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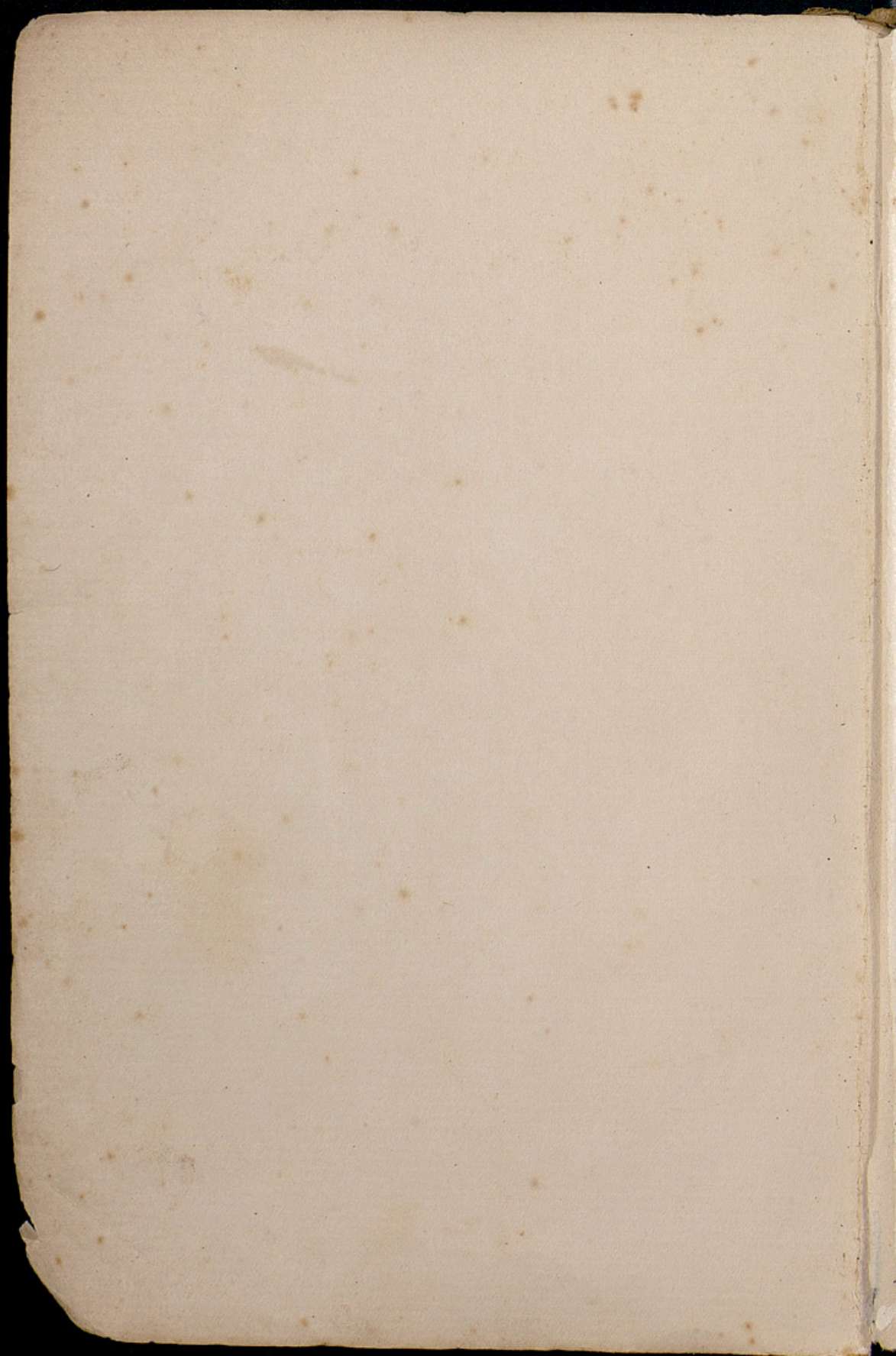
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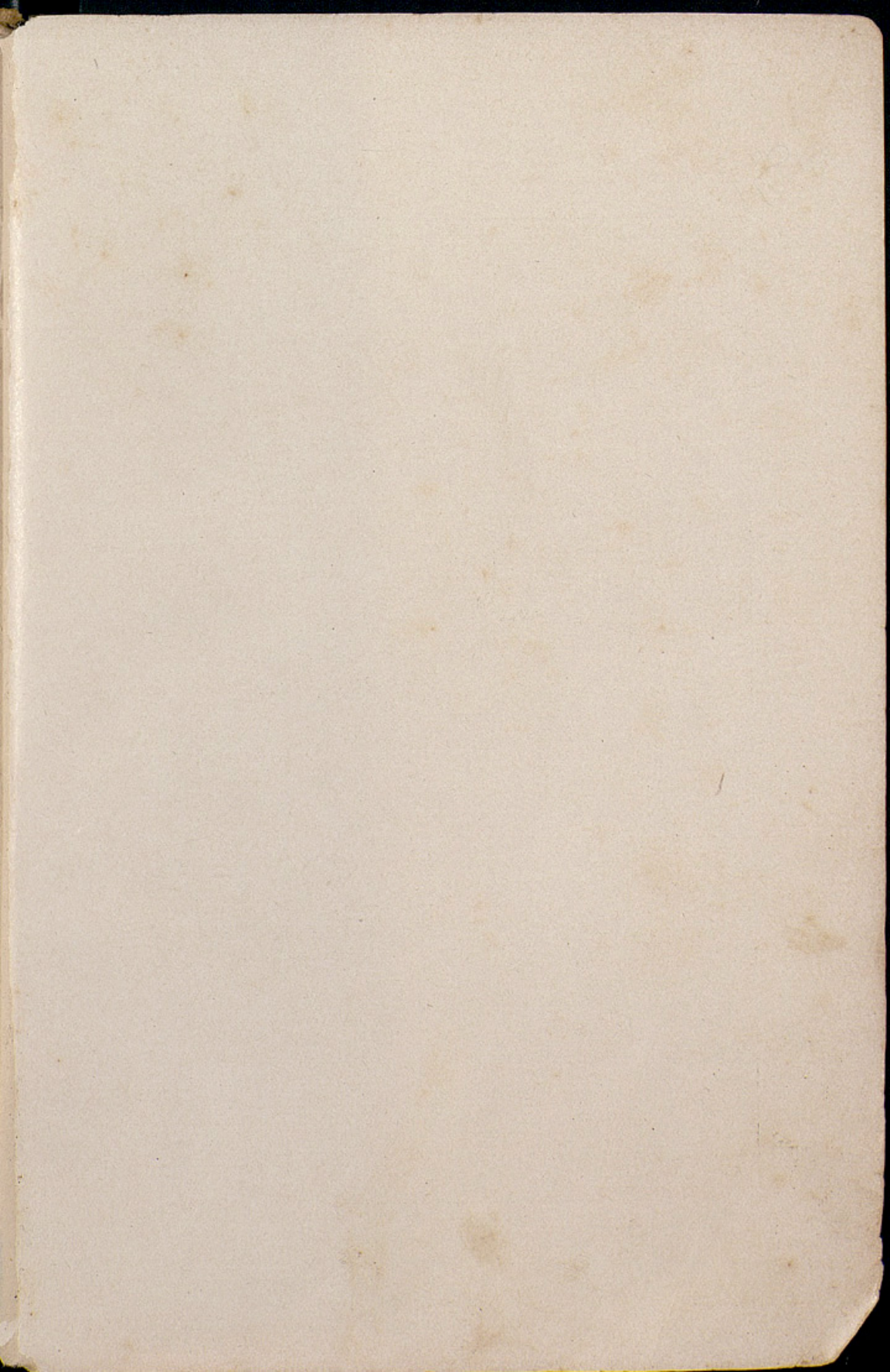
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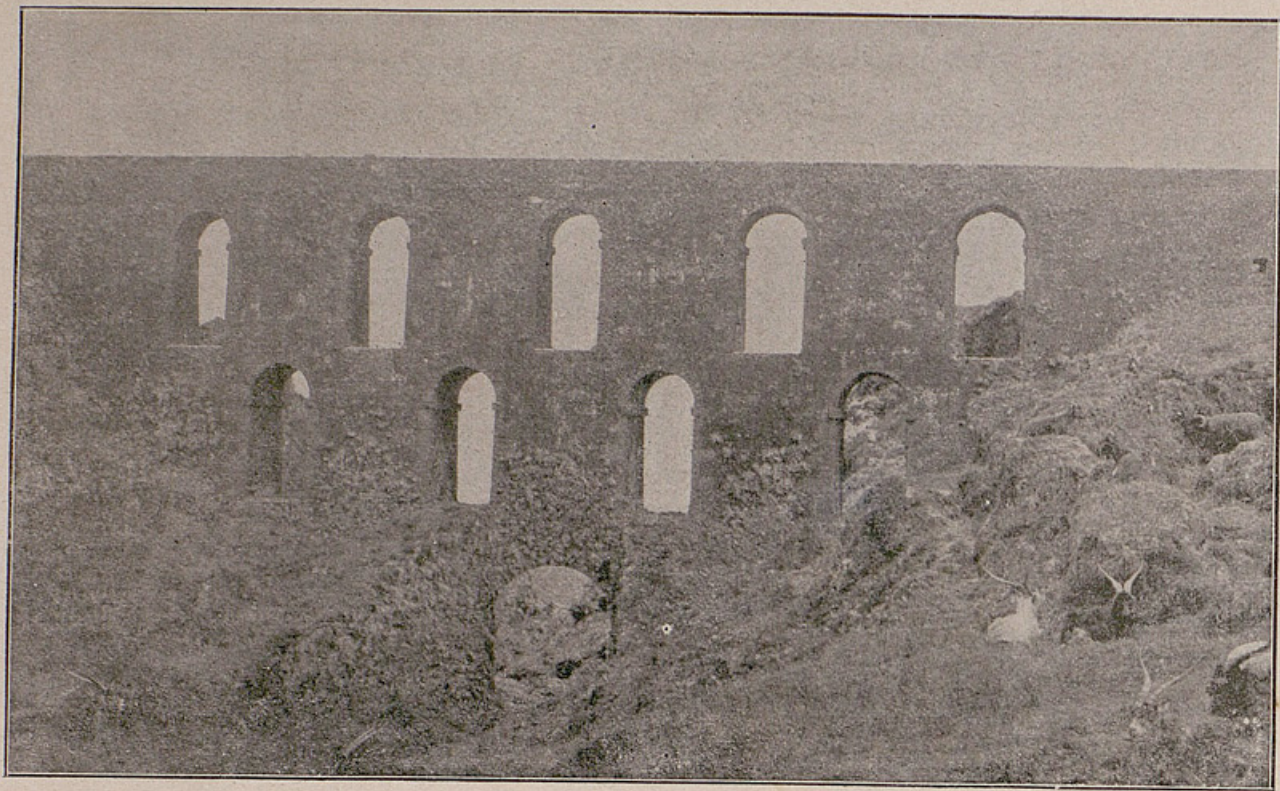
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AN AZOREAN COLLECTING GROUND.

(PICO DO CARVÃO).

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Botanical Observations
ON THE
Azores.

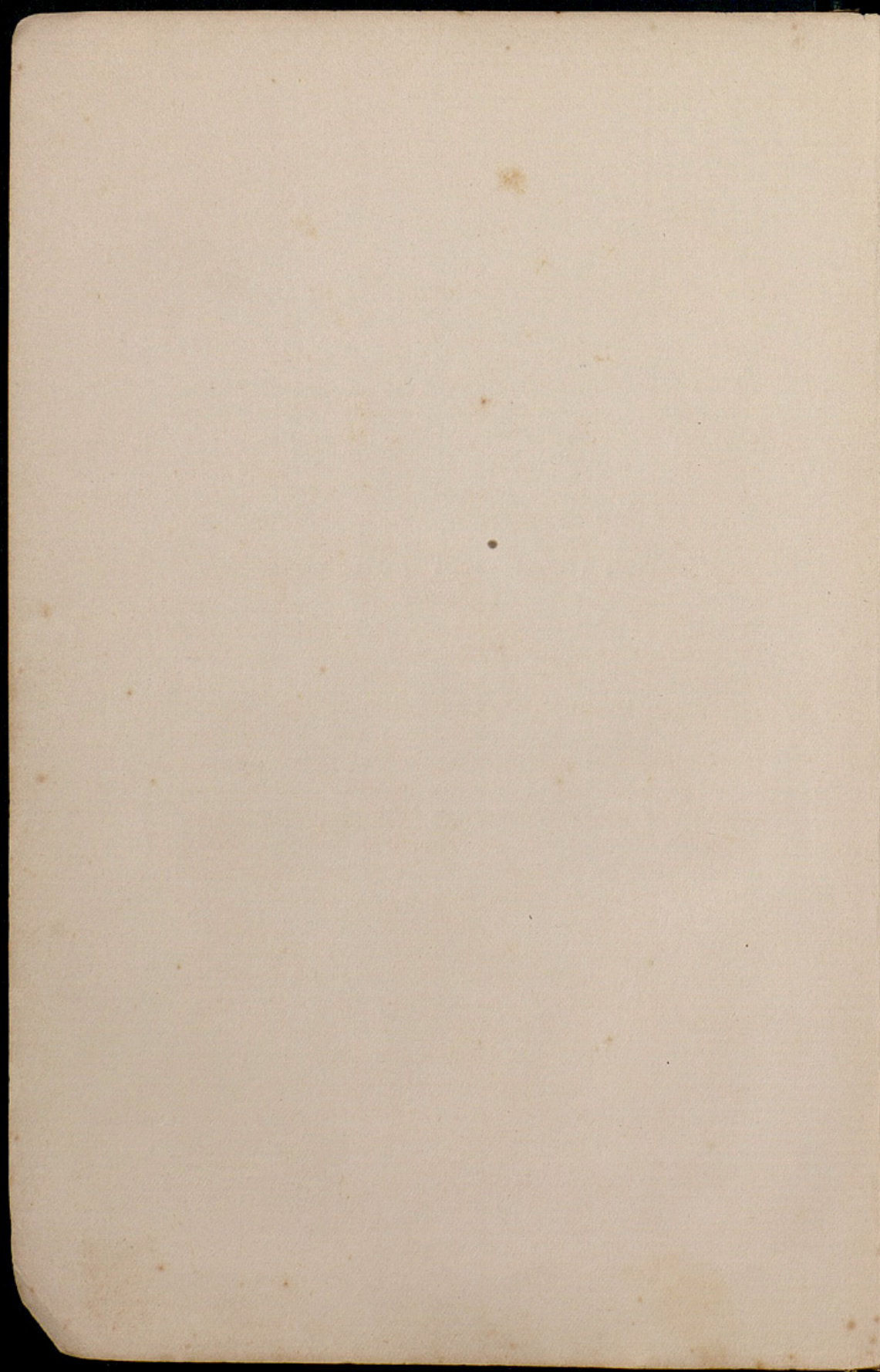
BY WILLIAM TRELEASE.

(FROM THE EIGHTH ANNUAL REPORT OF THE MISSOURI BOTANICAL GARDEN.)

Issued September 9, 1897.

UNIVERSIDADE DE COIMBRA
JARDIM BOTANICO

M-5



BOTANICAL OBSERVATIONS ON THE AZORES.

BY WILLIAM TRELEASE.

A three months' leave of absence in the summer of 1894 and a shorter one in the summer of 1896 were utilized in collecting and preparing specimens representing as fully as possible the endemic and naturalized flora of the Atlantic group of islands known as the Azores or Açores.

Situated in mid-ocean, about on the 38th parallel of north latitude, some 700 miles from Portugal, 1,150 from Great Britain, and 1,700 from Newfoundland, and bathed by a branch of the warm Gulf stream, the Azores present at once favorable climatic conditions for the support of a varied vegetation, and remoteness from the continents, promising peculiar and highly differentiated species. Though treated as one archipelago, the nine Azorean islands moreover really form three groups, the central of which (consisting of Fayal, Pico, San Jorge, Graciosa, and Terceira) lies nearly a degree to the south and about 125 miles to the east of the westernmost group (consisting of Corvo and Flores), and nearly a degree to the north and about 90 miles to the west of the easternmost group (consisting of San Miguel and Sta. Maria).

Offsetting the isolation of the Azores and their three sub-groups, however, is the fact that frequent ships plying between Portuguese or Mediterranean ports and the United States, and occasional European vessels en route to or from South America, the West Indies, etc., touch at some one of them, while the larger islands are regularly visited twice a month and the smaller ones once a month by packet boats from Lisbon, one of which also touches at Madeira. Between the islands of each group, also, there is very frequent communication by small sailing boats, which sometimes make the passage between the central and eastern groups,

though it is rare for them to cross the greater expanse of water separating the central from the western islands.

The Azores are volcanic cones forming "the highest points of a great plateau-like elevation which extends for upwards of a thousand miles from west to east, and appears to be continuous with a belt of shallow water stretching to Iceland in the north, and connected probably with the 'Dolphin Rise' to the southward — a plateau which in fact divides the North Atlantic longitudinally into two great valleys, an eastern and a western." * Aside from comparatively recent swamp diatomaceous accumulations which Captain F. A. Chaves informs me he has discovered in San Miguel, a certain amount of lignite in the same island, and tufa casts of existing species of higher plants, one island only, Sta. Maria, presents fossiliferous beds. These have been referred to Tertiary time. This island alone is devoid of comparatively recent volcanic cones. The islands, therefore, are of late geological formation, so far as their present surface is concerned. Notwithstanding the comparatively shallow water that, as the Challenger researches show, separates them from one another and extends out on the tableland of the mid-Atlantic, they all drop very abruptly from the shore line to a considerable depth, so that there seems to be no reason for supposing that they have been connected together or joined to the mainland within recent time. †

At sea level, frost is unknown in the Azores, though it is frequently experienced on the higher grounds, where occasional snow or sleet falls. The summer temperature is not very different from that of our Atlantic seaboard in about the same latitude. While the sun commonly rises clear, the higher mountains are usually enshrouded in cloud during the course of the day, and even in the summer season mist and rain are observable almost daily in the higher regions, and are not infrequent at sea-level.

* Thompson, *The Atlantic*, a preliminary account of the general results of the exploring voyage of H. M. S. "Challenger." 2: 23.

† On the geology of the Azores, see, especially, Hartung, *Die Azoren*. Leipzig. 1860.

METEOROLOGY OF PONTA DELGADA, AZORES.

Month.	Maximum Temperature.	Minimum Temperature.	Relative Humidity.	Number of Rainy Days.	Amount of Rainfall.
Jan	63.5 Fahr.	48.5 Fahr.	75-86%	10	3.69 in.
Feb	63.	49.5	80-88	17	5.94
Mar	65.	46.5	75-83	4	0.47
Apr	70.	52.	68-72	1	0.11
May	71.5	53.5	73-81	10	3.98
June	76.	54.	73-82	8	3.62
July	79.	61.5	73-78	4	0.79
Aug	80.5	62.5	67-70	3	0.29
Sept	79.	62.	73-80	4	0.54
Oct	78.5	54.	67-73	13	2.55
Nov	69.5	47.5	76-78	14	4.15
Dec	66.	51.	72-83	12	2.01
	80.5	46.5	67-88	100	28.14
	Average 62.6		Average 76		

METEOROLOGY OF ST. LOUIS, MO.

Month.	Maximum Temperature.	Minimum Temperature.	Relative Humidity.	Number of Rainy Days. 0.1 in. or more	Amount of Rainfall.
Jan	62 Fahr.	5 Fahr.	71-81%	7	1.43 in.
Feb	75	5	66-78	6	2.81
Mar	74	19	66-78	12	2.03
Apr	88	30	52-73	8	2.43
May	91	56	68-80	15	9.12
June	91	56	64-82	15	4.57
July	98	58	67-80	13	4.67
Aug	100	60	61-78	7	2.12
Sept	95	45	71-83	12	2.42
Oct	80	36	57-80	8	1.20
Nov	78	13	70-78	13	3.70
Dec	68	17	64-77	4	1.05
	100	5	52-83	120	37.55
	Average 58.3		Aver. 71.9		

METEOROLOGY OF LOGAN, UTAH.

Month.	Maximum Temperature.	Minimum Temperature.	Relative Humidity.	Number of Rainy Days.	Amount of Rainfall.
Jan	50.° Fahr.	-1.° Fahr.		4	1.31 in.
Feb	58.	8.		2	.85
Mar	65.	3.		7	1.73
Apr	70.	13.	30-85%	9	2.11
May	80.	24.	43-87	15	3.17
June	90.	39.	25-65	4	.46
July	97.	51.	29-77	9	1.40
Aug	92.	49.	34-85	3	1.49
Sept	88.	35.	34-72	5	.91
Oct	81.	30.	27-79	1	.68
Nov	65.	-11.		9	1.97
Dec	44.	13.		4	.57
	97.	-11.	25-87	72	16.15
	Average 47.1		Average 55		

From the monthly *Résumé* of the San Miguel Meteorological Observatory, under the direction of Captain F. A. Chaves, the 47th Bulletin of the Agricultural Experiment Station of Utah, and data obligingly furnished by Dr. H. C. Frankenfield of the St. Louis Weather Bureau, the accompanying tables for 1896 have been compiled, to show some of the more obvious differences between an insular and two classes of continental climate, at approximately the same distance from the equator.

The mild moist climate, favorable for the growth of a great variety of plants of subtropical origin, and the easily disintegrated volcanic debris, for the most part abundantly watered by brooks and seepage from the moors above, are offset by the prevalence of strong gales at certain seasons, and the liability to cyclones in late summer and early autumn. These winds, fresh from the ocean, often do much damage, yet the Azores, on the whole, offer great possibilities for the cultivation of plants which in the United States can be grown only in California and the most favored parts of the Gulf States.

The standard agricultural crops are wheat, Indian corn, sweet potatoes, potatoes, and the common vegetables of our own gardens. Lupins are largely grown as a soiling crop, a practice, like many others, traceable back to the Romans. In season, the markets offer strawberries, apricots, melons, and other fruits of temperate climates, in abundance and of good quality, though pears and apples do not impress one usually as being equal to those grown in England or the United States. Grapes of the *vinifera* type, which were at one time largely grown, have been almost exterminated by the *Oidium* and *Phylloxera*, and few if any efforts have been made to replant the vineyards with the best varieties grafted on American roots, as has been done in France. On the contrary, the superior *vinifera* grapes have been replaced largely by inferior derivatives of the *labrusca* stock. As a result, the Azorean wines, which at one time were considered almost, if not quite,

equal to those of Madeira, are now nearly all of extremely inferior quality. In their season, the loquat (*Eriobotrya*) and orange are met with in abundance, and of the best quality, though the famous St. Michael's oranges, like the grapes, have proved so subject to disease that they are now comparatively little grown.

Bananas of the *sapientum* type (called silver bananas), and more commonly those of the *Cavendishi* type, are successfully grown, and though the fruit is of small size, it is generally sweet and of good flavor. Figs of several varieties mature perfectly.

Of late years, the former orange industry of San Miguel has been replaced to a certain extent by the cultivation of pineapples, which are of unusually good quality, and find a ready market in England at a high price. Unlike the fruits heretofore mentioned, these do not thrive in the open air, but require the shelter of glass houses of the general construction of our American commercial plant-houses, but without artificial heat.

The number of decorative plants cultivated out of doors, or capable of open-air cultivation, in the Azores, is extremely large. The islanders, as a rule, are fond of flowers, and even in the cities nearly every bit of ground about the houses, not needed for other purposes, is planted with the common flowers of temperate regions, while now and then such trees as *Magnolia grandiflora* are seen, vegetating luxuriantly and flowering freely. Several of the cities have small public gardens, of which that at Angra, the capital of Terceira, is the most successful. In nearly all of the towns, the more prosperous citizens have amplified the small dooryard flower bed into a garden or quinta of some pretensions, in which one is sure to see growing many of the plants met with in Californian gardens. The surroundings of many suburban places are lavishly embellished in this manner. In the most prosperous island, San Miguel, indeed, are several gardens as extensive as those of less restricted countries, and with as varied vegetation as

the gardens of the Riviera. The most noted of these are the Borges garden and the garden of Sr. José do Canto, in Ponta Delgada, and the large park maintained by the last named gentleman at the lake near the Furnas, or hot baths. In these gardens are to be seen well-grown trees and shrubs from temperate America and Europe, Mexican oaks and agaves, Australian Eucalyptus trees, Indian species of Ficus, myrtles and Proteas from the Cape, giant bamboos, and numerous South American plants.*

So large a variety of plants capable of living through the winter being cultivated, it is not surprising that the quintas and adjacent waysides should be more or less stocked with escaped species, some of which, like the Madeira Vine (*Boussingaultia baselloides*), Passion Flower (*Passiflora coerulea*), and Climbing Fuchsia (*Fuchsia macrostemma*), scarcely do more than take complete possession of walls over some part of which they were probably at first planted; others, like several species of *Mesembrianthemum* on the bluffs below the fort at Angra and along the sides of the drive to the Furnas, and a species of *Protea* shown me on his country estate by Sr. do Canto, merely spread in the vicinity of the original spot where they were cultivated; while others, like *Hedychium Gardnerianum*, *Erigeron mucronatus*, perhaps *Trachelium coeruleum*,† etc., having established themselves, are gradually extending their territory. Owing to the close utilization of the land, trees and shrubs, which are much needed for the firewood that they furnish, have been planted to such an extent in all available nooks and corners, whence they spread to a greater or less extent, that to-day, with few exceptions, it is almost impossible, on encounter-

* An interesting article on "the gardens and orange-grounds of St. Michael's in the Azores — its climate and peculiarities" was published by P. Wallace, in 1852.

† Of this species I was shown in Flores a cultivated specimen said to have been transplanted from the high interior of the island; but all wild specimens seen by me were in situations suggesting introduction.

ing a woody plant in the agricultural zone, to say whether it is spontaneous or introduced.

More evidently than is the case with the Canary Islands,* the endemic flora of the Azores appears to be undergoing a gradual reduction, partly because of the utilization of all available land for agricultural purposes. In some of the islands, even the high-lying pasture lands are being restocked with forage plants from the European and American continents, in the belief that they are more valuable than those native to the islands; but, as a rule, such changes as are taking place above the zone of cultivation are fought out on the lines of the survival of the fittest. Near the sea level, however, where every square foot of tillable ground is utilized for the cultivation of food crops, the greater number of species met with are cosmopolitan weeds,† evidently of comparatively recent introduction, which here, as elsewhere, exist and spread because of their ability to live in crannies or by the roadside, and to flower and seed precociously and abundantly. Next the sea, and on the omnipresent stone walls and in the most recent volcanic debris, species found elsewhere in similar situations are thoroughly at home, scarcely being interfered with by cultivated plants or the usual field and roadside weeds; but it is observable that the plants of this description that are peculiar to the islands for the most part are of very restricted distribution, localities such as they affect being in large part occupied by plants common to other parts of the world, almost compelling the inference that even here the native species are being crowded aside, and in time will give place to the invaders.

A little over one hundred years ago the first printed account of the botany of the Azores seems to have been published by Forster, and at about the same time, from the

* Morris, The plants and gardens of the Canary Isles. Journ. Roy. Hort. Soc. 19: 65.

† On a similar condition in Madeira, see Yate Johnson's Madeira, 3d ed. 225.

collections of Masson, Aiton described a number of Azorean species. Our present knowledge of the subject comes largely from the work of Guthnick, the two Hochstetters and Seubert, H. C. Watson, Drouet, Godman, and the naturalists of the Challenger Expedition. In the contributions published by these men are to be found sufficient references to minor papers.* Just as Seubert's *Flora Azorica* will always form a necessary starting point for students of the flora of these islands, Watson's account of the flora in Godman's *Azores* marks a point at which most of the critical difficulties were pointed out and the list of Azorean plants brought to a fair degree of accuracy by the elimination of double entries and synonyms.

As Mr. Watson has shown (l. c., page 262), it is not probable that future collectors will add any considerable number of species to the phanerogams and pteridophytes of the Azores, though a few which have escaped detection thus far because of seasonal or geographical restriction, occasional new introductions, and species heretofore mistaken for others or forming part of ultimately divisible aggregates, will slightly augment the list from time to time. Even with the bryophytes, which M. Cardot believes can easily be doubled, the absolute increase in species is not likely to be at all considerable. With thallophytes, however, the case is quite different. Though perhaps relatively few additions to the lichens will be made, the fungi are practically unstudied, and in moist wooded regions many species should be found; and the marine algal flora, though unquestionably small, may doubtless be increased considerably by collections prosecuted through the entire year, while there is reason to expect a very large number of diatoms and desmids, as well as many representatives of other groups of fresh-water algae, whenever careful collections shall have

* Such of their works as are referred to in the catalogue of plants, appear in a list appended to the catalogue.

been made, especially from the wet sphagnum with which the highlands are usually covered except in Sta. Maria.

Nearly complete as the list of flowering plants and ferns is believed to be, a true flora of the Azores, even for these higher plants, is yet far from possible. For comparison with other regions, a list like Mr. Watson's, or the one here published, is reasonably satisfactory, but for the islands themselves a detailed local flora, with an analysis of the influences which favor the extended distribution of one species while restricting another to a very limited area, is greatly to be desired. Notwithstanding that the present catalogue makes only a small addition to the known number of species in the higher groups, it is believed that its publication is justified by the exact indication that it gives of the known distribution of the several species by islands; nevertheless my data are too few for the presentation of anything like a full list of localities in the several islands, so that no attempt has been made to do this. To facilitate the studies of future collectors, references have been added to reasonably good and easily accessible descriptions and figures of the species of higher plants, a few readily procurable hand-books being cited for this purpose, when possible, rather than scattered even if more critical and detailed memoirs and monographs. The abbreviations used in these references are explained at the end.

In the preparation of the catalogue, in addition to using my own collections (some 1930 numbers), I have had the privilege of examining of a collection some 435 numbers made in 1894 by Mr. C. S. Brown, chiefly in Fayal, Pico, and San Miguel; the herbarium of the Municipal Museum of Ponta Delgada, San Miguel; and numerous collections made in the latter island by Dr. Bruno T. Carreiro and Dr. C. Machado. While in Terceira, I was allowed to examine and take duplicates from the private herbarium of Dr. J. A. N. Sampaio, and while unfortunately I did not preserve a list of his Terceira species, the

duplicates have enabled me to add this island for a considerable number of species.*

In the catalogue, each specimen that I have examined is noted by my own number or by italicizing the name of the collector, or, in the very few cases in which only a field note was made, by italicizing the name of the island cited. Where neither of these indications of personal observation, nor any specific credit, is given, the localities have been derived from Mr. Watson's treatise in Godman's Azores. As a matter of convenience, except where I have thought differently as to specific limitations, the names of the *Index Kewensis* † have been adopted for the catalogue. Peculiarly Azorean species are indicated by the use of heavy-faced type. What may be called Atlantic species are indicated by small capitals. Established escapes and the like are entered in lower case type; and doubtful or casual plants are entered in small type.

It is observable that a large percentage of the species referred to on Mr. Watson's authority only, have not been detected since the days of his own collecting and that of Mr. Hunt, a half century ago. Whether these plants not recently collected, but the record of which in most cases is scarcely to be questioned, have become extinct or more local, or, as is probable in some cases, have escaped recent observation because they have not been sought at the right season, must be determined by further studies.

At the end of Mr. Watson's paper (p. 278) is a table showing in part the occurrence of Azorean plants in other floras with which that of the Azores may be compared reasonably. After the thallophytes shall have been more fully studied, the preparation of another and fuller geo-

* I cannot sufficiently express my gratitude to the gentlemen here named, for their numerous kindnesses, nor to Professor J. Henriques, of the University of Coimbra, through whom I made the acquaintance of those resident in the Azores.

† Jackson, *Index Kewensis plantarum phanerogamarum*. Oxford. 1893-5.

graphical table will be desirable. It is rather surprising to note that the present list has very little in common with Dr. Roth's list of plants which follow the Atlantic Ocean on the west coast of Europe.*

No difficulty is found in seeing how most of the existing species may have been introduced by ordinary means, largely through human agency, since the discovery of the islands, for they are so precisely comparable with similarly named species from other parts of the world as to suggest the lapse of a very short time, as time is measured by the evolutionist, since their separation from the parent stock. Some of the species at one time thought to be peculiar to the islands, — *e. g.*, *Solidago sempervirens*, — are now known not to be, so that they naturally fall in with those just mentioned; and notwithstanding the study that has been given to them by a number of careful botanists, others, perhaps, may share the same fate. Only the few species marked by the use of heavy-faced type, therefore, remain as peculiarly Azorean. So far as may be judged from their distribution and affinities, the ancestors of these seem to have been introduced by drift, migratory birds, etc., so long ago as to have allowed descendants in the original habitat and the new home to depart enough from the original type to become clearly separable as species. While some of these peculiar species are limited to one and others to another island or sub-group of islands, the truly native flora, which evidently has always been scanty, has clearly suffered so greatly through the inroads of man and domesticated animals, since the settlement of the Azores, that it is no longer possible to say whether or not these local limitations have always existed. Though it might, perhaps, be expected, no differentiation has yet been shown comparable with that seen in the plants of different islands of the Galapagos group in

* E. Roth, Ueber die Pflanzen, welche den Atlantischen Ocean auf der Westküste Europas begleiten. Abhandl. bot. Verein Prov. Brandenburg. 25: 132.

the Pacific,* where specific or varietal differentiation is strongly marked, but where communication between the several islands is far more restricted than in the Azores. For the purpose of showing at a glance the part played by each species of the higher plants, those which compose the bulk of the flora are marked with a large *, and those which are either rather rare or local are marked with a small *. Weeds are marked by a †.

One of the most interesting parts of the study of a limited and isolated flora is its ecology. In this respect the flora of the Azores is particularly disappointing, primarily because of the small number of truly endemic species, and secondarily because, notwithstanding their remoteness from the continents, the islands have for so long a time been stopping points for vessels plying between America and Europe that the probability of the introduction of plant-visiting insects capable of pollinating little-specialized flowers is almost as great as that of the plants themselves.

Comparatively few insects which take part in the pollination of flowers are known to occur in the Azores, and though there are some Syrphidae, and probably a few bees, in addition to what have been indicated,† the number of species and of individuals is unquestionably small. However, observation in bright weather shows that the Apidae and the few flower-frequenting Lepidoptera and flies are sufficiently active to leave no doubt as to the important part they play in pollination. The greater part of the Azorean flowering plants are either anemophilous or adapted to pollination by the aid of little-specialized in-

* Robinson and Greenman, On the flora of the Galápagos Islands, as shown by the collection of Dr. G. Baur. *Am. Journ. Sci.* 150 [iv. 50]: 135.

† From Mr. Godman's Natural History of the Azores, it appears that in 1870 he knew the following Azorean insects: Coleoptera, 212 species (p. 94); Hymenoptera, 13 (p. 101); Lepidoptera, 28 (p. 106). M. Drouet, in his *Eléments de la faune açoréenne*, further enumerates the following: Orthoptera, 5 species (p. 478); Hemiptera, 6 (p. 479); Diptera, 4 (p. 483).

sects, and, as a rule, they have open flowers with readily accessible nectar or pollen.

In a group of islands possessing only seven species of wild mammals, none of which is peculiar to the islands nor commonly concerned with the dissemination of plants elsewhere, and few birds capable of aiding in this work except for aquatics or marsh plants, it is scarcely to be expected that special dissemination adaptations would be found on the part of aboriginal plants, which presumably have been associated with these animals for a relatively short time, nor of recently introduced plants unless the relations have been established and the modifications worked out before either plant or animal reached the Azores. Hence it comes, for instance, that well developed burrs are found only on evidently recent introductions, and in most cases are obviously less effective than on the continents whence the plants producing them came. By far the greater number of species either possess no special modification adapting them to certain dissemination, but depend upon gravitation, the wind, or hygroscopic movements of their seed vessels, or else their adaptations are out of harmony with their surroundings.

Owing to the limitation of many species to cliffs and walls, they must needs be able to endure considerable drought, and for a protracted period, without serious injury, and this is found to be the case. But by far the greater number of plants showing adaptations to this end are those which had acquired these peculiarities before leaving their original continental home, so that they present few, if any, peculiarities properly claiming attention as a part of their relations to their present surroundings. The same may be said of the structure of strand plants, none of which are peculiar to the Azores, but the details of the distribution of which, nevertheless, would make a most interesting study.*

* Cf., for instance, Massart, *La biologie de la végétation sur le littoral belge*. Bull. Soc. roy. de bot. de Belgique, 32: 7.

Though, therefore, the general conclusion must be that the most striking ecological adaptations of Azorean plants are not in relation with their present surroundings, and therefore likely to be injurious, or at the best wasteful, rather than beneficial, there is reason to expect interesting results from a protracted study on the spot of the manner in which these plants may readjust themselves to their new environment.

CATALOGUE OF PLANTS.

Phanerogams.

RANUNCULACEAE.

- ♦♦RANUNCULUS MEGAPHYLLUS, Steud. *R. grandifolius*, Watson 124. *R. cortusaefolius*, Drouet 155; Seubert 42; Seub. & Hochst. 13; Watson (2) 585, (3) 384.—Lowe, 34.—Bot. Mag. 78. *pl.* 4625.—*Plate 12.*
Flores (1, 2). Fayal. Pico. San Jorge.
- *R. FLAMMULA, L. Watson 124; Drouet 155; B. & H. 8. *f.* 12.
Terceira (4, abundant in a marsh at about 1,000 ft. elevation, two or three miles northeast of Angra).
Of the several forms contrasted by Ewing in *Annals of Scott. Nat. Hist.* 1894. 236, this is nearest var. *petiolaris*, Lange, *Journ. Bot.* 27: 230, not *R. petiolaris*, HBK.
- *R. TRILOBUS, Desf. Watson 126, (2) 585; Drouet 155; Seubert 43; Seub. & Hochst. 13.—Lowe, 5.—Desf. *Fl. Atl.* 1. *pl.* 113.
Flores. Terceira. San Miguel. Sta. Maria.
- X *R. PARVIFLORUS, L. Watson 126, (2) 586; Drouet 155; Seubert 43; Seub. & Hochst. 13.—B. & H. 10. *f.* 22.
Flores (3). Fayal. Pico. Terceira. San Miguel. Sta. Maria (3,a).
- X †R. REPENS, L. Watson 125, (2) 585; Drouet 155; Seubert 42; Seub. & Hochst. 13.—B. & H. 9. *f.* 18.
Fayal. Pico. Terceira (5). San Miguel.
- X *R. MURICATUS, L. Watson 126, (2) 585; Drouet 155; Seubert 43; Seub. & Hochst. 13.—Lowe, 6.—Rchb. 3. *pl.* 22.
Fayal. San Miguel.

DELPHINIUM AJACIS, L. Watson 126. *D. consolida*, Drouet 156; Seubert 43; Watson (2) 586; Seub. & Hochst. 13.—B. & H. 13. f. 29.

Flores. Pico (*Brown*, 1, near gardens).—Quite clearly a garden escape.

