the under. The plant could thus be easily propagated.

None of those at Cromla appeared at first to be injured by the frost of 1894–95, though those in other parts of Arran, one at Craigard, Lamlash, not excepted, were either killed or cut to the ground. I now (Feb. 1896), however discover that serious injury has been done to two of

the Corrie plants; the bark on the south side is peeling off, though that on the north is unaffected. *Cordyline Veitchii* has, however, escaped, apparently owing to being particularly sheltered from the early sun by a large *araucaria*. Fortunately this is the best specimen. This species is best adapted for Britain, having the thickest stem and the most compact head, and therefore better able to encounter wind.

ACACIA, AGALMA, RHODODENDRON, GREVILLEA, AND
LOMATIA.

Plants of the following five species of the above genera grow vigorously as standards in Arran. At no other place in Scotland have I seen the first four growing unprotected. They are thus worthy of being placed alongside the palms, tree-ferns, and palm-lilies of Arran. The last is so little known, and so remarkable, that I have associated it with them.

I. ACACIA DECURRENS (Black Wattle, Sydney Wattle, Feather Leaf).—Craigard, Lamlash. Planted 1882. 1894, height, 12 feet; girth, 1 foot $3\frac{3}{4}$ inches; circumference of spread of branches, 37 feet.

This plant well deserves the name Feather Leaf, as its long tender leaves are beautifully pinnate. They are also of a rich green, and in every way most attractive. Till three years ago the Lamlash plant was perfect. Since then it has been declining, and last winter it died, apparently of old age. It never bloomed. It seems to require shelter and a moist soil to grow it in perfection. In the hope of obtaining bloom I planted one at Cromla, Corrie, on dry soil, and against a south wall, but it did not thrive, and at the end of two years it died. Had I been living in the neighbourhood I might have given it special attention till it was established, when it might have bloomed.

II. AGALMA TOMENTOSUM.—Craigard, Lamlash. Planted 1883. Height, 9 feet 7 inches; girth, $5\frac{3}{4}$ inches; length of leaf-stalk, 2 feet 3 inches; breadth of lamina, 2 feet $1\frac{1}{2}$ inch. There are no side shoots. The leaves resemble those of a horse chestnut. It belongs to the family of *Araliaceæ*. Never bloomed. Untouched.

III. GREVILLEA ROBUSTA. — Cromla, Corrie. Planted spring of 1896. Growing vigorously.

IV. LOMATIA FERRUGINEA. — Cromla, Corrie. Planted March 1895. Made good shoots in the autumn. This plant much resembles *Grevillea robusta*, but is much darker in hue, and its fronds more spiny and robust. Mr. Fullerton, Glencairn, Greenock, drew my attention to it as growing at Levanne Castle, Gourock. He writes: "It grows alongside of the front door, and is protected by projecting eaves. The house is close to the seashore, the sub-soil gravel. It bloomed during a recent hot summer." Uninjured by winter 1894-95. Unprotected.

V. RHODODENDRON GIBSONI. — Cromla, Corrie. Planted 1892. Neither leaves nor flower-buds were touched by winter of 1894-95. This is one of the free growing, small leaved, large flowered (white) Indian rhododendrons. It is often seen in greenhouses. It has been a magnificent success.

The hybrid Indian tree-rhododendrons, from 10 to 14 feet in height, bloom most gorgeously at Whitehouse, Lamash. The original species, *R. arborea*, grows at Cromla, Corrie, and at Strathwhellan, Brodick. They did not bloom till more than thirty years of age, and even since then sparingly. The most waxy of the whole, *R. Thomsoni*, blooms at Benmore, Argyllshire, and at Kelburn, Largs, and would succeed in Arran. *R. Falconeri* blooms occasionally at Row and Greenock.

EUCALYPTS IN SCOTLAND.*

"It is remarkable that, with the exception of one in the Island of Timor, one in that of New Guinea, and two in Molucca, all the eucalypts, according to Index Kewensis—two hundred and thirteen in number, are natives of Australia, including Tasmania."—Birkbeck.

As the eucalypt is a most interesting tree, it was desirable to determine the species best adapted for Great Britain. In the case of a few the climate of Arran is not sufficiently severe to test them. Assistance, however, has most kindly been given by Mr. Birkbeck, proprietor of Lochhourhead; Mr. Garrett, gardener at Whittinge-

* In the order of hardiness.

hame, Haddingtonshire; the Established and Free Church ministers at Roseneath, Dumbartonshire; Mr. Cousland, Craigandaraich, Tighnabruaich, Argyllshire; and Mr. Fullarton, Glencairn, Greenock.

Lochhournhead, as the name denotes, is at the head of Loch Hourn (lat. $57^{\circ} 7'$), and is surrounded by lofty mountains, average rainfall over 100 inches. Whittingehame is 384 feet above sea-level, and is three and a half miles from the sea, the sub-soil sand and gravel. The winter temperature of Whittingehame and Lochhournhead is similar, as in both the thermometer fell last year (1894-95) to zero. The cold of Roseneath and Tighnabruaich is intermediate between the mildness of Arran and the severity of Lochhournhead and Whittingehame; the lowest temperature at Tighnabruaich in 1894-95 being 17° on 9th February. The Established Church Manse at Roseneath is close to the sea, and almost on a level with it as is Craigandaraich, Tighnabruaich. The Free Church Manse at Roseneath is half a mile from the sea, and about 150 feet above it.

I. *EUCALYPTUS WHITTINGEHAMEII SECUNDUS* (Grown from seed matured at Whittingehame).—1. Sown 1885. Height, 20 feet. "Has not lost a leaf, though the temperature was twice at zero."—Mr. Garrett.

2. Lochhournhead. "Flowered when five years old. Largest trees about 9 feet high. Rather cut by winter 1894-95."—Birkbeck.

3. Cromla, Corrie. Planted 1896. It had stood 1894-95 as a standard at Kilmarnock. In the severest weather it had a covering of paper.

E. Whittingehameii secundus is the first eucalypt raised in Britain from home-grown seed. Regarding these seedlings Mr. Lindsay, Royal Botanic Garden, Edinburgh, wrote in 1895: "I am glad that a few seeds from the eucalypt at Whittingehame have germinated. We may expect among them types harder than their parent." How satisfactorily this prophecy has been fulfilled appears from Mr. Garrett's statement. See *Eucalypt II*.

II. *EUCALYPTUS WHITTINGEHAMEII PRIMUS* (from Australian seed).—Sown 1845. Height about 70 feet; girth, 12 feet 5 inches, at $2\frac{1}{2}$ feet. Lost all its leaves. See

engravings of this tree and also of its bloom (under the name *Eucalyptus urnigera*), "Gardener's Chronicle," April 14, 1888, pp. 460 and 461. This is by much the largest eucalypt in Scotland. Leaves small. In young plants round, colour blue-green, with a whitish bloom, the bloom so engrained as to stand much exposure—much more than the abundant whitish bloom of *E. cordata*. Flowers pale yellow, in clusters of three. The Whittingehame eucalypt sprang from seed given by the Marquis of Salisbury to Mr. Balfour. It was sown in 1845. The plant was cut to the ground by the severe frost of 1860–61, but sent forth shoots from its stem.

No eucalypt has so puzzled scientific botanists as this. Several of them have sought to identify it, hence the names it has received—*E. viminalis*, *E. urnigera*, *E. Gunnii*, etc.

Sir Joseph Hooker writes regarding the eucalypts: "Their limits of variation are very wide"; and Mr. Birkbeck adds, "The Whittingehame gum may be a distinct variety; although I can see little difference between it and *E. Gunnii*." It is certainly unlike to the Arran *E. viminalis* and *E. Gunnii*, and as unlike to the Roseneath *E. urnigera*.

III. EUCALYPTUS GUNNII.—(The mountain variety is called Cider Gum, from the beverage made from its sap. The low ground variety is named Swamp Gum.) "Bees obtain much honey from its flower. Cattle and sheep browse on its foliage. Timber strong."—Mueller.

1. Stonefield, Tarbert. Sown 1881. Height, 38 feet; girth, 2 feet 3 inches. Uninjured.

2. Lochhournhead. "Hardly touched. The largest tree, five years old, and 15 feet in height, is full of flower-buds."—Birkbeck.

3. Craigard, Lamlash. Planted 1884. Blown down by the storm of December 1894.

4. Whiting Bay Free Church Manse. Planted 1884. Situation exposed. Leaves and twigs killed.

5. Pirn Mill and Whitefarland. Planted by Mr. Fullarton in 1895. Five plants.

IV. EUCALYPTUS VERNICOSA (Varnished leaved Gum).

1. Lochhournhead. Planted 1890. Height, 2 feet "Not even a leaf browned."—Birkbeck.

2. Whittingehame House. Height, 7 feet. Killed to within 3 feet of ground. "This most interesting species grows only on the top of Mount Fatigue, Tasmania, lat. 46°. It is far the hardiest, and the most dwarf of eucalypts."—Birkbeck.

IV. (b). EUCALYPTUS VERRUCOSA.—Clauchog, Lag. Arran. Planted 1890. Height, 3 feet. Killed. It grew under a tree. Is this plant distinct from *E. vernicosa*? It is mentioned by Johnson as having been introduced to Britain in 1820, nor is *verrucosa*, as given by him, a misprint for *vernica*, as he adds, within brackets, the translation "warted." In the Greenhouse of the Edinburgh Royal Botanic Garden there are at present (March 1896) plants labelled with these names, and the plants appear distinct, but Mr. Birkbeck informs me that *E. verrucosa* is not recognised in Index Kewensis.