**Aquilegia vulgaris*, L. Watson 126, (1) 398, (2) 586; Drouet 155; Seubert 43.—B. & H. 12. f. 28.

Pico (*Brown*, 2).—A white-flowered variety.

NIGELLA ARVENSIS, L. Watson 126, (2) 586, (3) 394; Drouet 155; Seubert 43; Seub. & Hochst. 13.—Rchb. 4. pl. 120.

San Miguel, in or about gardens.—Not recently collected, and probably a garden escape, though in Madeira *N. Damascena* is abundant.

PAPAVERACEAE.

**Papaver somniferum*, L. Watson 127; Drouet 156 (incl. *P. setigerum*).—Lowe, 11.—Rchb. 3. pl. 17.

Fayal. Sta. Maria.—A garden escape in the former island.

*†*P. DUBIUM*, L. Watson 128, (2) 586; Drouet 156.—B. & H. 18. f. 38.

Corvo (48). Flores (47, 51). Fayal. San Miguel (*Carreiro*).

*†*P. RHOEAS*, L. Watson 128, (3) 381; Drouet 156.—B. & H. 18. f. 37.

Terceira (49; *Sampaio*). San Miguel (50). Sta. Maria (50, a).

**CHELIDONIUM MAJUS*, L. Watson 128, (2) 586, (3) 394; Drouet 156; Seubert 43; Seub. & Hochst. 13.—B. & H. 19. f. 42.

Pico (*Brown*, 18). San Jorge (44). Terceira (45). San Miguel (46; *Brown*, 19).

*†*FUMARIA MURALIS*, Sonder. Watson 128; Babington, Bot. Gaz. 1: 63, Journ. Linn. Soc. Bot. 4: 157. *F. capreolata*, Drouet 156; Seubert 43; Seub. & Hochst. 13; Watson (2) 586, (3) 384, Phytologist, 3: 805. ?*F. officinalis*, Watson 128, (2) 586, (3) 395; Drouet 156; Seubert 43; Seub. & Hochst. 13.—Lowe, 13.—Fl. Danica, 14. pl. 2473.

Flores. Fayal (*Brown*, 16). Pico (*Brown*, 17).

Graciosa (40). Terceira (41, 42; *Sampaio*). San Miguel (*Carreiro*, 89).

*† *F. BASTARDI*, Bor.— Corbière, 36.— *Plate 13*.

San Miguel (43; *Carreiro*, 39). Sta. Maria (43, *a*, 43, *b?*).— Scarcely separable from the preceding.

*† *F. BORAEI*, Jord.— Corbière, 35.— *Plate 13*.

San Miguel (*Carreiro*, 136).— Larger flowered than either of the preceding.

These three closely related species are frequently treated as varieties of one, *e. g.* Lange, followed by Colmeiro, *Plantas de la Peninsula*, 1: 117, under *F. media*, which is sometimes made to comprise the last two as distinct from *F. muralis*, *e. g.* Index Kewensis.

F. DENSIFLORA, DC. ?*F. micrantha*, Drouet 156; Watson 129.

San Miguel (Drouet).— If really present, may be recognized from its crowded flowers, the short deeply colored corolla scarcely twice as long as and narrower than the almost peltate sepals.

CRUCIFERAE.

**MATTHIOLA INCANA*, R. Br. Drouet 157. *M. annua*, Watson 129, (2) 586; Drouet 156; Seubert 43; Seub. & Hochst. 13.— Corbière, 43.— Rehb. 2. *pl. 45*.

Fayal (*Brown*, 12). Pico? (*Brown*, 13, 14). Terceira (*Sampaio*). San Miguel.

**NASTURTIUM OFFICINALE*, R. Br. Watson 130, (2) 586; Drouet 157; Seubert 43; Seub. & Hochst. 13.— B. & H. 27. *f. 52*.

Corvo (6). Flores (7, 8). Fayal. Terceira (9). San Miguel (10; *Brown*, 15). Sta. Maria (10, *a*).

N. FLEXUOSUM, Seubert 43; Watson 130, (2) 586, (3) 395; Drouet 157. *N. nova spec.*, Seub. & Hochst. 13.

Flores (apparently distributed as Hochstetter, 61).— Not recently recognized, and doubtfully referred to the preceding in Index Kewensis.

**Cardamine caldeirarum*, Guthn. in Seubert 43; Seub. & Hochst. 13; Watson 130, (2) 586; Drouet 157. *C. Caldeiraria*, Watson (1) 129.— *Plates 14-15*.

Corvo (16, 17). Flores (11, 12, 13,— the latter from the northern end of the island, a large lax form with the leaflets long-stalked and deeply and acutely palmately lobed, or with an occasional secondary leaflet cut

off at base, approaching *C. maritima*,—plate 15).
Fayal (*Brown*, 11). Pico. San Miguel.

**C. caldeirarum*, var. *amplifolia* n. var.

San Miguel, (14, 15,—in the vicinity of the Furnas, especially abundant and well developed in the large grotto beside Lagoa das Furnas, a short distance above the hot springs; *Carreiro*, at Candellaria).

At length a foot high, slender and lax, spreading by a rather stout root-stock, with sparse white hairs, especially about the bases of the petioles: flowers larger: foliage as in *C. amara*: capsules slender, remote, very divergent on capillary pedicels less than half their length, not surpassing the floriferous end of the stem.—Plate 16.

An interesting form with rather larger flowers than the type and leaves most closely resembling those of *C. amara*, but the fruit and habit of the former. From *C. hirsuta* it differs in its larger flowers, and from *C. sylvatica* in its few very spreading capsules.—But the figure of *C. sylvatica* in *Rehb.* 2. pl. 26 might almost pass for some forms of *C. caldeirarum*.

**C. HIRSUTA*, L. Watson 130, (2) 586, (3) 384; Drouet 157.—B. & H. 32. f. 66.

Terceira. San Miguel (*Carreiro*, 135).

*†*Barbarea praecox*, R. Br. Watson 130, (2) 586; Drouet 157. ? *B. intermedia*, Drouet 157.—B. & H. 27.—*Rehb.* 2. pl. 49.

Fayal. San Miguel.

*†*SISYMBRIUM OFFICINALE*, Scop. Watson 131, (2) 586; Drouet 157; Seubert 44.—B. & H. 33. f. 69.

Corvo (18). *Flores*. Fayal (*Brown*, 10). Graciosa (19). Terceira (21). San Miguel (20; *Carreiro*, 112). Sta. Maria (20, a).

All of my specimens belong to a nearly glabrous form, with the capsules usually quite glabrous, which is frequent in the United States.

S. IRIO, L. Watson 131; Drouet 137.—B. & H. 34. f. 70.

Fayal (Drouet).—Doubtful.

**ALYSSUM MARITIMUM*, L. Watson 131, (2) 587, (3) 395; Drouet 157; Seubert 44.—B. & H. 40. f. 87.

Terceira (28). San Miguel.

*†*BRASSICA NIGRA*, Koch. *Sinapis nigra*, Watson 131, (2), 586; Drouet 157; Seubert 44; Seub. & Hochst. 13.—B. & H. 38. f. 82.

Flores (22). Fayal. Terceira (*Sampaio*?). San Miguel (*Carreiro*, 182?).

*†CAPSELLA BURSA-PASTORIS, Medic. Watson 132, (3) 382; Drouet 158.—B. & H. 45. *f.* 101.

Corvo (39). Flores. Terceira. San Miguel (*Carreiro*). Sta. Maria (39, a).

X *†SENEBIERA PINNATIFIDA, DC. Watson 131, (2) 587; Drouet 157; Seubert 44; Seub. & Hochst. 13.—B. & H. 48. *f.* 108 (as *S. didyma*).

Flores (31, 32). Fayal. Pico (*Brown*, 3). San Jorge (33, 34). Terceira (35). San Miguel (*Brown*, 4, 17; *Carreiro*, 577, a). Sta Maria (35, a).

X S. CORONOPUS, Poir. Watson 132; Drouet 158.—B. & H. 47. *f.* 107. Terceira.—Doubtful.

● *†LEPIDIUM VIRGINICUM, L. Watson 132, (2) 587; Drouet 158; Seubert 44; Seub. & Hochst. 13.—Lowe, 34.—Rchb. 2. *pl.* 10.

Flores (38). Fayal (*Brown*, 9). Pico. San Jorge (36, 37). Terceira. San Miguel (*Carreiro*, 51).

IBERIS UMBELLATA, L.—Rchb. 2. *pl.* 7.

San Miguel (29, in an abandoned quinta).—An escape.

*RAPISTRUM ORIENTALE, DC. Drouet 158.—Rouy & Foucaud, 2: 74.—*Plate* 17.

Terceira (30). Graciosa.

R. PERENNE, All. Watson 132, (2) 586; Drouet 158.

Fayal.—Doubtful. Should have longer more acuminate fruit than the preceding.—*Plate* 17.

X *R. RUGOSUM, All. Watson 133, (3) 381; Drouet 158.—Rouy & Foucaud, 2: 72.—Rchb. 2. *pl.* 2.—*Plate* 17.

Graciosa. San Miguel.—Style considerably longer than the capsule.

*Cakile Americana, Nutt. Watson 133, (2) 586, (3) 385; *C. maritima*, Drouet 158; Seubert 44.—Gray, 74.—Gray, Gen. Illustr. 1. *pl.* 74.

Fayal (*Brown*, 8).—Frequently, as in Index Kewensis, placed under *C. maritima*.

X *†RAPHANUS RAPHANISTRUM, L. Watson 134, (2) 586, (3) 385; Drouet 158.—B. & H. 49. *f.* 112. *pl.* 17.

Corvo (24, 25). Fayal (*Brown*, 5). Pico (*Brown*, 7). Graciosa (*Brown*, 6). Terceira (23). San Miguel (27; *Carreiro*, 122). Sta. Maria.

R. LANDRA, Moretti. Watson 134.— *Plate 17*.

Flores. Fayal.— Not recently collected.— With stouter capsules having far less conspicuous constrictions and stout conical beak; whereas in the preceding they are usually very slender and always strongly moniliform, the constricted parts sometimes as long as the fertile segments, and the beak is slender and almost linear.

RESEDACEAE.

*RESEDA LUTEOLA, L. Watson 135, (2) 587; Drouet 158.

? *R. macrosperma*, Seubert 44; Watson (2) 587; Seub. & Hochst. 13.— Lowe, 42.— *Rchb.* 2. *pl.* 99.

Corvo (53). Flores (52). Fayal (*Brown*, 23). Pico (*Brown*, 22). Graciosa (54, 55). Terceira (57, 58). San Miguel (56; *Carreiro*, 11). Sta. Maria (56, *a*).

All of my specimens except no. 53 have leaves with undulate margin, and are presumably what Drouet and Watson refer to var. *crispata*. It is not clear that they are really separable from var. *australis*, Müll. Arg., which occurs in the Canary Islands, while the former variety, as understood by Müller, is continental; but it is possible that the varieties are not sharply separable.

VIOLACEAE.

*VIOLA ODORATA, L. Watson 136, (2) 587, (3) 385; Drouet 159; Seubert 44.— *B. & H.* 54. *f.* 121.

Flores. Fayal. San Miguel (*Brown*, 21).

*V. PALUSTRIS, L. Watson 134, (2) 587; Drouet 159.— *B. & H.* 54. *f.* 120.

Flores. Pico.— Not recently collected.

V. TRICOLOR, L. Watson 136, (3) 382; Drouet 159; *Rchb.* 3. *pl.* 21.
Flores.— Probably escaped; not recently collected.

PITTOSPORACEAE.

PITTOSPORUM UNDULATUM, Vent. Hort. Cels. *pl.* 76.

Sta. Maria (56, *b*, 56, *c*), and seen elsewhere.— The “encenso,” long cultivated, and appearing spontaneous, as is the case with most other woody plants, but doubtfully established as truly escaped.

POLYGALACEAE.

- *POLYGALA VULGARIS, L. Watson 136, (1) 402, (2), 587;
Drouet 162; Seubert 46; Seub. & Hochst. 14.—B. &
H. 56. *f.* 126.

Pico.

- P. SERPYLLACEA, Weihe. *P. depressa*, Watson 137; Drouet 162.—Hayne,
Arzneigewächse, 13. *pl.* 24.

Pico. Terceira.—Doubtful.

FRANKENIACEAE.

- *FRANKENIA PULVERULENTA, L. Watson 137, (2) 587;
Drouet 159; Seubert 44; Seub. & Hochst. 14.—Lowe,
48.—Sibth. *Fl. Graeca. pl.* 344.

Flores (87, 88). Fayal. Pico. Terceira (89). San
Miguel (90, 91).

- *F. HIRSUTA, L. *F. ericifolia*, Watson 137, (2) 587;
Drouet 159; Seubert 44. *F. laevis*, var. *viridis*, Seub.
& Hochst. 14.—Lowe, 48 (as *F. laevis*).—Sibth. *Fl.*
Graeca. pl. 343.

Corvo (83, 84, 85, 86, near the shore).

CARYOPHYLLACEAE.

- *SILENE GALLICA, L. Watson 138; Drouet 161. *S.*
Lusitanica, Watson (2) 587; Drouet 161; Seubert
45; Seub. & Hochst. 14.—Lowe, 50.—B. & H. 63.
f. 137.

Corvo (97, 98, 99, 100). Flores (94). Fayal. Pico
(*Brown*, 24). Graciosa (95). Terceira (93; *Sampaio*).
San Miguel (96; *Carreiro*, 11, 49). Sta. Maria (96, *a*).

- *S. INFLATA, Sm. Watson 137; Drouet 161; Seubert
45; Seub. & Hochst. 14. *S. maritima*, Watson
(2) 587.—Lowe, 52.—B. & H. 62. *f.* 134 (as *S.*
Cucubalus).

Corvo (102, 103). Flores (101). Pico. San Miguel.

- S. ARMERIA, L. Watson 138, (3) 383; Drouet 161.—Corbière, 91.—
Rchb. G. pl. 284.

San Miguel.—A garden escape.

- ***Cerastium Azoricum**, Hochst. in Seubert 45. *pl.* 14; Watson 138, (2) 587; Drouet 160; Seub. & Hochst. 14. Corvo (126 to 131). Flores (120 to 125).
- ***C. TRIVIALE**, Lk. Watson 139. *C. vulgatum*, Seubert 45; Watson (2) 587; Seub. & Hochst. 14; Drouet 160.—Gray, 88 (as *C. vulgatum*); Lowe, 60.—Rchb. 5. *pl.* 229. Flores. Fayal. Terceira (119). San Miguel (112, 113, 114; *Brown*, 28).
- ***C. GLOMERATUM**, Thuill. Watson 138. *C. viscosum*, Watson (2) 587; Drouet 160.—Gray, 88 (as *C. viscosum*); Lowe, 60.—Rchb. 5. *pl.* 229 (as *C. vulgatum*). Corvo (115, 117, 118). Flores. Fayal (*Brown*, 29). Terceira (116). San Miguel (*Carreiro*, 153). Sta. Maria (118, *a*, 118, *b*).
- *†**STELLARIA MEDIA**, Cyrill. Watson 139, (2) 587; Drouet 160.—B. & H. 73. *f.* 165. Flores. Fayal. Graciosa (92). San Miguel. Sta. Maria (92, *a*).
- ARENARIA MUSCOSA**, Med. *Moehringia muscosa*, Watson 139; Drouet 160.—Rchb. 5. *f.* 213. Terceira.—Doubtful.
- ***SAGINA PROCUMBENS**, L. Watson 139, (2) 587; Drouet 160; Seubert 45; Seub. & Hochst. 14.—B. & H. 65. *f.* 146. Corvo (132). Flores (133, 134). Fayal. San Jorge (875). Terceira (605; *Abreu*). San Miguel (135, 136, 137, 138; *Brown*, 27; *Carreiro*, 120). Sta. Maria (138, *a*).
- *†**SPERGULA ARVENSIS**, L. Watson 139, (3) 382; Drouet 160.—B. & H. 75. *f.* 171. Fayal. San Miguel.
- *†**SPERGULARIA RUBRA**, Presl. Watson 140. *Arenaria rubra*, Watson (2) 587, (3) 385; Drouet 160.—B. & H. 74. *f.* 170. Corvo (139, 140, 141). Flores (142, 143). Fayal. Graciosa (144). San Miguel (*Carreiro*, 9). Sta. Maria (144, *a*).

- S. MARINA, Watson 140. ? *S. Azorica*, Lebel. *Arenaria marina*, Seub. & Hochst. 14; Drouet 160. *Alsine marina*, Seubert 45, in part. *A. media*, Seub. & Hochst. 14.—Corbière, 110.—Rchb. 5. pl. 222 (as *Alsine media*).

Pico. San Miguel.—A slender rooted species, like the preceding, but the flowers should be twice as large, and at least some of the seeds winged.—Doubtful.

- *S. MACRORHIZA, Watson 140. *Arenaria macrorhiza*, Drouet 160; Watson (2) 587, (3) 385; Seub. & Hochst. 14. *Alsine marina*, Seubert 45, in part.—Rouy & Foucaud, 305.—Plate 18.

Flores. Fayal. Pico. San Miguel (*Hochstetter*, 37; *Carreiro*, 92). Sta. Maria (144, *b*, 144, *c*, 144, *d*).

Were it not for the desirability of following the Index Kewensis, these would all appear under *Tissa*, with the same specific names.

- *POLYCARPON TETRAPHYLLUM, L. f. Watson 141, (2) 592; Drouet 159; Seubert 45; Seub. & Hochst. 14.—B. & H. 76. f. 172.

Corvo (104, 105, 106). Flores (107, 108). Fayal (*Brown*, 25, 26). Pico (*Brown*, 112). San Jorge (109). Graciosa (110). Terceira (*Sampaio*). San Miguel (111; *Carreiro*). Sta. Maria (111, *a*).

PORTULACACEAE.

- *†PORTULACA OLERACEA, L. Watson 141, (2) 592; Drouet 159; Seubert 45.—Lowe, 303.—Gray, Gen. 1. pl. 99.

Corvo. Flores. Fayal. Pico (*Brown*, 20). Terceira (145). San Miguel (*Carreiro*, 3). Sta. Maria.

ELATINACEAE.

- *ELATINE HEXANDRA, DC. Watson 141, (2) 587; Drouet 161.—B. & H. 78. f. 176.

Corvo (318). Flores. San Miguel (*Brown*).

HYPERICACEAE.

- **Hypericum foliosum*, Dryand. Watson 142, (1) 399, (2) 587; Drouet 162; Seubert 46; Seub. & Hochst.

13. *H. grandifolium*, Watson (1) 130. *Androsaeum Webbianum*, Seubert 46; Drouet 162.—Ait. Hort. Kew. 3: 104.—Plate 19.

Corvo (146). Flores (147, 148, 149). Fayal (*Brown*, 44). Pico (*Brown*, 45). *Graciosa*. Terceira (150). San Miguel (151; *Carreiro*, 154). Sta. Maria (151, a, 151, b).

9 *H. BAETICUM, Boiss. Watson 143. ? *H. tetrapterum*, Drouet 162. ? *H. perforatum*, Drouet 162; Seubert 46; Seub. & Hochst. 13. *H. decipiens*, Watson, Lond. Journ. Bot. 3: 588, (3) 385, 395; Drouet 162.—Boiss. Voy. Bot. Espagne, 1: 114. pl. 34.

Flores (152, 153). Fayal (*Brown*, 46, 47). Pico. Terceira (154). San Miguel (155, 156; *Brown*, 48; *Carreiro*, 162). Sta. Maria (156, a, 156, b).—Treated as a form of *H. undulatum* in Index Kewensis, as by Babington, Journ. of Bot. 2: 97. pl. 16.

*H. perforatum, L. Watson 142, (2) 589, (3) 395.—B. & H. 80. f. 180.

S. Maria Terceira.

Differs from the preceding in its terete or only slightly 2-winged stem, less divaricate branches, and larger deeper-colored flowers with the petals more dotted with black.

*H. HUMIFUSUM, L. Watson 143, (2) 589; Drouet 162; Seubert 46; Seub. & Hochst. 13.—B. & H. 81. f. 183.

Corvo (157). Flores (158, 159, 160). Fayal (*Brown*, 49, 188). Pico (*Brown*, 50). *Graciosa* (161). Terceira (162). San Miguel (163, 164; *Brown*, 51; *Carreiro*). Sta. Maria (164, a).

*H. ELODES, Huds. Watson 143; Drouet 162; Watson (3) 382.—B. & H. 82. f. 188.—Plate 20.

San Miguel (165, Pico do Carvão, at about 2000 ft. elevation, 166, Lagoa das Furnas; *Brown*, 52).

MALVACEAE.

*†LAVATERA CRETICA, L. *L. sylvestris*, Watson 145, (2) 587; Drouet 161; Seubert 46; Seub. & Hochst. 14.—Lowe, 64.—Cavanilles, Diss. 2: 89. pl. 32.

Flores (79, 80, 81). Fayal (*Brown*, 32, 33?). Pico (*Brown*, 34). San Jorge (77). Graciosa (78). Terceira (76). San Miguel (*Carreiro*, 111). Sta. Maria (76, *a*, 76, *b*).

Fruiting sepals inflexed over the ten carpels.

*MALVA NICAENSIS, All. Watson 144.—Corbière, 117.—Rehb. 5. *pl.* 168.

Fayal.

A plant of the aspect of the preceding, but with rather smaller flowers, which differs in the technical generic character of having the shorter but still broadly ovate bractlets unconnected into an outer cup, in its open fruiting calyx, and in having the ten mature carpels less rounded on the back, so that the outline of the cluster is less crenated.

*†M. PARVIFLORA, L. Watson 144, (2) 587; Drouet 161.—Lowe, 64.—Cavanilles, Diss. *pl.* 26.

Corvo (74, 75). Fayal. San Jorge (*Brown*, 31). San Miguel. Sta. Maria (75, *a*).

Differs from the last in its glabrous petal claws, narrowly linear bractlets, and carpels with the dorso-lateral margin elevated into a usually toothed wing.

M. ROTUNDIFOLIA, L. Watson 144, (2) 587; Drouet 161; Seubert 46; Seub. & Hochst. 14.—B. & H. 86. *f.* 195.

Fayal, and perhaps other islands.—Doubtful.

Differs in its oblong bractlets, often reflexed fruiting pedicels, and more crenate fruit of about fourteen wingless carpels.

*†SIDA RHOMBIFOLIA, L. var. CANARIENSIS, Griseb. *S. rhombifolia*, Watson 145, (1) 6, (2) 587; Drouet 161; Seubert 46. *S. Canariensis*, Seub. & Hochst. 14.—Lowe, 69.—Cavanilles, Diss. *pl.* 3.

Flores (73). Fayal (*Brown*, 30). Pico. San Jorge (72). Graciosa (71). San Miguel (*Carreiro*). Sta. Maria (71, *a*).

GERANIACEAE.

*†GERANIUM DISSECTUM, L. Watson 146, (2) 589; Drouet 163; Seubert 47; Seub. & Hochst. 13.—B. & H. 93. *f.* 211.

Terceira (173). San Miguel (*Carreiro*, 172). Sta. Maria (173, *a*).

- *G. ROTUNDIFOLIUM, L. Watson 145; Drouet 163.—B. & H. 92. *f.* 210.
San Miguel (169, 171; *Carreiro*, 102).
- *G. MOLLE, L. Watson 145, (2) 589; Drouet 163.—B. & H. 92. *f.* 208.
Fayal (*Brown*, 35). Graciosa (172). Terceira (168, 170). San Miguel.
- *G. ROBERTIANUM, L. Watson 146, (2) 589; Drouet 163; Seubert 47; Seub. & Hochst. 13.—B. & H. 91. *f.* 206.
Flores. Fayal. San Jorge (174). *Terceira*. San Miguel (*Carreiro*, 193). Sta. Maria (174, *a*).
- **†ERODIUM MALACHOIDES, Willd. Seubert 47; Watson (1) 397, (2) 589; Drouet 164. *E. malacoides*, Watson 145; Seub. & Hochst. 13.—Lowe, 92.—Rehb. 5. *pl.* 185.
Pico. San Miguel. Sta. Maria (174, *b*).
- *†E. MOSCHATUM, L'Her. Watson 145, (3) 382; Drouet 164.—B. & H. 94. *f.* 214.
Terceira (*Sampaio*). San Miguel. Sta. Maria (167, *a*).
- *†E. CICUTARIUM, L' Her.—B. & H. 93. *f.* 213.
Terceira (167—*a* small specimen from Monte Brazil).
- *OXALIS CORNICULATA, L. Watson 146, (2) 589; Drouet 164; Seubert 47; Seub. & Hochst. 14.—B. & H. 95. *f.* 217.
Corvo (175). *Flores*. Fayal. Pico (*Brown*, 36, 209). San Jorge (176). Graciosa (178, 179). Terceira (177). San Miguel (180; *Brown*, 37; *Carreiro*). Sta. Maria (180, *a*).
- *†O. purpurea, Jacq. Watson 146, (2) 589; Drouet 164.—Lowe, 101.—Jacq. *Oxalis. pl.* 56.
Fayal? Terceira (*Sampaio*). San Miguel.
Escaping from gardens. In Madeira it has become extremely common.
- * O. MARTIANA, Zucc.—Lowe, 100.—*Bot. Mag.* 68. *pl.* 3938.
Fayal (*Brown*, 38).—A garden escape.

RUTACEAE.

- **RUTA CHALEPENSIS*, L. *R. bracteosa*, Watson 146, (2) 589; Drouet 163; Seubert 47; Seub. & Hochst. 14.—Boissier, Fl. Orient. 1: 922.—Rchb. 5. pl. 156.

Pico (*Brown*, 54). Terceira (181). San Miguel. Sta. Maria (181, *a*, 181, *b*).

The Brown specimen approaches var. *bracteosa* more closely than do the others.

AQUIFOLIACEAE.

- **ILEX PERADO*, Ait. Watson 146, (2) 589, (3) 386; Drouet 162; Seubert, 46; Seub. & Hochst. 12.—Lowe, 2:15.—Plate 21.

Flores. Fayal (*Brown*, 41). Pico (*Brown*, 42, 43). Terceira. San Miguel (182, 183, 183, *a*; *Carreiro*).

RHAMNACEAE.

- **RHAMNUS LATIFOLIA*, L'Her. Watson 146, (2) 589; Drouet 163; Seub. & Hochst. 14; Seubert 47.—Lowe, 111.—Bot. Mag. 53. pl. 2663.

Flores (184, 185). Fayal (*Brown*, 40). San Miguel (186; *Carreiro*). Sta. Maria.

R. PUBESCENS, Banks, MSS. Drouet 163; Watson 146.

Terceira.—Not known further than Drouet's citation.

ANACARDIACEAE.

- **RHUS CORIARIA*, L. Watson 47, (2) 589; Drouet 163.—Lowe, 113.—Nouveau Duhamel, 2. pl. 136.

Flores (187). Pico (*Brown*, 53). Graciosa (188).

LEGUMINOSAE.

- **SPARTIUM JUNCEUM*, L. Watson 147, (1) 7, (2) 589; Drouet 167; Seubert 48; Seub. & Hochst. 14.—Corbière, 142.—Bot. Mag. 3. pl. 85.

Flores. Pico (*Brown*, 57). Fayal. Graciosa. Sta. Maria.—Held by Watson, and probably rightly, to be an escape.

- **ULEX NANUS*, Forst. Watson 147; Drouet 168.—B. & H. 102. f. 227.

Flores (191). Terceira (192).

- *U. EUROPAEUS, L. Watson 147; Drouet 167.— B. & H. 102. *f.* 226.

San Miguel (193; *Brown*, 55; *Carreiro*). Sta. Maria.

This and the preceding are excluded by Mr. Watson, as probably introduced, in which opinion he is doubtless right, but the specimens collected by me were all truly wild, and in situations such as the species affect on the Continent.

- *CYTISUS SCOPARIUS, L. *Sarothamnus scoparius*, Watson 146; Drouet 167; Seubert 48. *Spartium scoparium*, Watson (2) 589; Seub. & Hochst. 14.— Lowe, 122.— B. & H. 104. *f.* 231; Hayne, *Arzneigew.* 9. *pl.* 10. Corvo. Flores (196). Fayal (*Brown*, 56). Terceira (194, 195). San Miguel.— Probably an escape, but apparently established

- *C. CANDICANS, Lam.— Boissier, *Fl. Orient.* 2: 54.— Bot. Register. 3. *pl.* 217.

Flores (226). Graciosa (217). San Miguel (218; *Brown*).— Perhaps escaped from cultivation.

- *ONONIS ARVENSIS, L. Watson 148, (3) 382; Drouet 168.— B. & H. 105. *f.* 232.

San Miguel.— Not recently collected.

- *TRIGONELLA ORNITHOPODIOIDES, DC. Watson 148; Drouet 168.— B. & H. 109. *f.* 243.

San Miguel. — Not recently collected.

- *†MEDICAGO LUPULINA, L. Watson 148, (2) 591, (3) 395; Drouet 168; Seubert 48; Seub. & Hochst. 14.— B. & H. 106. *f.* 236.

Graciosa (220). Terceira (219). Sta. Maria (220, *a*).

- *†M. DENTICULATA, Willd. Watson 148, (2) 591. *M. pentacycla*, Seubert 48; Watson (2) 591, (3) 395; Seub. & Hochst. 14; Drouet 168.— B. & H. 107. *f.* 237.

Fayal (*Brown*, 58). Terceira (221).

- *†M. LAPPACEA, Desr. Watson 148; Drouet 168; Seubert, 48; Seub. & Hochst. 14.— Lowe, 158.— *Rchb.* 22. *pl.* 70 (under *M. denticulata*).

Terceira. San Miguel. Sta. Maria (222, *a*, ? 222, *b*).

Differing, if really distinct, in its less reticulated larger fruit of four or five spires.

- *† *MELILOTUS INDICA*, All. *M. parviflora*, Watson 149, (2) 590; Drouet 168; Seubert 49; Seub. & Hochst. 14.—Lowe, 154.—Rchb. 22. *pl.* 76.
Corvo (223). San Jorge (222). Terceira. San Miguel.
- * *TRIFOLIUM ANGUSTIFOLIUM*, L. Watson 148, (2) 590; Drouet 168; Seubert 49; Seub. & Hochst. 15.—Lowe, 136.—Rchb. 22. *pl.* 93.
Fayal (*Brown*, 59). Terceira (236). Sta. Maria (236, a).
T. INCARNATUM, L.—B. & H. 110. *f.* 244.
Terceira (Monte Brazil, *Sampaio*).—Probably an escape.
- *† *T. ARVENSE*, L. Watson 149; Drouet 168; Watson (2) 590.—B. & H. 111. *f.* 246.
Corvo (241). Flores (242). Fayal (*Brown*, 61, 62). San Jorge (245). Graciosa (244). Terceira (243). San Miguel (246; *Carreiro*). Sta. Maria (246, a).
- * *T. LIGUSTICUM*, Balb. Watson 149, (2) 590; Drouet 168; Seubert 49; Seub. & Hochst. 15.—Lowe, 137.—Rchb. 22. *pl.* 102.
Corvo (238). Flores (239, 240). Fayal. Pico (*Brown*, 60). San Miguel (*Carreiro*). Sta. Maria (240, a).
- * *T. SCABRUM*, L. Watson 149, (2) 590; Drouet 168; Seubert 49; Seub. & Hochst. 15.—B. & H. 112. *f.* 253.
Fayal. Terceira. San Miguel.
A low spreading species, stouter than the last, rough hairy, and with spine-like calyx teeth.
- * *T. STRIATUM*, L. Watson 150; Drouet 169. *T. rari-florum*, Watson 150; Drouet 169.—B. & H. 112. *f.* 252.
Terceira. San Miguel.
Habit of the preceding, softly hairy, the ovoid inflated calyx contracted at apex, its teeth rigid but slenderer.
- * *T. MARITIMUM*, Huds. Watson 150; Drouet 169.—B. & H. 112. *f.* 251.
Terceira? Sta. Maria.
Taller than the preceding, which it resembles, but with usually stalked heads and narrower longer stipules.

- *T. LAPPACEUM, L. Watson 150, (2) 590, (3) 395; Drouet 168; Seubert 49; Seub. & Hochst. 15.—Lowe, 138.—Rchb. 22. *pl.* 91.

Fayal.

- *†T. REPENS, L. Watson 150, (2) 590; Drouet 168; Seubert 49; Seub. & Hochst. 15.—B. & H. 114. *f.* 260.

Flores (224). Fayal (*Brown*, 63, 64). Terceira (225). San Miguel (226; *Brown*, 65; *Carreiro*). Sta. Maria (226, a).

- *T. GLOMERATUM, L. Watson 150, (2) 590; Drouet 168; Seubert 49; Seub. & Hochst. 15.—B. & H. 113. *f.* 255.

Flores (237). Fayal. San Miguel (*Carreiro*). Sta. Maria (237, a, 237, b, 237, c).

- *T. SUFFOCATUM, L. Watson 150, (1) 398, (2) 590; Drouet 168; Seubert 49.—B. & H. 113. *f.* 256.

Pico.

- *T. CERNUUM, Brot. Watson 151; Drouet 169.—Brotero, *Phyt. Lus.* 1: 150. *pl.* 62.

Pico. San Miguel.

- *T. RESUPINATUM, L. Watson 151; Drouet 169.—Lowe, 146.—Sturm, 4. *pl.* 16.

San Miguel? Sta. Maria (237, a).

A species resembling *T. glomeratum* in habit, but with stalked heads and the membranaceous fruiting calyx much enlarged and very veiny.

- *T. SUBTERRANEUM, L. Watson 151; Drouet 168.—B. & H. 113. *f.* 258.

Graciosa. San Miguel.

- *T. PROCUMBENS, L. Watson 151, (2) 590; Drouet 168; Seubert 49; Seub. & Hochst. 15. *T. campestre*, Drouet 168. *T. agrarium*, Drouet 169.—B. & H. 115. *f.* 262.

Corvo (227, 228). Flores (229, 230, 231). Fayal (*Brown*, 66). Pico (*Brown*, 67). San Jorge (232). Graciosa (233). Terceira (234). San Miguel (235; *Carreiro*, 107, 191). Sta. Maria (235, a, 235, b).

- **T. MINUS*, Relhan. Watson 151. *T. filiforme*, Watson (2) 590; Drouet 169.— B. & H. 115. *f.* 263.
 Flores. Fayal. San Miguel.— Not recently collected.
- **LOTUS ULIGINOSUS*, Schk. Drouet 169. *L. major*, Watson 152, (2) 590; Drouet 169; Seub. & Hochst. 14. *L. corniculatus*, β . *major*, Seubert 49.— Lowe, 170.— Engl. Bot. 30. *pl.* 2091.
 Corvo (201, 202). Flores (203). Fayal (*Brown*, 68, 69). Terceira (204, 205, 206, 206, *a*). San Miguel (*Carreiro*, 249, *a*).
- **L. CORNICULATUS*, L. Watson 152, (2) 590; Drouet 169; Seubert 49; Seub. & Hochst. 14.— B. & H. 116.— Engl. Bot. 30. *pl.* 2090.
 Flores. Pico. Terceira. Sta. Maria.— Doubtful as separable from the last.
- **L. ANGUSTISSIMUS*, L. Watson 152, (2) 590; Drouet 169; Seubert 49; Seub. & Hochst. 14.— B. & H. 116. *f.* 266.
 Flores (197, 198). Fayal. Graciosa. San Miguel (199). Sta. Maria (199, *a*, 199, *b*).
- **L. HISPIDUS*, Desf. Watson 152, (2) 590; Drouet 169; Seubert 40; Seub. & Hochst. 14.— Lowe, 168.— Engl. Bot. *pl.* 2823.
 Corvo (247, 248, 249, 250, 251, 252). Flores (253). Fayal (*Brown*, 70, 71). Terceira (254, 255, 256, 257). San Miguel. Sta. Maria (257, *a*).
- **L. PARVIFLORUS*, Desf. Watson 152, (2) 590. *Dorycnium parviflorum*, Seubert 49; Drouet 169. ? *Lotus hispidus*, var., Drouet 169.— Lowe, 167.— Desf. Fl. Atl. 2: 206. *pl.* 217.
 Flores. Fayal. Graciosa? (Drouet). San Miguel (*Carreiro*, 150). Sta. Maria (257, *b*).
- **L. CRETICUS*, L. Watson 153, (2) 590, (3) 395; Drouet 169; Seubert 49.— Boissier, Fl. Orient. 2: 164.— Cavanilles, Icon. 2. *pl.* 156.
 Terceira (189, on the beach at Praia).
- **L. MACRANTHUS*, Lowe. Watson (3) 382, 395; Drouet 169. *Pedrosia macrantha*, Watson 153.— Lowe, 179. Sta. Maria.— Not recently collected.

- *ORNITHOPUS EBRACTEATUS, Brot. Seub. & Hochst. 14.
Arthrolobium ebracteatum, Watson 153, (2) 591;
 Drouet 170. *Astrolobium ebracteatum*, Seubert 49.—
 B. & H. 119. f. 273.
 Corvo (209, 210). Flores (211, 212). Fayal
 (*Brown*, 72). Graciosa (213). Terceira (214). San
 Miguel (200, 215; *Brown*, 73; *Carreiro*). Sta. Maria
 (215, a).
- *O. PERPUSILLUS, L. Watson 153, (2) 591; Drouet,
 170.— B. & H. 120. f. 274.
 Corvo (207). Flores. San Miguel. Sta. Maria.
- *O. SATIVUS, Brot. **O. roseus*, Watson 153; Drouet 170;
 Seubert 49; Seub. & Hochst. 15.— Lowe, 184.—
 Rehb. 22. pl. 175, 180.
 Terceira (208, at Angra).
- *O. COMPRESSUS, L. Watson 154; Drouet 170.— Lowe,
 184.— Rehb. 22. pl. 181.
 Sta. Maria (208, a).
- *VICIA HIRSUTA, S. Gray. Watson (2) 590; Drouet 170.
Ervum hirsutum, Watson 154. — B. & H. 122. f.
 277.
 Corvo (258). Flores (259). Fayal. Terceira (*Sam-
 paio*). San Miguel.
- *V. GRACILIS, Loisel. Seub. & Hochst. 14. *Ervum gracile*,
 Watson 154, (2) 590. *Ervum tetraspermum*, β . *gracile*,
 Drouet 169; Seubert 49.— Lowe, 195.—Engl. Bot.
 pl. 2904.
 Fayal. San Miguel.
- *V. DENNESIANA, Watson 154; Gard. Chronicle, n. s. 19:
 816. *V. Durneriana*, Drouet 170.
 San Miguel.
 Collected many years ago "on the mountains at the east end
 of the island, growing on damp earthy precipices."
- *V. ATROPURPUREA, Desf. Drouet 170. *V. albicans*, Wat-
 son 156, (1) 6, (2) 590; Drouet 170; Seubert 49;
 Seub. & Hochst. 14.— Lowe, 200.— Bot. Register. 11.
 pl. 871.

Corvo (260). Flores (261). Fayal (*Brown*, 74, 75).
Terceira (262, 263). San Miguel.