V. EUCALYPTUS COCCIFERA (Coccus-bearing Gum).

1. Lochhourhead. "Several of the younger plants cut to the ground; the older trees a good deal browned. One had bloomed when five years old."—Birkbeck.

2. Whittingehame. "A plant 10 feet in height. Killed."—Garrett.

3. Stonefield, Tarbert. Sown 1881. Height, 21 feet; girth, 15½ inches. Bloomed 1895. Not much injured.

4. Arran, Lag. (Upper Clauchog, 250 feet above sea-level, and with the exception of a low wall and a thorn hedge, exposed to all the fury of the Atlantic.) Planted 1886. Height, 14 feet; girth, 1 foot 4 inches at 2½ feet. The exposed leaves killed. Has not bloomed. The exposed situation the probable hindrance.

5. Roseneath, Free Church Manse (opposite Greenock, and only five miles direct from it). Planted 1886. "Bloomed middle of June 1891, when only 6 feet 7 inches in height, and has continued to bloom every year. Height, 15 feet. Uninjured."—Rev. John M'Ewan.

6. Gadgirth, Ayrshire, on banks of River Ayr, 4¾ miles (direct) from the sea. Sown in the open border in 1881. Germinated well. The leaves of this species are generally glaucous, but those of one of the seedlings were covered on both sides with a hoary bloom, rendering them almost white. It seemed not to be so hardy as the others, grew

more slowly, and died when about 5 feet in height. It was a most desirable variety.

7. Silverbank, Whiting Bay, Arran. Planted 1890. Leaves and smaller branches killed. Silverbank is on sea-level and alongside of it. Much exposed.

8. Balinakill, Argyllshire. Planted 1884. Grew well for many years; at length blown down.

VI. EUCALYPTUS URNIGERA (Urn-calyxed Gum).—"One of the most antiseptic of all eucalypts."—Mueller.

1. Lochhournhead. Sown 1894. "Seedlings in cold frame seem as hardy as *E. coccifera*."—Birkbeck.

2. Roseneath Established Church Manse. Planted 1883. Height, 12 feet. (Was eaten, when young, both by deer and squirrels.) "Not touched in the slightest by the frost of last winter."—Rev. A. Warr, A.M.

3. Strabane, Brodick. Planted 1885. Killed by winter 1894-95. Grew in a wood among higher trees, and did not prosper.

"This tree, in its native state, seems to be strictly confined to the alpine regions of Tasmania, and probably never attains a height of over 50 feet. Leaves extremely variable and never glaucous. Flowers pale yellow, in threes. Fruit at times 1 inch long. Tree not ornamental."—Mueller.

VII. EUCALYPTUS PAUCIFLORA (White Gum, Weeping Gum, or Swamp Gum).

1. Craigard, Lamash. Sown 1879. Height, about 25 feet (was topped lest it should be blown down); girth, 2 feet $3\frac{1}{4}$ inches. Bloomed 1890, and plants were raised from the seed in the Edinburgh Royal Botanic Garden. This is now the largest eucalypt in Arran. Known also as *E. coriacea*.

2. Cromla. Under a sweet bay. Never throve. Last winter the top suffered little, yet it died to the ground.

3. Pirn Mill. Planted by Mr. Fullarton in 1896. Sown 1895. "A handsome tree, attaining considerable size. Grows best in moist ground. Ascends to Alpine height, and shows a preference for basaltic soil."—Mueller.

In the spring of 1879 I received the seed of this species, gathered on the Blue Mountains (4100), New South Wales, and most kindly sent me by Mr. Bailey,

Government Botanist, Queensland. I sowed at once. Next year, when only 9 inches in height, one of the seedlings was planted at Craigard, Lamlash. The following winter was very severe,—zero at the West End Gardens, Glasgow, and probably down to 21° at Craigard, yet not a leaf was browned. In 1886 it was 21 feet in height and $9\frac{1}{2}$ inches in girth, having grown at the yearly rate of $3\frac{1}{2}$ feet in height and $2\frac{1}{2}$ inches in girth. Lest it should be blown over it has been twice more or less polled, yet it has continued to increase in girth by 2 inches yearly. It blooms and bears seed every year. Its seed has germinated at the Edinburgh Royal Botanic Garden. Uninjured last year. It is named White Gum from the whiteness of its bark, specially when the old bark is newly shed; Weeping Gum from its habit; Swamp Gum from the soil in which it is often seen. It grows in Australia to the height of about 150 feet.

VIII. *EUCALYPTUS CORDATA* (Silver Gum).

1. Craigard, Lamlash. Planted 1889. Height, 8 feet; girth, $5\frac{3}{4}$ inches. Much injured; yet some leaves fresh, even on the top branch. Has not bloomed.

2. Cromla, Corrie. Planted 1895. Height, 3 feet 7 inches.

3. Lochhournhead. "A tree planted out in 1894 when two years old was very slightly cut by winter of 1894–5, is now about 6 feet high, and growing fast."—Birkbeck.