My specimens do not agree with Lowe's description of the stipules and number of flowers, nor, in the incision of the stipules, with such specimens of *V. atropurpurea* as I have seen. Of the varieties of Barker-Webb & Berthelot, *Hist. Nat. Iles Canaries*, 3. 2^e: 105, these specimens are nearest β . *Linnaeana*.

*†*V. SATIVA*, L. Drouet 170. *V. angustifolia*, Watson 157, (2) 590; Drouet 170; Seubert 49; Seub. & Hochst. 14.— B. & H. 123. *f.* 284.

Fayal. Terceira (*Sampaio*). San Miguel.

**V. BITHYNICA*, L. Watson 157, (3) 382; Drouet 170.— B. & H. 124. *f.* 286.

San Miguel.— Not recently collected.

V. MONANTHOS, Desf. *Ervum monanthos*, Watson 154, (2) 590; Drouet 169.— Lowe, 194.— Sturm, 8. *pl.* 32.

Fayal.— Probably escaped, and not recent.

LENS ESCULENTA, Moench. *Ervum Lens*, Watson 154, (2) 590, (3) 395; Drouet 168; Seubert 49.— Lowe, 191.— Sturm, 8, *pl.* 32.

Fayal.— Probably escaped, and not recent.

*†*LATHYRUS APHACA*, L. Watson 157, (2) 590; Drouet 170; Seubert 49; Seub. & Hochst. 14.— Lowe, 209.— B. & H. 125. *f.* 288.

Flores (190). Fayal. Pico. San Miguel (*Carreiro*, 99).

L. SATIVUS, L. Watson 157, (2) 590; Drouet 170; Seubert 49; Seub. & Hochst. 14.— Lowe, 210.— Rchb. 22. *pl.* 199.

Fayal.— A garden escape, like the next two.

L. TINGITANUS, L. Watson 158, (2) 590; Drouet 170; Seubert 49; Seub. & Hochst. 14.— Lowe, 213.— Bot. Mag. 3. *pl.* 100.

Fayal (*Brown*, 76). Terceira (*Sampaio*). San Miguel.

**L. CLYMENUM*, L. Watson 158. *L. articulatus*, Watson (2) 590; Drouet 170.— Lowe, 214.— Rchb. 22. *pl.* 200.

Fayal. Terceira. San Miguel.

ROSACEAE.

**PRUNUS LUSITANICA*, L. Watson 158, (3) 382. *Cerasus Lusitanica*, Drouet 165.— Lowe, 236.— Dillenius, Hort. Elth. *pl.* 159.

San Miguel.

SPIRAEA FILIPENDULA, L. Watson 158, (3) 383; Drouet 165.—B. & H. 131. *f.* 302.

Terceira. San Miguel.—Probably an escape.

***RUBUS RUSTICANUS**, Merc. *R. fruticosus*, Watson 159, (2) 591; Drouet 164; Seubert 48; Seub. & Hochst. 14.—Focke, Synopsis Ruborum Germaniae, 179 (as *R. ulmifolius*).—Engl. Bot. *pl.* 715.

Corvo (274, 275). Flores (276, 277, 283). Fayal (*Brown, a, b*). Pico (*Brown, c, d*). Graciosa (278, 279). Terceira (280, 281). San Miguel (282; *Carreiro*, 211). Sta. Maria (282, *a*, 282, *b*).

Dr. W. O. Focke, of Bremen, who was kind enough to examine all of my numbers and those of Mr. Brown, refers them all to the one species, which is also known as *R. ulmifolius* and *R. discolor*. He adds that while nos. 281 and 282 depart a little from the type, in having the two surfaces of the leaf concolorous, suggesting *R. concolor*, Lowe, they look exactly like certain anomalous forms growing in England.

? **R. Hochstetterorum**, Seubert 48; Watson 159, (2) 591, (3) 386; Drouet 164. *R. grandiflorus*, Seub. & Hochst. 14.

Flores. Fayal. Pico. San Miguel.

I should have been disposed to refer my large flowered specimens (nos. 274, 275, 277) to this species, had not Dr. Focke passed on them. As it is, I have no knowledge of *R. Hochstetterorum*.

***FRAGARIA VESCA**, L. Watson 159, (2) 591; Drouet 165; Seubert 48; Seub. & Hochst. 14.—B. & H. 136. *f.* 311.

Corvo. Flores. Fayal (*Brown, 77, 78*). Pico. Terceira (269, 270). San Miguel (271, 272; *Carreiro*, 152). Sta. Maria (272, *a*).

*†**F. INDICA**, L.—Gray, 158.—Bot. Reg. 1. *pl.* 61.

San Miguel (273; *Carreiro*, 200).

Likely to have been introduced in nursery stock, as in the United States.

***POTENTILLA TORMENTILLA**, Neck. Watson 160, (2) 591; Drouet 165; Seubert 48. *Tormentilla officinalis*, Watson (1) 8.—B. & H. 137. *f.* 314.

Corvo (287, 288, 289). Flores (290, 291). Fayal (*Brown, 79*). Pico (*Brown, 80*). Terceira (292). San Miguel (293, 294, 296; *Brown, 107; Carreiro*).

No. 295, from the Lagoa das Furnas, San Miguel, has the smaller caudex of the following species, and the lower leaves are petioled, but the flowers are small and corymbose, with only 4 petals, and the leaflets are 3.

- *P. PROCUMBENS, Sibth. Drouet 165.—Lowe, 245.—
Plate 22.

Flores (284, 285). Pico (*Brown*, 81). San Miguel (286; *Carreiro*, 198). Sta. Maria (286, a).

P. REPTANS, L. Watson 160, (2) 591; Drouet 165; Seubert 48; Seub. & Hochst. 14. ? *P. Tormentilla*, *ε. nemoralis*, Seubert 48; ? *Tormentilla reptans*, Watson (1) 400.—B. & H. 137. *f. 313.*

Pico.—Doubtful as different from the preceding.

P. VERNA, L. Watson 161; Drouet 165.—B. & H. 138. *f. 316.*

Sta. Maria.—Regarded with doubt by Mr. Watson.

P. ANSERINA, L. Watson 159, (2) 591, (3) 395; Drouet 165; Seubert 48; Seub. & Hochst. 14.—B. & H. 138. *f. 318.*

Reported by Seubert as "ubique in pascuis siccoribus et ad vias," but not since observed.

- *†ALCHEMILLA ARVENSIS, Scop. Watson 161, (2) 591; Drouet 165.—B. & H. 141. *f. 324.*

Corvo (593). Fayal. Terceira (594, 595). San Miguel (596; *Carreiro*, 7).

- *†AGRIMONIA EUPATORIA, L. Watson 161, (2) 591; Drouet 165; Seubert 48; Seub. & Hochst. 14.—B. & H. 142. *f. 327.*

Flores (266). Fayal (*Brown*, 82, 83). Pico (*Brown*, 84, 85), Graciosa. Terceira (*Sampaio*). San Miguel (267, 268; *Carreiro*).

POTERIUM SANGUISORBA, L. Watson 161, (2) 591, (3) 395; Drouet 165; Seubert 48; Seub. & Hochst. 14.—B. & H. 141. *f. 326*

San Miguel.—Doubtful.

CRASSULACEAE.

- *TILLAEA MUSCOSA, L. Watson 162, (1) 398, (2) 592; Drouet 173; Seubert 42; Seub. & Hochst. 14.—B. & H. 159. *f. 358.*

Flores. Fayal. Pico. San Miguel. — Not recently collected.

- *BRYOPHYLLUM CALYGINUM, Salisb.—Bot. Mag. 34. *pl. 1409.*
San Miguel (303,—escaping from cultivation).

- *COTYLEDON UMBILICUS, L. *Umbilicus pendulinus*, Watson 162, (2) 592; Drouet 173; Seubert 42; Seub. & Hochst. 14.— B. & H. 159. *f.* 359.

Flores. Fayal (*Brown*, 86). Graciosa (300; *Brown*, 87 — toward the next species). Terceira (301). San Miguel. Sta. Maria (301, *a*).

- *C. HORIZONTALIS, Guss. *Umbilicus horizontalis*, Drouet 172.— Boissier, *Fl. Orient.* 2: 770.— *Refugium Bot.* 5. *pl.* 297.

Corvo (297). Flores (298, 299). San Miguel (302). Sta. Maria (302, *a*).

Often held to be an inconstant form of the preceding.

- *SEMPERVIVUM VILLOSUM, Ait. *Aichryson villosum*, Watson 162, (3) 382; Drouet 173.— Lowe, 330.— *Bot. Mag.* 43. *pl.* 1809.

Sta. Maria (303, *a* — abundant on the cliffs above San Lorenzo).

Halimolobos HALORAGEAE.

- *MYRIOPHYLLUM ALTERNIFLORUM, DC. Watson 162, (3) 382; Drouet 167.— Corbière, 241.— *Engl. Bot. pl.* 2854.

San Miguel (304!, 305!; *Brown*, 88, — at Sete Cidades: 306?; *Brown*, 89?, — at Lagoa das Furnas — these also pretty clearly this species, but unfavorably grown and not in flower).

- *CALLITRICHE STAGNALIS, Scop. *C. verna*, Watson 163, (2) 591; Drouet 191; Seubert 27; Seub. & Hochst. 14.— Corbière, 243.— *Rehb.* 5. *pl.* 129.

Corvo (307, 308?). Fayal (309?, 309, *a*, 310?, 311?, 312? 313). Pico. Terceira (314, 315?, 315, *a*, 316). San Miguel (317; *Brown*). Sta. Maria (317, *a*, 317, *b*, 317, *c*).— The questioned numbers, while evidently the same as the others, are sterile.

MYRTACEAE.

- *MYRTUS COMMUNIS, L. Watson 163, (3) 382, 383; Drouet 166.—Lowe, 267.—Hayne, *Arzneigew.* 10. *pl.* 36.
Fayal? San Miguel (66, 67; *Carreiro*). Sta. Maria (67, a).

LYTHRACEAE.

- *PEPLIS PORTULA, L. Watson 162; Drouet 164; Seubert 47; Watson (2) 592.—B. & H. 157. *f.* 356.
Flores (319). Fayal. Pico. Terceira (320). San Miguel (322, 323; *Carreiro*, 67, 824).
This is the variety *longidentata*, Gay, as distinguished by Dunn in *Journ. Bot.* 34: 478.
- *LYTHRUM HYSSOPIFOLIA, L. Watson 164, (2) 591; Drouet 164; Seubert 47; Seub. & Hochst. 14.—B. & H. 156. *f.* 355.
Corvo (324, 325, 326, 327). Flores (328, 329, 330, 331, 332). Fayal? Pico? Terceira? San Miguel (*Carreiro*). Sta. Maria (332, a).
- *L. GRAEFFERI, Tenore. Watson 164, (2) 591; Drouet 164; Seubert 47; Seub. & Hochst. 14.—Lowe, 278.—Loddiges, *Bot. Cab.* 14. *pl.* 1338.
Pico. San Jorge (*Brown*, 90). Terceira (333). San Miguel (334). Sta. Maria?

ONAGRACEAE.

- *EPILOBIUM PARVIFLORUM, Schreb. Watson 164, (2) 591; Drouet 166.—B. & H. 151. *f.* 343.
Flores (335, 336, 337, 338, 339).—Also reported from San Miguel, but probably referring to the next.
- *E. OBSCURUM, Schreb. ?*E. Miguelense*, Léveillé, *Le Monde des Plantes*, 3: 91. *f. on p.* 89.—Lowe, 274.—Rehb. *Icon. Crit.* 2. *pl.* 199.
San Miguel (340, 341, 342, 343, 344; *Carreiro*, 3, 36, 212; *Brown*, 91).
Possibly this comprises two species, but I am unable to separate them in the material I have seen.

FUCHSIA MACROSTEMMA, Ruiz & Pavon.—Lowe, 270.—Bot. Mag. 3. pl. 97 (both as *F. coccinea*).

Flores (345).—Subspontaneous on walls.

**Oenothera longiflora*, L. Drouet 167.—Lowe, 275.—Bot. Mag. 11. pl. 365.

Flores (Sta. Cruz, in gardens). Fayal (*Brown*, 95). Pico (*Brown*, 96). San Miguel (346, at Sete Cidades; *Brown*, 92).—An escape, but seemingly established, as in Madeira.

• O. TETRAPTERA, Cav. Drouet 167.—Lowe, 276.—Bot. Mag. 13. pl. 468.

San Jorge.—Apparently only once collected here, but established in Madeira.

• O. ROSEA, Ait.—Bot. Mag. 10. pl. 347.

Fayal (*Brown*, 93, 94, 97). San Miguel (*Carreiro*, 90).—Escaped.

MESEMBRIANTHEMACEAE.

MESEMBRIANTHEMUM EDULE, L.—Lowe, 309.

Terceira (347). *San Miguel*.—Escaping.

One other undetermined species was seen in the last named island, under similar circumstances, along the road to the Furnas.

PASSIFLORACEAE.

PASSIFLORA CAERULEA, L. Watson (1) 6.—Lowe, 295.—Bot. Mag. 1. pl. 28.

Flores (349). Fayal.—Spreading somewhat, from cultivation.

CUCURBITACEAE.

*†*Ecballium elaterium*, Rich. Watson 164. *Momordica elaterium*, Drouet 167.—Bot. Mag. 44. pl. 1914.

Terceira (348). Sta. Maria (348, a).—Abundant about the cities, toward the seashore, on both islands.

UMBELLIFERAE.

**Hydrocotyle vulgaris*, L.—B. & H. 178. f. 396.

Flores (651, pools in the center of the island).

**Sanicula azorica*, Guthn. Seubert 41. pl. 15; Watson 164, (2) 592; Drouet 170; Hooker, *Insular Floras* 15; Seub. & Hochst. 13. *S. ciliaris*, Watson (1) 129.

Fayal. Pico. Terceira. San Miguel (354, 355; *Carreiro*). Sta. Maria (355, a).

- ***CONIUM MACULATUM**, L. Watson 165, (3) 382; Drouet 172.— B. & H. 202. *f.* 451.
 San Miguel. Sta. Maria (355, *a*).
- ***SMYRNIUM OLUSATRUM**, L. Watson 165, (3) 382; Drouet 172.— B. & H. 203. *f.* 453.
 Fayal, San Miguel.— Not recently collected.
- ***APIUM GRAVEOLENS**, L. Watson 165, (2) 593; Drouet 171.— B. & H. 181. *f.* 402.
 Corvo (378). Flores (379). Fayal (*Brown*). Pico. Graciosa. Terceira (380, 381). San Miguel.
- ***A. NODIFLORUM**, Reichenb. *Helosciadium nodiflorum*, Watson 165, (2) 593; Drouet 171; Seubert 42. *H. repens*, Seub. & Hochst. 13.— B. & H. 182. *f.* 403.
 Terceira (376). San Miguel (*Chaves; Carreiro*). Sta. Maria (376, *a*, 376, *b*).
 Represented by several forms.
- ***AMMI VISNAGA**, Lam. Watson 165, (3) 382; Drouet 171.— Lowe, 353.
 San Miguel. Sta. Maria.
- ***A. Huntii**, Watson, Lond. Journ. Bot. 6: 382, 383, 384, (4) 166; Drouet 171.— *Plate 23*.
 Pico? San Miguel (377, at Lagoa das Furnas).— Small plants of what may be this species also on Sta. Maria (377, *a*).
- ***A. MAJUS**, L. Watson 166; Drouet 171.— Lowe, 349.— Rehb. 21. *pl.* 1864.
 Flores. Graciosa.
- ***A. Seubertianum**. *Petroselinum Seubertianum*, Watson Lond. Journ. Bot. 6: 386, 387, (4) 167. *Kundmannia Sicula*, Seub. & Hochst. 13; Seubert 42; Drouet 172. *Kudmannia Sicula*, Watson (2) 593, (3) 395. *Umbellifera* 100, Watson (2) 592.— *Plate 24*.
 Corvo (373, 374). Pico. San Miguel (*Brown*, 102?). Sta. Maria (374, *a*).

This and the following, described as species of *Petroselinum* by Watson, because of their undivided involucreal leaves, are nevertheless placed in *Ammi* by Bentham and Hooker, Gen. Plant. 1:

889, so that those authors are virtually responsible for the binomial here used though they do not actually employ it. Both species appear to have been lost from the Index Kewensis.

- ***A. trifoliatum.** *Petroselinum trifoliatum*, Watson, Lond. Journ. Bot. 3: 593, (4) 166; Drouet 170.— *Plate 25*. Flores. (375).

Mr. Watson, p. 166, refers to another Flores plant resembling this species, but intermediate in leaves and general appearance between *A. Huntii* and *A. majus*.

- ***CARUM PETROSELINUM**, B. & H. *Apium Petroselinum*, Seub. & Hochst. 13. *Petroselinum sativum*, Watson 167, (2) 593, (3) 395; Drouet 171; Seubert 42.— Lowe, 347.— Engl. Bot. *pl.* 2793.

Flores (368). San Jorge (371). Graciosa (372? — a plant with the lobes of the trifid upper leaves broader than usual). San Miguel (*Carreiro*).

- ***PIMPINELLA VILLOSA**, Schousb. Watson 167; Drouet 171.— Willkomm & Lange, Prodr. Fl. Hisp. 3: 97.— Brotero, Phyt. Lusit. *pl.* 35 (as *P. bubonoides*).

San Miguel.— Not recently collected.

- CARUM DICHOTOMUM**, B. & H. *Pimpinella dichotoma*, Watson 168, 169, (2) 593, (3) 395; Drouet 171; Seubert 42.— Willkomm & Lange, Prodr. Fl. Hisp. 3: 96.

Pico.— Regarded with some doubt by Mr. Watson.

- ***Chaerophyllum Azoricum**, n. sp. *C. aromaticum*, Watson 168, (2) 593; Drouet 172.— *Plate 26*.

Flores (370 — at Mosteiros, also reported from San Pedro by Watson). San Miguel.

Perennial: stout and coarse, a couple of feet high: stem somewhat purplish, glabrous or with a few short hairs at the nodes: cauline leaves short-petioled, deltoid, a span long and wide, bipinnate and with the lowest segments often pinnatisect; segments crisped, infolded, or overlapping, acute, setulously biserrate, very veiny and somewhat pubescent beneath; petiole-sheaths and rachis coarsely and retrorsely white-hairy: umbels subcorymbose, their stout peduncles subtended by reduced leaves or the uppermost naked, compound, without primary involucre; umbellets dense, stout peduncled, the involucre of broadly white-margined ciliate and somewhat pubescent bractlets: flowers white: fruit glabrous, obconical-oblong, 12 mm. long; styles and broadly conical stylopodium of about equal length.— More closely related to *C. hirsutum* than to *C. aromaticum*.

**FOENICULUM VULGARE*, Mill. Watson 168, (2) 592; Drouet 171; Seubert 42. *Anethum Foeniculum*, Seub. & Hochst. 13.—B. & H. 192. *f.* 426.

Corvo. Flores (367). Fayal (*Brown*, 101). Graciosa (366). *Terceira. San Miguel.*

**CRITHMUM MARITIMUM*, L. Watson 168, (2) 592; Drouet 171.—B. & H. 194. *f.* 431.

Corvo (362). Flores (363, 364). Fayal. Pico. San Jorge (365). San Miguel (*Carreiro*, 4).

**ANGELICA SYLVESTRIS*, L. *A montana*, Watson 169; Drouet 172.—B. & H. 194. *f.* 432.

Terceira.—Collected but once.

CORIANDRUM SATIVUM, L. Watson 169, (3) 382; Drouet 172.—Lowe, 376.—Sturm, 1. *pl.* 3.

Terceira. San Miguel.—Probably escaped.

*†*DAUCUS CAROTA*, L. Watson 169, (3) 382, 383; Drouet 172. *D. neglecta*, Drouet 172. *D. polygamus*, Seubert 42; Watson (2) 592, (3) 386; Drouet 172.—B. & H. 202. *f.* 450; Lowe, 367.

Flores (356, 359). Fayal (*Brown*, 98). Graciosa (360). *Terceira* (357, 358, 361). San Miguel (*Carreiro*, 72, 74, 168, 195). Sta. Maria (361, a).

Several forms, on the separability of which I can reach no satisfactory conclusion.

*†*CAUCALIS ARVENSIS*, Huds. Seub. & Hochst. 13. *Torilis tenuifolia*, Watson 170. *T. Helvetica*, Drouet 172; Seubert 42. *T. infesta*, Watson (2) 592.—B. & H. 201. *f.* 447; Lowe, 370.—Sturm, 20. *pl.* 93.

Fayal (*Brown*, 99). Pico (*Brown*, 99, a). San Jorge (382, 382, a). Graciosa (383, 384). *Terceira* (*Sampaio*). San Miguel (385; *Brown*, 100; *Carreiro*, 40, 169). Sta. Maria (385, a, 385, b).

THAPSIA DECIPIENS, Hook. f. Bot. Mag. 93. *pl.* 5670. *Melanoselinum decipiens*, Watson 170, (2) 592; Drouet 172.

Fayal.—Discredited by Mr. Watson.

ARALIACEAE.

**HEDERA CANARIENSIS*, Willd. Watson 170. *H. Helix*, var. *Iibernica*, Drouet 172; Watson (2) 592. *H.*

Helix, Seub. & Hochst. 13; Seubert 42.—Seeman, Journ. Bot. 2: 304.—Plate 27.

Corvo (352). Flores (350, 351). Fayal (*Brown*, 103, 104, 105). Pico (*Brown*, 106). San Miguel (353; *Carreiro*). Sta. Maria (353, a).

CAPRIFOLIACEAE.

**Sambucus nigra*, L. Watson 173, (2) 593; Drouet 172.—B. & H. 208. f. 460.

Corvo (387). Flores (386). Fayal (*Brown*, 108). Pico (*Brown*). *Terceira*. San Miguel (*Brown*).

Frequent along fences, as noted by Drouet.

**Viburnum Tinus*, var. *subcordatum*, n. var. *V. Tinus*, Watson 172, (2) 593, (3) 387; Drouet 173; Seub. & Hochst. 13. *V. Tinus*, β . *lucidum*, Seubert 35.—Plate 28.

Corvo. Flores (389, 390). Fayal. San Miguel (388; *Carreiro*). Sta. Maria (390, a, 390, b— a very pubescent form).

Characterized by its round-ovate obtuse subcordate leaves, often densely hairy in the axils beneath.—Apparently more closely related to the Canary Island *V. rigidum* than to the true *V. Tinus* of the Mediterranean region.

**LEYCESTERIA FORMOSA*, Wall.—Bot. Reg. n. s. 2, pl. 2.

San Miguel (776; *Brown*, d).—Thoroughly established near the Furnas, and very beautiful in late summer.

**RUBIA ANGUSTIFOLIA*, L. *R. splendens*, Watson 173, (2) 594; Drouet 180; Seubert 34; Seub. & Hochst. 13.—Lowe, 400.—Rehb. 17. pl. 133.

Corvo (391). Flores (392, 393). Fayal (*Brown*, 109). Pico (*Brown*, 110). San Miguel (394, 395). Sta. Maria (395, a, 395, b, 395, c).

GALIUM MOLLUGO, L. Watson 173, (2) 594, (3) 395; Drouet 179; Seubert 34; Seub. & Hochst. 13.—B. & H. 214. f. 474.

Indefinitely reported, and considered doubtful by Mr. Watson.

**G. PALUSTRE*, L. Watson 174, (2) 594; Drouet 180; Seubert 34. *G. debile*, Drouet 180.—B. & H. 214. f. 471.

Flores (402). Fayal (*Brown*, 111). San Miguel.

- *G. PARISENSE, L. *G. Anglicum*, Watson 174, (2) 594; Drouet 180; Seubert 34; Seub. & Hochst. 13.—B. & H. 215. *f.* 475; Lowe, 393.
 Corvo. Flores. Fayal. Pico. Terceira (403, 404).
 San Miguel (*Brown*, 113). Sta. Maria (404, a).
 The variety *teiocarpum* of Lowe, *l. c.*
- *G. APARINE, L. Watson 175, (2) 594; Drouet 180; Seubert 34; Seub. & Hochst. 13.—B. & H. 215. *f.* 477.
 Fayal (*Brown*, 114). San Miguel.
- *G. MURALE, All. *Aspera muralis*, Watson 175.—Lowe, 399.—Allioni, *Fl. Pedem.* 3. *pl.* 77.
 San Miguel.—Collected many years ago.
- *SHERARDIA ARVENSIS, L. Watson 175, (2) 594; Drouet 180; Seub. & Hochst. 13; Seubert 35 (as var. *pubescens*, Hochst.).—B. & H. 217. *f.* 481.
 Corvo (397). Flores (396, 399). Fayal. Pico (*Brown*, 115). San Jorge (398). Terceira (400). San Miguel (401; *Carreiro*). Sta. Maria (401, a).

VALERIANACEAE.

- *VALERIANELLA DENTATA, Poll. Watson 175, (2) 594.
Fedia dentata, Drouet 174.—B. & H. 220. *f.* 489.
 Pico.—Not recently collected.
- CENTRANTHUS SIBTHORPI, Heldr. & Sart.—Boissier, *Fl. Orient.* 3: 91.—
~~Richard~~ Sibth. *Fl. Graeca.* 1. *pl.* 29 (as *Valeriana angustifolia*).
 Flores. Fayal (*Brown*, 116). San Jorge (*Brown*, 117). Terceira.
 San Miguel (405).—Becoming established as a garden escape.

DIPSACEAE.

- *Scabiosa nitens, Roem. & Sch. *Syst.* 3: 82; Watson 175 in part, (2) 594, (3) 395; Drouet 174; Seubert 30; Seub. & Hochst. 13. ? *S. lucida*, Drouet 174.—*Plate* 29.
 Flores (409, 412 — with nearly white corolla and purple style). ? San Jorge (Drouet). San Miguel (410 — with blue-purple flowers).

- **S. MARITIMA*, L. *S. atropurpurea*, Drouet 174. ? *S. ochroleuca*, Drouet 174. *S. lucida*, Drouet 174. ? *S. neglecta*, Seubert 30; Watson (2) 594, (3) 395; Drouet 174.—Lowe, 409.—Bot. Mag. 7. pl. 247.
Fayal (*Brown* 118, 119, 120). Terceira (413; *Sampaio*). Sta. Maria (413, b).

COMPOSITAE.

- **Eupatorium glandulosum*, HBK.—Lowe, 435 (as *E. adenophorum*).—Bot. Reg. 20. pl. 1723.
Terceira (413, a).
Escaping, as it has done in Madeira, where it is an abundant roadside weed.
- **Solidago sempervirens*, L. Hemsley, Bot. Challenger, 1¹: 12, 40. *S. Azorica*, Hochst. in Seubert 31. pl. 10; Watson 178, (2) 602; Drouet 174; Seub. & Hochst. 12. *S. sp.*, Watson (1) 130.—Gray, 248.
Corvo (414). Flores (415, 416). Fayal. Pico. Graciosa (*Brown*, 132). Terceira. San Miguel (417).
- **BELLIS PERENNIS*, L. Watson 178.—B. & H. 230. f. 502.
Terceira (418, 419; *Sampaio*).—Abundant at 1000 to 2000 feet elevation, above Angra.
- **B. Azorica*, Hochst. in Seubert 31. pl. 9; Drouet 174; Watson (1) 408; Seub. & Hochst. 12. *Seubertia Azorica*, Watson, Lond. Journ. Bot. 3: 602, (4) 178. *Vidalia Azorica*, Watson 179.
Corvo. Flores. Fayal. Pico (*Hochstetter*, 101). Terceira. San Miguel (*Carreiro*, 2).
- *†*ERIGERON CANADENSIS*, L. Watson 178, (2) 602; Drouet 175.—B. & H. 229. f. 500.
Corvo. Flores (420, 421, 422). Fayal (*Brown*, 133). Pico (*Brown*, 134). Graciosa (423). Terceira (*Sampaio*). San Miguel (*Brown*, 135; *Carreiro*).
- **E. mucronatus*, DC.—Meehan, Native Fl. & Ferns of U. S. ii. 2: 73. pl. 18.

San Miguel (135, *a*, on the road to the Furnas; 135, *b*, about the Furnas, especially along the Ribeira Quinta; *Brown*).—Escaped, but now thoroughly established.

- *†E. LINIFOLIUS, Willd. *Conyza ambigua*, Watson 178, (2) 602; Drouet 175; Seubert 32; Seub. & Hochst. 12.—Lowe, 437.—Rchb. 16. *pl.* 22.

Corvo. Flores. Fayal (*Brown*, 136, 169). San Jorge (424). Graciosa (425, 426). San Miguel (*Carreiro*). Sta. Maria (426, *a*, 426, *b*).

- *FILAGO GALLICA, L. Watson 181, (2) 602; Drouet 176; Seubert 32; *Gnaphalium Gallicum*, Seub. & Hochst. 12.—B. & H. 231. *f.* 505.

Fayal. Terceira (*Sampaio*). San Miguel (*Carreiro*).

- *F. GERMANICA, L. Watson 181, (2) 602; Drouet 176; Seubert 32; *Gnaphalium Germanicum*, Seub. & Hochst. 12.—B. & H. 231. *f.* 503.

Corvo (427). Flores (428). Fayal. Terceira (429). San Miguel (*Carreiro*, 215).

- *GNAPHALIUM LUTEO-ALBUM, L. Watson 181, (2) 602; Drouet 176; Seubert 32; Seub. & Hochst. 12.—Lowe, 484.—Sturm, 10. *pl.* 38.

Corvo (430). Flores (431). Fayal. Pico (*Brown*, 137). Graciosa. Terceira (432, 434?). San Miguel (433; *Brown*, 138, 139; *Carreiro*, 13).

- *G. PURPUREUM, L. *G. Pennsylvanicum*, Watson 181, (2) 602, (3) 396; Drouet 176; Seubert 32; Seub. & Hochst. 12.—Gray, 269.—Dillenius, Hort. Elth. *pl.* 109.

Fayal. Terceira (*cf.* 434). San Miguel (435; *Brown*, 140).

- *†XANTHIUM STRUMARIUM, L. Watson 183, (2) 603; Drouet 175.—B. & H. 236. *f.* 518.

Flores. San Miguel.—Not recently collected.

- *†X. SPINOSUM, L. Watson 183, (3) 382; Drouet 175.—Corbière, 374.—Rchb. 19. *pl.* 1575.

San Miguel.—Not recently collected.

- ♁ *† *BIDENS PILOSA*, L. *B. leucantha*, Watson 182, (2) 602, (3) 391; Drouet 175; Seubert 32; Seub. & Hochst. 12.—Lowe, 474 (as *Kerneria pilosa*).—Lamarck, Encycl. Meth. 3. pl. 668.

Fayal. Pico (*Brown*, 141), San Jorge (437). *Terceira*. San Miguel (436).

- * *Achillea Millefolium*, L. Watson 180.—B. & H. 241. f. 531.

Flores? (In cultivation, said to have been transplanted from the mountains). San Miguel (Collected only once).

- SANTOLINA CHAMAECYPARISSIAS*, L. Watson (2) 602; Drouet 175; Seubert 32.—Hayne, *Arzneigew.* 6. pl. 19.

San Miguel.—An escape, not recently collected.

- ♁ *† *ANTHEMIS COTULA*, L. Watson 180, (2) 602; Drouet 175; Seubert 32; Seub. & Hochst. 13.—B. & H. 239. f. 526.

Corvo (438). *Flores*. Fayal. *Graciosa* (439). *Terceira* (441, 447?). San Miguel (440; *Brown*, 142; *Carreiro*, 12, 164, 219). *Sta. Maria* (440, a).

- ♁ *A. ARVENSIS*, L. Watson 180; Drouet 175.—B. & H. 240. f. 527.

Pico. San Miguel.—Regarded with doubt by Mr. Watson.

- ♁ * *A. NOBILIS*, L. var. *AUREA*, DC. *A. aurea*, Watson 180, (2) 602; Drouet 175; Seubert 32; Seub. & Hochst. 13.—Lowe, 467 (as *Ormenus nobilis*).—*Plate 30*.

Flores (442, 443). Fayal (*Brown*, 145). Pico (*Brown*, 143). *Terceira* (444). San Miguel (445, 446; *Brown*, 144; *Carreiro* 224). *Sta. Maria* (446, a, 446, b).

- ♁ * *CHRYSANTHEMUM MYCONIS*, L. Watson 179, (2) 602. *C. Myconi*, Seub. & Hochst. 13. *Pyrethrum Myconis*, Drouet 176; Seubert 32.—Lowe, 457 (as *Myconia Chrysanthemum*).—*Rchb.* 16. pl. 95 (as *Coleostephus Myconis*).

Fayal (*Brown*, 146?, 147?, 148, 149). Pico. *Terceira* (449?). San Miguel (450?, 451?; *Carreiro*). *Sta. Maria*.

The specimens marked as questionable (*Plate 31*), are of the general appearance of this species, though the leaves are a little

too glaucous and serrate, and they possess its sterile rays and incurved achenia; but they appear to have the long erose corona limited to the rays, and the ripe achenia are quite destitute of the long corona shown, for example, by the specimens of *C. Myconis* in Schultz, Herb. Normale, no. 506, and by *Brown*, no. 149,—and generally held to characterize the species or even a genus which has been erected for it.

- *C. SEGETUM, L. Watson 179, (2) 602; Drouet 176; Seubert 32; Seub. & Hochst. 13.—B. & H. 238. f. 522.

Corvo (454, 455). Flores (452). Fayal. Pico. Terceira (453; *Sampaio*). San Miguel. Sta. Maria (453, a).

- C. CORONARIUM, L. Watson 179, (2) 602; Drouet 176; Seubert 32; Seub. & Hochst. 13.—Lowe, 459 (as *Pinardia coronaria*).—London Garden, 26: 440. pl. 467.

Fayal. Terceira (448). San Miguel.—Probably escaped.

- *C. Parthenium, Bernh. Watson 180. *Pyrethrum Parthenium*, Watson (3) 382; Drouet 176.—B. & H. 238. f. 523.

San Miguel (*Carreiro*, 38).

- C. PINNATIFIDUM, L. Watson 180, (2) 602, (3) 396; Drouet 176; Seubert 32; Seub. & Hochst. 13.—Lowe, 460 (as *Argyranthemum pinnatifidum*).

San Miguel.—An escape.

- **Petasites fragrans*, Presl.—Corbière, 338 (as *Nardosmia fragrans*).—Rchb. 16. pl. 895, 896.

Fayal (*Brown*).

Doubtless the "*Petasites* ou un *Adenostyles*" reported from the Fayal caldeira by Drouet 179.—Presumably an escape, but prone to naturalization in favorable climates.

- *SENECIO VULGARIS, L. Watson 181, (2) 602; Drouet 176; Seub. & Hochst. 13.—B. & H. 245. f. 540.

Fayal. Terceira (*Sampaio*). San Miguel.

- *S. SYLVATICUS, L. Watson 181; Drouet 176.—B. & H. 246. f. 542.

Sta. Maria.—Not recently collected.

- *S. ERRATICUS, Bertol. Watson 181, (3) 382; Drouet 176.—Willk. & Lange, Prodr. Fl. Hisp. 2: 121.—Rchb. 16. pl. 73.

San Miguel (*Carreiro*, at Serra Gorda).

- *S. MALVAEFOLIUS, DC. Watson 182, (2) 602; Drouet 177; Seubert 32; Seub. & Hochst. 12. *S. Maderensis*, Watson (2) 602, (3) 391; Drouet 176.
Fayal. Terceira. San Miguel. *Sta. Maria*.
- *S. ELEGANS, L. Seub. & Hochst. 13. *S. pseudo-elegans*, Watson 182, (2) 602, (3) 396; Drouet 176; Seubert 32.—Bot. Mag. 7. *pl. 238*.
Terceira (*Sampaio*). San Miguel.—A garden escape.
- *S. mikanoides, Otto.—Lowe, 448.—*Plate 32*.
Fayal (*Brown*, 168). *Terceira* (Escaped, but now well established).
- *CALENDULA ARVENSIS, L. Watson 183, (2) 603, (3) 396; Seub. & Hochst. 13; Drouet 177.—Lowe, 492.—Rchb. 15. *pl. 159*.
Fayal. Graciosa (456). Terceira. San Miguel. (*Carreiro*, 192). *Sta. Maria* (456, *a*).
- C. OFFICINALIS, L. Watson 183, (2) 603, (3) 396; Drouet 177; Seubert 32.—Lowe, 491.—Bot. Mag. 59. *pl. 3204*.
Reported without locality by Seubert and Drouet, but at most, as in Madeira, a garden escape, and not evidently seen by recent collectors.
- *†CARDUUS PYCNOCEPHALUS, L. Watson 177, (2) 602; Seub. & Hochst. 12. *C. tenuiflorus*, Drouet 177; Seubert 33.—Lowe, 501.—Rchb. 15. *pl. 134, 143*.
Pico. San Jorge (457). Graciosa (414, *a*; *Brown*, 150). San Miguel (*Carreiro*, 109). *Sta. Maria* (414, *b*).
- *†CNICUS LANCEOLATUS, Willd. Seub. & Hochst. 12. *Cirsium lanceolatum*, Watson 177; Drouet 177; Seubert 33. *Carduus lanceolatus*, Watson (2) 602.—B. & H. 252. *f. 560*.
Fayal (*Brown*, 151). Pico.
- *†GALACTITES TOMENTOSA, Moench. Watson 177, (2) 602; Drouet 177; Seubert 32; Seub. & Hochst. 12.—Lowe, 496.—Rchb. 15. *pl. 819*.
Fayal (*Brown*, 152, 153). Pico. Graciosa (458). Terceira (*Sampaio*). San Miguel (459, 460). *Sta. Maria* (460, *a*, 460, *b*).
- *CENTAUREA MELITENSIS, L. Watson 177, (2) 602; Drouet 177; Seubert 32; Seub. & Hochst. 12.—Lowe, 508.—Rchb. 15. *pl. 796*.
Fayal. Pico. *Sta. Maria*.

- *† CICHORIUM INTYBUS, L. Watson 183, (2) 600; Drouet 177; Seubert 33; Seub. & Hochst. 12.—B. & H. 271. f. 607.

Flores (461). Fayal (*Brown* 154, 155). *San Miguel*.—My impression is that I also saw it in Corvo.

- *Tolpis nobilis, Hochst. in Seubert 33. pl. 11; Watson 183, (2) 601; Drouet 178; Seub. & Hochst. 12.—Schultz, in Barker-Webb & Berth. Hist. Nat. Iles Can. 3. 2^o: 399.

Corvo (473). Flores (463, agreeing closely with the type as figured, 464, toward the next variety, 465). Fayal. Pico. Terceira. San Miguel (466, 467, large leaved; 468, 469, 472, with narrowly elliptical reduced leaves).—*Plate 34*.

Leaves ovate or elliptical-ovate, sessile, the upper not greatly narrowed.

- *T. nobilis, var. petiolaris, n. var. ? *T. macrorhiza*, Watson (2) 601, (3) 390; Drouet 177; Seubert 33.

Flores (470, 471, 475).

Slenderer than the type; leaves broadly elliptical or obovate, an inch and a half wide, acute at base, petioled; inflorescence more lax.—*Plate 33*.