This is a dwarf gum growing to a maximum height of 50 feet; but in poor soil it often remains shrubby, blooming and ripening seed when not more than three feet in height. In this state it is the most dwarf of all gums, except *E. vernicosa*."—Mueller. In Arran, owing to the abundant moisture, the tendency to shrubbiness has not shown itself. The species is remarkable when young for the silvery bloom upon its leaves, specially in dry weather in summer, rain washing it off. The odour of its leaves is very similar to that of the Blue Gum (*E. globulus*) and almost as powerful. It has not as yet bloomed in Arran.

IX. *EUCALYPTUS RUDIS* (Slender Gum).

Cromla, Corrie. Planted 1887. Height, 14 feet (to prevent the storm breaking the slender stem the tree

was frequently topped); girth, 5 inches. All the leaves and branches killed; the collar also a good deal cracked by the frost. It has developed flower-buds; but somehow they have not opened. If the collar were even slightly covered, this gum would be perfectly hardy in Arran.

This is an exquisite tree, very beautiful and delicate-looking. The stem, as the name denotes, is very slender, the leaves small, of a pinky-blue shade, rendered more lovely by a slight bloom. The stem is milk-white, specially when the old bark is newly shed. It is thus a White Gum. It is thus one of the slowest in girth-growth of all the eucalypts. It has increased in girth little more than half an inch yearly. "It grows to the height of 50 to 80 feet. Bees and honey-sucking birds delight in its flowers."—Mueller.

X. EUCALYPTUS VIMINALIS (Manna Gum).

Cromla, Corrie. Planted 1874. Height, 40 feet; girth, 2 feet $7\frac{1}{2}$ inches. Bloomed in 1886 and subsequent years. See fig. in Gard. Chron., 24th Nov. 1888.

This was the oldest of all the Arran gums. It proved hardy till last winter, when to my surprise it was killed to within three feet of the ground. It afterwards died. The mountain variety probably would have been uninjured. In my paper of 1886 this species is mentioned under the name *E. amygdalina regnans*, the packet of seed having been misnamed. "This is the only species of gum which yields copiously melitose manna."—Mueller.

XI. EUCALYPTUS AMYGDALINA (Almond-leaved Gum or Brown Peppermint Tree).

1. Lochhournhead. Raised from seed in 1890. "All killed by winter of 1894–95, except one growing in a gorge which was cut to the ground."—Birkbeck.

2. Cromla, Corrie. Planted 1894. Survived the following winter, but having lost all its leaves and twigs, it was pulled up by a person who thought it to be dead.

This is the most graceful of the eucalypts. The branches are weeping, the leaves small, dark green, shining, narrow-lanceolate, very like those of *E. stricta*. It is "The Queen of the Arran Eucalypts." The plant was given me by Robert Birkbeck, Esq., Lochhournhead.

Another from the same kind donor has taken its place—planted 1895. “This and the following yield much more eucalypt oils, than any other species.”—Mueller.

XII. *EUCALYPTUS REGNANS* (Giant Gum).

1. Cromla, Corrie. Planted 1872. Grew for ten years. Was killed by being transplanted.

2. Cromla, Corrie. Planted 1892. In autumn of 1894 its height was 10 feet 5 inches. Cut to the ground.

This is the tallest tree in the world, one having been measured 415 feet in height. Regarding it and *E. amygdalina* Baron von Mueller writes: “Fresh branchlets of eucalypts, and specially of these species, should be placed daily in the bedrooms of phthisic patients, best under the bedstead, the effect being not only antiseptic, but also sedative, and to some extent hypnotic. The fresh leaves also purify the air of hospitals and unsalubrious dwellings. All eucalypts with strong-scented foliage are useful also as insecticides. By planting eucalypts parts of Rome, previously unhealthy, have been rendered most healthy.”

XIII. *EUCALYPTUS POLYANTHEMA* (Red Box Tree). Cromla, Corrie. Planted 1886. Died 1892.

“This tree grows to the height of 150 feet. Its wood is only exceeded in transverse strength by the two ironbarks (*E. leucosylon* and *E. siderophloia*). It differs from most eucalypts in the broad poplar shape of its leaf.”—Mueller.

At Cromla it thrived, but died without apparent cause. On examination the roots were found to be decayed. In Australia it grows on dry ridges and hills. The soil at Cromla though well drained, may have been too cold and wet. It was a beautiful tree. “It is more hardy than *E. globulus*.”—Naudin.