To my eye the same as *Crepis macrorhiza*, Lowe, Bot. Mag. n. s. 4. pl. 2988, which is kept up in Index Kewensis; but on the other hand not separable specifically from *T. nobilis*, which it very closely connects with the following species.

- *T. FRUTICOSA, Schrank. Watson 184, (2) 600; Drouet 178; Seubert 33; Seub. & Hochst. 12.—Lowe, 525 (as *T. succulenta*).—*Plates 34-6*.

Corvo (476, 476, a, 477). Flores (478, 479, 481? 480 — with nearly entire leaves). Fayal. Terceira? Sta. Maria (481, a — a deeply pectinately-lobed form; 481, b, 481, c, 481, d — toward *T. nobilis*; chiefly with radical leaves simulating those of the last variety, and doubtfully placed here).

Leaves oblanceolate-spatulate, long-attenuate below, petioled, the uppermost becoming linear.

- *T. BARBATA, Gaertn. Watson 185, (2) 600, (3) 395; Drouet 177; Seubert 33.—Rehb. 19. pl. 1359.

Flores. Terceira. Sta. Maria.

- *T. UMBELLATA, Bert. Watson 185, (2) 600; Drouet 177. *T. crinita*, Drouet 177; Seubert 33; Watson (2) 601, (3) 390; Seub. & Hochst. 12. — Lowe, 522.

Flores. Fayal. Terceira. San Miguel (474; *Carreiro*, 167).

- *†PICRIS ECHIOIDES, L. *Helminthia echioides*, Watson 186, (2) 600; Drouet 179; Seubert 34; Seub. & Hochst. 12.— B. & H. 258. f. 578.

Flores (482, 483). Fayal. Graciosa (484). Terceira. San Miguel (*Carreiro*, 225). Sta. Maria (484, a).

- *P. rigens, B. & H. Gen. Pl. 2: 512. *Microderis rigens*, Watson 187, (2) 601, (3) 391; Drouet 178; Seubert 33. *Crepis rigens*, Dryander in Ait. Hort. Kew. 3: 127. *Microderis umbellata*, Hochst. in Seubert 33. pl. 12; Seub. & Hochst. 12; Drouet 178. *Hypochaeris strigosa*, Solander.— Lowe, 537.

Flores (485, 486, 487). Fayal. Pico. San Miguel (488; *Carreiro*).

- *P. filii, B. & H. Gen. Pl. 2: 512. *Microderis filii*, Hochst. in Seubert 34. pl. 13; Watson 188, (2) 601; Drouet 178; Seub. & Hochst. 12.

Flores. Fayal (*Brown* 158). Terceira (489). San Miguel (491).

- *CREPIS VIRENS, L. Watson 187; Drouet 179. *C. polymorpha*, Drouet 179; Seubert 34; Watson (2) 600; Seub. & Hochst. 12. *C. diffusa*, Drouet 179.— B. & H. 266. f. 596.

Flores. Fayal (*Brown*, 160, 161, 162). San Jorge (492). Graciosa (493, 494). Terceira (495). San Miguel.

- *HYPOCHAERIS GLABRA, L. Watson 186, (2) 600; Drouet 178; Seubert 33; Seub. & Hochst. 12.— B. & H. 261. f. 583.

Flores. Fayal. San Miguel.— Not recently collected.

In aspect somewhat resembling the next, but with chaff between the flowers, and other technical differences.

- *LEONTODON HIRTUS, L. *Thrincia hirta*, Watson 185, (3) 382; Drouet 178.—Corbière 370.—*Plates 37-8*.

Flores. Fayal (*Brown*, 159, 163). San Jorge (490). Graciosa (498, 500). Terceira (501, 502). San Miguel (496?, 497, 499; ? *Carreiro*). Sta. Maria (499, a, 499, b?, 499, c?, 499, d).

- *L. NUDICAULIS, B. & H. Gen. Pl. 2: 521. *Thrincia nudicaulis*, Watson 185, (2) 600, (3) 390; Drouet 178; Seubert 33. *pl. 12*; Seub. & Hochst. 12.—Lowe, 532 (under *T. hispida*).

Fayal. San Miguel.

My nos. 496, 499, b, 499, c, and Dr. Carreiro's specimen, all referred doubtfully to the preceding species, are the only specimens seen by me which have the elongated tap root of the present species, and they scarcely have the very long achenial beak shown by Seuberts' figure. In Index Kewensis, *T. nudicaulis* is placed under *L. saxatilis*.

- *†TARAXACUM OFFICINALE, Weber. Watson 186. *Leontodon Taraxacum*, Drouet 178; Watson (2) 600.—B. & H. 265. *f. 593* (as *T. Dens-Leonis*).

Fayal (*Brown*, 164). Graciosa (503). Terceira (504). San Miguel (*Carreiro*, 2, 186).

- *LACTUCA SCARIOLA, L. Watson 186, (2) 600; Drouet 178.—B. & H. 262. *f. 587*.

Flores. Fayal.—Not recently collected.

- *L. *Watsoniana*, n. sp.

Fayal? Pico (*Brown*, 165, a).

Tall: leaves large, the lowest 15 × 30 cm., not lobed, sinuate-dentate, densely pruinose especially beneath, the lowest obtuse, abruptly contracted into a winged petiole, the upper acute, ovate-lanceolate, sessile, sagittately clasping: panicle corymbose: heads numerous, 12 to 15 mm. long: achenes (immature) short-beaked.—*Plate 39*.

Not identifiable with any described species, and, though immature, appearing to warrant publication as a nondescript. Dedicated to Mr. Hewett C. Watson, since it appears to be the large leaved Composite noted by him in Hook. London Journ. Bot. 3: 615 and Godman's Azores, 187, and subsequently found by Drouet (p. 178) in the Fayal caldeira.

- *†SONCHUS OLERACEUS, L. Watson 187, (2) 600; Drouet 179; Seub. & Hochst. 12.—B. & H. 264. *f. 592*.

Corvo (511, 513). Flores (505, 509, 512). Fayal. Pico (*Brown*, 165). Graciosa (508, 514, 516). Terceira. San Miguel (507; *Brown*, 166; *Carreiro*). Sta. Maria (507, *a*).

- *†*S. ASPER*, Hill. Watson 187. *S. fallax*, Drouet 179; Seubert 34; Watson (2) 600.— B. & H. 264.— Rchb. 19. *pl.* 1410, 1411.

Corvo (510). Fayal. Pico. (*Brown*, 167). San Miguel (506, 506, *a?*, 515?).

- **UROSPERMUM PICROIDES*, Schm. Watson 186, (2) 600; Drouet 178; Seubert 33; Seub. & Hochst. 12.— Lowe, 536.— Rchb. 19. *pl.* 26.

Fayal. San Miguel.— Not recently collected.

LOBELIACEAE.

- **LOBELIA URENS*, L.— B. & H. 273. *f.* 611.

Terceira (523,— in the highlands toward the water-sources of Angra).

- L. ERINUS*, L.— Bot. Mag. 23. *pl.* 901.

San Miguel (*Dr. C. Rodrigues*, at Villa Franca).— A garden escape, rather of the *L. bicolor* form than the type.

CAMPANULACEAE.

- **Trachelium caeruleum*, L. — Lowe, 579. — Bot. Reg. 1. *pl.* 72.

Fayal (*Brown*). Terceira (406, 407, 408).

Becoming well established, as in Madeira.

- **Campanula Vidalii*, Watson in Hooker's Icones, 7. *pl.* 684. (4) 188, (2) 594, (3) 388; Drouet 178.

Flores (517, 518, 519, 520).

On cliffs and detritus by the sea-shore, and on outlying rocks, around the entire island,— my collections from Santa Cruz, near the Custom House, Ribeira da Cruz, Fazazinha, and Fazam Grande, and the plant seen at other points. Mr. Watson also reports it as having been collected many years ago on Santa Maria and San Miguel; but the impression there and on Terceira is that it occurs in cultivation only and was originally derived from Flores.

- *C. ERINUS, L. Watson 191, (2) 594; Drouet 179; Seubert 34; Lowe, 573. *Wahlenbergia Erinus*, Seub. & Hochst. 12.—Rchb. 19. *pl.* 1607.

Flores. Fayal. Terceira (521, 522). San Miguel (*Carreiro*).

VACCINIACEAE.

- **Vaccinium cylindraceum*, Smith in Rees' Cyclop. 36; Watson 191, (2) 595, (3) 395; Drouet 189; Seubert 41. *V. Maderense*, Drouet 189; Seubert 41; Watson (1) 7, 129, 399, 407, (2) 595, (3) 395. *V. longiflorum*, Seubert 41; Watson (3) 395; Drouet 189. *V. padifolium*. Seub. & Hochst. 12.—*Plate* 40.

Flores (524). Fayal (*Brown*, 121). Pico (*Brown*, 122). Terceira (525, 526). San Miguel (527, 528, 529; *Carreiro*). Sta. Maria (529, *a*, 529, *b*).

ERICACEAE.

- *CALLUNA VULGARIS, Salisb. Watson 193, (1) 405, (2) 595; Drouet 189; Seubert 40. *Erica vulgaris*, Seub. & Hochst. 12.—B. & H. 286. *f.* 640.

Flores (532). Fayal (*Brown*, 123, 124, 125). Pico. Terceira (533; *Sampaio*). San Miguel (530, 531, 534; *Brown*, 126; *Carreiro*). Sta. Maria (534, *a*).

- **Erica Azorica*, Hochst. in Seubert 40; Seub. & Hochst. 12; Watson 194, (2) 594; Drouet 188. *E. scoparia*, Watson (1) 399, 405, (2) 594.

Corvo (535). Flores (536, 537). Fayal (*Brown*, 127). Pico (*Brown*, 128). Graciosa (538). Terciera. San Miguel (539; *Brown*, 129; *Carreiro*). Sta. Maria (539, *a*).

Two states *a. chlorantha*, and *β. erythrantha*, are characterized by Hochstetter, on the color of the flowers.

- E. SCOPARIA, L. Watson 194, 221; Drouet 189; Seubert 40. *E. fucata*, Seub. & Hochst. 12.—Lowe, 2: 5.—Rchb. 17. *pl.* 1164.

San Miguel, on the island off Villa Franca, according to Seuber, and Drouet, but regarded with some doubt by Mr. Watson, and probably merely a form of the preceding.

- *DABOECIA POLIFOLIA, Don. Drouet 189; Seubert 40.
Menziesia polifolia, Watson 193, (1) 7. *Menziesia Daboeci*, Watson (2) 595. *M. Daboetze*, Seub. & Hochst. 12.—B. & H. 283. f. 633.
 Flores. Fayal (*Brown*, 130, 131). Pico. Terceira.

PLUMBAGINACEAE.

- *STATICE LIMONIUM, L. Watson 215, (3) 382; Drouet 190. *S. serotina*, Drouet 190.—B. & H. 364. f. 821.
 Pico. Terceira. San Miguel (540; *Brown*, 170; *Carreiro*, 25). Sta. Maria (540, a).

PRIMULACEAE.

- *Lysimachia Azorica, Hornem. in Bot. Mag. pl. 3273; Watson 211, (1) 407, (2) 599, (3) 389; Phytologist 2: 766, 975; Drouet 188; Seub. & Hochst. 11. *L. nemorum*, Drouet 188; Seubert 39. *L. Hochstetteri*, Steud. Nomenclator. 2 ed. 2: 84.
 Corvo (541, 542, 543). Flores (544, 545, 546). Fayal (*Brown*, 171). Pico (*Brown*, 172). Terceira (547, 548). San Miguel (549, 550, 551; *Brown*, 173, 174; *Carreiro*). Sta. Maria.

I follow Mr. Watson in keeping this apart from *L. nemorum*, with which the Index Kewensis unites it.

- *ANAGALLIS ARVENSIS, L. Watson 212, (2) 599; Drouet 188; Seubert 40. *A. Phoenicia*, Drouet 188; Seub. & Hochst. 11.—B. & H. 294. f. 658.
 Flores (553). Fayal (*Brown*, 175). Pico. Graciosa (554, 555). San Miguel (556, 557). Sta. Maria (557, a).
- *A. CAERULEA, Lam. Watson 212, (2) 599; Drouet 188; Seub. & Hochst. 11.—Lowe, 2: 36.—Rehb. 17. pl. 41 (under *A. arvensis*, with which it is commonly united).
 Fayal. San Miguel (*Carreiro*, 98). Sta. Maria (557, b).

- *A. TENELLA, L. Watson 212; Drouet 188.—B. & H. 294. *f.* 659.
Flores (558, at the Caldeira da Lomba). Pico. Sta. Maria.
- *CENTUNCULUS MINIMUS, L. Watson 213, (2) 599; Drouet 188.—B. & H. 294. *f.* 660.
Corvo. Flores.—Not recently collected.
- *SAMOLUS VALERANDI, L. Watson 213, (2) 600; Drouet 188.—B. & H. 295. *f.* 661.
Flores (559, 560, 561).

MYRSINACEAE.

- *MYRSINE AFRICANA, L. var. RETUSA, DC. Watson 210; Seubert 40. *M. retusa*, Ait. Hort. Kew. 1: 271; Drouet 188; Watson (2) 600; Seub. & Hochst. 12.—Loddiges, Bot. Cab. 5. *pl.* 409.
Corvo (59). Flores (60, 61, 62). Fayal. Pico (*Brown*, 176). Terceira (63). San Miguel (64, 65; *Carreiro*). Sta. Maria (65, *a*).

OLEACEAE.

- JASMINUM AZORICUM, L. Sp. Pl. 7; Drouet 180; Seubert 35; Commelyn, Hort. 1: 159; Watson (2) 595.
Originally ascribed to the Azores but apparently by error.
- *NOTELAEA EXCELSA, Webb. *Picconia excelsa*, Watson 194; Drouet 180; Seubert 35. *Olea excelsa*, Watson (2) 595; Seub. & Hochst. 12.—Lowe, 2: 23.—Barker-Webb & Berthel. Hist. Nat. Iles. Canar. *pl.* 186.
Corvo (562). Flores (563, 564). Fayal. Pico. San Miguel (565, 566). Sta. Maria (566, *b*).
- FRAXINUS PARVIFOLIA, Lam.—Dippel, Handb. Laubholzkunde. 1: 94. *f.* 51.
Flores (566, *a*).—Brought to me as wild, but doubtless originally planted.

APOCYNACEAE.

- *VINCA DIFFORMIS, Pour. *V. media*, Watson 194; Drouet 181. *V. major*, Watson (3) 382.—Willk. & Lange, Prodr. Fl. Hisp. 2: 665.—Rehb. 17. *pl.* 1063.

Flores. Fayal (*Brown*, 177, 178). Terceira (567).
San Miguel (568; *Brown* 179).

ASCLEPIADACEAE.

- *GOMPHOCARPUS FRUTICOSUS, R. Br. Drouet 181; Seubert 35. *Asclepias fruticosa*, Watson 194, (1) 7, (2) 595; Seub. & Hochst. 12.—Lowe, 2: 47.—Bot. Mag. 39. pl. 1628.

Fayal.—Said to be merely an escape there, but thoroughly established in Madeira.

GENTIANACEAE.

- *MICROCALA FILIFORMIS, Hoffmg. & Lk. *Exacum filiforme*, Watson 196, (2) 595; Drouet 181; Seubert 36; Seub. & Hochst. 12. *Cicendia filiformis*, Watson (3) 395.—B. & H. 301. f. 672.

Terceira. San Miguel.—Not recently collected.

- *ERYTHRAEA CENTAURIUM, Pers. Watson 195, (2) 595, (3) 395; Drouet 180; Seub. & Hochst. 12. *E. latifolia*, Seubert 36; Watson (3) 395; Drouet 181. *E. pulchella*, Drouet 181.—B. & H. 301. f. 674.

Corvo. Flores (569, 570, 571, 572, 573). Fayal (*Brown*, 191, 206, 207). Pico (*Brown*, 208). Terceira (574, 575). San Miguel (576, 577; *Brown*, 192; *Carreiro*, 134, 161, 177). Sta. Maria (577, a, 577, b).

- *E. MASSONI, Sweet. Watson 195, (2) 595, (3) 388. Drouet 181. *E. diffusa*, Drouet 181; Seubert 36; Watson (1) 408; Seub. & Hochst. 12.—Corbière, 394 (as *E. scilloides*). *Chironia maritima*, Ait. Hort. Kew. 2 ed. 2: 6. *Gentiana scilloides*, Seub. & Hochst. 12.—Le Jolis, Ann. Sci. Nat. Bot. iii. 7: 217. pl. 13.

Corvo (578, 579, 580). Flores (581, 582). Fayal (*Brown*, 189). Pico. Terceira (583, 584, 585). San Miguel (586, 587, 588, 589, 590; *Brown*, 190; *Carreiro*). Sta. Maria (590, a, 590, b).

The nomenclature discussed at length by Le Jolis, Mem. Soc. Cherbourg, 1896, and Malinvaud, Bull. Soc. Bot. de France, 43: 423.

- * *E. MARITIMA*, Pers. Drouet 181. *E. lutea*, Watson 196, (3) 382; Drouet 181.—Lowe, 2: 41.—Rchb. 17. *pl. 20*.
Fayal. Pico. San Miguel (591, 592; *Carreiro*, 179).
Sta. Maria.

BORAGINACEAE.

- *† *HELIOTROPIUM EUROPAEUM*, L. Watson 210, (1) 397, (2) 596; Drouet 184; Seubert 37; Seub. & Hochst. 12.—Gray, 361.—Rchb. 18. *pl. 1294*.
Pico (*Brown* 210). San Jorge (597). Graciosa. Terceira (598).
- *† *CYNOGLOSSUM PICTUM*, Sol. Watson 210, (3) 382; Drouet 184.—Willk. & Lange, Prodr. Fl. Hisp. 2: 508.—Rchb. 18. *pl. 1331*.
Flores. Graciosa (599). Terceira. San Miguel (*Carreiro*). Sta. Maria (599, a).
- * *Myosotis maritima*, Hochst. in Seubert 37; Watson 209, (1) 408, (2) 597, (3) 388; Drouet 185; Seub. & Hochst. 12.—*Plate 41*.
Corvo (600— in a seaside ravine among the high cliffs west of Rosario, 601— under the sea cliffs south of the town). Fayal. Pico.
I should refer my specimens to the next species were it not for the pale color, large size, and rounded, not cordate, segments of the corolla.
- * *M. Azorica*, Watson, Bot. Mag. 70. *pl. 4122*, (2) 597, (3) 388, (4) 209; Drouet 185.
Corvo. Flores.
- * *M. COLLINA*, Hoffm. *M. arvensis*, Watson 210, (3) 382; Drouet 185.—B. & H. 313. *f. 700*.
San Miguel (*Carreiro*, 129, 151).
- M. STRICTA*, Lk. Watson 210, (2) 597, (3) 395; Drouet 185; Seubert 37; Seub. & Hochst. 12.—Rchb. 18. *pl. 1324*.
Indefinitely reported by Seubert, and likely to be either the preceding or the following.
- * *M. VERSICOLOR*, Sm. Watson 210, (2) 597; Drouet 185; Seubert 37.—B. & H. 313. *f. 701*.
San Miguel, Sta. Maria.

- *†ECHIMUM VIOLACEUM, L. Watson 210, (2) 597; Drouet 184; Seubert 37.—Rchb. 18. *pl.* 99.
Flores (603). Terceira. San Miguel (602; *Brown*, 211; *Carreiro*, 218). Sta. Maria (603,*a*, 603,*b*—an albino).
- E. VULGARE, L. Watson 210, (2) 597; Drouet 185; Seubert 37; Seub. & Hochst. 12.—B. & H. 307. *f.* 690.
San Miguel.—Doubtful.
- SYMPHYTUM ASPERRIMUM, Donn.—Bot. Mag. 24. *pl.* 929.
Terceira (*Sampaio*). San Miguel (604—escaping from cultivation).

CONVOLVULACEAE.

- *Ipomoea carnosia, R. Br. *Batatas littoralis*, Watson 197.
Convolvulus Imperati, Drouet 185; Watson (2) 596.
C. Soldanella, Drouet 185; Seubert 38.—*Plate* 42.
Fayal (*Brown*, 183, at Porto Pym).
- *†CALYSTEGIA SEPIUM, R. Br. *Convolvulus sepium*, Watson 197, (2) 596; Drouet 185; Seubert 38; Seub. & Hochst. 12.—B. & H. 306. *f.* 685.
Corvo (606). Flores (607, 608). Fayal (*Brown*, 180, 181).
Seubert, *l. c.* publishes also a variety *roseomaculata*, Hochst.
- *†CONVOLVULUS ARVENSIS, L. Watson 196, (2) 596; Drouet 185; Seubert 38; Seub. & Hochst. 12.—B. & H. 306. *f.* 684.
Flores (609, 613). Fayal. Graciosa (610, 611, 612).
Terceira. San Miguel (*Brown*, 182). Sta. Maria (612, *a*).
Pure white flowers, and also a form with rosy variegation.

SOLANACEAE.

- *†SOLANUM PSEUDOCAPSICUM, L. Watson 198, (2) 598; Drouet 186; Seubert 38; Seub. & Hochst. 12.—Lowe, 2: 79.—*Plate* 43.
Flores (615). Fayal. Pico. *San Jorge*. Terceira (614). San Miguel.
- *†S. NIGRUM, L. Watson 198, (2) 598; Drouet 186; Seubert 38; Seub. & Hochst. 12.—B. & H. 319. *f.* 714.

Corvo (617, 619). Flores. Fayal (*Brown*, 184, 185). Pico. San Jorge (621). Graciosa (616, 618, 620). Terceira (*Sampaio*). San Miguel (*Brown*, 193; *Carreiro*). Sta. Maria (621, *a*).

*†*S. NIGRUM*, var. *VILLOSUM*, L. *S. villosum*, Watson 198, (2) 598; Drouet 186.—Lowe, 2: 76.—Hayne, *Arzneigew.* 2. *pl.* 41.

Corvo (622, 623, 624).—A series of villous to tomentose forms, variously intermediate between the species and this variety.

S. AURICULATUM, Ait — Lowe, 2: 80.—L'Her. *Sert. Angl. pl.* 114.

Terceira (626, near the sources of the Angra water supply).—Escaping from cultivation, as in Madeira.

**Physalis Peruviana*, L. *P. pubescens*, Watson 198, (2) 598; Drouet 186; Seubert 38; Seub. & Hochst. 12.—Lowe, 2: 90.—*Plate* 44.

Corvo. Flores (629). Fayal (*Brown*, 186). San Jorge (627). Graciosa (628, 630). Terceira. San Miguel. Sta. Maria.

LYCOPERSICUM ESCULENTUM, Dun. Seubert 38; Watson (2) 598, (3) 395; Drouet 186. *Solanum Lycopersicum*, Seub. & Hochst. 12.—Lowe, 2: 84.—*Rchb.* 20. *pl.* 1634.

Terceira.—Scarcely established.

**HYOSCYAMUS ALBUS*, L. Watson 199. *H. Canariensis*, Drouet 185; Seubert 38; Watson (1) 396, (2) 598, (3) 389; Seub. & Hochst. 12.—Lowe, 2: 111.—*Rchb.* 20. *pl.* 1623.

Flores. Fayal (*Brown*, 187). Pico. Graciosa. Terceira (631). San Miguel (*Carreiro*). Sta. Maria (631, *a*).

*†*DATURA STRAMONIUM*, L. Watson 199; Drouet 184; Seub. & Hochst. 12; Seubert 38.—B. & H. 318. *f.* 711.

Fayal (observed by Mr. Brown). San Miguel.

SCROPHULARIACEAE.

*†*VERBASCUM VIRGATUM*, Stokes. Watson 199, (3) 382; Drouet 186.—B. & H. 326. *f.* 726.

Flores (633). Terceira. San Miguel (632). Sta. Maria.

V. BLATTARIA, L. Watson, 199; Drouet 186.—B. & H. 326. f. 725.

Pico.—Perhaps refers to the preceding.

- *†V. THAPSUS, L. Watson 200, (2) 598; Drouet 186.—
B. & H. 325. f. 724.

Fayal (*Brown, f.*).

- *†× V. SPURIUM, Koch. Watson 199; Drouet 186. —
Corbière, 417.—Rchb. 20. pl. 1661, 1670 (as *V.*
Thapso-Lychnitis).

Pico (*Brown, h.*) San Jorge. Terceira (634). San Miguel.

If correctly named, this hybrid appears to have been introduced into the Azores as such, since *V. Lychnitis* has not been observed there, and *V. Thapsus*, so far as I know, was not collected before 1894;—but there is no great difficulty in believing this to be the case.

- *LINARIA SPURIA, Mill. Watson 202, (2) 599; Drouet 186; Seubert 38; Seub. & Hochst. 11.—B. & H. 330. f. 738.

Corvo (635, 636). Flores (637). Fayal. Pico (*Brown, 194*). Terceira. San Miguel. Sta. Maria (637, a).

- *L. ELATINE, Mill. Watson 203; Drouet 186; Seub. & Hochst. 11. *L. cirrhosa*, Watson 203, (2) 599, (3) 395; Drouet 186; Seubert 38; Seub. & Hochst. 11. *L. dealbata*, Watson (2) 599. *L. Sieberi*, Seubert 38; Watson (3) 395. *L. Graeca*, Watson (3) 395.—B. & H. 330. f. 739.

Fayal. Terceira (638, a, 639, a). San Miguel (640, a, 641, a— with the reduced upper leaves less hastate than usual, 642, a; *Carreiro*, 43, 217).

- L. CYMBALARIA, Mill.—B. & H. 329. f. 737.

Fayal (*Brown, 195*).—Doubtless escaped.

- *ANTIRRHINUM ORONTIUM, L. Watson 202, (2) 599; Drouet 187; Seubert 38; Seub. & Hochst. 11.—B. & H. 327. f. 731.

Corvo (638). Flores (639). Fayal. Pico (*Brown, 197*). San Jorge (640). Terceira (641; *Sampaio*). San Miguel (642; *Carreiro*, 12). Sta. Maria (642, a).

- **SCROPHULARIA SCORODONIA*, L. Watson 202, (2) 599; Drouet 186; Seubert 38; Seub. & Hochst. 11.— B. & H. 331. *f.* 742.
Terceira (643). San Miguel (644, 645; *Brown*, 199).
- **S. ALATA*, Gilib.— Rchb. 20. *pl.* 1672.
San Miguel (646, near the Furnas; *Brown*, 198).
Perhaps only an exceptionally winged form of the next.
- **S. AQUATICA*, L. Drouet 186; Watson (2) 599. *S. Balbisi*, Watson 202.— B. & H. 331. *f.* 741; Rchb. 20. *pl.* 1673.
Flores (647, 648, 649, 650).
- **Mimulus moschatus*, Dougl.—Gray, Syn. Fl. 2¹: 1: 278.— Bot. Reg. 13. *pl.* 1118.
San Miguel (681, in the deep ravine above Lagoa das Furnas; *Brown*, 205).
Unquestionably a garden escape, but well established.
- **SIBTHORPIA EUROPAEA*, L. Watson 203, (2) 598, (3) 389; Drouet 187; Seubert 39. *Disandra Africana*, Seub. & Hochst. 11.— B. & H. 332. *f.* 746.
Corvo (652). Flores (653, 654, 655, 656). Fayal. Pico. Terceira (659). San Miguel (657, 658; *Brown*, 200). Sta. Maria (659, *a*, 659, *b*).
- **DIGITALIS PURPUREA*, L. Watson 204; Drouet 186.— B. & H. 333. *f.* 747.
Terceira.
Found only by Morelet and Hartung, and perhaps only an escape, though one of the commonest plants at suitable altitudes in Madeira.
- **VERONICA ANAGALLIS*, L. Watson 200, (2) 599; Drouet 186; Seubert 39.— B. & H. 336. *f.* 753.
Flores (660). Fayal (*Brown*, 201). Terceira (661). San Miguel (*Brown*, 202). Sta. Maria (661, *a*).— Not always glabrous.
- **V. Dabneyi*, Hochst. in Seubert 39. *pl.* 8; Watson 200, (2) 599; Drouet 186; Seub. & Hochst. 11.
Corvo. Fayal. San Miguel. — Not recently collected.

- **V. TOURNEFORTII*, Gmel.—Corbière, 434; B. & H. 337. *f.* 760 (as *V. Buxbaumii*).—Rchb. 20. *pl.* 1699 (as *V. Persica*).
San Miguel (*Carreiro*, 116).
- *†*V. OFFICINALIS*, L. Watson 201, (2) 599; Drouet 187; Seubert 39; Seub. & Hochst. 11.—B. & H. 335. *f.* 752.
Fayal. Pico. Terceira (662, 663, 664). San Miguel (665, 666; *Brown*, 204).
- *†*V. SERPYLLIFOLIA*, L. Watson 201, (2) 599; Drouet 187.—B. & H. 335. *f.* 751.
Corvo (673). Flores (674). Fayal. Pico (*Brown*, 203). Terceira (675). San Miguel (552, 676, 677).
- *†*V. AGRESTIS*, L.—B. & H. 337. *f.* 759.
Corvo (668). Terceira (*Sampaio*). San Miguel (672). Sta. Maria (672, *a*).
- *†*V. ARVENSIS*, L. Watson 201, (2) 599; Drouet 187; Seubert 39; Seub. & Hochst. 11.—B. & H. 338. *f.* 761.
Flores (667). Fayal (*Brown*, *e*). Terceira (669, 670). San Miguel (671, 672; *Carreiro*, 148).
- **Euphrasia grandiflora*, Hochst. in Seubert 39. *pl.* 8; Seub. & Hochst. 11; Watson 201; Drouet 187. *E. Azorica*, Watson Lond. Journ. Bot. 3: 598, (4) 201; Drouet 187. ?*E. officinalis*, Watson 201, (2) 598, (3) 395; Drouet 187; Seubert 39.
Corvo. Flores (678, 679). Fayal. Pico (*Hochstetter*, 54). Terceira.
- **BARTSIA TRIXAGO*, L. Watson 202, (2) 598; Drouet 187; Seubert 39.—Rchb. 20. *pl.* 1724.
Pico. San Miguel. Sta. Maria.
- **B. VISCOSA*, L. Watson 202.—B. & H. 339. *f.* 765.
Terceira.

OROBANCHACEAE.

- **OROBANCHE SPECIOSA*, DC. ?.—Wilkomm & Lange, Prodr. Fl. Hispan. 2: 622.—Rchb. 20. *pl.* 161.
San Miguel (*Chaves*.—Parasitic on beans, and attaining an unusually large size).

ACANTHACEAE.

- *ACANTHUS MOLLIS, L. Watson 199, (2) 599; Drouet 188.—Rehb. 20. *pl.* 1811.
Flores. Fayal. San Miguel.—Not recently collected.

VERBENACEAE.

- *†VERBENA OFFICINALIS, L. Watson 205, (2) 599; Drouet 184; Seubert 37; Seub. & Hochst. 11.—B. & H. 363. *f.* 820.
Corvo (681). Flores (682). Fayal (*Brown*, 212, 213, 214). Pico. Graciosa (683). Terceira (684). San Miguel (685; *Carreiro*, 159). Sta. Maria (685, *a*).
- V. BONARIENSIS, L.—Dillenius, Hort. Elth. *pl.* 300.
Fayal (*Brown*, 215). San Miguel (687; *Carreiro*, 8).—Escaped, but seemingly well established.

LABIATAE.

- LAVANDULA STOECHAS, L. Drouet 182; Seubert 36; Watson (1) 7, (2) 598.—Nouv. Duhamel, 3. *pl.* 43.
Fayal.—Escaped. Not recently seen.
- *MENTHA ROTUNDIFOLIA, Huds. Watson 205, (2) 597; Drouet 182; Seubert 36; Seub. & Hochst. 11.—B. & H. 347. *f.* 779.
Flores (688). Fayal (*Brown*, 221, 222). Terceira (689). San Miguel (690; *Carreiro*, 77, *b*).
- *M. AQUATICA, L. Watson 206, (2) 597; Drouet 182.—B. & H. 347. *f.* 782.
Flores (699, 700, 701, 702). Fayal (*Brown*, *a*). Pico (*Brown*, *b*). San Miguel (703, 704, 705, 706; *Brown*, *c*; *Carreiro*, 920).
Nos. 699, 700, 705, and 706, come nearest to the usual form of *M. aquatica*; the others have a longer, narrower and more interrupted spike. 704 somewhat resembles *M. viridis*.
- M. VIRIDIS, L. Watson, 205, (2) 597; Drouet 182; Seubert 36; Seub. & Hochst. 11.—B. & H. 347. *f.* 780.
Flores. Sta. Maria.—Regarded with doubt by Mr. Watson.
- M. PIPERITA, Sm. Watson, 205; Drouet 182.—B. & H. 347. *f.* 781.
Sta. Maria.—Regarded as doubtful by Mr. Watson.

**M. PIPERITA*, var. *CALVIFOLIA*, Briquet, Bull. Boissier Herb. 2: 703.

San Miguel.

M. SATIVA, L. Watson 205, (2) 597; Drouet 182.— B. & H. 348. f. 783. Flores. Fayal. San Miguel.— Questionable.

**M. PULEGIUM*, L. Watson 206, (2) 597; Drouet 182.— B. & H. 348. f. 785.

Corvo. Flores (691, 692, 693, 694). Fayal (*Brown*, 218). Pico (*Brown*, 219). Graciosa (695). Terceira (696). San Miguel (697, 698; *Brown*, 220; *Carreiro*).

**LYCOPUS EUROPAEUS*, L. Watson 206, (3) 382; Drouet 182.— B. & H. 346. f. 777.

Pico (*Brown*, 225). Terceira. San Miguel (707, 708; *Brown*, 226).

**THYMUS SERPYLLUM*, L. var. *ANGUSTIFOLIUS*, Boiss. *T. angustifolius*, Watson 206; *T. Micans*, Drouet 183; Seubert 36; Watson (2) 597; Seub. & Hochst. 11. *T. Azoricus*, Loddiges, Bot. Cab. 16. pl. 1530. *T. caespitosus*, Watson (1) 6. *T. caespititius*, Watson (1) 130, 403, 405.— Corbière, 467.— Rchb. 18. pl. 1265.

Corvo (710, 711). Flores (712, 713). Fayal (*Brown*, 224). Pico. Terceira (709, 714). San Miguel (715; *Carreiro*, 216). Sta. Maria.

**ORIGANUM VIRENS*, Hoffmg. & Lk. Watson 207, (2) 598, (3) 395; Drouet 182. *O. Creticum*, Seubert 36; Watson (2) 598, (3) 395; Seub. & Hochst. 11; Drouet 182. *O. vulgare*, Drouet 182.— Willk. & Lange, Prodr. Fl. Hisp. 2: 398.— Rchb. 18. pl. 1263.

Flores (716, 717). Pico (*Brown*, 227, 228). San Jorge (*Brown*, 229). Terceira. San Miguel (718; *Carreiro*, 158). Sta. Maria (718, a).

O. MARJORANA, L. Watson 207; Drouet 183.— Hayne, Arzneigew. 8. pl. 9. Pico.— Probably escaped.

**MELISSA OFFICINALIS*, L. Watson (2) 598; Drouet 183.— Corbière, 464.— Rchb. 18. pl. 1261.

Flores (743). Pico (*Brown*, 229, *a*). Terceira (*Sampaio*).—Escaped, but seemingly naturalized.

- **CALAMINTHA OFFICINALIS*, Moench. Watson 207, (2) 597. *C. Nepeta*, β . *rotundifolia*, Drouet 183. *Melissa Calamintha*, β . *villosissima*, Drouet 183; Seubert 37. *M. rotundifolia*, Seub. & Hochst. 11.—B. & H. 351. *f.* 789.—Rehb. 18. *pl.* 1278.

Corvo (719). Flores (720). Fayal (*Brown*, 231). Pico (*Brown*, 232). Graciosa. Terceira (721). San Miguel (722, 723; *Brown*, 233; *Carreiro*, 206).

All of my specimens are puzzling, having the small firm-looking leaves of what usually passes for *C. Nepeta*, with the larger longer-pedicelled flowers of true *officinalis*, while the peduncles are intermediate between the two. By M. Christ, the San Miguel plant has been named *C. Nepeta*, and at Coimbra it has been called *C. Baetica*. A Madeiran form, quite the same, was distributed among Wright's 1853 collections as *C. officinalis*.

- **C. CLINOPODIUM*, Benth. Watson 207. *Clinopodium vulgare*, Drouet 183; Watson (2) 597.—B. & H. 351. *f.* 790.

Flores (724). San Miguel (725). Sta. Maria (725, *a*),—an albino, as was Watson's Flores plant).

Differs from the usual *Clinopodium* of the two continents in its shorter nodes and short deltoid-ovate leaves, tinged with purple, like the stem. The calyx is quite short and its teeth are rigid.

- ROSMARINUS OFFICINALIS*, L. Drouet 182; Seubert 36; Watson (1) 7, (2) 598.—Hayne, *Arzneig.* 7. *pl.* 25.

Fayal. San Miguel.—Escaping.

- *†*NEPETA GLECHOMA*, Benth. Watson 208. *Glechoma hederacea*, Drouet 183.—B. & H. 352. *f.* 791.

San Miguel (*Carreiro*, 82).

- **CEDRONELLA TRIPHYLLA*, Moench. Watson (3) 383; Drouet 183.—Zorn, *Icon. Pl. Medicin.* 5. *pl.* 423.

San Miguel.—Escaped, and not recently collected.

- **PRUNELLA VULGARIS*, L. Watson 208, (2) 598; Drouet 184; Seubert 37; Seub. & Hochst. 11.—B. & H. 352. *f.* 793.

Corvo. Flores (738, 739, 740). Fayal (*Brown*, 230). Pico. Terceira (741). San Miguel (742; *Carreiro*, 160). Sta. Maria (742, *a*).

- *†MARRUBIUM VULGARE, L. Watson 208, (3) 382; Drouet 184.— B. & H. 354. *f.* 797.
 Pico (*Brown*, 234). Graciosa (734, 735; *Brown*, 235). Terceira (736; *Sampaio*). San Miguel (737; *Carreiro*). Sta. Maria (737, *a*).
- *STACHYS ARVENSIS, L. Watson 208, (2) 598; Drouet 184; Seubert 37; Seub. & Hochst. 11.— B. & H. 356. *f.* 802.
 Corvo (726, 727). Flores (733). Fayal. San Jorge (728, 732). Graciosa (729, 730). Terceira (*Sampaio*). San Miguel (731; *Carreiro*). Sta. Maria (731, *a*).
- *LAMIUM PURPUREUM, L. Watson 208; Drouet 183.— B. & H. 359. *f.* 809.
 San Miguel.— Not recently collected.
- *L. AMPLEXICAULE, L. Watson 208, (3) 382; Drouet 183.— B. & H. 359. *f.* 808.
 San Miguel.
- *BALLOTA NIGRA, L. Watson 208, (3) 382; Drouet 184.— B. & H. 358. *f.* 806.
 San Miguel.— Not recently collected.

PLANTAGINACEAE.