XIV. *EUCALYPTUS ALPINA* (Alpine Gum).

1. Corrie Hotel. Planted 1884, when 2 feet in height. 1894—height, 16 feet 2 inches; girth, 1 foot. Killed.

2. Strabane, Brodick. Planted 1886. Killed.

This eucalypt is remarkable, first, for its limited natural habitat, being confined to the summit of Mount William (5600 feet, latitude 37°), the highest of the Grampian range, fifty miles north of Melbourne; second, for its bushy habit; third, as growing with much greater luxuriance in Arran than at Melbourne, Australia. At the Botanic

Gardens, Melbourne, it took twenty-five years to grow 12 feet, while the length of its leaves was only 3 inches. At Corrie Hotel, Arran, 35 yards from the sea, in eleven years it was 14 feet in height (2 feet when planted), while one of the leaves measured 9 inches \times 5 inches, and weighed $\frac{3}{4}$ of an ounce. See also below as to leaves of *E. globulus*. This conforms with the fact that *Sequoia gigantea* grows much more rapidly in some places in Britain than on its native mountains of California. *E. alpina* will be tried in the south of Arran.

XV. EUCALYPTUS GLOBULUS (Blue Gum).

1. Stonefield, Tarbert, Lochfyne. Planted 1873. Bloomed 1878 or 1879. Died from being transplanted.

2. Stonefield, Argyllshire. Sown 1881. Height, 28 feet. Killed.

3. Craigandaraich, Tighnabruaich. Planted 1890. A few inches of the top killed.

4. Craigard, Lamlash. Sown 1874, by Mr. Paterson, at Whitehouse. Afterwards transplanted to Craigard. Girth, 3 feet 2 inches (was polled when 40 feet in height). The largest leaves were more than a foot in length, including one inch of stalk; breadth, $2\frac{1}{2}$ inches. Killed. Had been blown down in 1892, and was not quite recovered.

5. Lochhournhead. "All those planted out killed."—Birkbeck.

6. Auchnames, Portencross, Ayrshire. The front of this house to its top was for years clothed with Blue Gum. Killed.

The Blue Gum from its rapid growth, great size, the excellence of its timber, the large amount of ozone generated by its leaves, the antiseptic power of its volatile oil, and the great amount of moisture absorbed by its roots fitting it for drying swamps, is one of the most important of the trees of the world. (See also note under *E. regnans*, p. 522). The following note regarding the growth of the Lamlash Gum is given by James Paterson, Esq., at the time Commissioner in Arran to the Duke of Hamilton:—"First year, $11\frac{1}{2}$ inches; second, 4 feet 6 inches; third, 6 feet $7\frac{1}{2}$ inches; fourth, 6 feet. Growth in four years, 18 feet 1 inch." It would, however, have been about

20 feet had the top not been injured during the fourth year. "Plants in Southland, New Zealand, raised from locally ripened seed, prove more hardy than those from seed imported from Australia."—Waugh.

XVI. *EUCALYPTUS BOTRYOIDES*.—Cromla, Corrie. Planted 1896. "This is one of the most stately of eucalypts, and is remarkable for its dark-green shady foliage."—Mueller. This plant was the gift of Mr. Birkbeck.

XVII. *EUCALYPTUS PULVERULENTA*.—Pirnmill, 1896. Planted by Mr. Fullarton.

XVIII. *EUCALYPTUS CALOPHYLLA*, *E. DIVERSICOLOR*, *E. HÆMASTOMA*, *E. MARGINATA*, *E. MELIODORA*, and *E. ROSTRATA* have also been tried in Arran, but all of them died before the winter of 1894–95.

SUMMARY OF FACTS REGARDING EUCALYPTS.

WHITTINGEHAME HOUSE. Temperature, 1894–95, twice at zero.

1. *E. Whittingehamei secundus* (Whittingehame seed). Uninjured.
2. *E. Whittingehamei primus* (Australian seed). Lost all its leaves.
3. *E. vernicosa*. Killed to 3 feet from the ground.
4. *E. coccifera*. Killed.

LOCHHOURNHEAD. Temperature, 1894–95, at zero.

1. *E. vernicosa*. Untouched.
2. *E. Gunnii*. Hardly touched.
3. *E. Whittingehamei secundus* (Whittingehame seed). Some branches browned.
4. *E. coccifera*. Some of the younger plants cut to the ground.

STONEFIELD, Tarbert (Loch Fyne).

1. *E. globulus*. Killed. (Previously injured by storm.)
2. *E. Gunnii*. Uninjured.
3. *E. coccifera*. Not much injured.

ARRAN. 10° of frost at Lamlash in 1894–95.

1. *E. pauciflora*. Lamlash. Untouched.
2. *E. coccifera*. Upper Clauchog, Lag. Lost its exposed leaves and twigs.
3. *E. cordata*. Lamlash. Some branches killed.

4. *E. rudis*. Corrie. Killed to stem.
5. *E. amygdalina*. Corrie. Leaves and twigs killed.
6. *E. viminalis*. Corrie. Killed.
7. *E. regnans*. Corrie. Killed to the ground.
8. *E. alpina*. Brodick and Corrie. Killed.
9. *E. Globulus*. Killed. Had been blown down two years previously, and, though raised, was not fully recovered.
10. *E. calophylla*, *E. diversicolor*, *E. hæmastoma*, *E. marginata*, *E. meliodora*, and *E. rostrata*. Killed by ordinary winters.

CRAIGANDARAICH, Tighnabruaich, Argyllshire.

E. Globulus. Only lost its top.

ADDITIONAL EUCALYPTS AT LOCHHOURNHEAD.

(Alphabetically arranged, excepting first two.)

1. *E. angustifolia*. Planted 1894. Unhurt by 1894–95. Had Willesden canvas around it.
2. *E. obliqua*. Sown 1894. All killed in greenhouse except one.
3. *E. acervula*. Killed, 1894–95, in greenhouse.
4. *E. botryoides*. Killed in greenhouse.
5. *E. cinerea*. “Whitish bloom,” allied to *E. pulverulenta*. Killed in greenhouse.
6. *E. citriodora* (Lemon-scented). Killed in greenhouse.
7. *E. colossea* (Native name, Karri). “One of the grandest trees in the world, and as hardy as *E. Globulus*.”—Mueller. Killed in greenhouse; called also *E. diversicolor*.
8. *E. cornuta*. Killed in greenhouse.
9. *E. corymbosa*. Loves dry soil. Killed in greenhouse.
10. *E. crebra*. Killed in greenhouse.
11. *E. cosmophylla*. Killed in greenhouse.
12. *E. eugenoides*. Killed in greenhouse.
13. *E. gigantea*. Killed in greenhouse.
14. *E. goniocalyx* (Spotted Gum). Killed in greenhouse.
15. *E. hæmastoma* (Bloody-mouthed). “Suitable for sandy soil, which few eucalypts are.”—Mueller. Killed in greenhouse.

16. *E. Lehmannii*. Killed in greenhouse.
17. *E. leptophylla* (Uncinata). Killed in greenhouse.
18. *E. longifolia* (Woolly Butt). Killed, 1894-95, in greenhouse.
19. *E. marginata* (Jarrah, Mahogany Tree). Killed in greenhouse.
20. *E. microcorys*. Killed in greenhouse.
21. *E. occidentalis*. Killed in greenhouse.
22. *E. piperita*. "Foliage rich in volatile oil." Killed in greenhouse.
23. *E. Preissiana*. Planted 1894. Killed.
24. *E. pulverulenta* (Whitish bloom). Killed in 1894-95 in greenhouse.
25. *E. redunca*. Killed in greenhouse.
26. *E. resinifera* (Red Mahogany). Killed in greenhouse.
27. *E. Risdoni*. Allied to *E. pulverulenta*. Killed in greenhouse.
28. *E. robusta* (Swamp Mahogany). Killed in greenhouse.
29. *E. rostrata* (Red Gum). "Rather more hardy than globulus." Killed in greenhouse.
30. *E. saligna*. Killed in greenhouse.
31. *E. siderophloia*. White iron bark. Killed in greenhouse.
32. *E. Staigeriana*. "Foliage delightfully fragrant. Oil distilled from it has the fragrance of verbena (*Lippia*)." Killed in greenhouse.
33. *E. Stuartiana*. Killed in greenhouse.
34. *E. teriticornis*. Killed in greenhouse.
35. *E. virgata* (*Sieberiana*). Killed in greenhouse.

Regarding the greenhouse losses, Mr. Birkbeck writes: "I believe, in the winter of 1894-95, the pots in the greenhouse, which is unheated, were frozen, as some seedlings of *E. hæmastoma* in a box survived. Possibly the plants had been watered immediately previous to the frost."

"There are about twenty species of eucalypts planted out at Lochhournhead; but those not already mentioned are not here named, as they have not yet encountered a severe winter. *E. coccifera*, *E. urnigera*, *E. Whittinge-*

hameii, and a doubtful species raised from seed received from Tasmania under the name of *E. Gunnii*, have been planted on the hillsides in considerable numbers."—Birkbeck.

ADDITIONAL TREES AND SHRUBS IN ARRAN.

TREES.

I. *ARAUCARIA IMBRICATA*.—1. Brodick Castle. Planted 1841? Girth, 4 feet 11½ inches.

2. Cromla, Corrie. Planted 1861. Height, 33 feet; girth, 2 feet 6 inches (beautiful example).

II. *A. EXCELSA* (Norfolk Island Pine).—Lamlash 1882. Died in winter. Will be tried in the south of Arran.

III. *CUNNINGHAMIA SINENSIS* (Broad-leaved Chinese Fir).—Brodick Castle Garden. Planted 1858? Height, 10 feet. Has never grown well; but might succeed at Cromla or in the south of Arran.

IV. *PINUS INSIGNIS*.—Planted at Brodick Free Church Manse, 1894; Corrie Free Church, 1896. This is the most beautiful in hue of all pines.