- *†PLANTAGO MAJOR, L. Watson 213, (2) 603; Drouet 190; Seubert 30; Seub. & Hochst. 11; ?*P. media*, Watson 213, (2) 603, (3) 396; Drouet 190; Seubert 30; Seub. & Hochst. 11.— B. & H. 366. *f.* 826.
 Corvo (744). Flores (745). Fayal. Graciosa. Terceira (746). San Miguel (*Carreiro*).
- *†*P. LANCEOLATA*, L. Watson 214, (2) 603; Drouet 190; Seubert 30; Seub. & Hochst. 11.— B. & H. 367. *f.* 828.
 Flores (762, 764, 768). Fayal (*Brown*, 216). Graciosa (763). Terceira (*Sampaio*).
 None of these specimens quite typical, but scarcely pertaining to the next variety.

- *P. LANCEOLATA, var. ERIOPHYLLA, Barker-Webb & Berth.
P. lanceolata, Watson 214, in part. *P. Azorica*,
 Hochst. in Seubert 30. *pl.* 7; Watson 214; Drouet
 190; Seub. & Hochst. 11. ?*P. lagopus*, Watson 214,
 (2) 603, (3) 396; Drouet 190; Seubert 30; Seub. &
 Hochst. 11.

Corvo (765). Flores (766, 767). Fayal. Graciosa
 (770). Terceira (769, 771, 772, 773). San Miguel
 (774, 775; *Carreiro*, 916). Sta. Maria (775, *a*, 775, *b*,
 775, *c*, 775, *d*).

- *P. CORONOPUS, L. Watson 214, (2) 603; Drouet 190;
 Seubert 30; Seub. & Hochst. 11.—B. & H. 367. *f.*
 830.

Corvo (747, 748, 749, 758). Flores (759). Fayal.
 Pico (*Brown*, 217). Graciosa (750, 751). Terceira
 (752, 753, 754, 755). San Miguel (756, 757; *Carreiro*,
 104, 125). Sta. Maria (757, *a*, 757, *b*, 757, *c*).

Two unusual forms were collected, which I do not refer else-
 where:—761, from Corvo, with cuneate-spatulate leaves 2 to 3 in.
 long, nearly equally 5-toothed near the apex; and 760, from seaside
 rocks at Sta. Cruz, Flores, with very succulent cuneate leaves 8 to
 10 in. long, bearing two broad fulcate lobes near the oblong broader
 apex.

- *P. SERRARIA, L. Watson 214, (3) 382; Drouet 190.—
 Rehb. 17. *pl.* 1130.

San Miguel.— Not recently collected.

- *LITTORELLA LACUSTRIS, L. Watson 214, (2) 603; Drouet
 190.—B. & H. 368. *f.* 831.

Corvo.— Not recently collected.

NYCTAGINACEAE.

- MIRABILIS DIVARICATA, Lowe. Watson (2) 603; Drouet 193.—Lowe,
Primitiae et Nov. Faun. et Fl. Maderae. 17.

Flores.— Collected many years ago, and possibly the same as
 the next.

- *M. Jalapa, L.— Bot. Mag. 11. *pl.* 371.

San Jorge (777). Sta. Maria (777, *a*).— Escaped.

The pericarp is striate and slightly rusty-pubescent, not
 rugose and glabrous as in the preceding.

ILLECEBRACEAE.

- *ILLECEBRUM VERTICILLATUM, L. Watson 217, (2) 592,
(3) 395; Drouet 159; Seubert 45; Seub. & Hochst.
14.—B. & H. 370. *f.* 834.
Terceira (778).

AMARANTHACEAE.

- AMARANTHUS HYBRIDUS, L. *A. chlorostachys*, Watson 217.—Gray,
428.—Willd. *Amarant. pl.* 9, 10.
Fayal.—Escaped?
- A. HYBRIDUS, var. PANICULATUS, Uline & Bray. *A. strictus*, Watson
217.—Gray, 428.—Willd. *Amarant. pl.* 2.
Flores (779). San Miguel (*Carreiro*, 14).—Escaped.
- *†A. LIVIDUS, L.—Willd. *Amarant. pl.* 1.
Flores (780, 781, 782). San Miguel (*Carreiro*, 6).
Sta. Maria (782, a).
- A. BLITUM, L. Watson 217, (2) 603; Drouet, 191.—Gray, 428.—Engl.
Bot. 31. *pl.* 2212.
Corvo. Flores. Fayal. Terceira. San Miguel. Of somewhat
the aspect of the preceding, but usually with smaller leaves: when
in fruit easily recognized by the circumscissile utricle.—Possibly
in part referring to the last?
- *†A. DEFLEXUS, L. *A. prostratus*, Drouet 191. *Euxolus*
deflexus, Watson 217.—Willk. & Lange, *Prodr. Fl.*
Hisp. 1: 277.—Willd. *Amarant. pl.* 10.
Fayal (*Brown*, 236). San Jorge (783). Terceira
(784, 785, 786?). San Miguel (*Carreiro*, 6, 18, 21).
Sta. Maria. (786, a).
- ACHYRANTHES ASPERA, L. *A. argentea*, Watson 217, (3) 382; Drouet
191.—Willk. & Lange, *Prodr. Fl. Hisp.* 1: 277.—Sibth. *Fl. Graec.*
pl. 244.
San Miguel.—Not recently collected.
- *†ALTERNANTHERA ACHYRANTHA, R. Br. Watson 217;
Drouet 191. *A. polygonoides*, Watson (3) 382.—
Willk. & Lange, *Prodr. Fl. Hisp.* 1: 278.—Barker-
Webb & Berth. *Hist. Nat. Iles Canaries. pl.* 199.
Graciosa (787 — unusually large-leaved). Terceira.
San Miguel (788; *Carreiro*, 10).

CHENOPODIACEAE.

- *†CHENOPODIUM AMBROSIOIDES, L. Watson 215, (2) 603; Drouet 191; Seubert 28; Seub. & Hochst. 11.—Gray, 433.—Sturm, 17. *pl.* 75.
Flores. Fayal (*Brown*, 237). San Jorge (795). Graciosa (796). Terceira (797, 798). San Miguel (*Carreiro*, 23).
- *†C. MURALE, L. Watson 215, (2) 603; Drouet 191; Seubert 29; Seub. & Hochst. 11.—B. & H. 375. *f.* 847.
Corvo. Fayal. Pico. San Jorge (789). Graciosa (790). Terceira (791, 792, 793). San Miguel (794; *Carreiro*, 7, 8, 20). Sta. Maria (794, *a*, 794, *b*).
- C. RUBRUM, L. Watson 216, (2) 603, (3) 396; Drouet 192; Seubert 29. *C. blitoides*, Seub. & Hochst. 11.—B. & H. 375. *f.* 845.
 Sta. Maria, and other unspecified islands.—Held as doubtful by Mr. Watson.
- *†C. ALBUM, L.—B. & H. 374. *f.* 843.
Flores (799, Fazazinha; 800, 801?, Ponta Delgada). Terceira (802). San Miguel (*Carreiro*, 15, 19).
- *BETA VULGARIS, L. *B. maritima*, Watson 215, (2) 603; Drouet 192 — B. & H. 376. *f.* 850.
Corvo (809). Fayal. San Miguel. Sta. Maria (809, *a*, 809, *b*).
- *†ATRIPLEX HASTATA, L. var. SALINUM, Koch. *A. Babingtonii*, Watson 216. *A. patula*, Watson (2) 603, (3) 391; Drouet 192. *A. portulacoides*, Drouet 192.—B. & H. 378; Willk. & Lange, Prodr. Fl. Hisp. 1: 268.—Schlecht. Lang. & Schenk, Fl. v. Deutschl. 5 Aufl. 9: 214. *pl.* 894.
Corvo (803). *Flores* (804, 805). Fayal (*Brown*, 238); Pico (*Brown*, 239). Graciosa (806). Terceira (807). San Miguel (808; *Carreiro*, 16). Sta. Maria 808, *a*).—A seaside plant.
- *SALSOLA KALI, L. Watson 217, (2) 603; Drouet 192; Seubert 29; Seub. & Hochst. 11.—B. & H. 373. *f.* 840.
 Fayal (*Brown*, 240). San Miguel.

BOUSSINGAULTIA BASELLOIDES, HBK.—Bot. Mag. 64. pl. 3620.

Almost or quite established on walls in several islands. On the possible relation of *Smilax tetragona*, Drouet 200, to this, see DC. Monogr. Phanerog. 1: 73.

PHYTOLACCACEAE.

*†PHYTOLACCA DECANDRA, L. Watson 215, (2) 605; Drouet 191; Seubert 28; Seub. & Hochst. 11.—Gray, 436.—Bot. Mag. 24. pl. 931.

Corvo. Flores. Fayal (*Brown*, 242). Pico (*Brown*, 243). San Jorge. Graciosa. Terceira (811). San Miguel.

POLYGONACEAE.

*†POLYGONUM HYDROPIPEROIDES, Michx.—Gray, 441.—Small, Mem. Dept. Bot. Columbia Coll. 1: 80. pl. 27. Corvo (812, 813). Flores (814, 815). Terceira (816). San Miguel (817; *Brown*).

*†P. SERRULATUM, Lag. Watson 218. ?*P. Persicaria*, Watson (2) 604, (3) 396; Drouet 192; Seubert 29; Seub. & Hochst. 11. *P. dubium*, Drouet 192. *P. sp.*, Watson (2) 604, (3) 391, 396.—Willk. & Lange, Prodr. Fl. Hisp. 1: 289.—Plate 45.

Flores (818).—Also ascribed by Mr. Watson to Corvo, Terceira? and San Miguel, perhaps in part on specimens of the preceding.

*P. MARITIMUM, L. Watson 218, (2) 604, (3) 391; Drouet 192; Seubert 29; Seub. & Hochst. 11.—B. & H. 385. f. 868.

Fayal (*Brown*, 244). Pico. Terceira (819). San Miguel.

*†P. AVICULARE, L. Watson 218, (2) 604; Drouet 192.—B. & H. 384. f. 867.

Corvo (820). Pico (*Brown*, 245). Terceira (821). San Miguel (*Carreiro*). Sta. Maria (821, a).

*RUMEX AQUATICUS, L. Watson 218; Seub. & Hochst. 11. *R. sp.*, Watson (2) 603.—B. & H. 380. f. 856.

Fayal. San Miguel.—Not recently collected.

- *†R. CRISPUS, L. Watson 219, (2) 604; Drouet 192.—
B. & H. 381. *f.* 857.
Corvo (823). Flores (824). Graciosa (825). Terceira (826). San Miguel (*Carreiro*, 210). Sta. Maria (826, *a*).
- *†R. OBTUSIFOLIUS, L. ?*R. strictus*, Seubert 29; Watson (2) 604, (3) 396; Drouet 192.— B. & H. 381. *f.* 858.
Corvo (827, 828). Flores (829, 830). Terceira (831). San Miguel (822).
- *†R. OBTUSIFOLIUS × CRISPUS.— Trelease, Rept. Mo. Bot. Gard. 3: 92. *pl.* 31.
San Miguel (832,— in the deep ravine above Lagoa das Furnas).
- *†R. CONGLOMERATUS, Murr. Watson 219; Drouet 192. ?*R. acutus*, Watson (2) 604.— B. & H. 381. *f.* 860.
Corvo (833). Flores (834, 835, 839). Fayal (*Brown*, 247, 248, 298). Terceira (836). San Miguel (837, 838; *Brown*, 249; *Carreiro*, 175). Sta. Maria (838, *a*).
- *†R. PULCHER, L. Watson 219, (2) 604; Drouet 192.—
B. & H. 382. *f.* 862.
Corvo (840). Flores (841). Fayal. San Jorge (842). Graciosa (843). Terceira (844). San Miguel (845). Sta. Maria (845, *a*, 846, *a*).
- *R. BUCEPHALOPHORUS, L. Watson 219, (2) 604; Drouet 192; Seubert 29; Seub. & Hochst. 11.—Willk. & Lange, Prodr. Fl. Hisp. 1: 284.—Sibth. Fl. Graec. *pl.* 345.
Pico. Terceira (846). San Miguel (847). Sta. Maria (847, *a*).
- *†R. ACETOSELLA, L. Watson 219, (2) 604; Drouet 192; Seub. & Hochst. 11.— B. & H. 383. *f.* 865.
Corvo (848). Flores (849, 850). Fayal. Terceira (851, 852). San Miguel (853; *Brown*, 246; *Carreiro*). Sta. Maria (853, *a*).
- * MUEHLENBECKIA SAGITTIFOLIA, Meisn. DC. Prodr. 14: 148.— Fl. Bras. 14. *pl.* 22.
Flores (854). Terceira (855).— Cultivated, and, like *Boussingaultia*, becoming wild on walls.

LAURACEAE.

- ⊙ **Persea Azorica*, Seubert 29. *pl.* 6; Watson (2) 605, (3) 392; Drouet 193. *Laurus Canariensis*, Watson 220; Seub. & Hochst. 11. *L. Canariensis*, var. *Azorica*, Seub. & Hochst. 11.

Flores (856). Fayal (*Brown*, 250, 251). Pico (*Brown*, 252). Terceira (857). San Miguel (858, 859, 860, 861; *Carreiro*). Sta. Maria (861, *a*).

- **P. INDICA*, Spreng. Watson 220, (2) 605; Drouet 193.—Barker-Webb & Berth. *Hist. Nat. Iles Canar. pl.* 204. Flores (862). Fayal. Terceira (863). San Miguel (*Carreiro*). Sta. Maria (863, *a*).

- OCOTEA FOETENS, B. & H. *Oreodaphne foetens*, Watson 220; Drouet 193.—Barker-Webb & Berth. *Hist. Nat. Iles Canar. pl.* 205. Terceira.—Perhaps doubtfully established.

THYMELAEACEAE.

- **DAPHNE LAUREOLA*, L. Watson 220, (1) 400, 407, (2) 605; Drouet 193; Seubert 30. *D. Gnidium*, Seub. & Hochst. 11.—B. & H. 388. *f.* 879. Pico. Also formerly in San Miguel.

EUPHORBIACEAE.

- RICINUS COMMUNIS*, L. Seubert 28; Watson (2) 606, (3) 396; Drouet 194.—Hayne, *Arzneig.* 10. *pl.* 48. Fayal. San Miguel.—Scarcely escaped.

- 4 / **Euphorbia Stygiana*, Watson, *Lond. Journ. Bot.* 3: 605. *E. Styxiana*, Watson (3) 392. *E. mellifera*, Watson 221; Drouet 194; Seubert 27. *E. sp.*, Watson (1) 129.—*Plate* 46.

Corvo. Flores (864). Fayal. Pico. San Miguel.

- ⊙ **E. LATHYRIS*, L. Watson 221, (2) 606; Drouet 194; Seubert 27; Seub. & Hochst. 11.—B. & H. 394. *f.* 890.

Fayal. Pico. San Miguel.

Aspect of the next, but with opposite lower leaves, larger capsules, etc.

- *E. *Azorica*, Hochst. in Seubert 27; Watson 222, (2) 606; Drouet 194. *E. diversifolia*, Seub. & Hochst. 11. ?*E. Esula*, ?*E. Gerardiana*, ?*E. Portlandica*, Drouet 194. ?*E. platyphyllos*, Seub. & Hochst. 11.— Plate 47.

Flores (865, 866). Fayal. Pico (*Brown*, 253, 254). San Jorge (867). Terceira ? (*E. Portlandica*, Drouet). San Miguel (868; *Carreiro*, 27).— Somewhat variable and commonly reduced to a variety of *E. pinea*, L.

- *E. *EXIGUA*, L. Watson 222, (2) 606; Drouet 194.— B. & H. 394. *f. 889*.

Fayal. San Miguel.

- **E. *PEPLUS*, L. Watson 222, (2) 606; Drouet 194.— B. & H. 393. *f. 888*.

Flores. Fayal (*Brown*, 255). Graciosa (869, 874). Terceira (870, 871). San Miguel (872; *Carreiro*, 178).

- *E. *PEPLIS*, L. Watson 222, (2) 606; Drouet 194; Seub. & Hochst. 11; Seubert 27.— B. & H. 392. *f. 883*.

Fayal (*Brown*, 256). Pico. Terceira (873). San Miguel.

- *E. *Preslii*, Guss.— Gray, 453.

Pico. (*Brown*, 257).

- BUXUS SEMPERVIRENS*, L. Watson (2) 605; Drouet 194.— Rehb. 5. *pl. 153*.

Flores. Fayal. San Miguel.— Escaping.

- **MERCURIALIS ANNUA*, L. Watson 222, (2) 606; Drouet 195.— B. & H. 396. *f. 896*.— Rehb. 5. *pl. 151* (as *M. ambigua*).

Fayal. San Jorge (876, 877). Graciosa (878, 879, 880). San Miguel (*Carreiro*, 147). Sta. Maria (880, *a*).

Nos. 877, 879, 880, *a*, and *Carreiro*, 147, are monoecious, therefore falling under the variety *ambigua*.

URTICACEAE.

- ULMUS CAMPESTRIS*, L. Watson 224; Drouet 196.— B. & H. 401. *f. 907*.

Fayal. Terceira. San Miguel. *Sta. Maria*.— Escaping.

- **URTICA MEMBRANACEA*, Poir. Watson 223; Drouet 195; Seub. & Hochst. 11. *U. Azorica*, Hochst. in Seubert

28. *pl.* 7; Seub. & Hochst. 11; Watson (2) 606, (3) 392; Drouet 195. ?*U. Loweii*, Seubert 28; Watson (2) 606, (3) 396, (referred in Index Kewensis to *U. morifolia*, Poir, of the Canary Islands). *U. rupestris*, Seub. & Hochst. 11. *U. urens*, Seub. & Hochst. 11.

Flores (885). Fayal (*Brown*, 258). Pico. San Jorge (886, 887). Graciosa (888). Terceira (889). San Miguel (890; *Brown*, 259; *Carreiro*, 86, 141). Sta. Maria (890, *a*, 890, *b*).

**PARIETARIA OFFICINALIS*, L. Watson 223, (2) 606; Drouet 195; Seubert 28; Seub. & Hochst. 11.—B. & H. 400. *f.* 904.

Flores (882). Fayal. Terceira (883). San Miguel (884). Sta. Maria (884, *a*).

**P. DEBILIS*, Forst. ?*P. Lusitanica*, Watson 223, (2) 606; Drouet 195.—S. Wats. Bot. Calif. 2: 65.

Corvo (881). Pico. (*Brown*, 260). San Miguel (*Carreiro* 22).

MYRICACEAE.

♂ **MYRICA FAYA*, Dryander, in Ait. Hort. Kew. 3: 397. Watson 223, (2) 606; Drouet 196; Seubert 27; Seub. & Hochst. 10.—Nouveau Duhamel, 2. *pl.* 56.

Corvo (891). Flores (892, 893, 894, 895). Fayal (*Brown*, 262). Pico. Graciosa (896). San Miguel (*Carreiro*). Sta. Maria (896, *a*, 896, *b*).

EMPETRACEAE.

♂ **COREMA ALBUM*, Don. Watson 221, (2) 605; Drouet 194; Seubert 27.—Willk. & Lange, Prodr. Fl. Hisp. 3: 512.—Hoffing. & Lk. Fl. Port. *pl.* 72.

Fayal. Pico. San Miguel (897; *Brown*, 261; *Carreiro*, 26).

CERATOPHYLLACEAE.

**Ceratophyllum demersum*, L. Watson 223, (2) 591; Drouet 166.—B. & H. 397. *f.* 899.

Flores (898,—Sterile, like the specimens collected in the same island by Mr. Watson, many years ago).

SALICACEAE.

SALIX FRAGILIS, L. Watson 224, (2) 606; Drouet 195.—B. & H. 409. f. 917.

Fayal. Pico. Sta. Maria.—Escaping.

POPULUS NIGRA, L. Watson 224, (2) 606; Drouet 196.—B. & H. 414. f. 933.

Flores. Sta. Maria. Reported from the greater part of the archipelago.—Escaping.

ORCHIDACEAE.

*SERAPIAS CORDIGERA, L. Watson 225, (1) 8, (2) 607; Drouet 199; Seubert 25; Seub. & Hochst. 10.—Willk. & Lange, Prodr. Fl. Hisp. 1: 162.—Rehb. 13. pl. 440.

Fayal. Pico. Terceira (902). San Miguel (903).

The flowers of some specimens are unusually pale, and my single specimen from San Miguel has one stalked and one sessile tuber, as in *S. neglecta*.

Glottanthera micrantha Schlecht
*HABENARIA MICRANTHA, Hochst. in Seubert 25. pl. 5; Watson 225, (2) 607; Drouet 199.

Flores. Fayal. Pico. Terceira (904). San Miguel (905, 906; Carreiro, 222). Sta. Maria.

H. americana Schlecht
*H. LONGEBRACTEATA, Hochst. in Seubert 25. pl. 5; Watson 225, (2) 607; Drouet 199.

Flores. San Miguel (907, 908, 909). Sta. Maria.

My specimens do not satisfactorily correspond to the descriptions of these two species of *Habenaria*.

SCITAMINEAE.

*HEDYCHIMUM GARDNERIANUM, Rosc.—Bot. Reg. 9. pl. 774.

Flores (910, 911). San Miguel.

Originally introduced as a greenhouse plant, now thoroughly established and considered in the gardens a troublesome weed.

CANNA INDICA, L. Drouet 200; Seubert 25; Watson (1) 6.—Bot. Mag. 13. pl. 454.

Indefinitely reported as escaping about gardens.

IRIDACEAE.

*IRIS FOETIDISSIMA, L. Watson 226; Drouet 199.—B. & H. 449. f. 1016.

Fayal. San Miguel. Sta. Maria (911, a).

I. foetidissima Schlecht in *Fedde Repertorium* XVI (1920)

I. GERMANICA, Watson 226. I. sp., Watson (2) 607.—Rchb. 9. pl. 333.
Flores.—Escaped: not recently collected.

*ROMULEA COLUMNAE, Seb. & Maur. *Trichonema Columnae*, Watson 226, (3) 382; Drouet 199.—B. & H. 450. f. 1019.

San Miguel.—Not recently collected.

GLADIOLUS SEGETUM, Ker-Gaw. Watson 226; Drouet 199. G. sp., Watson (2) 607.—Bot. Mag. 19. pl. 719.

Fayal.—Escaped.

AMARYLLIDACEAE.

*Amaryllis Belladonna, L. Watson 226, (1) 6, (2) 607; Drouet 200; Seubert 25.—Bot. Mag. 19. pl. 733.

Flores. Fayal. *Terceira. San Miguel.*—Established, from gardens.

AGAVE AMERICANA, L. Watson 226; Drouet 200.—Gartenflora, 41. 270. f. 51.

Sta. Maria.—Very abundantly planted everywhere for forage, but doubtfully escaping.

NARCISSUS TAZETTA, L. subsp. POPYRACEUS, Baker, Handb. Amaryllid. 8. *N. stellatus*, Watson 226. N. sp., Watson (2) 608; Drouet 199.—Bot. Mag. pl. 947.

Fayal.—Escaped: not recently observed.

LILIACEAE.

*ALLIUM AMPELOPRASUM, L. Watson 227; Drouet 201.—B. & H. 463. f. 1046.

Fayal (*Brown*, 263). *Graciosa* (912). San Miguel.

*A. SUBHIRSUTUM, L. Watson 227, (3) 383; Drouet 201.—Willk. & Lange, Prodr. Fl. Hisp. 1: 212.—Rchb. 10. pl. 502.

San Miguel.—Not recently collected.

*A. ROSEUM, L.—Willk. & Lange, Prodr. Fl. Hisp. 1: 210.—Rchb. 10. pl. 504.

Terceira (913). *Sta. Maria* (913, a).

URGINEA SCILLA, Steinh. Seubert 24; Drouet 201. *Scilla maritima*, Watson 227, (2) 607, (3) 396.—Willk. & Lange, Prodr. Fl. Hisp. 1: 215.—Rchb. 10. pl. 466.

Vaguely reported by Seubert; possibly, as suggested by Mr. Watson, having reference to *Amaryllis Belladonna*.

- **RUSCUS ACULEATUS*, L. Watson 227, (3), 383; Drouet 200.— B. & H. 458. *f.* 1034.
 Flores (914). Pico (*Brown*, 264). Terceira (915).
 San Miguel (*Carreiro*, 1).
- R. *ANDROGYNUS*, L. Seubert 25; Watson (2) 608, (3) 396; Drouet 200.—
Bot. Mag. 44. *pl.* 1898.
 Fayal. Pico.— Escaping. Not recently collected.
- **SMILAX DIVARICATA*, Sol. Watson (2) 608. *S. Canariensis*, Watson 227, in part. *S. Canariensis*, β . *divaricata*, A. DC. Monog. Phanerog. 1: 72.
 Pico.
 The first of the forms referred to by Mr. Watson: not recently collected.
- **S. EXCELSA*, L. *S. Canariensis*, Watson 227, in part. *S. tetragona*, Seubert 24; Seub. & Hochst. 10. ? *S. aspera*, Drouet 200.— A. DC. *l. c.* 73.— Nouveau Duhamel, 1. *pl.* 54.
 Pico (*Brown*, 265). San Miguel (*Brown*, 266, at the Sete Cidades).

COMMELINACEAE.

- TRADESCANTIA MULTIFLORA*, Sw.— Jacquin, *Icones.* 2. *pl.* 355.
 Flores (915, a). Fayal (*Brown*).— Escaped.
- ZEBRINA PENDULA*, Schnitzl.— *Revue Hort.* 1855. *pl.* 8.
 San Jorge (*Brown*).— Escaping.

JUNCACEAE.

- **Luzula purpureo-splendens*, Seubert 23. *pl.* 4; Watson 231; Drouet 201. *L. purpurea*, Watson, Lond. Journ. Bot. 3: 608, (3) 393. *L. elegans*, Seub. & Hochst. 10. *L. Azorica*, Watson (1) 408.
 Corvo (916). Flores (917, 918). Fayal. Pico (*Brown*, 301). Terceira (919). San Miguel (920, 921; *Brown*, 267; *Carreiro*, 615).
- **L. CAMPESTRIS*, DC. Watson, 232; Drouet 200.— B. & H. 474. *f.* 1078.
 San Miguel. Sta. Maria.— Not recently collected.
- **JUNCUS EFFUSUS*, L. Watson 232, (2) 609; Drouet 201.— B. & H. 469. *f.* 1059; Corbière, 580.

Corvo (922, 923, 924). Flores (925). Fayal (*Brown*, 268). Terceira (926). San Miguel (927, 928, 929, 930, 931; *Carreiro*, 9, 69, 766). Sta. Maria (931, *a*).

The specimens range in all degrees between 923, which is typical *J. effusus*, and 929, which is a densely glomerate form of var. *conglomeratus*.

- *J. GLAUCUS, Sibth. Watson 232; Drouet 201.—B. & H. 469. *f.* 1059.

Sta. Maria.—Not recently collected.

- *J. ACUTUS, L. Watson 232, (2) 609; Drouet 201; Seubert 24; Seub. & Hochst. 10. *J. multibracteatus*, Drouet 202.—B. & H. 472. *f.* 1071.

Flores (932). Fayal. Terceira (933). *San Miguel*. Sta. Maria (933, *a*).

- *J. MARITIMUS, Lam. Watson 232, (2) 609, (3) 396; Drouet 202; Seubert 24; Seub. & Hochst. 10.—B. & H. 472. *f.* 1070.

Terceira.—Collected many years ago.

- *J. CAPITATUS, Weigel. Watson 232, (2) 609; Drouet 202; Seubert 24; Seub. & Hochst. 10.—B. & H. 471. *f.* 1069.

Corvo (940). Flores. Fayal. Terceira. San Miguel.

- *J. TENUIS, Willd. Watson 232, (2) 609; Drouet 202. *J. lucidus*, Hochst. in Seubert 24. *pl.* 4; Seub. & Hochst. 10; Drouet 200.—B. & H. 471. *f.* 1065.

Corvo (934). Pico. Fayal. Terceira (935). San Miguel (936).

While all but 935 are more representative *J. tenuis*, that number agrees with Hochstetter's figure.

- *J. BUFONIUS, L. Watson 233, (2) 609; Drouet 202; Seubert 24; Seub. & Hochst. 10. *J. hybridus*, Seub. & Hochst. 10; Drouet 202. *J. bufonius*, β . *fasciculatus*, Seubert 24.—B. & H. 471. *f.* 1067.

Corvo (937, 938). Flores (939, 1001). Fayal. Terceira. San Miguel (941). Sta. Maria (941, *a*).

- *J. SUPINUS, Moench. Watson 233; *J. uliginosus*, Watson (2) 609; Drouet 202; Seubert 24.—B. & H. 470; Corbière, 582.—Rehb. 9. *pl.* 397.

Corvo (942). Flores (943, 944, 970). San Miguel (945, 946, 947, 948, 949; *Carreiro*, 15).

The frequent aquatic form is the *J. fluitans*, Lam.

**J. LAMPOCARPUS*, Ehrh. *J. lamprocarpus*, Watson 233.— B. & H. 470; Corbière, 581.—Rehb. 9. *pl.* 405.

Terceira (950, 951). San Miguel (952, 953, 954, 955, 956; *Brown*, 269; *Carreiro*).

ARACEAE.

**ARUM ITALICUM*, Mill. Watson 230, (2) 608; Drouet 198; Seubert 26; Seub. & Hochst. 9. ? *A. vulgare*, Drouet 198.— B. & H. 420.—Rehb. 7. *pl.* 11.

Terceira (*Sampaio*). San Miguel.

**ARISARUM VULGARE*, Targ. Tozz. *A. Azoricum*, Schott, Oesterr. Bot. Wochenbl. 1857. 190. *Arum Arisarum*, Watson 231; Drouet 198.—Var. *Subexsertum*, Engl. Monogr. 2: 564.—Rehb. 7. *pl.* 7.

Fayal. San Miguel.—Not recently collected.

COLOCASIA ANTIQUORUM, Schott. Watson 231, (2) 608; Drouet 198; Seubert 26. *Caladium esculentum*, Watson (1) 7.—Nicholson, Gard. Dict. 2: 362.—Rept. Mo. Bot. Gard. 6. *pl. facing p.* 11.

Escaping more or less in nearly all of the islands.—San Miguel (957).

RICHARDIA AFRICANA, Kunth.—Bot. Mag. 21. *pl.* 832 (as *Calla Aethiopica*).

Sta. Maria.—Escaped along the ribeira east of Villa do Porto.

LEMNACEAE.

**LEMNA MINOR*, L. Watson 230, (2) 608, (3) 396; Drouet 198; Seubert 26; Seub. & Hochst. 9.— B. & H. 421. *f.* 945.

Terceira (958, 959).—Abundant at the higher altitudes, above Angra; also in the public garden of that city.

ALISMACEAE.

**ALISMA PLANTAGO*, L. Watson 231.— B. & H. 430. *f.* 969.

Sta. Maria (959, *a*, 959, *b*).

The very narrow-leaved form (as in Madeira), which has been called var. *lanceolata*, but is not separated by Micheli in DC. Monogr. Phanerog. 3: 32.

NAIADACEAE.

- *POTAMOGETON PUSILLUS, L. Watson 228, (2) 608; Drouet 198. — B. & H. 428. *f.* 965. — Rchb. 7. *pl.* 22.

Flores (960). San Miguel (961). Sta. Maria (961, *a*).

As none of my specimens are in fruit, it cannot be said positively that they do not represent the Canary Island *P. denticulatus*, Lk., which, though merged into this species in Index Kewensis, is kept apart by some students of the genus.

- P. PECTINATUS, L. Watson 228, (2) 608, (3) 396; Drouet 198; Seubert 25; Seub. & Hochst. 9. — B. & H. 428. *f.* 966. — Rchb. 7. *pl.* 19.

Terceira. — Not recently collected, and very likely the preceding.

- *P. LUCENS, L.? Watson 228, (3) 383; Drouet 198. — B. & H. 426. *f.* 958. — Rchb. 7. *pl.* 36.

San Miguel (962, Lagoa das Furnas).

Concerning this, Mr. Arthur Bennett, who was good enough to look over my specimens of this difficult genus, says that though he is not prepared to propose a new name for it, it is not typical *P. lucens*, but somewhat approaches *P. fluitans* in fruit characters.

- *P. LESCHENAULTII, Cham. & Schl. Linnaea. 2: 223. *pl.* 6, *f.* 23.

Sta. Maria (969, *a*, 969, *b*, 969, *c*).

Placed under *P. fluitans* in Index Kewensis.

- *P. POLYGONIFOLIUS, Pourr. Watson 229. *P. heterophyllus*, Watson (2) 608, (3) 392; Drouet 198. ?*P. natans*, Seubert 25; Drouet 197; Watson (2) 608. — Rchb. 7. *pl.* 44.

Corvo (963). Flores (964, 965, 966). Fayal. Pico. Terceira (967). San Miguel (968, 969; *Brown*, 270).

- *P. NATANS, L. ?Drouet 197; Seubert 25; Seub. & Hochst. 9; Watson (2) 608, (3) 392, in part. — Rchb. 7. *pl.* 50.

Mr. Bennett writes me that this occurs in the Berne herbarium from the Azores, collected by Mr. Hunt, — hence presumably from San Miguel or possibly Sta. Maria.

CYPERACEAE.*

- **CYPERUS BADIUS*, Desf. *C. longus*, Watson 234, (2) 610; Drouet 202; Seubert 23; Seub. & Hochst. 10.— B. & H. 477. *f.* 1081.

Flores (973). Fayal (*Brown*, 274). Graciosa (974). Terceira (975, 976). San Miguel (977; *Carreiro*, 87). Sta. Maria (977, *a*, 977, *b*).

I have seen no specimens with the long-stalked compound umbels which mark the form usually called *C. longus*, which, however, is not held separate in the Index Kewensis.

- **C. ROTUNDUS*, L.— Gray, 571.— Weyhe, Wolter & Funke. Pl. Offic. 1. *pl.* 28.

San Miguel (*Carreiro*, 174, *a*).

- *†*C. ESCULENTUS*, L. Watson 234, (2) 610; Drouet 202; Seubert 23. *C. aureus*, Drouet 202. *C. Tenorei*, Seub. & Hochst. 10.— Gray, 571.— Sturm, Deutschl. Fl. 13. *pl.* 52.

Corvo (978, 979). Flores (980). Fayal (*Brown*, 271). Pico (*Brown*, 272). Terceira (981; *Sampaio*). San Miguel (982; *Brown*, 273; *Carreiro*, 613).

- **C. vegetus*, Willd. Watson 234, (2) 610; Drouet 202.— Willk. & Lange, Prodr. Fl. Hisp. 1: 138.

Corvo (971). Flores (972).

- **SCIRPUS MARITIMUS*, L. Watson 235, (2) 610, (3) 396; Drouet 203; Seubert 23; Seub. & Hochst. 10.— B. & H. 484. *f.* 1102.

Terceira.

- **S. SETACEUS*, L. Watson 235, (2) 610; Drouet 203.— B. & H. 482. *f.* 1096.

Corvo. Flores (983). Fayal. San Miguel (984; *Carreiro*, 6, 33).

- **S. CERNUUS*, Vahl. *S. Savii*, Watson 235, (2) 610; Seub. & Hochst. 10. *Isolepis Saviana*, Drouet 203; Seubert 23.— B. & H. 482. *f.* 1097.

Corvo (985, 986). Flores (987, 988, 989, 990).

* Determinations of *Carex* by Professor L. H. Bailey.

Fayal. Pico. Terceiro (991). San Miguel (992). Sta. Maria (992, a, 992, b, 992, c).

- *S. FLUITANS, L. Watson 235, (2) 610. *Isolepis fluitans*, Drouet 203; Seubert 23; Seub. and Hochst. 10.— B. & H. 482. f. 1095.

Pico. Terceira. San Miguel (993, 994; *Brown*, 275; *Carreiro*, 4, 35).

- *ELEOCHARIS PALUSTRIS, R. Br. Drouet 202; Seubert 23. *Scirpus palustris*, Watson 235, (2) 610.— B. & H. 481. f. 1091.

Corvo. Flores (1000, in *Caldeira da Lomba*).

My specimens very tall, often solitary at the remote nodes of the rhizome, and with the spikes as much as an inch and a half long, in aspect recalling the South African *E. limosa*.

- *E. MULTICAULIS, Dietr. Drouet 202; Seubert 23. *Scirpus multicaulis*, Watson 235, (2) 610; Seub. & Hochst. 10.— B. & H. 481. f. 1092.

Flores (995, 996). Pico. Fayal. Terceira (1001). San Miguel (997, 998, 999; *Carreiro*, 5, 34). Sta. Maria (999, a).— Generally proliferous.

- *CLADIUM GERMANICUM, Schrad. *C. Mariscus*, Watson 234, (2) 610; Drouet 202.— B. & H. 478. f. 1084.

Flores. San Miguel.— Not recently collected.

- *CAREX AZORICA, Gay. Watson 236, (2) 610; Drouet 203; Seubert 21; Seub. & Hochst. 10.— *Plate 48*.

Flores (1550). Fayal. Pico. San Miguel (1551).

- *C. DISTANS, L.— B. & H. 498. f. 1142.

Flores (1552).

- *C. ECHINATA, Murr. *C. stellulata*, Watson 236, (2) 610; Drouet 203; Seubert 21; Seub. & Hochst. 9. *C. stellulata*, var. *Grypos*, Seubert 21; Drouet 203.— B. & H. 490. f. 1115.

Flores (1553). Fayal. Pico. San Miguel.

- *C. FLAVA, var. OEDERI, Lilj. *C. flava*, Watson 236, (2) 610; Drouet 203; Seubert 21; Seub. & Hochst. 10.— B. & H. 498. f. 1141.

Flores. Fayal. Pico. Terceira (1554). San Miguel (1555, 1556, 1557, 1558; *Carreiro*, 14).

- *C. **Hochstetteriana**, Gay in Seubert 22. *pl.* 2; Drouet 203; Watson (2) 611. *C. Hochstetterorum*, Watson 237. *C. Hochstetteri*, Seub. & Hochst. 10.

Flores (1559, 1560). Fayal. Terceira. San Miguel.

- *C. **MACROSTYLA**, Lapeyr., var. **PEREGRINA**, L. H. Bailey. *C. peregrina*, Lk. *C. sagittifera*, Watson 235, (2) 610. *C. Guthnickiana*, Gay, Ann. Sci. Nat. Bot. ii. 10: 289; Drouet 203; Seubert 20; Seub. & Hochst. 10.—*Plate* 49.

Flores (1561). Fayal. Pico. Terceira (1562). San Miguel (1563, 1563, a; *Carreiro*, 16, 62).

- *C. **MURICATA**, L. Seub. & Hochst. 9.—B. & H. 492. *f.* 1121.

Flores (1564, at Fazazinha,—two specimens, collected with the next).

- *C. **MURICATA**, var. **DIVULSA**, Wahl. *C. divulsa*, Watson 236, (2) 610; Drouet 203; Seubert 21.—B. & H. 493.—*Rchb.* 8. *pl.* 220.

Flores (1565). Fayal. San Jorge (1566). Graciosa (1567). Terceira (*Sampaio*). San Miguel (1568, 1569; *Carreiro*, 203). Sta. Maria (1569, a, 1569, b, 1569, c, 1569, d, 1569, e).

- *C. **PENDULA**, Huds. Watson 237, (2) 611. *C. myosuroides*, Seubert 23; Seub. & Hochst. 10; Drouet 203.—B. & H. 500. *f.* 1151.

Flores (1570). Fayal. San Miguel.

- *C. **PUNCTATA**, Gaud. *C. laevicaulis*, Hochst. Watson 236, (2) 610; Drouet 203; Seubert 21; Seub. & Hochst. 10. *C. rigidifolia*, Hochst. in Seubert 21. *pl.* 2; Watson 237, (2) 611, (3) 396; Drouet 203; Seub. & Hochst. 10.—*Rchb.* 8. *pl.* 251.

Flores (1571, 1572). Pico. Terceira (1573). Sta. Maria (Hunt).

I follow the Index Kewensis in placing *C. laevicaulis* and *C. rigidifolia* under *C. punctata*.

- *C. **Vulcani**, Hochst. in Seubert 22. *pl.* 3; Watson 237, (2) 610; Drouet 203; Seub. & Hochst. 10. *C. Floresiana*, Hochst. *l. c.* *pl.* 3; Watson 237, (2) 610;

Drouet 203; Seub. & Hochst. 10. *C. Watsoni*, Boott, Ill. Carex. 4: 203; Watson (2) 610.

Flores? Fayal. Pico. Terceira (1574). San Miguel (1575, 1576; *Carreiro*).

I follow Index Kewensis in this disposal of *C. Floresiana* and *C. Watsoni*.

*C. VULPINA, L. Watson 236, (2) 610; Drouet 202.— B. & H. 492. f. 1120.

Corvo (1577). Flores (1578, 1579).

GRAMINEAE.

*†P. PANICUM SANGUINALE, L. Watson 239; Drouet 204; Seubert 18; Seub. & Hochst. 10. *Digitaria sanguinalis*, Watson (2) 611.— B. & H. 508. f. 1157.

Corvo (1002). Flores (1003). Fayal. Pico (*Brown*, 280). Graciosa (1004). Terceira (*Sampaio*). San Miguel.

*†P. CRUS-GALLI, L. Watson 239, (2) 612; *P. Crus-galli*, var. *aristata*, Drouet 204.— B. & H. 509. f. 1162.

Flores (1005). Fayal. Pico. Graciosa (1006). Terceira (1007). San Miguel (*Brown*, 276).

*†S. SETARIA GLAUCA, Beauv. Watson 239, (2) 611; Drouet 204; Seubert 18; Seub. & Hochst. 10.— B. & H. 508. f. 1160 (under *Panicum*).

Flores (1008, 1009, 1010, 1011). Fayal. Pico. Graciosa (1012). Terceira (1013), San Miguel (*Brown*, 277; *Carreiro*).

*†S. VERTICILLATA, Beauv. Watson 239, (2) 611, (3) 393; Drouet 204. ?*S. viridis*, Drouet 204.— B. & H. 508. f. 1159 (under *Panicum*).

Fayal. Terceira? San Miguel (1014).

*†ANTHOXANTHUM ODORATUM, L. Watson 239, (2) 612; Drouet 204; Seubert 18; Seub. & Hochst. 10.— B. & H. 510. f. 1164.

Corvo (1015). Flores (1016, 1017). Fayal. Pico. Terceira (*Sampaio*). San Miguel (1018; *Carreiro*, 97).

ORYZOPSIS MULTIFLORUS, (Cav.). *Piptatherum multiflorum*, Watson 242, 243.—Parlatore, Fl. Ital. 1: 159 (as *Miltum*).—Sibth. Fl. Graeca. 1. pl. 66.

Corvo?—Regarded with some doubt by Mr. Watson.

*POLYPOGON MONSPELIENSIS, Desf. Watson 242, (2) 612; Seub. & Hochst. 10. *P. Monspelienis*, β . *minor*, Seubert 18; Drouet 205.—B. & H. 515. f. 1178.

Flores (1022, 1023). Fayal. Pico. Terceira (1024). Sta. Maria (1024, a, 1024, b).

*P. MARITIMUS, Willd. Watson 242, (2) 612; Drouet 205; Seubert 18; ?*P. maritimus*, var. *mutica*, Seub. & Hochst. 10.—Corbière, 634; Parlatore, Fl. Ital. 1: 200.—Rchb. 1. pl. 75 or 92.

Corvo (1019). Flores (1020, 1021). Fayal (*Brown*, 281). Terceira. San Miguel (1025; *Carreiro*).

*AGROSTIS VERTICILLATA, Vill. Watson 241, (2) 612; Drouet 205; Seubert 18.—Corbière, 632.—Rchb. 1. pl. 76.

Flores (1026, 1027). Fayal (*Brown*, 299). Terceira (1028; *Sampaio*). San Miguel (1029, 1030; *Carreiro*). Sta. Maria (1030, a, 1030, b).

*A. verticillata \times Castellana?

Flores (1031, at Coste, 1033, along the Veá).

Of the aspect of large specimens of the former and with its broad flat striate slightly scabrous leaves, oblong ligule, and puberulent outer glumes, but the inflorescence of more ample and open forms of the latter: empty glumes subequal, twice as long as the flower; palet nearly as long as the flowering glume, which is erose and sub-biaristulate at top and with a straight dorsal awn of its own length arising shortly below the apex.—Plate 50.—A puzzling plant, agreeing closely with *A. Simensis*, Hochst. of Abyssinia, which, however, would be an extremely unlikely plant for the westernmost Azores.

*A. ALBA, L. Watson 241, (2) 612; Drouet 204.—B. & H. 516. f. 1180.

Corvo. Flores (1052). Fayal. Pico (*Brown*, 306?); San Miguel (1032). Sta. Maria (1033, a).

A. ALBA, var. DENSIFLORA, Guss.?—Parlatore Fl. Ital. 1: 181.

Sta. Maria (1033, b, 1033, c).

A broad-leaved plant with pubescent outer glumes but awnless flowers, otherwise much resembling the supposed hybrid referred to above, and possibly merely a form of the same thing.

- *A. CASTELLANA, Boiss. & Reut. Willk. & Lange. Prodr. Fl. Hisp. 1: 53.

a. With ample pyramidal long exerted panicle, and flowering-glume mostly without dorsal awn. *A. vulgaris*, Watson 241.— *Plate 51*.

Pico. San Jorge (1053). San Miguel (1055, 1058, 1061; *Carreiro*, 56). Sta. Maria (1063, a).

b. With a long bent deeply dorsal awn, otherwise like a. ?*A. alba*, β . Drouet 204. ?*A. stolonifera*, Seub. & Hochst. 10. *A. Ecklonis*, var. *longearistata*, Hackel, of the herbarium of Ponta Delgada, and ? of Hackel, Cat. Gram. Port. 34.— *Plate 52*.

Corvo (1041). Flores (1048, 1049, 1051). San Miguel (1057, 1060, 1063; *Carreiro*, 63, 71, 73).

c. Like b, but the flowering glume and sometimes the palet more or less loose-hairy, thus approaching var. *pilosa*, Coincy, Cl. Pl. Hisp. 2: 27.— *Plate 53*.

Flores (1046, 1047, 1050). Fayal (*Brown*, 283). Terceira (1054). San Miguel (1062; *Carreiro*, 53, 57).

d. With the culm mostly leafly up to the narrow oblong panicle, the ligule often elongated. *Deyeuxia Azorica*, Hochst. in Seubert 19; Seub. & Hochst. 10; Watson 241, (2) 612, (3) 393; Drouet 205.— *Plate 54*.

Corvo. Fayal (*Brown*, 308). Pico. Terceira. San Miguel (*Carreiro*, 13, 54, 65, 77). Sta. Maria (1060, a).

e. Passing into d, but usually less than a span high and mostly cespitose. *A. Castellana*, forma *contracta*, Hackel, of the Ponta Delgada museum. *A. pallida*, Watson (2) 612, (3) 393; Drouet 205. *Deyeuxia caespitosa*, Hochst. in Seubert 18; Seub. & Hochst. 10; Watson 241, (2) 612; Drouet 205.— *Plate 55*.

Corvo (1040, 1042, 1043). Flores (1044, 1045). Fayal. Pico. San Miguel (1056, 1059; *Carreiro*, 60, 61, 68).

f. Intermediate in habit between *d* and *e*, but more rigid, subglaucous, and with the rather short dorsal awn inserted above the middle of the flowering glume;—approaching var. *Hispanica*.—Plate 56.

Flores (1064, at Coste).

A careful examination of the many forms of this polymorphous species, which is the most abundant of the native grasses, makes it almost certain not only that it comprises *Agrostis vulgaris* and *A. pallida* of the Azorean lists, but that the reference of the two Deyeuxias of Hochstetter to *A. pallida* in the Index Kewensis can hardly be maintained. All specimens, especially those of form *b*, which in aspect resemble *A. pallida*, differ constantly in the presence of a palet and in the characters of the flowering glume.

**GASTRIDIVM AUSTRALE*, Beauv. Watson 242, (2) 612; Drouet 205; Seubert 18. *G. lendigerum*, Seub. & Hochst. 10; Drouet 205.—B. & H. 517. *f.* 1184.

Flores (1034, 1035). Fayal. Pico (*Brown*, 282). Graciosa (1036, 1037, 1038). San Miguel (1039; *Carreiro*, 164, *a*). Sta. Maria (1039, *a*).

**LAGURUS OVATUS*, L. Watson 243, (2) 612; Drouet 206; Seubert 19; Seub. & Hochst. 10.—B. & H. 514. *f.* 1177.

Flores. Fayal (*Brown*, 284). Terceira (1065; *Sampaio*).

**HOLCUS LANATUS*, L. Watson 244, (2) 612; Drouet 204.—B. & H. 522. *f.* 1198.

Corvo (1066, 1067, 1068). Flores. Fayal (*Brown*, 285, 286). Pico. Graciosa (1069, 1070). Terceira (1071, 1072). San Miguel (1073; *Carreiro*, 452, *a*). Sta. Maria (1073, *a*).

**H. rigidus*, Hochst. in Seubert 17. *pl.* 1; Watson 244, (2) 612; Drouet 204; Seub. & Hochst. 10. *H. mollis*, Seubert 18; ?Drouet 204; Watson (2) 612, (4) 244.

Corvo (1074, 1075). Flores (1076, 1077, 1078, 1079). Fayal (*Brown*, 287). Pico. San Miguel (1080; *Carreiro*, 743).

- ***AIRA CARYOPHYLLEA**, L. Watson 243, (2) 612; Drouet 205; Seubert 19; Seub. & Hochst. 10.—B. & H. 520. *f.* 1193.

Flores. Fayal. Pico (*Brown*, 304). Terceira (1081; *Sampaio*). San Miguel (*Carreiro*, 57). Sta. Maria (1081, *a*, 1090, *a*).

The last-named number bears some resemblance to *A. Cupaniana*, Guss., but as a rule both flowers of a spikelet are awned, whereas in *A. Cupaniana* one should be awnless.

- ***A. PRAECOX**, L.—B. & H. 520. *f.* 1192.

Sta. Maria (1081, *b*).

- ***Deschampsia foliosa**, Hack. Cat. Rais. Gram. Portug. (1880), 33. *D. argentea*, Watson 243, (2) 612; Drouet 206.—*Plate* 57.

Corvo (1082). Flores (1083, 1084, 1085). Terceira (1086). San Miguel (1087; *Carreiro*, 66).

Quite distinct from the Madeiran *D. argentea*, which, for comparison is figured on *Plate* 58.

- *†**AVENA BARBATA**, Brot. *A. hirsuta*, Watson 245, (2) 612; Drouet 206; Seubert 19; Seub. & Hochst. 10.—Willk. & Lange, Prodr. Fl. Hisp. 1: 68.—Barker-Webb & Berthel. Hist. Nat. Iles Canar. *pl.* 247.

Corvo (1089, 1090). Fayal (*Brown*, 290). Pico (*Brown*, 305?). Terceira (*Sampaio*). San Miguel. Sta. Maria (1090, *a*, 1090, *b*).

- *†**ARRHENATHERUM AVENACEUM**, Pal. Beauv. Watson 244. *Avena elatior*, Watson (2) 612. *A. elatior*, β . *bulbosa*, and γ . *preparatoria*, Drouet 206. ?*A. brevis*, Watson 244, (2) 613. ?*A. brevis*, var. *uniflora*, Seubert 19; Drouet 206; Seub. & Hochst. 10. ?*Arundo brevis*, Watson (3) 396.—B. & H. 522. *f.* 1197.

Flores (1091). Fayal (*Brown*, 288, 289). Terceira (1092; *Sampaio*). San Miguel (1093; *Carreiro*).

The moniliform bulbous bases render the plant a bad weed in gardens.—*Brown*, 288 has the nodes glabrous, but all of the other specimens I have seen belong to the form with pubescent nodes.

- ***GAUDINIA FRAGILIS**, Beauv.—Corbière, 663.—Rehb. 1. *pl.* 90.

San Jorge (1088). Sta. Maria (1088, *a*).

G. GEMINIFLORA, Gay. Watson 250, (2) 612. *Avena geminiflora*, Seubert 19; Drouet 206; Seub. & Hochst. 10.

Fayal. San Miguel.— Not recently collected, and possibly referring to the preceding.

*CYNODON DACTYLON, Pers. Watson 240, (2) 611; Drouet 205; Seubert 19; Seub. & Hochst. 10.— B. & H. 523. *f. 1200.*

Fayal (*Brown*, 278). Terceira (1094, 1095, 1096). San Miguel. Sta. Maria (1096, *a*).

*†ELEUSINE INDICA, Gaertn. Watson 240, (2) 611; Drouet 205; Seub. & Hochst. 10.— Gray, 656. *pl. 9.*

Flores (1097, 1098). Fayal. Pico (*Brown*, 279). Terceira (1100). San Miguel (1101; *Carreiro*).

*E. BARCINONENSIS, Costa. *E. Indica*, var. *brachystachya*, Watson 240. *E. Indica*, β . Seubert 19.— Willk. & Lange, Prodr. Fl. Hisp. 1: 46.— *Plate 59.*

San Jorge (1099, at Calhete). San Miguel. Sta. Maria (1101, *a*).

*ARUNDO DONAX, L. Watson 240, (2) 613; Drouet 515; Seubert 19; Seub. & Hochst. 10.— Parlatore, Fl. Ital. 1: 217.— Host, Gram. Austr. 4. *pl. 88.*

Corvo. Flores. Fayal (*Brown*, 297). Pico. Terceira. San Miguel. Sta. Maria.

Perhaps always escaped, but thoroughly established.

*TRIODIA DECUMBENS, Beauv. Watson 246. *Danthonia decumbens*, Drouet 206.— Parlatore, Fl. Ital. 1: 297.— Host, Gram. Austr. 2. *pl. 72* (under *Poa*).

San Miguel.— Not collected for many years.

*†ERAGROSTIS MAJOR, Host. *E. megastachya*, Drouet 207.— Gray, 660.— Rehb. 1. *pl. 164.*

Terceira.

*†E. MINOR, Host. *E. poaeoides*, Drouet 207. ?*Poa Eragrostis*, Watson 245, (2) 613.— Gray, 660.— Rehb. 1. *pl. 164.*

Pico. Terceira. San Miguel.— Not recently collected.

*KOELERIA PHLEOIDES, Pers. Watson 245, (2) 612; Drouet 207; Seubert 20; Seub. & Hochst. 10.— Parlatore, Fl. Ital. 1: 330.— Host, Gram. Austr. 3. *pl. 21.*

Fayal. San Jorge (1102). Terceira (*Sampaio*). San Miguel (*Carreiro*, 93).

- *BRIZA MAXIMA, L. Watson 246, (2) 613; Drouet 207; Seubert 19; Seub. & Hochst. 10. — *Rehb.* 1. *pl.* 165.

Corvo (1103, 1104). Flores (1105). Fayal (*Brown*, 291, 292). Pico. *Graciosa*. *Terceira*. San Miguel (*Carreiro*). Sta. Maria (1105, *a*).

- *B. MINOR, L. Watson 246, (2) 613; Drouet 207; Seubert 19; Seub. & Hochst. 10.— B. & H. 535. *f.* 1231.

Corvo (1106, 1107, 1108). Flores (1109). Fayal. Pico (*Brown*, 303). *Terceira* (1110, 1111). San Miguel (1112). *Carreiro*. Sta. Maria (1112, *a*, 1112 *b*).

- *CYNOSURUS ECHINATUS, L. Watson 247, (2) 612; Drouet 207; Seubert 20; Seub. & Hochst. 10.— B. & H. 534. *f.* 1229.

Fayal. Pico. *Terceira*. San Miguel (1117). Sta. Maria 1117, *a*).

- *C. CRISTATUS, L. Watson 247; Drouet 207.— B. & H. 534. *f.* 1228.

Pico. San Miguel (*Carreiro*, 208). Sta. Maria.

- *POA ANNUA, L. Watson 245, (2) 613; Drouet 206.— B. & H. 538. *f.* 1239.

Flores (1113). Fayal (*Brown*, 302). *Graciosa* (1114). *Terceira* (1115). San Miguel (*Carreiro*). Sta. Maria (1115, *a*, 1115, *b*).

- *P. TRIVIALIS, L. Watson 245, (2) 613; Drouet 206.— B. & H. 539. *f.* 1242.

Corvo (1116). Flores. Fayal. Pico (*Brown*, 307). San Miguel. Sta. Maria (1116, *a*).

- *P. PRATENSIS, L. Watson 245; Drouet 206.— B. & H. 539. *f.* 1241.

Fayal.— Perhaps referring to the preceding.

- *FESTUCA RIGIDA, Kunth. *Poa rigida*, Watson 245, (2) 613; Drouet 206; Seubert 19; Seub. & Hochst. 10.— B. & H. 538. *f.* 1237.

Fayal. *Terceira* (1116, *a*; *Sampaio*). San Miguel.

- *F. BROMOIDES, L. Watson 247, (2) 613; Drouet 207; Seubert 20; Seub. & Hochst. 10.—Corbière, 643 (as *Vulpia membranacea*).—Rchb. 1. pl. 130.
Fayal. Pico. Terceira. San Miguel.
- *F. MYUROS, L.—Corbière, 644 (as *Vulpia*).—Rchb. 1. pl. 130.
Terceira (*Sampaio*).
- *F. SCIUROIDES, Roth.—Corbière, 644 (as *Vulpia*).—Rchb. 1. pl. 130.
San Miguel (1118; *Carreiro*, 59). Sta. Maria (1118, a, 1118, b, 1118, c).
Although this is joined to *F. Myuros* in the Index Kewensis, and both are closely related to *F. bromoides*, under which all of the Azorean specimens of this group have been reported heretofore, it has seemed to me best to separate them on what appear to be good characters, leaving the exact distribution of *F. bromoides* for further study.
- *F. JUBATA, Lowe. Watson 247, (2) 613; Drouet 207. *F. glauca*, β . *longearistata*, Hochst. in Seubert 20; Seub. & Hochst. 10.—Plate 60.
Corvo? Fayal. Pico. San Miguel (*Carreiro*, 10, 64, 221).
- *F. petraea, Guthn. in Seubert 20; Watson 248, (2) 613; Drouet 207; Seub. & Hochst. 10.—Plate 61.
Corvo (1119). Flores (1120, 1121). Terceira. San Miguel (1122; *Carreiro*, 24). Sta. Maria (1122, a).
- *F. ELATIOR, L. Watson 248, (3) 383; Drouet 207.—B. & H. 532. f. 1223.
San Miguel (1123). Sta. Maria.
- *DEMAZERIA LOLIACEA, Nym. *Poa loliacea*, Watson 246, (2) 613, (3) 396; Drouet 206; Seubert 19; Seub. & Hochst. 10.—B. & H. 538. f. 1238.
Fayal. Terceira. San Miguel (*Carreiro*, 94).
- *†BROMUS MADRITENSIS, L. Watson 248, (2) 613; Drouet 208; Seubert 20.—B. & H. 530. f. 1219.
Flores (1131, 1132). Fayal (*Brown*, 293). San Miguel (*Carreiro*, 123).

- *B. RUBENS, L. Watson 248, (2) 613; Drouet 208; Seubert 20; Seub. & Hochst. 10.—Parlatore, Fl. Ital. 1: 410.—Sibth. Fl. Graeca. 1. pl. 83.
Terceira. San Miguel.
- *B. RIGIDIS, Roth. *B. maximus*, Watson 248; Drouet 208.—B. & H. 530. f. 1218.
Terceira (*Sampaio*). San Miguel (*Carreiro*, 45).
- *B. MOLLIS, L. Watson 248, (2) 613, (3) 393; Drouet 208.—B. & H. 531.—Rchb. 1. pl. 143.
Pico. Fayal. San Miguel.—Not recently collected.
- *B. unioides, HBK.—Vasey, Grasses of the South, 32. pl. 12.—Plate 62.
Graciosa (1129). Terceira (1130).—A South American introduction.
- *BRACHYPODIUM SYLVATICUM, Beauv. Watson 249, (2) 613, (3) 393; Drouet 208.—B. & H. 529. f. 1213.
Flores (1124). Fayal. Pico (*Brown*, 300). San Jorge (1125). Graciosa (1126). Terceira. San Miguel (1127, 1128; *Carreiro*). Sta. Maria (1128, a).
- *B. DISTACHYUM, Beauv. Watson 249, (2) 613. *Triticum ciliatum*, Drouet 208; Seubert 20; Seub. & Hochst. 10.—Rchb. 1. pl. 129.
Pico. Terceira. San Miguel. Sta. Maria.
- LOLIUM REMOTUM, Hoffm. *L. arvense*, Drouet 208; Watson 250.—Rchb. 1. pl. 110.
Sta. Maria.—Perhaps referring to a few-flowered form of the next.
- *LOLIUM GAUDINI, Parl. *L. multiflorum*, Watson 250, (2) 613; Drouet 208; Seubert 20; Seub. & Hochst. 10. ?*L. italicum*, Drouet 208.—Parlatore, Fl. Ital. 1: 532.—Rchb. 1. pl. 111.
Flores (1137, 1142, 1143). Fayal. Pico. Graciosa (1139, 1140). Terceira (*Sampaio*). Sta. Maria (1140, a, 1140, b, 1140, c).
- *L. PERENNE, L. Watson 249, (3) 383; Drouet 208; Seub. & Hochst. 10.—B. & H. 528. f. 1211.
Corvo (1138). Flores. Fayal (*Brown*, 294). Pico. Terceira (1141). San Miguel (*Carreiro*, 46, 314, a).

*†L. TEMULENTUM, L.— B. & H. 528. *f.* 1212.

San Miguel (*Carreiro*, 131, at Pico dos Bodes).

AGROPYRON REPENS, Beauv. *Triticum repens*, Watson 249, (2) 613; Drouet 208; Seubert 20; Seub. & Hochst. 10.— B. & H. 527. *f.* 1209.

Indefinitely reported by Seubert. Perhaps referring to one of the preceding?

*NARDUS STRICTA, L. Watson 250; Drouet 208.— B. & H. 524. *f.* 1203.

San Miguel (*Carreiro*, 746).

*†HORDEUM MURINUM, L. Watson 249, (2) 613; Drouet 208; Seubert 20; Seub. & Hochst. 10.— B. & H. 526, *f.* 1207.

Flores (1133). Fayal (*Brown*, 295, 296). San Jorge (1134). Graciosa (1135, 1136). Terceira (*Sampaio*). San Miguel (*Carreiro*). Sta. Maria (1136, *a*).

CONIFERAE.

*Juniperus brevifolia, Antoine, Kupressineengattungen. 16. *pl.* 20–22; Watson 224. *J. Oxycedrus*, var. *brevifolia*, Hochst. in Seubert 26; Drouet 196. *J. Oxycedrus*, Seub. & Hochst. 10; Watson (2) 606, (3) 392. *J. sp.*, Watson (1) 7, 408.

Corvo (1137, *a*). Flores (1138, *a*, 1139, *a*). Fayal (*Brown*, 309, 310). Pico. San Miguel (1140, *a*; *Carreiro*).

Large logs, apparently of this species, occur deeply buried under secondary volcanic debris in the Grotto do Inferno of the great crater known as Sete Cidades.

J. SABINA, L.— Rchb. 11. *pl.* 536.

San Miguel (*Carreiro*, at Agua do Pao,— perhaps not even truly escaped).

PINUS PINEA, L. Seubert 26; Drouet 197; Watson 225, (2) 606; Seub. & Hochst. 10.— Rchb. 11. *pl.* 528–9.

Commonly cultivated, and perhaps spreading a little in several islands.

TAXUS BACCATA, L. Seubert 26; Drouet 196; Watson 225, (2) 606; Seub. & Hochst. 10.— Rchb. 11. *pl.* 538.

Formerly occurred in workable size on Corvo and Flores, whence it was exported as a source of royal revenue. Now seemingly exterminated.

Pteridophytes.

FILICES.

- **DICKSONIA CULCITA*, L'Her. Watson 250, (2) 614; Drouet 212; Seubert 16; Seubert & Hochst. 9; Milde 173.—Hook. & Bak. 51.—Lowe, Ferns. 8. *pl.* 39.
Flores. Fayal. Pico (*Brown*, 317). Terceira (1141, 1142). San Miguel (1143; *Carreiro*).
- **HYMENOPHYLLUM TUNBRIDGENSE*, Sm. Watson 250, (2) 614; Drouet 113; Seubert 16; Seub. & Hochst. 9; Milde 12.—B. & H. 568. *f.* 1309.
Flores (1288, 1289, 1290). Fayal. Pico. Terceira (1291, 1292, 1293). San Miguel (1294, 1295, 1296; *Carreiro*, 20; *Machado*, 2).
- **H. UNILATERALE*, Bory. Watson 251; Milde 13. *H. Wilsoni*, Watson (2) 614; Drouet 213.—B. & H. 569. *f.* 1310.
Corvo. Flores. Terceira. San Miguel.
- **TRICHOMANES SPECIOSUM*, Willd. Watson 251, (2) 614; Drouet 213; Seubert 16; Seub. & Hochst. 9; Milde 11. *T. Hibernicum*, Seub. & Hochst. 9.—B. & H. 568. *f.* 1308.
Corvo (1144). Flores (1145). Fayal. Pico. Terceira (1146). San Miguel (1147).
- DAVALLIA CANARIENSIS*, Sm. Watson 251. *Trichomanes Canariense*, Drouet 213.—Hook. & Bak. 97.—Hook. Sp. Fil. 1: 169. *pl.* 56. *A.*
Evidently an error, the specimens perhaps from Madeira.
- **CYSTOPTERIS FRAGILIS*, Bernh. Watson 251, (2) 613; Drouet 212; Seubert 16. *C. Azorica*, Fée. *C. fragilis*, var. *Azorica*, Moore, Ind. Fil. 282. *Aspidium fragile*, Seub. & Hochst. 9. *Cystea fragilis*, Watson (1) 129.—B. & H. 567. *f.* 1305.
Corvo. Flores (1148). Fayal (*Brown*, 328). Pico. Terceira. San Miguel (1149, 1150).—The variety *Canariensis*, Milde 152.
- **ADIANTUM CAPILLUS-VENERIS*, L. Watson 251, (2) 614, (3) 396; Drouet 210; Seubert 15; Milde 30. *A. Afri-*

canum, Seub. & Hochst. 9. *A. Maderense*, Seub. & Hochst. 9.—B. & H. 566. *f.* 1304.

Fayal (*Brown*, 318 — perhaps escaped). Terceira (1151, 1152). San Miguel (1153; *Brown*, 319; *Carreiro*). Sta. Maria (1153, *a*).

*PTERIS ARGUTA, Ait. Watson 251, (2) 614; Drouet 211; Seubert 15; Seub. & Hochst. 9; Milde 44.—Hook. & Bak. 160.—Lowe, *Ferns.* 3. *pl.* 41.

Flores (1154, 1155, 1156). Fayal (*Brown*, 332, 333). Pico. Terceira (*Abreu*). San Miguel (1157, 1158).

P. TREMULA, R. Br.—Hook. & Bak. 161.—Hook. *Sp. Fil.* 2: 174. *pl.* 120.

San Miguel (1159).—Escaping in gardens.

P. CRETICA, L.—Hook. & Bak. 154.

San Miguel.—Subspontaneous in gardens.

P. SERRULATA, L. f.—Hook. & Bak. 155.

San Miguel.—Subspontaneous in gardens.

*EUPTERIS AQUILINA, Newman. *Pteris aquilina*, Watson 252, (2) 614; Drouet 210; Seubert 15; Seub. & Hochst. 9.—B. & H. 566. *f.* 1303.

Corvo (1160). Flores (1161 — a diseased ? form with very narrow pinnules; the usual form also very common). Fayal (*Brown*, 334, 335). Pico. *Graciosa*. Terceira (1162). San Miguel (1163). *Sta. Maria*.

A sterile form with elongated flaccid fronds and remote pinnae cut nearly to the rachis into round-oblong undulate segments, probably belonging here, occurs in damp dark ravines on Flores (1299), Pico (*Brown*), and Terceira (*Sampaio*).—*Plate* 63.

*LOMARIA SPICANT, Desv. Watson 252. *Blechnum Spicant*, Drouet 211; Milde 47. *B. boreale*, Watson (2) 614; Drouet 211; Seubert 15; Seub. & Hochst. 9.—B. & H. 565. *f.* 1302.

Corvo (1164). Flores (1165). Fayal (*Brown*, 327). Pico. Terceira (1166). San Miguel (1167, 1168, 1169, 1170; *Carreiro*). Sta. Maria (1170, *a*).

*WOODWARDIA RADICANS, Sm. Watson 252, (2) 614; Drouet 212; Seubert 16; Seub. & Hochst. 9; Milde 48.—Hook. & Bak. 188.—Lowe, *Brit. Fil.* 4. *pl.* 44.

Flores (1171). Fayal (*Brown*, 329). Pico (*Brown*, 330). Terceira (1172). San Miguel (*Brown*, 331; *Carreiro*). Sta. Maria (1172, *a*).

- *ASPLENium HEMIONITIS, L. *A. palmatum*, Watson 252, (2) 613; Drouet 211; Seubert 15; Seub. & Hochst. 9; Milde 59.—Hook. & Bak. 194.—Bot. Mag. 82. *pl.* 4911.

Corvo (1173, 1174). Flores (1175, 1176, 1177). Fayal (*Brown*, 336, 337). Pico. Terceira (1178; *Abreu*). San Miguel.

- *A. TRICHOMANES, L. Seub. & Hochst. 9. *A. anceps*, Watson 252, (2) 614; Drouet 211; Seubert 15; Seub. & Hochst. 9.—B. & H. 563. *f.* 1294.

Corvo (1179, 1180). Flores (1181). Fayal (*Brown*, 338, 339, 340). Pico (*Brown*, 341). Graciosa (1182). Terceira (1183, 1184). San Miguel (1185, 1186, 1187). Sta. Maria (1187, *a*).—The variety *anceps*, forma *Azorica* of Milde 64.

- *A. MONANTHEMUM, L. Watson 253, (2) 614; Drouet 211; Seubert 15; Seub. & Hochst. 9; Milde 67.—Hook. & Bak. 197.—Lowe, Brit. Fil. 5. *pl.* 1.

Flores. Fayal. Pico. Terceira (1188). San Miguel (1189, 1190; *Brown*, 342).

- *A. MARINUM, L. Watson 253, (2) 614; Drouet 211; Seubert 15; Seub. & Hochst. 9; Milde 70.—B. & H. 563. *f.* 1293.

Corvo (1191, 1192). Flores (1193). Fayal (*Brown*, 343). Pico (*Brown*, 344). Graciosa (1194, 1195). Terceira (1196; *Sampaio*). San Miguel (1197; *Carreiro*). Sta. Maria (1197, *a*, 1197, *b*).—The forma *subpinnata* of Moore.

- *A. LANCEOLATUM, Huds. Watson 253, (2) 614; Drouet 211; Milde 72.—B. & H. 563. *f.* 1292.

Corvo (1278, 1279, 1280). Flores. Fayal (*Brown*, 347, 349?). San Jorge (1281). Graciosa (1285, *a*?). San Miguel.—The var. *microdon*, Moore.

- *A. ADIANTUM-NIGRUM, L. Watson 253, (2) 614; Drouet 211; Seubert 15; Seub. & Hochst. 9; Milde 86.— B. & H. 563. *f.* 1296.

Corvo (1277). Flores. Fayal (*Brown*, 345, 346). Pico. San Jorge (1282, 1283). Graciosa (1284, 1285). Terceira (1286). San Miguel (1287, 1287, *a*). Sta. Maria (1287, *b*, 1287, *c*). The form *nigrum, obtusum*, of Milde, *l. c.*

Nos. 1282, 1285, 1285, *a*, 1286, and 1287, *a*, are variously intermediate between this and the preceding species.

- *A. FILIX-FOEMINA, Bernh. Drouet 211. *Athyrium Filix-foemina*, Watson 254, (2) 614; Milde 51. *A. Azoricum*, Fée. *Allantodia axillaris*, and β . *Azorica*, Hochst. in Seubert 16; Seub. & Hochst. 9; Watson (2) 614, (3) 396; Drouet 211.— B. & H. 562. *f.* 1290.

Corvo (1264, 1265). Flores (1266, 1268, 1269, 1270). Fayal (*Brown*, 350, 351, 352, 353). Pico (*Brown*, 354). Terceira (1271; *Sampaio*). San Miguel (1273, 1275, 1276; *Brown*, 355). Sta. Maria (1276, *a*).— The varieties *dissectum*, Moore and *axillare*, Barker-Webb & Berth.

- *A. UMBROSUM, J. Sm. *Athyrium umbrosum*, Watson 254; Milde 56. *Allantodia umbrosa*, Drouet 211; Seubert 15; Seub. & Hochst. 9; Watson (2) 614.— Hook. & Bak. 229.

Flores (1267). Pico (*Brown*, 356). San Miguel (1274). Sta. Maria (1274, *a*).

- *SCOLOPENDRIUM VULGARE, Sm. Watson 254, (2) 613; Milde 90. *S. officinarum*, Drouet 212; Seubert 16; Seub. & Hochst. 9.— B. & H. 565. *f.* 1300.

Flores (1198, 1199). Fayal (*Brown*, 320). Terceira (1200, 1201, 1202). San Miguel (1203). Sta. Maria (1203, *a*).

- *ASPIDIUM ACULEATUM, Sw. var. ANGULARE, Willd. Milde 108. *A. angulare*, Watson 254, (2) 614; Drouet 212; Seubert 16; Seub. & Hochst. 9. *A. aculeatum*, Drouet 212.— Hook. & Bak. 252.

Flores. Fayal (*Brown*, 357, 358, 359). Graciosa (1204). Terceira (1205). San Miguel (1206, 1207, 1208; *Carreiro*). Sta. Maria (1208, *a*, 1208, *b*).

- *A. FILIX-MAS, Sw. Watson 255. *Polystichum Filix-mas*, Drouet 212.— B. & H. 560. *f.* 1285.

Flores ? Fayal ? San Miguel (1209).

- *A. SPINULOSUM, Sw. var. DILATATUM, Hook. Milde 141. *A. dilatatum*, Watson 255. *Polystichum dilatatum*, Drouet 212. ?*Lastraea multiflora*, Watson (3) 383; Drouet 210. *Nephrodium Foeniseeii*, Seub. & Hochst. 9; Seubert 16, *fide* Watson 256, (2) 614, (3) 393; Drouet 212.— B. & H. 561.

Flores ? Fayal ? San Miguel (1210). Sta. Maria (1210, *a*, 1210, *b*).

- *A. AEMULUM, Sw. Watson 256; Milde 141. ?*Polystichum tanacetifolium*, Drouet 212.— Hook. & Bak. 279 (as *Nephrodium*).

Corvo (1211, 1297). Flores (1212, 1298). Fayal (*Brown*, 360). Pico. Terceira (1213, 1214). San Miguel (1215, 1216; *Carreiro*). Sta. Maria (1216, *a*).

- *A. MOLLE, Sw. Watson 256; Milde 111. *Nephrodium molle*, Drouet 212; Seubert 16; Watson (2) 614.— Hook. & Bak. 293.

Flores (1217, 1228). Fayal (*Brown*, 361, 362). San Miguel (1218, 1219; *Brown*, 363). Sta. Maria (1219, *a*).

- *POLYPODIUM VULGARE, L. Watson 256, (2) 613; Drouet 210; Seubert 15; Seub. & Hochst. 9; Milde 19.— B. & H. 556. *f.* 1276.

Corvo (1220). Flores (1221). Fayal (*Brown*, 321, 322). Pico (*Brown*, 323). Terceira (1222; *Abreu*). San Miguel (1223). Sta. Maria (1223, *a*).

Referred to the variety *serrulatum*, Willd. by Seubert and Drouet, and also, in part, by Milde to var. *Teneriffae* and var. *Cambicum*.

- *GYMNOGRAMME TOTTA, Schl. *G. Loweii*, Watson 256, (3) 383; Drouet 210. *Phegopteris Totta*, Milde 102.— Hook. & Bak. 376.— Hook. & Grev. *Icon. pl.* 89. Fayal. San Miguel (1224, 1225, 1226, 1227).

- **G. LEPTOPHYLLA*, Desv. Watson 257; Milde 21. *Grammitis leptophylla*, Drouet 210; Seubert 15; Seub. & Hochst. 9; Watson (2) 613.—Hook. & Bak. 383.—Hook. Brit. Fil. *pl.* 1.

Corvo (1229). Fayal (*Brown*, 348). Terceira (1230). San Miguel (*Miss Brown*). Sta. Maria.

- **ACROSTICHUM SQUAMOSUM*, Sw. Watson 257, (2) 614; Drouet 210; Seubert 14; Seub. & Hochst. 9; Milde 14. — Hook. & Bak. 411. — Hook. & Grev. *pl.* 235.

Flores (1231). Fayal. Pico. Terceira (1232). San Miguel (1233, 1234; *Carreiro*, 877).

- **OSMUNDA REGALIS*, L. Watson 257, (2) 614; Drouet 213; Seubert 16; Seub. & Hochst. 9; Milde 176, 178.—B. & H. 556. *f.* 1275.

Corvo (1235, 1236). Flores (1237). Fayal (*Brown*, 324, 325). Terceira (1238; *Abreu*). San Miguel (1239; *Brown*, 326).—According to Milde, the varieties *Plumieri* and *interrupta*.

OPHIOGLOSSACEAE.

- **OPHIOGLOSSUM VULGATUM*, L. Watson 257, (2) 614, (3) 394; Drouet 213.—B. & H. 555. *f.* 1273.

Flores. Terceira.

- **O. VULGATUM*, var. *POLYPHYLLUM*, Milde 189. *O. Lusitanicum*, Watson 257; Seub. & Hochst. 9. *O. polyphyllum*, Seubert 17. *O. Azoricum*, Presl, Suppl. Tent. Pteridogr. 309.—B. & H. 555.—The variety *cuspidatum* of Milde.—*Plate 64.*

Terceira, San Miguel (*Miss Brown*).