V. *PLATANUS ORIENTALIS* (Oriental Plane).—On bank above Brodick Castle Low Garden. Planted 1848? Girth, 4 feet 2 inches at 4½ feet. Greatly broken by the high winds of last winter.

VI. *PICEA MORINDA* (Morinda Spruce or Himalayan Weeping Pine).—Brodick Castle Grounds. Planted 1848? Girth, 4 feet 2 inches. In perfect health—very beautiful. "At Cultzean Castle, Ayrshire, it grows pretty well; but is browned on the side towards the sea."

VII. *QUERCUS SUBER* (Spanish Evergreen Cork Tree).—Brodick Castle Park. Planted 1848? Growing well. Girth, 3 feet 2 inches at 4 feet 2 inches. Lost in 1894–95 all its leaves and small twigs; but otherwise not injured.

VIII. *SEQUOIA GIGANTEA* (Mammoth Tree).—Brodick Castle Gardens. A large tree killed by the frost, yet *Cunninghamia sinensis*, growing near to it, though considerably injured, survived.

IX. *THUJA DOLOBRATA* (Japan Hatchet-leaved Arbor Vitæ).—Cromla. Planted 1871. Height, 12 feet 6 inches;

girth, $11\frac{1}{2}$ feet. "The favourite evergreen in Japan. Used for avenues. Delights in shaded and rather moist situations."—Mueller.

SHRUBS.

I. *ACACIA MELANOXYLON*.—Grew perfectly for years. Cut to the ground last winter. Now dead, 1896. Two were lost by being blown down.

II. *AMPELOPSIS SEMPERVIRENS* (Evergreen Virginian Creeper).—Cooper Lodge, Whiting Bay. Luxuriant.

III. *ARUNDINARIA FALCATA* (Indian Ningala Bamboo).—Mr. Clark's, South End. 1896.

IV. *AZALEA AMOENA*.—Cromla. Planted 1882. Circumference of branches, 10 feet. Blooms most abundantly.

V. *BRACHYCHITON DIVERSIFOLIUM* (Bottle Tree).—Craigard, Lamlash. First planted 1888; second planted 1891. Both died during the first winter. Might succeed on drier soil.

VI. *BUDDLEIA GLOBOSA* (Chilian Orange Ball Tree).—Whiting Bay, Lamlash (19 feet high), Brodick, etc. All cut to near the ground.

VII. *CAMELLIA ALBA PLENA*.—Blooms.

VIII. *CASUARINA EUISETIFOLIA* (Swamp Oak of Australia). Brodick Castle High Garden. Planted 1882. Grew well for several years.

IX. *CEANOTHUS*.—Cooper Lodge, Whiting Bay. Several kinds. Bloom abundantly.

X. *CHOISYA TERNATA* (Mexican Orange Flower). Cooper Lodge, Whiting Bay. Uninjured. Blooms abundantly.

XI. *CONVOLVULUS CNEORUM*.—Cooper Lodge, Whiting Bay. Blooms. Uninjured.

XII. *CYTISUS ALBUS* (Portugal White Broom).—Cromla, Corrie. Purchased under the name *Sparto-cytisus durus albus*. Planted 1874. Against a wall—height, 17 feet; girth, 6 inches. Bloomed most abundantly. Died in 1896, seemingly of old age.

XIII. *DESFONTAINEA SPINOSA* (Colombia Flowering Holly).—Cromla. Planted 1865. Height, 9 feet 10 inches; girth, 1 foot 5 inches (2 inches from the ground); circumference of branches, 21 feet. Blooms most freely, June and onward. Three flowers still, 10th February 1896. Uninjured.

XIV. *DEUTZIA GRACILIS*.—Blooms abundantly. Uninjured.

XV. *EDWARDSIA GRANDIFLORA*.—Craigard, 1890. Died 1894, probably from an accident.

XVI. *ELÆAGNUS REFLEXA JAPONICA VARIEGATA*.—Cromla. Planted 1878. Height, 7 feet. Has not bloomed. Uninjured.

XVII. *ERICA ARBOREA*.—Brodick Castle High Garden. Planted 1848? Height in 1894, 8 feet 4 inches; circumference of branches, 15½ feet. Bloomed most profusely. "Blown right out of root by the storm of December 1894."

XVIII. *ESCALLONIA RUBRA*, VAR. *ALBA* (Chilian Gum Box).—Brodick Castle High Garden. Planted 1858? Height, 9½ feet. Blooms freely. Uninjured.

XIX. *EURYA LATIFOLIA*.—Strathwhellan, Brodick. Planted 1887. Height, 2½ feet; diameter, 3½ feet. Has not bloomed.

XX. *FUCHSIA MAGELLANICA*.—Introduced to Arran in 1833 by Mrs. Dennistoun. One at Whitehouse, Lamlash, trained against an old building. "Height in 1845, 18 feet; width, 22 feet." See Natural History of Arran, p. 260.—Rev. Dr. Landsborough. People went to Arran to see this plant.