EQUISETACEAE.

- **EQUISETUM TELMATEIA*, Ehrh. Drouet 209. *E. maximum*, Watson 260. *E. fluviatile*, Watson (1) 129, (2) 615; Seubert 14.—B. & H. 550. *f.* 1263.

Flores (1259). Fayal. San Miguel (1260).

- *E. TELMATEIA, forma SEROTINA, A. Br. Milde 220. —
Fl. Danica. 9. *pl.* 1469.
Flores (1257, 1258, at Coste).
- *E. RAMOSISSIMUM, Desf. Milde 238. *E. incanum*, Watson 261; Drouet 209. *E. limosum*, Watson (3) 383. —
Milde, Mon. Equis. *pl.* 24.
San Miguel (*Brown*, 400, at the Furnas).

LYCOPODIACEAE.

- *LYCOPodium CERNUUM, L. Watson 258, (2) 615; Drouet 209; Seubert 17; Seub. & Hochst. 9; Milde 254. —
Baker, Fern Allies. 23. — Descourt. Fl. Ant. 4. *pl.* 249.
Pico (*Brown*, 311). Terceira (1240, at Furna do Enxofre; *Abreu*). San Miguel (1241, 1242, 1243, 1244; *Brown*, 312, 313; *Carreiro*, 28).
- *L. COMPLANATUM, L. Watson 258, (3) 382; Drouet 209. — Luerssen, Farnpflanzen Deutschl. 822. — Sturm. 2. *pl.* 11.
Flores (1245, on the mountains above Lagens). San Miguel.
- L. SELAGO, L. Watson 259, (1) 400, (2) 614; Drouet 209. — B. & H. 546. *f.* 1258.
Pico. Terceira. — Perhaps doubtful as separate from the next.
- *L. SELAGO, var. SUBERECTUM, Bak. *L. suberectum*, Watson 259, (1) 129, (2) 614; Drouet 209; Seub. & Hochst. 9. — *L. Selago*, var. *spinulosum*, Seubert 17; Milde 252. — *Plate* 65.
Flores (1246, 1247). Fayal. Pico. Terceira. San Miguel (1248, 1249, 1250, 1251; *Carreiro*, 29).

ISOETACEAE.

- *Isoetes Azorica, Durieu in Milde Fil. Eur. et Atl. 278; Watson 260; Baker, Fern Allies 125. *I. lacustris*, Watson (2) 615; Drouet 209. — *Plate* 66.
Corvo (1261, in the Caldeira — the original local-

ity). Flores (1262, Lagoa Raza, where it was detected by my son Frank; 1263, Caldeira da Lomba).

Mr. A. A. Eaton, who has examined my specimens, finds many stomata near the leaf tips, and the species in fact appears amphibious.

SELAGINELLACEAE.

*SELAGINELLA KRAUSSIANA, A. Br. Watson 259; Milde 272. *S. denticulata*, Drouet 210; Seubert 17. *Lycopodium denticulatum*, Seub. & Hochst. 9; Watson (2) 614.—Baker, Fern Allies, 65.

Corvo (1252). Flores (1253). Fayal (*Brown*, 314, 315, 316). Pico. Terceira (1254; *Abreu*). San Miguel (1255, 1256; *Machado*, 14). Sta. Maria (1256, a).

**S. Azorica*, Baker, Journ. of Bot. 21: 210; Fern Allies 50.
“Mountains of the Azores, *Arruda Furtado*.”

Bryophytes.

(MUSCI.)

BRYALES.*

HYLOCOMIUM BERTHELOTIANUM, Geheeb. Cardot 71.

Otenidium Berthelotianum, Mitten 307. *Hypnum Hochstetteri*, Schimper in Seubert 14; Drouet 215.

Fayal (*Brown*, 397). San Miguel (*Machado*, 12). Sta. Maria (1391, a).

H. SPLENDENS, Br. & Sch. Cardot 71. ?*Hypnum proliferum*, Drouet 215.

San Miguel (1391).

H. SQUARROSUM, Br. & Sch. Mitten 308; Cardot 71.

Fayal.

HYPNUM CUSPIDATUM, L. Cardot 71. *Amblystegium cuspidatum*, Mitten 312.

San Miguel (*Machado*, 4, 7, 9, 29; *Brown*, 393, a). Sta. Maria.

* Determinations by M. J. Cardot, whose paper on the Mosses of the Azores appears elsewhere in the present Garden Report (p. 51).

- H. PURUM, L. Mitten 310; Cardot 70.
Flores (1394). Sta. Maria (1394, a).
- H. CANARIENSE, Jaeg. & Sauerb. Cardot 70. *Stereodon Canariense*, Mitten 308.
Flores (1392). Fayal (*Brown*, 398) Pico (*Brown*, 376). San Miguel (*Brown*, 391).
- H. CUPRESSIFORME, L. Cardot 70. *Stereodon cupressiforme*, Mitten 307.
Corvo (1389). Fayal. Graciosa (Blanchy). San Miguel (*Brown* 392, 394; *Machado*).
- H. CUPRESSIFORME, var. RESUPINATUM, Sch. Cardot 70.
Flores (1388). Fayal (*Brown*, 399). Graciosa (Blanchy).
- Sciariomium Renauldi**, Cardot, Mosses of Azores 69.
pl. 10.
Pico (*Brown*, 377).
- S. SPINOSUM, Mitten 313; Cardot 69. *Leskea spinosa*, Mitten (2) 7.
"Azores" (Hunt).— Not recently collected.
- S. PROLIXUM, Jaeg. & Sauerb. Mitten 313, Cardot 69.
Fayal.
- PLAGIOTHECIUM SYLVATICUM, Br. & Sch. Cardot 69.
San Miguel (*Machado*, 16).
- THAMNIUM ALOPECURUM, Br. & Sch. Cardot 69. *Hypnum alopecurum*, Seubert 14; Watson (2) 616; Drouet, 215.
San Miguel (1346; *Carreiro*, 17; *Brown*, 389, 390; *Machado*, 10).
- RHYNCHOSTEGIUM RUSCIFORME, Br. & Sch. Cardot 69.
Flores (1395). San Miguel (1345, 1346, a, 1395, a).
- R. CONFERTUM, Br. & Sch. Mitten 309; Cardot 69.
Sta. Maria.
- EURHYNCHIUM STOKESII, Br. & Sch. Cardot 68.
Sta. Maria (1346, b).
- E. PRAELONGUM, Br. & Sch. Cardot 68. *Hypnum praelongum*, Mitten 310; Drouet 215.
Pico (*Brown*, 385). San Miguel (1369). Sta. Maria 1369, a).

- E. PRAELONGUM, var. ATROVIRENS, Br. & Sch. Cardot 68.
Hypnum Swartzii, Mitten 310.
 Sta. Maria (1369, b).
- E. MERIDIONALE, De Not. Cardot 68. *Hypnum longirostre*,
 var. *Duriaei*, Mitten 310.
 "Azores" (Godman).
- E. CIRCINATUM, Br. & Sch. Cardot 68.
 Flores (1390).
- SCLEROPODIUM ILLECEBRUM, Br. & Sch. Cardot 68. *Hypnum illecebra*, Mitten 310.
 "Azores" (Godman).
- MYURIUM HEBRIDARUM, Sch. Mitten 306; Cardot 67.
 Flores (1370, 1371, 1372). Fayal (*Brown*, 397, a).
 San Miguel (*Machado*, 13). Sta. Maria (1372, a, 1372, b).
- BRACHYTHECIUM SALEBROSUM, Br. & Sch. Cardot 67.
 San Miguel (*Brown*, 396). Sta. Maria (1369, c).
- THUIDIUM TAMARISCINUM, Br. & Sch. Mitten 313; Cardot 67.
 San Miguel (*Brown*, 395; *Machado*, 30).
- LEPIDOPILOM FONTANUM, Mitten 305; Cardot 67. *Bartramia fontana*, Watson (2) 616.
 Flores.
- PTEROGONIUM GRACILE, Sw. Cardot 67.
 Graciosa (Blanchy).
- Astrodontium Treleasei*, Cardot, Mosses of Azores. 66.
 pl. 9.
 Graciosa (*Brown*, 386). Terceira (1352). Sta. Maria (1352, a).
- A. CANARIENSE, Schw. Mitten 304; Cardot 66.
 San Miguel.
- FONTINALIS ANTIPYRETICA, L. Mitten 306; Watson (2) 616; Drouet 216; Cardot 66.
 Flores.—Perhaps pertaining to the next.
- F. antipyretica, var. Azorica, Cardot, Mosses of Azores. 66.
 Flores (1367).

- DIPHYSCIUM FOLIOSUM, Mohr. Watson (2) 616; Drouet 215.
Flores? — Not recently collected.
- POLYTRICHUM PILIFERUM, Schreb. Seubert 14; Drouet 215;
Cardot 65.
Graciosa (Blanchy). San Miguel (Drouet).
- P. JUNIPERINUM, Willd. Cardot 65.
Graciosa (Blanchy).
- P. FORMOSUM, Hedw. Watson (2) 616; Drouet 215;
Cardot 65.
Flores (1354, 1362). San Miguel (1355,— forma
breviseta).
- P. COMMUNE, L. Mitten 315; Seubert 14; Drouet 215;
Cardot 65; ? *P. elatum*, Watson (2) 616.
Corvo (1356?; Prince of Monaco). Fayal (*Brown*,
381, 382). Terceira (1363). San Miguel (1357, 1358,
1359, 1360, 1361; *Carreiro*, 19; *Brown*, 387;
Machado, 1).
- P. COMMUNE, var. MINUS, Weis. Cardot 65.
Flores (1353).
- P. COMMUNE, var. PERIGONIALE, Br. & Sch. Cardot 65.
San Miguel (*Carreiro*, 19, *a*). Sta. Maria (1353, *a*).
- POGONATUM ALOIDES, Pal. Beauv. Cardot 65. *Poly-*
trichum aloides, Watson (2) 616; Drouet 215.
Flores (1364). San Miguel (1365, 1366; *Carreiro*,
18; *Machado*, 22).
- ATRICHUM UNDULATUM, Pal. Beauv. Mitten 315; Cardot 64.
Flores. San Miguel (*Machado*, 23).
- MNIUM UNDULATUM, Weis. Mitten 303; Cardot 63.
Flores. San Miguel (1349).
- ANOMOBRYUM JULACEUM, Sch. Mitten 302; Cardot 63.
San Miguel.
- Bryum pachyloma*, Cardot, Mosses of Azores. 62. *pl.* 7.
Terceira (1381). San Miguel (*Machado*, 19).
- B. CANARIENSE, Brid. Seubert 14; Drouet 215; Cardot 62.
Graciosa (*Brown* 380, *b*).
- B. CAPILLARE, L. Mitten 303; Cardot 62. *B. platy-*
loma, Seubert 14; Drouet 215.
Flores (1378, 1379, 1380). San Miguel.

- B. CAESPITICUM, L. var. ATLANTICUM, Cardot, Mosses of Azores. 62.
Sta. Maria (1380, *a*, 1380, *b*, 1380, *c*).
- B. ALPINUM, Huds. var. MERIDIONALE, Sch. Cardot 61.
Sta. Maria (1380, *d*).
- B. ARGENTEUM, L. Mitten 302; Cardot 61.
San Miguel. Sta. Maria (1380, *e*).
- WEBERA TOZERI, Sch. Cardot 63. *Epipterygium Tozeri*, Mitten 303.
San Miguel.
- Breutelia Azorica, Cardot 64. *Bartramia Azorica*, Mitten 300.
Fayal. San Miguel (1368; Machado, 3, 4, *b*, 15, 17).
- PHILONOTIS OBTUSATA, C. Müll. Cardot 64. *pl.* 8.
Flores (1350).
- P. FONTANA, Brid. Cardot 64. *Bartramia fontana*, Watson (2) 616; Drouet, 215.
San Miguel (*Brown*, 393).
- P. RIGIDA, Brid. Cardot 63. *Bartramia rigida*, Mitten 300. *Bryum rigidum*, Drouet 215.
Fayal. San Miguel (1347; Machado, 187). Sta. Maria (1347, *a*,— with *Campylopus polytrichoides*).
- FUNARIA HYGROMETRICA, Sibth. Mitten 299; Cardot 61.
San Miguel.
- ENTOSTHODON TEMPLETONI, Schw. Mitten 299; Seubert 14; Drouet 215; Cardot 61.
Fayal. San Miguel (*Machado*). Sta. Maria.
- PHYSCOMITRIUM PYRIFORME, Brid. Mitten 299; Cardot 61.
Sta. Maria.
- GLYPHOMITRIUM NIGRICANS, Mitten 294; Cardot 60. *Ptychomitrium nigricans*, Seubert 13; Drouet 214.
Graciosa (1393), San Miguel.
- G. NIGRICANS, var. PULVINARE, Cardot 60. *G. pulvinare*, Mitten 294.
Sta. Maria (1393, *a*, 1393, *b*).

- G. Azoricum**, Cardot, Mosses of Azores. 60. *pl.* 6.
Corvo (1373). Flores (1374, 1375, 1376). Terceira
(1377). Sta. Maria (1377, *a*).
- G. POLYPHYLLUM**, Mitten 294; Cardot 60. *Trichostomum
polyphyllum*, Watson (2) 616; Drouet 214.
San Miguel.
- RHACOMITRIUM LANUGINOSUM**, Brid. Cardot 59. *Grimmia
lanuginosa*, Mitten 293.
Fayal (*Brown*, 379, 380). Pico (Richard & Mi-
nelle). San Miguel.
- R. HETEROSTICHUM**, Brid. Cardot 59.
Pico (Richard & Minelle).
- R. FASCICULARE**, Brid. Cardot 59. *Trichostomum fasci-
culare*, Watson (2) 616; Drouet 214.
Pico (Richard & Minelle).
- R. CANESCANS**, Brid. *Trichostomum canescens*, Watson (2) 616; Drouet 214.
AZORES.— Perhaps referring to one of the preceding. Mr. Wat-
son, *l. c.*, also notes a *Trichostomum rigidifolium*, Tayl. ms., which
I cannot further place. Also cited by Drouet 214.
- GRIMMIA PULVINATA**, Sm. Mitten 293; Cardot 59.
San Miguel.
- G. sp.**
Graciosa (*Brown*, 380, *c*, with *Bryum Canariense*;
Blanchy). Sta. Maria (1393, *c*). — Sterile, but
thought by M. Cardot, p. 59, to be probably
undescribed.
- BARBULA LAEVIPILA**, Br. & Sch. Cardot 59. *Tortula
laevipila*, Mitten 298.
San Miguel.
- B. SQUARROSA**, Brid. Cardot 59.
Sta. Maria (1393, *d*).
- B. CONVOLUTA**, Hedw. Cardot 59.
San Miguel (1385).
- B. MARGINATA**, Br. & Sch. Mitten 297; Cardot 58.
San Miguel (1384, 1386, 1387). Sta. Maria (1387, *a*,
1387, *b*).
- DESMATODON NERVOSUS**, Br. & Sch. Cardot 58.
Terceira (1382).

- Trichostomum Azoricum*, Cardot, Mosses of Azores. 58.
pl. 5.
 Terceira (1383).
- T. *mucronatulum*, Cardot, Mosses of Azores. 57. *pl. 4.*
 San Miguel (*Machado 29, b*).
- T. FLAVOVIRENS, Bruch. Cardot 57. *Tortula flavo-virens*,
 Mitten 296.
 San Miguel.
- T. MUTABILE, Bruch. Cardot 57.
 San Miguel (*Brown, 388*).
- Hyophila Treleasei*, Cardot, Mosses of Azores. 57. *pl. 3.*
 Sta. Maria (1383, *a*).
- CERATODON PURPUREUS, Brid. Cardot 56.
 Graciosa (Blanchy). Sta. Maria (1383, *b*,— with
Campylopus polytrichoides).
- FISSIDENS ASPLENIODES, Hedw. Mitten 314; Drouet 216;
 Cardot 56.
 San Miguel. Sta. Maria (1383, *c*).
- F. SERRULATUS, Brid. Mitten 313; Cardot 56.
 San Miguel (*Machado, 11*). Sta. Maria.
- F. OSMUNDOIDES, Hedw. Seubert 14; Drouet 216.
 Perhaps referring to one of the preceding.
- LEUCOBRYUM JUNIPEROIDEUM, C. Müll. Mitten 294; Cardot 55.
 "Azores" (Watson).—Not recently collected, and probably
 referring to the next.
- L. GLAUCUM, Sch. Cardot 55.
 Fayal (*Brown, 384*). Pico (*Brown, 375*).
- L. GLAUCUM, var. ALBIDUM, Cardot 55.
 San Miguel (1348). Sta. Maria (1348, *a*).
- CAMPYLOPUS POLYTRICHOIDES, De Not. Cardot 55.
 Pico (Richard & Minelle). San Jorge (*Brown, 378*).
 San Miguel (*Carreiro, 16*). Sta. Maria (1348, *b*,
 1348, *c*).
- C. AZORICUS, Mitten, Godman's Azores, 292; Cardot 55.
 San Miguel.
- C. *setaceus*, Cardot, Mosses of Azores. 54. *pl. 2.*
 Fayal (*Brown, 380, a*). San Miguel (*Machado*).

- C. flexuosus**, Brid. var. **Fayalensis**, Cardot, Mosses of Azores. 54. *pl. 1*.
Fayal (*Brown*, 383).
- C. ATROVIRENS**, DeNot. Drouet 215.
San Miguel.—Doubtful.
- DICRANUM SCOTTIANUM**, Turn. Mitten 292; Seubert 14;
Drouet 214; Cardot 54.
“Azores” (Godman).
- D. FLAGELLARE**, Hedw. *D. strictum*, Drouet 214.
Flores. San Miguel.—Perhaps referring to the preceding?
- RAMPHIDIUM PURPURATUM**, Mitten 291; Cardot 54.
San Miguel.
- WEISSIA VIRIDULA**, Hedw. Cardot 54. *W. controversa*,
Mitten 294. ? *Weissia*, sp., Drouet 214.
San Miguel (1351).
- GYMNOSTOMUM CALCAREUM**, Nees & Hornsch. Cardot 53.
Weissia calcarea, Mitten 295. *G. tortile*, Seubert 13;
Drouet 214. San Miguel.

ARCHIDIALES.

- ARCHIDIUM ALTERNIFOLIUM**, Sch. *A. phascoides*, Watson
(2) 616; Drouet 214.
Flores ? — Not recently collected.

SPHAGNALES.*

- Sphagnum nitidulum**, Warnst. ined. Cardot 72.
Terceira (Daveau — Furna do Enxofre).
- S. Godmanii**, Warnst. Hedwigia. 1890: 189. *pl. 4, 7*; Car-
dot 72. ? *S. acutifolium*, Mitten 316; Drouet 214.
Fayal?
- S. subnitens**, Russ. & Warnst. Verhandl. Bot. Ver. Brand-
enb. 30: 115; Cardot 72.
Flores (1337, 1338, 1339, 1340, 1341, 1342). San
Miguel (1343, 1344; *Machado*, 6, 8).
- S. ACUTIFOLIUM**, Russ. & Warnst. *l. c.* 112; Cardot 72.
Fayal. Terceira (1336).

* Determinations by Dr. C. Warnstorf.

- S. SQUARROSUM, Pers. Warnstorff, Hedwigia. 1890: 181;
Cardot 72.
- S. RIGIDUM, Sch. Cardot 72. ? *S. compactum*, Mitten 316.
San Miguel.
- S. CENTRALE, Arn. & Jens. Cardot 72.
Corvo (1331). San Miguel (1334, 1335).
- S. CYMBIFOLIUM, Hedw. Mitten 316; Seubert 13; Drouet
214; Cardot 71.
Fayal. San Miguel (*Machado*, 5).
- S. CYMBIFOLIUM, var. GLAUDESCENS, Warnst. Cardot 71.
Terceira (1333).
- S. CYMBIFOLIUM, var. PALLESCENS, Warnst. Cardot 71.
Flores (1332).
- S. CYMBIFOLIUM, var. FUSCESCENS, Warnst. Cardot 72.
Terceira (Daveau). San Miguel (Daveau).
- S. CYMBIFOLIUM, var. COMPACTUM, Schlieph. & Warnst.
Cardot 72.
Terceira (Daveau).

(HEPATICAE).*

ANTHOCEROTACEAE.

- ANTHOCEROS PUNCTATUS, L. Mitten 328; Drouet 217.—
Gray, 726.
Flores (1312, 1313, 1314). Terceira (1315). San
Miguel. Sta. Maria (1315, *a*, 1315, *b*).

JUNGERMANNIACEAE.

- FRULLANIA TENERIFFAE, Web. Mitten 324.
"Azores" (Godman).
- F. DILATATA, Nees.—Gray, 706.
Graciosa (1307). San Miguel (*Brown*, 364).
- F. TAMARISCI, Nees. *Jungermannia Tamarisci*, Watson
(2) 616; Drouet 217.—Gray, 706.
Corvo (1300). Flores (1301, 1302, 1303, 1304).

* Determinations by Professor L. M. Underwood.

Fayal (*Brown*, 370, 371). San Miguel (1305, 1306).
Sta. Maria (1306, *a*, 1306, *b*, 1306, *c*).

LEJEUNEA SERPYLLIFOLIA, Mitten, 323.

San Miguel (*Machado*, 10, *a*).

PORELLA PLATYPHYLLA, Lindb. *Jungermannia platyphylla*,
Watson (2) 616; Drouet 216.— Gray, 708. *pl.* 24.
Flores (1309).

P. CANARIENSIS, (Web.)

Sta. Maria (1309, *a*).

RADULA COMPLANATA, Dumort. *Jungermannia complanata*,
Watson (2) 616; Drouet 216.— Gray, 708.
Flores (1310).

R. PHYSOLOBA, Mont. Mitten 322.

San Miguel (Godman).

R. PALLENS, Lindenb., var. MINOR, Sw. Drouet 216;
Seubert 13.

San Miguel.

SCAPANIA NEMOROSA, Nees.

Flores (1308).

HERBERTA JUNIPERINA, Spruce. *Jungermannia juniperina*,
Watson (2) 616; Drouet 216.

? Flores (Watson). San Miguel (1328).

BAZZANIA TRILOBATA, S. F. Gray.— Gray, 710. *pl.* 24.

San Miguel (1311).

KANTIA TRICHOMANIS, S. F. Gray. *Calypogeia trichomanis*,
Mitten 321.— Gray, 713. *pl.* 24.

"Azores" (Godman).

CEPHALOZIA BICUSPIDATA, Dumort. *Trigonanthus bicus-*
pidatus, Mitten 318.— Gray, 712.

San Miguel.

SACCOGYNA VITICULOSA, Dumort. Mitten 320.

"Azores" (Godman).

CHILOSCYPHUS POLYANTHOS, Corda.— Gray, 716.

San Miguel (1326).

C. PUNCTATA, Tayl. *Jungermannia punctata*, Watson (2)
616; Drouet 216.

? Flores.

- PLAGIOCHILA SPINULOSA, Dumort. Mitten 317.—Gray, 717.
Fayal.
- JUNGERMANNIA INFLATA, Huds. Mitten 319.— Gray, 721.
pl. 25.
“Azores” (Godman).
- NARDIA CRENULATA, Lindb. *Solenostoma crenulata*, Mitten 317.— Gray, 722. *pl. 25.*
Fayal (*Brown*, 374,—doubtfully of this species).
San Miguel.
- N. HYALINA, Carring. *Solenostoma hyalina*, Mitten 319.—
Gray, 722.
San Miguel (Godman).

METZGERIACEAE.

- FOSSOMBRONIA ANGULOSA, Raddi. Mitten 324. ?*Gymnomitrium erythrorhizum*, Bisch. in Seubert 12; Drouet 217; Mitten 317.— Gray, 723.
“Azores.” — Sterile specimens probably of this or the next were collected by me on San Miguel (1327).
- F. PUSILLA, Dumort. *Jungermannia pusilla*, Watson (2) 616; Drouet 217.— Gray, 723. *pl. 23.*
Flores (Watson).
- PELLIA EPIPHYLLA, Corda. Mitten 324.—Gray, 724. *pl. 23.*
Flores (Godman).
- RICCARDIA MULTIFIDA, S. F. Gray. *Aneura multifida*, Mitten 324.— Gray, 725.
Flores (Godman).

MARCHANTIACEAE.

- MARCHANTIA POLYMORPHA, L. Mitten 327; Drouet 216.—
Gray, 729. *pl. 22.*
San Miguel (1330).
- M. PALEACEA, Bertol.
Flores (1316). Fayal (*Brown*, 369). Pico (*Brown*, 368). Terceira (1317, 1318). San Miguel (1319,

1320, 1321, 1322; *Brown*, 365, 366, 367). Sta. Maria (1322, a).

LUNULARIA CRUCIATA, Dumort. *L. vulgaris*, Mitten 325; Watson (2) 616; Drouet 216.— Gray, 730. *pl.* 25.
? Flores (Watson).

CONOCEPHALUM CONICUM, Wiggers. *Fegatella conica*, Mitten 327; Watson (2) 616; Drouet 216.— Gray, 729. *pl.* 22.

? Flores (Watson).

ASTERELLA AFRICANA, Underwood, nov. nom. *Rhacotheca Azorica*, Bisch. in Seubert 12. *pl.* 14; Mitten 328; Drouet 216.

Flores (1323). San Miguel (1324, 1325).

REBOULIA HEMISPHERICA, Raddi. *Fegatella hemisphaerica*, Watson (2) 616; Drouet 216.

? Flores (Watson). Sta. Maria (1325, a).

Algae.*

CHARACEAE.

NITELLA HYALINA, A. Br.?

San Miguel (1397).

The absence of mature spores renders it impossible to determine it with certainty. It seems to differ from the ordinary forms of *hyalina*.—A.

CHARA FRAGILIS, Desv.

San Miguel (1398).

A very unusual form, slender-leaved and not incrusting.—A.

These plants occur in considerable abundance at Sete Cidades in the Lagoa Grande. The *Chara*, which occurs in the bay between the peninsula and the Lagoa Verde, does not extend to a depth of more than 10.5 meters. The smaller and more sparing *Nitella* lies, in the bay, only along the outer limit of growth of the other species, at a depth of about 10 meters, and extends along the

* Determinations and notes on my own collections, by Professor W. G. Farlow, except for Characeae, which are by Dr. T. F. Allen, and Diatomaceae, which are by Professor H. L. Smith. There is no doubt some confusion in names of species not seen by these gentlemen.

margin of the Lagoa to the mouth of the Grotto do Inferno, where it is found in water only 3 meters deep, associated with *Potamogeton* and *Myriophyllum*. It is interesting to observe that although the Lagoa Verde (or Pequena) is connected with the Lagoa Grande by an open channel from the bay where these Characeae occur, neither species has yet been observed in the former lake, by Captain Chaves, to whom this information is due, though the *Myriophyllum* is there abundant. On the general characters and the fauna of these lakes, see Barrois, Recherches sur la faune des eaux douces des Açores. Lille. 1896.

FLORIDEAE.

CORALLINA OFFICINALIS, L. Seubert 11; Drouet 222.

JANIA RUBENS, Lamx.

Corvo (1400, a, on *Padina*). Graciosa (1400, on *Zonaria*).

J. CORNICULATA, Lamx. Seubert 11; Drouet 222.

MELOBESIA PUSTULATA, Lamx.

Terceira (1402).

PEYSSONNELIA SQUAMARIA, Decn.

Terceira (1403).

SCHIZYMENIA OBOVATA, J. Ag.

Corvo (1408).

S. UNDULATA, J. Ag.

Terceira (1419).

Several specimens with cystocarps. They agree well with the descriptions in microscopic structure, and the more perfect specimens have the habit shown in pl. iii. of Agardh's Oefver de Capska arterna of slaegtet Iridaea. The occurrence of this species from the Cape of Good Hope in this region is interesting.

HALYMENIA RENIFORMIS, Ag. Seubert 10; Drouet 221.

CERAMIUM, sp.

Terceira (1404, on *Codium tomentosum*.)

This small species lining the fronds of *Codium tomentosum* has much external resemblance to *C. codicola*, J. Ag., growing on the same species on the coast of California. The specimens from Terceira had neither tetraspores nor cystocarps. The nodes were completely corticated throughout and the structure of the sterile plant resembles more that of *C. rubrum* than that of *C. codicola*. It may perhaps be the alga described by Grunow under the name of *C. rubrum* var. *Liebetruhii*, Grun. in Piccone Crociera del Corsaro, p. 55.

- C. RUBRUM, Ag. Seubert 9; Drouet 223.
Pico.
- C. DIAPHANUM, Ag. Seubert 9; Drouet 223.
- C. SCOPARIUM, DC. Drouet 223.
Sta. Maria.
- C. CILIATUM, Ag. Seubert 9; Drouet 223.
- CALLITHAMNION TETRAGONUM, Ag. Seubert 9; Drouet 223.
- SPERMOTHAMNION TURNERI, Aresch. *Callithamnion Turneri*,
Seubert 9; Drouet 223.
- CENTROCERAS CLAVULATUM, C. Ag.
Terceira (1417).
- POLYSIPHONIA FRUTICULOSA, Spreng. Seubert 9; Drouet 222.
Corvo (1405).
- CHONDRIA TENUISSIMA, Ag. Seubert 10; Drouet 221.
- LAURENCIA OBTUSA, Lamx., var. PYRAMIDATA, J. Ag.
Corvo (1406, 1407).
- L. PINNATIFIDA, Lamx. *Chondria pinnatifida*, Seubert 10; Drouet 221.
- NITOPHYLLUM LACERATUM, Grev. *Delesseria lacerata*,
Seubert 11; Drouet 222. ? *Fucus laceratus*, Drouet 220.
- PLOCAMIUM COCCINEUM, Lyngb. *Delesseria Plocamium*,
Seubert 11; Drouet 222.
Terceira (1409).
- CHRYSYMENIA UVARIA, J. Ag. *Chondria uvaria*, Seubert 10; Drouet 221.
- RHODYMENIA PALMETTA, Grev. *Sphaerococcus Palmetta*,
Seubert 10; Drouet 221.
- SPHAEROCOCCUS CORONOPIFOLIUS, Ag. *Fucus coronopifolius*,
Drouet 220.
- GIGARTINA ACICULARIS, Lamx. *Sphaerococcus acicularis*,
Seubert 10; Drouet 221.
- G. TEEDII, Lamx. *Sphaerococcus Teedii*, Seubert 10;
Drouet 221.

PTEROCLADIA CAPILLACEA, Bornet & Thur?

Flores (1411). Terceira (1412). Sta. Maria (1412, a).

A considerable number of specimens was collected. No cystocarps, however, were present and the determination of sterile plants must be necessarily somewhat uncertain in this case.

GELIDIUM FILICINUM, Bory?

Terceira (1413).

A small sterile specimen of what may be this species was collected. I am indebted to Dr. Ed. Bornet for an authentic specimen of *G. filicinum* with which the present plant agrees in general habit, but, in the absence of fruit, the determination must remain uncertain.

G. SPINULOSUM, J. Ag. Bornet, Mém. Soc. Cherbourg. 28: 272. *Sphaerococcus corneus*, var. *spinulosus*, Seubert 10; Drouet 222.

Corvo (1414).

G. SPINULOSUM, var. OXYACANTHUM, J. Ag.

San Miguel (1415).

G. CARTILAGINEUM, L. *Fucus cartilagineus*, Drouet 220. Fayal.

G. CORNEUM, Ag. *Sphaerococcus corneus*, Drouet 221.

G. CORNEUM, var. PINNATUM. *Sphaerococcus*, Seubert 10; Drouet 221.

G. CORNEUM, var. PULCHELLUM. *Sphaerococcus*, Seubert 10; Drouet 222.

CAULACANTHUS USTULATUS, Kütz.

Terceira (1416).

NEMALION LUBRICUM, Duby.

Terceira (1418).

FUCOIDEAE.

SARGASSUM FISSIFOLIUM, Mont. ? *S. vulgare*, Seubert 11.

? *S. vulgare*, var. *tenuifolium*, Seubert 11; Drouet 221. ? *S. stenophyllum*, Seubert 11; Drouet 221.

Corvo (1423). Terceira (*Sampaio*). San Miguel (1424). ? Sta. Maria (Drouet, under *S. vulgare*).

Several specimens of *Sargassum* collected are probably the same as the *S. fissifolium* (Mert.) Mont. as understood by Piccone in

Crociera del Corsaro, and some others, which is, however, not the *S. fissifolium* of J. Agardh. The Azorean specimens all belong, with one possible exception, to a single species and resemble forms of *S. cymosum* in many respects, but the leaves all have well-marked glands. There are but very few bladders and the lower leaves are frequently forked and in a few cases pinnately divided. Both antheridia and oogonia are borne in the same receptacles, which are generally closely cymose but in a few places become more loosely branched but not racemose. The main axes are usually somewhat compressed and smooth, but in older specimens they become more cylindrical with a few ill-developed spines. The probability is that the specimens might be considered as forms of *S. cymosum* or *S. tinifolium*, but they do not exactly agree with the types of either species and the name given above may be used temporarily to designate them.

S. BACCIFERUM, Ag. Seubert 11; Drouet 221. *Fucus natans*, Drouet 220.

CYTOSEIRA ABROTANIFOLIA, L. Seubert 11; Drouet 221. San Miguel (1422).

C. ABIES-MARINA, Ag. Seubert 11; Drouet 221. Terceira (*Sampaio*).

FUCUS VESICULOSUS, L. ? *F. vesiculosus*, var. *spiralis*, Seubert 11; Drouet 220.

Terceira (1421). *Sta. Maria*.

Small specimens, the largest hardly 5 cm. high and without bladders. They may be considered to be the same as the Adriatic form referred to *F. Sherardi* by authors, considered by some as identical with *F. virsoides*, J. Ag. and by others as a depauperate form of *F. vesiculosus*. The specimens collected were attached and can therefore be regarded as belonging to the marine flora of the Azores. *F. vesiculosus*, var. *limitaneus*, Mont., of the Canaries, is a still more reduced form of this species.

F. CERANOIDES, DC. Drouet 220.

ASCOPHYLLUM NODOSUM, Le Jol. *Fucus nodosus*, Seubert 11; Drouet 220;

Fayal (*Brown*). Pico. Terceira (1420). San Miguel. *Sta. Maria*.

The specimens collected were not found attached but washed ashore, and came in all probability from a more northern coast.

PHAEOSPOREAE.

COLPOMENIA SINUOSA, Derb. & Sol.

Corvo (1428, with *Cladophora*, etc.).

CLADOSTEPHUS SPONGIOSUS, Ag. Seubert 9; Drouet 222.

SPHACELARIA TRIBULOIDES, Menegh.

San Miguel (1426, on *Sargassum*).

S. SCOPARIA, var. PENNATA, Ag. Seubert 9.

HALOPTERIS FILICINA, Kütz. *Sphacellaria filicina*, Seubert 9; Drouet 222.

STYPOCAULON SCOPARIUM, Kütz. *Sphacellaria scoparia*, Seubert 9; Drouet 222.

Corvo (1427, with *Laurencia*, etc.). Fayal (*Brown*).

LEATHESIA DIFFORMIS, Aresch.

Sta. Maria (1431, a).

MESOGLOIA LEVEILLEI, Menegh.

Corvo (1429, with *Colpomenia*, etc., 1430, 1431).

DICTYOTACEAE.

ZONARIA FLAVA, C. Ag. Seubert 11; Drouet 220.

Graciosa (1432).

PADINA PAVONIA, Lamx. *Zonaria Pavonia*, Seubert 11; Drouet 220.

(Corvo (1433). Terceira (*Sampaio*). Sta Maria.

DICTYOTA DICHOTOMA, Lamx. *Zonaria dichotoma*, Seubert 11. ? *Z. dichotoma*, var. *intricata*, Seubert 11;

Drouet 220.

DIATOMACEAE.

LYSIGONIUM VARIANS, De Toni.

Terceira (*Trelease*)*. — The frustules rather larger than common.

* These Terceira specimens, except the first, are from the overflow of the street fountains in Angra.

CYMATOPLEURA TURGIDA, Kütz.

Terceira (*Trelease*).

AMPHORA OVALIS, Kütz.

Terceira (*Trelease*).

ODONTIDIUM MUTABILE, W. Sm.

Terceira (*Trelease*).

NAVICULA HEMIPTERA, Kütz.

Terceira (*Trelease*).

N. TABELLARIA, Kütz.

Terceira (*Trelease*).

N. VIRIDIS, Kütz.

Terceira (*Trelease*).

Professor Smith reports, with these, several other small specimens, perhaps *N. acuta*, *N. leptcephala*, etc. Moseley, *l. c.* 323, mentions one *Navicula* from San Miguel, and diatoms from the same island are further vaguely mentioned by O'Meara in Dyer, 326, and Archer, *l. c.* 328.

SYNEDRA ULNA, Ehr.?

Terceira (*Trelease*).

S. RADIANIS, Kütz.?

Terceira (*Trelease*).

GOMPHONEMA OLIVACEUM, Kütz.

Terceira (*Trelease*).

G. TENELLUM, Kütz.

Terceira (*Trelease*).

TABELLARIA FENESTRATA, Kütz.

Terceira (*Trelease*).

ZYGNEMACEAE.

SPIROGYRA, sp. Archer 332.

San Miguel.

S. LONGATA, Kütz.? Archer 332.

San Miguel.

S. PRINCEPS, Cl.? Archer 332.

San Miguel.

DESMIDIACEAE.

- STAUSTRUM, sp. Archer 329.
 San Miguel.
- S. STRIOLATUM, Arch. Archer 330.
 San Miguel.
- S. TETRACERUM, Ralfs. Archer 330.
 San Miguel.
- EUASTRUM ANSATUM, Ralfs. Archer 330.
 San Miguel.
- ARTHRODESMUS BIFIDUS, Breb. Archer 329.
 San Miguel.
- RHAPHIDIUM POLYMORPHUM, Fresen. *Ankistrodesmus falca-*
tus, Archer 329.
 San Miguel.
- COSMARIUM BIOCULATUM, Breb. Archer 330.
 San Miguel.
- C. MENEGHINII, Breb. *C. crenulatum*, Archer 330.
 San Miguel.
- C. TINCTUM, Ralfs. Archer 330.
 San Miguel.
- C. VENUSTUM, Breb. Archer 330.
 San Miguel.
- DISPHINCTIUM THWAITESII, De Ton. *Cosmarium Thwait-*
esii, Archer 330.
 San Miguel.

CHLOROPHYCEAE.

- PENIUM DIGITUS, Breb. Archer 330.
 San Miguel.
- BOTRYOCOCCUS BRAUNII, Kütz. Moseley 322; Archer 328.
 ?*Chroococcus*, Moseley 322, 323.
 San Miguel (1459, Lagoa das Furnas; 1460, 1461,
 Sete Cidades).— An abundant water bloom.