XXI. *FUCHSIA MICROPHYLLA*.—Cromla. Planted 1878. Blooms abundantly, specially late in Autumn, continuing in flower till December or January. Slightly injured.

XXII. *GRISELINIA MACROPHYLLA (LUCIDIA)*.—Craigard. Planted 1889. Untouched. *G. littoralis* blooms at the Rev. Dr. Watson's, Largs, and at Levanne Castle, Gourrock.

XXIII. *JASMINUM FRUTICANS*.—Cromla. Planted 1870. Blooms freely. Uninjured.

XXIV. *LAURUS NOBILIS* (Sweet Bay).—Cromla. Planted? Height, 3 feet 4 inches. Uninjured.

XXV. *MORUS* (Russian Mulberry).—Brodick Castle Garden. Planted 1895.

XXVI. *MYRTUS COMMUNIS*.—1. Cromla. Planted 1862. Height, 11 feet. A standard bloomed yearly most freely. Was cut down in 1894, because it darkened a window. Leaves a little injured by frost.

2. Brodick Castle High Garden. Trained on wall. Height, $9\frac{1}{2}$ feet; spread of branches, $20\frac{1}{2}$ feet.

XXVII. *PHOTINIA SERRULATA* (Chinese Medlar).—Cromla. Planted 1879. Height, 12 feet. Has not bloomed. Leaves crimson when young, and when old the same. Uninjured.

XXVIII. *PHILLYREA LATIFOLIA* (Broad-leaved Jasmine Box).—Cooper Lodge. Uninjured.

XXIX. *PITTOSPORUM EUGENOIDES*?—Black stems with beautiful translucent veins on the leaves. Craigard. Planted 1886. Height, 8 feet. Uninjured till this year. Killed by last winter. Did not bloom. Will be tried in the south of Arran.

XXX. *PITTOSPORUM RALPHII*.—Craigard. Planted 1886. Height about 10 feet. Blooms. Uninjured.

XXXI. *PITTOSPORUM UNDULATUM*.—Brodick Castle High Garden. Planted 1886. Uninjured.

XXXII. *ROSA BANKSÆ*.—Cromla. Planted 1875. Height, 20 feet. Developed flower-buds (white) in 1894; but June being cold and wet they did not expand. Uninjured.

XXXIII. *ROSE MARECHAL NIEL*.—Cooper Lodge. Blooms abundantly. Uninjured.

XXXIV. *ROSA POLYANTHEMA*.—Cooper Lodge. Blooms abundantly. Uninjured.

XXXV. *RUBUS SQUARROSUS* (New Zealand Bush Lawyer).—Cut-leaved variety. Brodick Castle High Garden, on wall. Planted 1883. Height, in 1894, $7\frac{1}{2}$ feet; diameter of branches, 6 feet. Cut to the ground.

XXXVI. *SCHINUS MOLLE* (Brazilian Pepper Tree).—Craigard. Planted 1887. Lived for years, but grew little. Died two years ago. Will be tried in the south of Arran.

XXXVII. *YUCCA*.—Whitefarland. Planted 1896 by Mr. Fullarton. Seed gathered in 1892 in Botanic Garden of Adelaide, Australia.

XXXVIII. *XANTHORRHOEA ARBOREA* (Australian Grass Tree).—Craigard. Planted 1886. Lived till this year; but did not grow. Now dead. Was in wettish soil. Might succeed in the south of Arran.

THE SOUTH OF ARRAN.

The south of Arran is mild. At the Island of Pladda, half a mile in front, the lowest temperature for the last thirty years was in January 1881, when it fell to 28°. The bay betwixt Kildonan Castle and Bennan Head is the mildest and sunniest portion of Arran, for it is most open to the ocean, and lies full to the sun at noon. It is also protected on the north by mountains, and immediately above by steep and high cliffs. As yet its fitness for Australian and other foreign plants is untried. I rejoice it is to be so no longer, as George Clark, Esq., who is building Drumlabarra House in the centre of the bay, sympathises with such experiments. To give a good start, the following plants from the Edinburgh Royal Botanic Garden have most kindly been gifted by Professor Bayley Balfour:—

1. *Brachyglottis repanda*.
2. *Camellia Thea*.
3. *Coprosma rhamnoides*.
4. *Dicksonia antarctica*. An Arran seedling.
5. *Eucalyptus vernicosa*.
6. *Eucalyptus verrucosa*.
7. *Eriobotrya (Photinia) japonica*.
8. *Illicium floridianum*.
9. *Mandevillea suaveolens*.
10. *Plagianthus betulinus*.
11. *Tecoma Smithii*.
12. *Weinmannia racemosa*.
13. *Widdringtonia Whytei*.

NOTES FROM THE ROYAL BOTANIC GARDEN, EDINBURGH.*

* The Meteorological and other Reports communicated under this heading will in future be published elsewhere.