This species was reported by Archer, *l. c.*, as the most common chlorophyllaceous alga collected by Moseley at the hot springs of Furnas. The general appearance of the colonies and their larger

size differ somewhat from the common form of *B. Braunii* which occurs in the United States. The size of the individual cells, $11-13 \mu \times 7-9 \mu$, however, indicates that the alga should be regarded rather as a coarse form of *B. Braunii* than a form of *B. gigantea*, Reinsch, of South Africa, in which the dimensions of the cells are given as considerably larger.

UROCOCCUS HOOKERIANUS, Kütz.

Flores (1458).

The specimens here referred to this species form small gelatinous masses which in their microscopic structure bear a considerable resemblance to *Hormotila mucigena*, Borzi. The average diameter of the cells, not including the gelatinous walls, is 8μ . The absence of any unstriated mucilaginous stalks, however, points rather to the genus *Urococcus*, and the present plant agrees so well with an authentic specimen of *U. Hookerianus*, for which I am indebted to Dr. Ed. Bornet, that, in spite of the color of the cell contents which are deep grass-green rather than red, it can be referred to that species without much doubt. A point of more importance is that the alga of the Azores was collected in salt or, at least, brackish water, while the original specimens of *U. Hookerianus* grew in fresh water. The species has also been reported by Borzi, in *Malpighia*. 1: 137, as occurring in Sicily, but it is not stated whether in fresh water or marine. *U. Fostieanus*, Hansg., Tromsøe Museums Aarsheft. 13: 156, agrees with the Azores alga in being marine and having green rather than red cell contents, but differs in having cells which are from $15-25 \mu$ in diameter.

DICTYOSPHAERIUM EHRENBURGIANUM, Näg. Archer 329.

San Miguel.

TETRASPORA, sp.

Terceira (1434).—Fragmentary.

TETRAEDRON TETRAGONUM, Hansg. *Polyedrium tetragonum*, Archer 329.

San Miguel.

SCENEDESMUS OBLIQUUS, Kütz. *S. acutus*, Archer 329.

San Miguel.

S. BIJUGATUS, Kütz. *S. obtusus*, Archer 329.

San Miguel.

S. QUADRICAUDA, Breb. Archer 329.

San Miguel.

PEDIASTRUM BORYANUM, Menegh., var. GRANULATUM, Br.

P. granulatum, Archer, 329.

San Miguel.

- P. TETRAS, Ralfs. Archer 329. *P. heptactis*, Archer, 329.
San Miguel.
- CODIUM ADHAERENS, C. Ag.
Sta. Maria (1435, a).
- C. TOMENTOSUM, Stack. Seubert 10; Drouet 222.
Terceira (1435, some of it overgrown by *Ceramium*).
- Bryopsis penicillata, Suhr, in Seubert 9, pl. 1; Drouet 222; De Toni, Sylloge Algarum. 2: 437.
- TRENTEPOHLIA AUREA, Mart. Drouet 223.
San Miguel (1436, very abundant on the old aqueduct at Pico do Carvão; Machado, 24).
- T. ABIETINA, Hansg.
Sta. Maria (1436, a),—Determined by De Wildemann.
- CLADOPHORA PROLIFERA, Kütz. *Conferva prolifera*, Seubert 9; Drouet 223.
Corvo (1437, associated with *Polysiphonia*, etc.; 1438, associated with *Colpomenia*, etc.). Fayal (Brown).
- C. sp. ? *Conferva catenata*, Seubert 9; Drouet 223.
Flores (1439, 1464, in fresh water).
- CHAETOMORPHA, sp. ? *Conferva Linum*, Seubert 9; Drouet 223.
Corvo (1441, with *Polysiphonia*, etc.).
- CONFERVA BOMBYCINA, C. Ag.
San Miguel (1440).
- ULOTHRIX, sp.
Terceira (1442, in fresh water).
- STIGEOCLONIUM, sp.
Sta. Maria (1440, a, 1440, b).
- ENTEROMORPHA COMPRESSA, Grev. *Ulva compressa*, Seubert 10.
- E. COMPRESSA, f. PROLIFERA, Kjellm. *Ulva compressa*, var. *prolifera*, Seubert 10; Drouet 222.
- E. INTESTINALIS, Lk. *Ulva intestinalis*, Seubert 10.
Sta. Maria (1442, a, in brackish water).

- E. INTESTINALIS, var. SUHRII. *Ulva intestinalis*, var. *Suhrii*,
Seubert 10.
- E. RAMULOSA, Hook. *Ulva ramulosa*, Seubert 10; Drouet
222.
Corvo (1443, with *Polysiphonia*, etc., 1444).
- ULVA LACTUCA, L. Seubert 10; Drouet 222
Pico.
- U. LINZA, L. Seubert 10; Drouet 222.
- U. RIGIDA, C. Ag. Seubert 10; Drouet 222.
Flores (1445, a). Fayal (*Brown*).
- BULBOCHAETE, 2 sp. Archer 332.
San Miguel.
- OEDOGONIUM CAPILLIFORME, Kütz., var. AUSTRALE, Wittr.
Terceira (1463).
Two sterile and undeterminable species of the genus from
Corvo (1446), Flores (1447), Terceira (1448), and San Miguel
(1449, 1450); and two undetermined species also reported from
the last-named island by Archer, p. 332.
- COLEOCHAETE, sp. Archer 330.
San Miguel.

MYXOPHYCEAE.

- DICHOTHRIX BAUERIANUS, Flah.
San Miguel (1452).
- RIVULARIA NITIDA, C. Ag.
Flores (1462, at Coste).
- R. BULLATA, Berk.
San Miguel (1451).
- TOLYPOTHRIX, sp. Archer 332.
San Miguel.
- NOSTOC ELLIPSOSPORUM, Rabenh.?
Corvo (1453).
The specimens were without spores and the species cannot be
considered certain.
- N. VERRUCOSUM, Vaucher.
Terceira (1453 a, on rocks in running and falling
water, in a ribeira, at 1,000 ft. elevation).
- ANABAENA TORULOSA, Lagerh.
Corvo (1455,—mixed with the next).

- NODULARIA HARVEYANA, Thuret.
Corvo (1454).
- CYLINDROSPERMUM LICHENIFORME, Kütz.
San Miguel (1456).
- C. MAJUS, Kütz.
San Miguel (1457).
- PHORMIDIUM LAMINOSUM, Gomont.
San Miguel (1457, a, in hot springs).
- OSCILLATORIA FORMOSA, Bory.
Sta. Maria (1454, a).
- O. ANIMALIS, Ag.? *Phormidium smaragdinum*, Archer 337.
San Miguel.
- CHROOCOCCUS MINOR. Archer 335.
San Miguel.
- MERISMOPAEDIA, sp. Archer 334.
San Miguel.

Lichenes.*

LICHINEACEAE.

- LICHINA PYGMAEA, Ag.—Leighton, 11.
San Miguel (1466). — Now sometimes known as
Pygmaea pumila, OK.

COLLEMACEAE.

- LEPTOGIUM BURGESSII, Mont.?—Leighton, 33.
Sta. Maria (1475, a).
- L. CHLOROMELUM, Nyl.?—Leighton, 32.
San Miguel (*Machado*, 49). Sta. Maria (1475, b,
1486, b).
- L. PHYLLOCARPUM, (Nyl.), var. DAEDALEUM, Nyl.
San Miguel (*Machado*, 36).
- L. SIMULATUM, Schaer.
San Miguel (*Machado*, 47.)
Two other, immature, representatives of this genus were collected at Sta. Maria (1475, c, 1509, c).

* Determinations by Professor T. A. Williams.

- COLLEMA, sp. Drouet 217.
Terceira (1475, — abundant on branches of *Eriobotrya*). San Miguel.

STEREOCAULACEAE.

- STEREOCAULON PASCHALE, Fr. Seubert 12; Drouet 218;
Watson (2) 617.— Leighton, 70.
Flores? San Miguel.
- S. SPHAEROPHOROIDES, Tuckerm. Drouet 218.
Corvo (1478, a). Flores (1477, 1478).
- SIPHULA CERATITES, Fr. Drouet 219.
San Miguel.

CLADONIACEAE.

- CLADONIA ALPESTRIS, L. *C. rangiferina*, var. *alpestris*,
Seubert 12; Drouet 217.— Leighton, 66 (under *C.*
sylvatica).
San Miguel (1476).
- C. COCCIFERA, Hoffm. *C. cornucopioides*, Drouet 217.
Scyphophorus coccineus, Drouet 218.— Leighton, 62.
San Miguel.
- C. DEGENERANS, Fckl. Seubert 11; Drouet 217.— Leigh-
ton, 59.
- C. FOLIACEA, Wain., var. CONVOLUTA, Wain. *Scypho-*
phorus convolutus, Drouet 217.
San Miguel.
- C. GRACILIS, Hoffm. ? *C. rangiferina*, var. *gracilis*,
Drouet 217. *Cenomyce gracilis*, Watson (2) 617;
Drouet 217.— Leighton, 58.
Flores? San Miguel.
- C. LEPORINA, Fr. Drouet 217.
Pico.
- C. PYXIDATA, Fr. Drouet 217.
San Miguel.
- C. PYXIDATA, var. CHLOROPHAEA, Fckl.— Leighton, 57.
San Miguel (*Brown*).

- C. RANGIFERINA, Hoffm. *Cenomyce rangiferina*, Watson (2) 617.— Leighton, 67.
Flores?
- C. RANGIFORMIS, Hoffm. var. PUNGENS, Wain. *C. furcata*, var. *pungens*, Seubert 11; Drouet 217.— Leighton, 53 (as *C. pungens*).
Sta. Maria (1476, a).
- C. SQUARROSA, Hoffm.? Stirton 373. ?*Scyphophorus caespitosus*, Drouet 217.— Leighton, 61.
San Miguel.

ROCELLACEAE.

- ROCELLA PHYCOPSIS, Ach. Drouet 218; Stirton 373.— Leighton, 74.
San Miguel.
- R. TINCTORIA, Ach. Watson (2) 617; Seubert 13; Drouet 218.— Leighton, 73.
Corvo (1479, 1480). Flores (1481). San Miguel.
- R. FUCIFORMIS, Ach. *Physcia fuciformis*, Drouet 219.— Leighton, 74.
San Miguel.— Perhaps referring to one of the preceding?

RAMALINACEAE.

- EVERNIA DIVARICATA, Ach. Seubert 13; Drouet 218.
- E. VULPINA, Ach. *Chlorea vulpina*, Drouet 219.
San Miguel.
- RAMALINA CALICARIS, Fr. Drouet 218.— Leighton, 83.
San Miguel.
- R. CUSPIDATA, Nyl.— Leighton, 89.
Corvo (1511). Graciosa (1512).
- R. FRAXINEA, Ach. Watson (2) 617; Drouet 218.
Flores?
- R. POLLINARIA, Ach.— Leighton 87.
Flores (1484, 1485).

- R. SCOPULORUM, Ach. Seubert 13; Drouet 218.—Leighton, 88.
 San Miguel.
- R. SUBGENICULATA, Nyl.
 San Miguel (1486; *Brown*).
- R. THRAUSTA, Nyl. Drouet 218.—Leighton, 83.
 Pico. San Miguel.
- R. VULCANICA, Nyl.?
 Graciosa (*Brown*). Sta. Maria. (1466, c).

USNEACEAE.

- USNEA BARBATA, Ach. Drouet 218.—Leighton, 75.
 Pico. San Miguel.
- U. CERATINA, Schaer., var. SCABROSA, Ach.?—Leighton, 77 (under *U. barbata*).
 Corvo (1483).
- U. FLORIDA, Ach. Drouet 218.—Leighton, 75 (under *U. barbata*).
 Pico.
- U. HIRTA, Hoffm. Drouet 218.—Leighton, 76 (under *U. barbata*).
 Corvo (1482). Pico.
- U. PLICATA, Ach. Watson (2) 617; Drouet 219.—Leighton, 76 (under *U. barbata*).
 Flores? Pico.

PARMELIACEAE.

- PARMELIA CAPERATA, Ach. Watson (2) 616; Drouet 219;
 Stirton 373.—Leighton, 114.
 Flores (1495). San Miguel.
- P. LAEVIGATA, Nyl. Watson (2) 616; Drouet 219.—
 Leighton, 128.
 Flores?
- P. OLIVACEA, Ach.
 San Miguel (*Machado*, 43).
- P. OLIVETORUM, Nyl.—Leighton, 121.
 Sta. Maria (1495, a).

- P. PERFORATA, Ach. Stirton 373.—Leighton, 123.
San Miguel.
- P. PERFORATA, f. CILIATA, Nyl.?—Leighton, 124.
Flores (1494).
- P. PERLATA, Ach. Drouet 219; Stirton 373.—Leighton,
119.
San Miguel. Sta. Maria.
- P. PERLATA, var. CILIATA, Nyl.—Leighton, 120.
Flores (1503).
- P. RETICULATA, Tayl. Watson (2) 616; Drouet 219.
Flores?
- P. REVOLUTA, Nyl.—Leighton, 129 (under *P. laevigata*).
San Miguel (*Brown*; *Machado*, 40). Sta. Maria
(1503, a).
Two undetermined specimens of this genus also respectively from
Flores (1514) and San Miguel (*Machado*, 37).
- THELOSCHISTES FLAVICANS, Muell.—Leighton, 130 (under
Physcia).
Flores (1496). Sta. Maria (1496, a).
- T. PARIETINA, Norm. *Parmelia parietina*, Seubert 12;
Drouet 219.—Leighton, 131 (under *Physcia*).
Fayal (*Brown*,—passing into f. *cinerascens*). Gra-
ciosa (1497). Sta. Maria (1497, a).—These probably
of the variety *ectanea*.

STICTACEAE.

- STICTA AURATA, Ach. Drouet 219.—Leighton, 112.
Pico. San Miguel (1489; *Brown*). Sta. Maria
(1489, a).
- S. DAMAECORNIS, Ach. Watson (2) 616; Stirton 373.
San Miguel.
- S. DAMAECORNIS, var. CANARIENSIS, Ach. Seubert 12;
Drouet 219; Stirton 373.
Flores (1515). Terceira (1493). San Miguel (1494).
- S. HERBACEA, Ach. *Parmelia herbacea*, Watson (2) 616;
Drouet 219.
Flores?

- S. PULMONARIA, Hoffm. *S. pulmonacea*, Watson (2) 616;
Drouet 219.—Leighton, 111.
Flores (1490, 1492). San Miguel (1491). Sta.
Maria (1491, *a*, 1491, *b*).
- S. SCROBICULATA, Ach. Drouet 219.—Leighton, 110.
San Miguel.

PELTIGERACEAE.

- NEPHROMIUM LAEVIGATUM, Ach.
San Miguel (*Machado*, 34, 48 — a dark-colored
form). Sta. Maria (1486, *a*, 1509, *b*).
- PELTIGERA HORIZONTALIS, Hoffm. Drouet 219; *Peltidea*
horizontalis, Watson (2) 616.—Leighton, 104.
Flores (1516). San Miguel. Sta. Maria.
- P. POLYDACTYLA, Hoffm.—Leighton, 103.
Flores (1487, 1488).

PHYSICIACEAE.

- PHYSICIA LEUCOMELA, Ach. *Parmelia leucomela*, Seubert
12; Drouet 219. *P. leucomelas*, Watson (2) 617.—
Leighton, 138.
Flores (1498, 1499). San Miguel (1500; *Machado*,
40, *a*). Sta. Maria (1500, *a*, 1500, *b*).
- P. STELLARIS, Ach. Drouet 219.—Leighton, 140.
Sta. Maria.
- PYXINE COCOES, Nyl. Drouet 220.
San Miguel.
- P. SOREDIATA, Fr.
San Miguel (*Machado*, 35).

PLACODEACEAE.

- PLACODIUM FULGENS, DC.
San Miguel (*Machado*, 41).

PANNARIACEAE.

- PANNARIA MOLYBDAEA, Tuckerm.
 Corvo (1501). Flores (1502).
 P. PLUMBEA, Delis.?—Leighton, 154.
 Flores (1513).—Perhaps merely a form of the last.

LECANORACEAE.

- LECANORA PARELLA, Ach.
 Flores (1504). Sta. Maria (1504, a).
 L. SUBFUSCA, var. DISTANS, Ach.
 San Miguel (*Machado*, 43, a).

PERTUSARIACEAE.

- PERTUSARIA, sp.
 Flores (1505).

LECIDEACEAE.

- LECIDEA ALBOCAERULESCENS, Schaer.—Leighton, 303.
 San Miguel (1506, 1507).
 L. CYANOCHROA, Stirton, Journ. Linn. Soc., Bot. 14: 373.
 San Miguel.
 BUELLIA MYRIOCARPA, Mudd.

GRAPHIDACEAE.

- GRAPHIS, sp.
 San Miguel (*Machado*, 39).
 OPEGRAPHA SAXICOLA, Ach., var. PERSOONII, Ach.—
 Leighton, 403.
 Flores (1508, — apparently associated with an
 undetermined species).

VERRUCARIACEAE.

- NORMANDINA PULCHELLA, Nyl. — Leighton, 440.
 Flores (1509). Sta. Maria (1509, a).

PYRENULA MARGINATA, Trev.

San Miguel (1510; *Brown*).

ENDOCARPON, sp.

Flores (1517,— associated with 1484).

Fungi.*

AGARICACEAE.

NAUCORIA SEMIORBICULARIS, Bull.— Sacc. Syll. 5: 844.

Flores (1525).

PSATHYRELLA CRENATA, Lasch. Berkeley 352.— Sacc.
Syll. 5: 1134.

San Miguel.

PHALLACEAE.

CLATHRUS CANCELLATUS, Tourn.— Sacc. Syll. 7: 19.

San Miguel (*Chaves*).

LYCOPERDACEAE.

BOVISTA PLUMBEA, P. Berkeley 353.— Sacc. Syll. 7: 96.

San Miguel.

LYCOPERDON HIEMALE, Bull.— Sacc. Syll. 7: 115, 480.

San Miguel (1527; *Brown*).

SCLERODERMA VERRUCOSUM, P. Sacc. Syll. 7: 136.

San Miguel (1528; *Brown*).

UREDINACEAE.

UROMYCES GERANII, Otth. & Wartm.— Sacc. Syll. 7: 535.

San Miguel (1549, *h*,— II. III. on *Geranium rotundifolium*).

U. LIMONII, Lév.— Sacc. Syll. 7: 532.

San Miguel (1549, *i*,— II. III. on *Statice Limonium*).

* In the determination of these I have been assisted by Messrs. J. B. Ellis, J. B. S. Norton, C. H. Peck, and Professors P. A. Saccardo and Roland Thaxter.

- U. STRIATUS, Schroet.—Sacc. Syll. 7: 542.
Corvo (1549, *g*,—II. on *Lotus hispidus*).
- MELAMPSORA AECIDIOIDES, Schroet.—Sacc. Syll. 7: 590.
Terceira (1549, *d*,—II. on *Populus alba*).
- M. HELIOSCOPIAE, Cast.—Sacc. Syll. 7: 586.
San Miguel (1549, *f*,—II. on *Euphorbia Peplus*).
- M. HYPERICORUM, Schroet.—Sacc. Syll. 7: 591.
Corvo (1549, *e*,—II. on *Hypericum foliosum*).
- PUCCINIA BUXI, DC.—Sacc. Syll. 7: 688.
San Miguel (1544,—III. on *Buxus sempervirens*).
- P. HIERACII, Mart.—Sacc. Syll. 7: 633.
San Jorge (1545, *a*,—II. on *Crepis virens*). Graciosa (1546,—II. on *Taraxacum officinale*). Terceira (1545,—II. on *Leontodon hirtus*; 1545, *b*,—II. III. on *Crepis virens*; 1546, *a*,—II. on *Taraxacum officinale*). San Miguel (1546, *b*,—II. on *Taraxacum officinale*).
- P. MALVACEARUM, Mont.—Sacc. Syll. 7: 686.
Fayal (*Brown, m*). Terceira (1547).—Both, III. on *Lavatera Cretica*.
- P. PORRI, Wint.—Sacc. Syll. 7: 605.
Flores (1548,—III. on *Allium Porrum*).
- P. RUBIGO-VERA, DC.—Sacc. Syll. 7: 624.
Flores (1549,—II. on *Holcus lanatus*, associated with immature *Phyllachora?*; 1549, *a*,—II. on *Agrostis verticillata*). Terceira (1549, *b*,—II. III. on *Agrostis verticillata*).
- P. SORGI, Schwein.—Sacc. Syll. 7: 659.
Corvo (1549, *c*,—II. III. on *Zea Mays*).
- PHRAGMIDIUM VIOLACEUM, Wint.—Sacc. Syll. 7: 744.
Corvo (1537,—I.? II. III.). Flores (1538,—II.).
Terceira (1539,—II.).—All on *Rubus rusticanus*.
- COLEOSPORIUM SENECTIONIS, Fr.—Sacc. Syll. 7: 751.
Terceira (1536,—II. on *Senecio mikanioides*).

USTILAGINACEAE.

USTILAGO REILIANA, Kuehn.—Sacc. Syll. 7: 471.

Flores (1540,—on *Zea Mays*).

TILLETIA DECIPIENS, Koern.—Sacc. Syll. 7: 482.

Flores (1540, *b*). San Miguel (1540, *c*; *Carreiro*).—On forms of *Agrostis Castellana*.

ENTOMOPHTHORACEAE.

EMPUSA MUSCAE, Cohn?—Sacc. Syll. 7: 281.

Flores.—On house flies.

Though numerous dead flies were observed adhering to the walls as is usual with those attacked by this fungus, my one collection (1540, *a*) does not show the latter.

MUCORACEAE.

RHIZOPUS NIGRICANS, Ehrenb.—Sacc. Syll. 7: 212.

Flores (1540, *c*,—on cooked corn).

PERISPORIACEAE.

SPHAEROTHECA PANNOSA, Lév.?—Sacc. Syll. 1: 3.

San Miguel (1543,—conidia only, on cultivated *Rosa*).

ERYSIPHE COMMUNIS, Fr.?—Sacc. Syll. 1: 18.

Flores (1542, 1542, *a*). Sta. Maria (1542, *b*).—Conidial stage only, all on *Rumex Acetosella*.

E. LAMPROCARPA, Lév., f. NICOTIANAE?—Sacc. Syll. 1: 16.

Corvo (1542, *c*,—conidial stage only—*Oidium Tabaci*, Thuem.,—on *Nicotiana Tabacum*).

E. NECATOR, Schw?—Sacc. Syll. 1: 22.

Flores (1541,—conidia only, on berries of cultivated *Vitis vulpina*).

SPHAERIACEAE.

METASPHAERIA NOBILIS, Sacc.—Sacc. Syll. 2: 169.

San Miguel (1541, *c*,—on *Viburnum Tinus*, var.

DOTHIDIACEAE.

PHYLLACHORA GRAMINIS, Fekl.—Sacc. Syll. 2: 602.

Terceira (1541, *a*, — on *Agrostis verticillata*). San

Miguel (1541, *b*, — on *A. Castellana*).

P. TRIFOLII, Fekl.—Sacc. Syll. 2: 613.

Flores (1549, *j*, — on *Trifolium glomeratum*; 1549,

k, l, m, — on *T. Ligusticum*; 1549, *n*, — on *T. repens*).

Terceira (1549, *o*, — on *T. repens*).

Frequently accompanied by the *Polythrincium* stage.

HYSTERIACEAE.

LOPHODERMIIUM MACULARE, De Not.—Sacc. Syll. 2: 791.

Terceira (1535, — on leaves of *Persea Azorica*).

SPOROMEGA, sp. ?

San Miguel (1534, — on dead stems and legumes,
apparently of cultivated *Lupinus*).

PEZIZACEAE.

PEZIZA COCHLEATA, L. Drouet 223.—Sacc. Syll. 8: 86.

San Miguel.

HUMARIA COCCINEA, Sacc. *Peziza coccinea*, Drouet 223.—

Sacc. Syll. 8: 119.

San Miguel.

HUMARIA, sp.

Sta. Maria (1533, — on the ground).—A brown
species, perhaps undescribed.

SPHAERIOIDACEAE.

SEPTORIA PIRICOLA, Desmaz.—Sacc. Syll. 3: 487.

San Miguel (1531, — on leaves of cultivated *Pyrus
communis*).

PESTALOZZIA, sp.

San Miguel (1531, *a*, — on leaves of *Pyrus com-
munis*, attacked by *Septoria piricola*).

MELANCONIACEAE.

- MELANCONIUM SPHAEROSPERMUM, Lk.—Sacc. Syll. 3: 759.
Flores (1532, — on dead stems of *Arundo Donax*).

MUCEDINACEAE.

- PENICILLIUM GLAUCUM, Lk. — Sacc. Syll. 4: 78.
Flores (1531, *b*, — on decaying fruit).
OVULARIA SPHAEROIDEA, Sacc.—Sacc. Syll. 4: 140.
Flores (1530, *a*). Terceira (1530, *b*).— On leaves
of *Lotus uliginosus*.
CERCOSPORA APII, Fres.?—Sacc. Syll. 4: 442.
Flores (1529, 1530, — on *Apium graveolens*).
C. DUBIA, Wint.—Sacc. Syll. 4: 456.
Terceira (1528, — on *Chenopodium ambrosioides*).

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EXPLANATION OF PLATES ILLUSTRATING AZOREAN PLANTS.

The plates were drawn by Miss Grace E. Johnson, under supervision of the author. Most of the enlarged details are after studies by Mr. J. B. S. Norton. The intention has been, where possible, to figure each species not yet figured or the illustrations of which are not readily accessible.

Plate 12. *Ranunculus megaphyllus*,—fruiting specimen, reduced one-half; part of head of fruit, $\times 2$; achenium, $\times 5$.

Plate 13. *Fumaria Bastardi*,—1, plant, reduced one-half; 2, fruiting branch, natural size; 3, fruit, $\times 5$. *F. officinalis*,—4, fruit, $\times 5$. *F. densiflora*,—5, branch, natural size.

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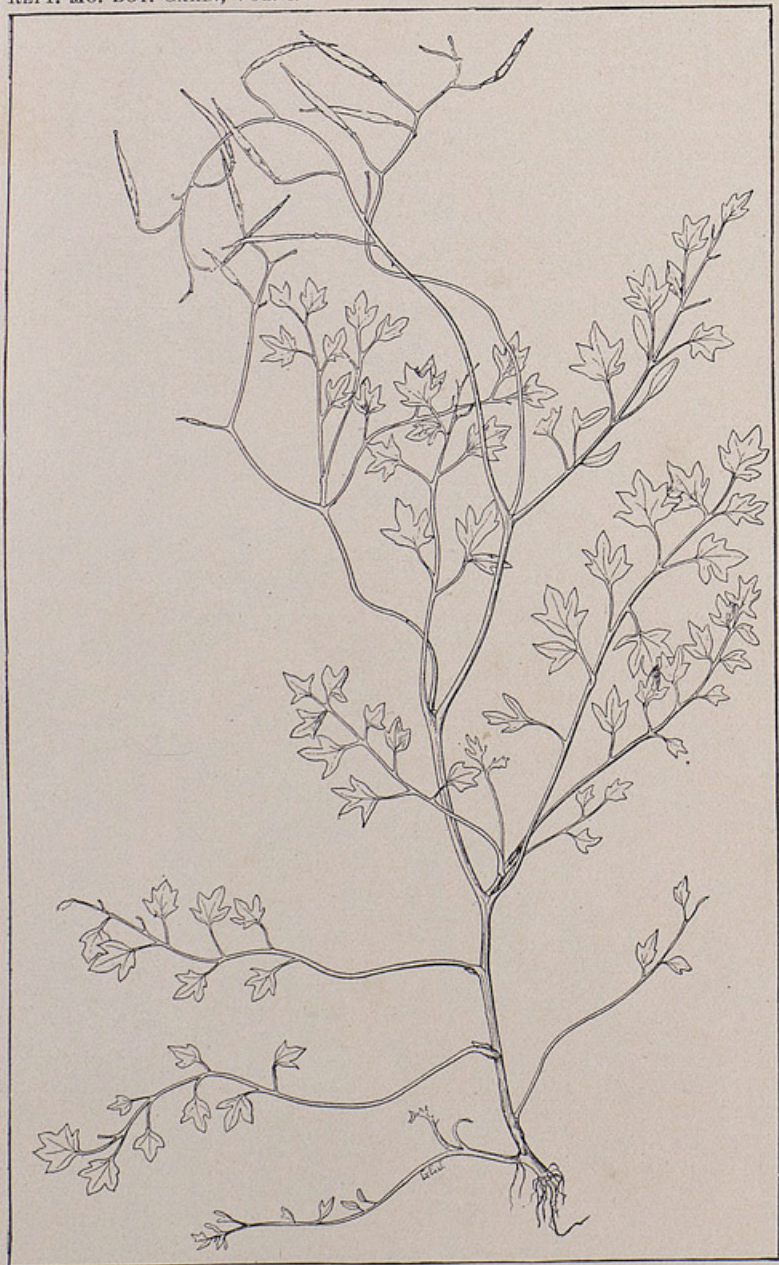
RANUNCULUS MEGAPHYLLUS.



FUMARIA.



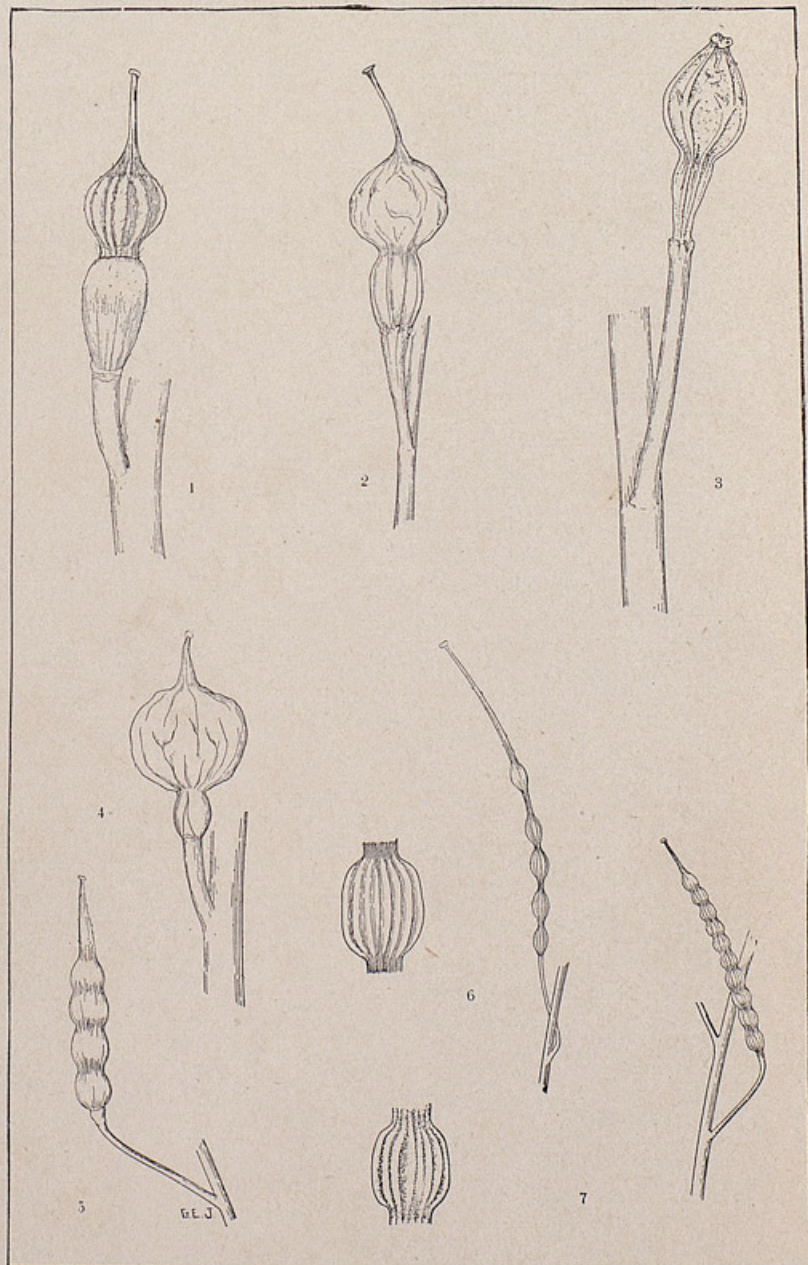
CARDAMINE CALDEIRARUM.



CARDAMINE CALDEIRARUM.



CARDAMINE CALDEIRARUM, VAR. AMPLIFOLIA.



RAPISTRUM AND RAPHANUS.



SPERGULARIA MACRORHIZA.



HYPERICUM FOLIOSUM.



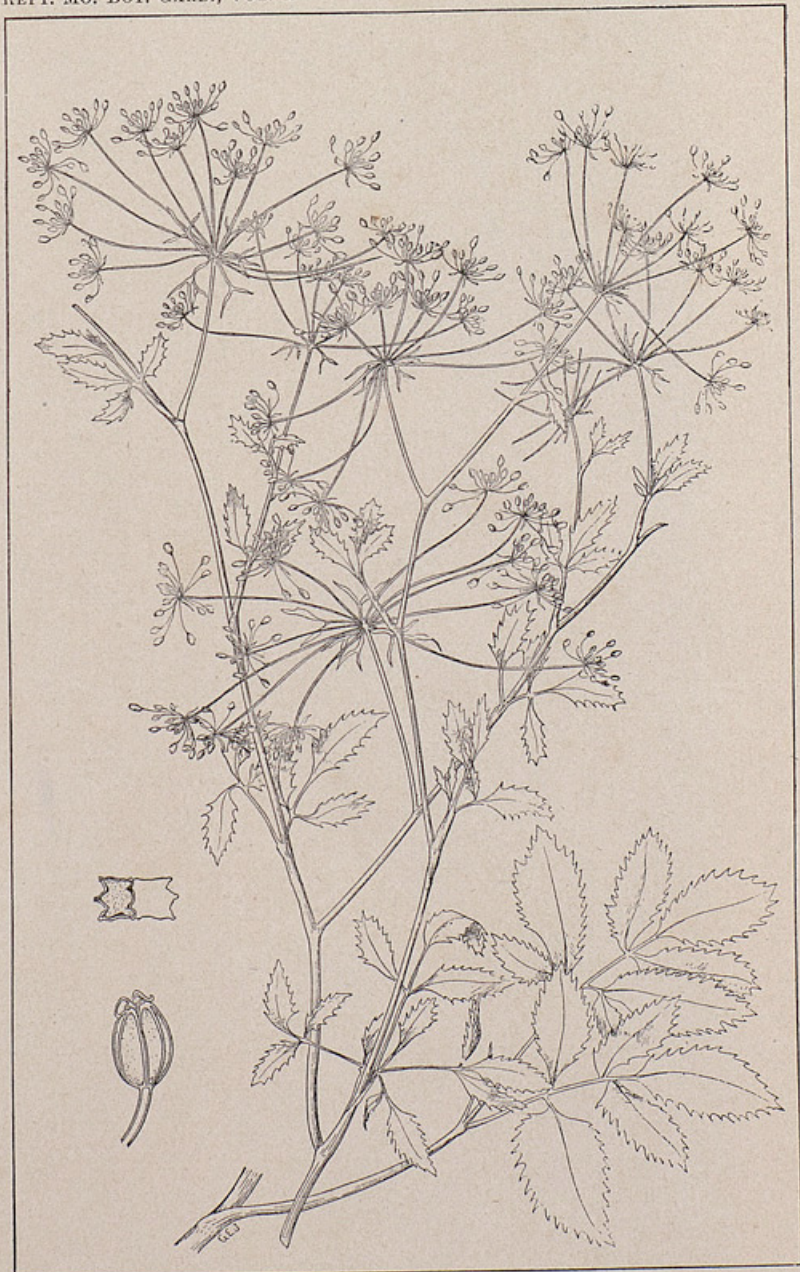
HYPERICUM ELODES.



ILEX PERADO.



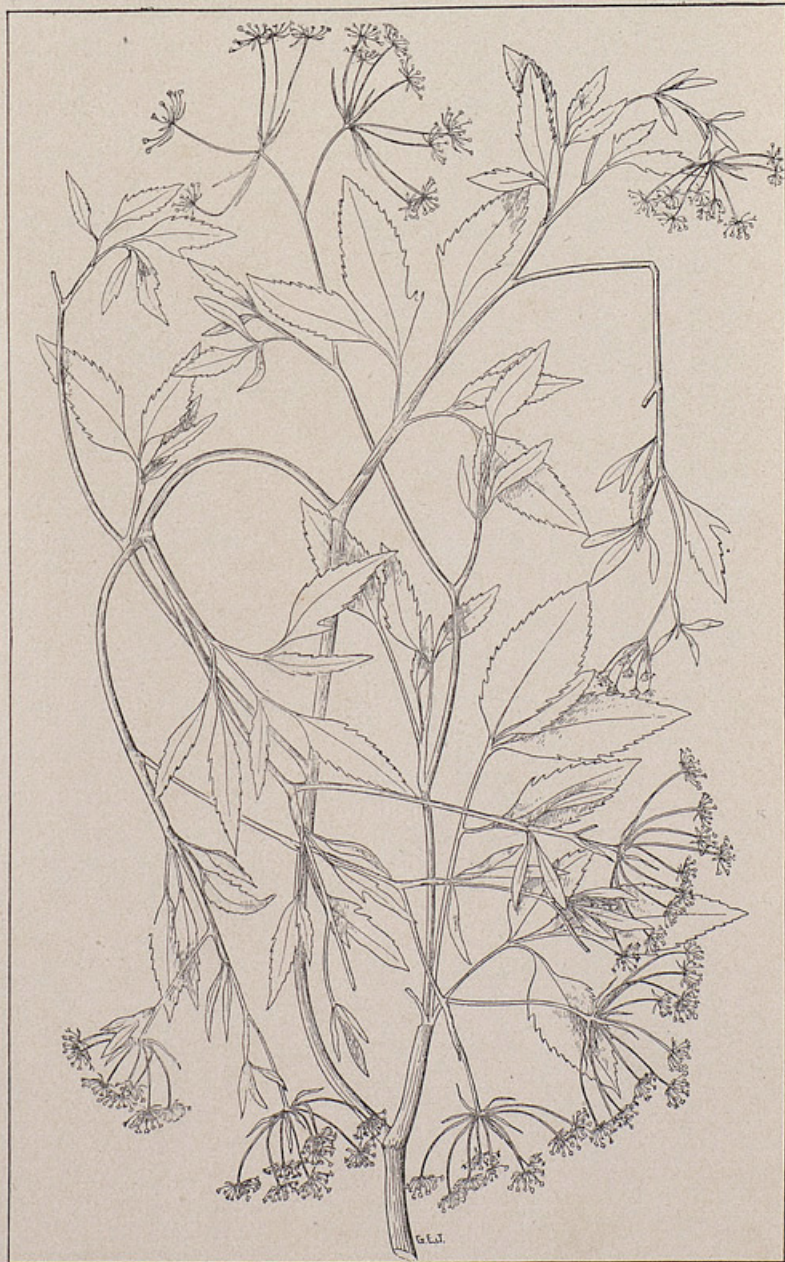
POTENTILLA PROCUMBENS.



AMMI HUNTII.



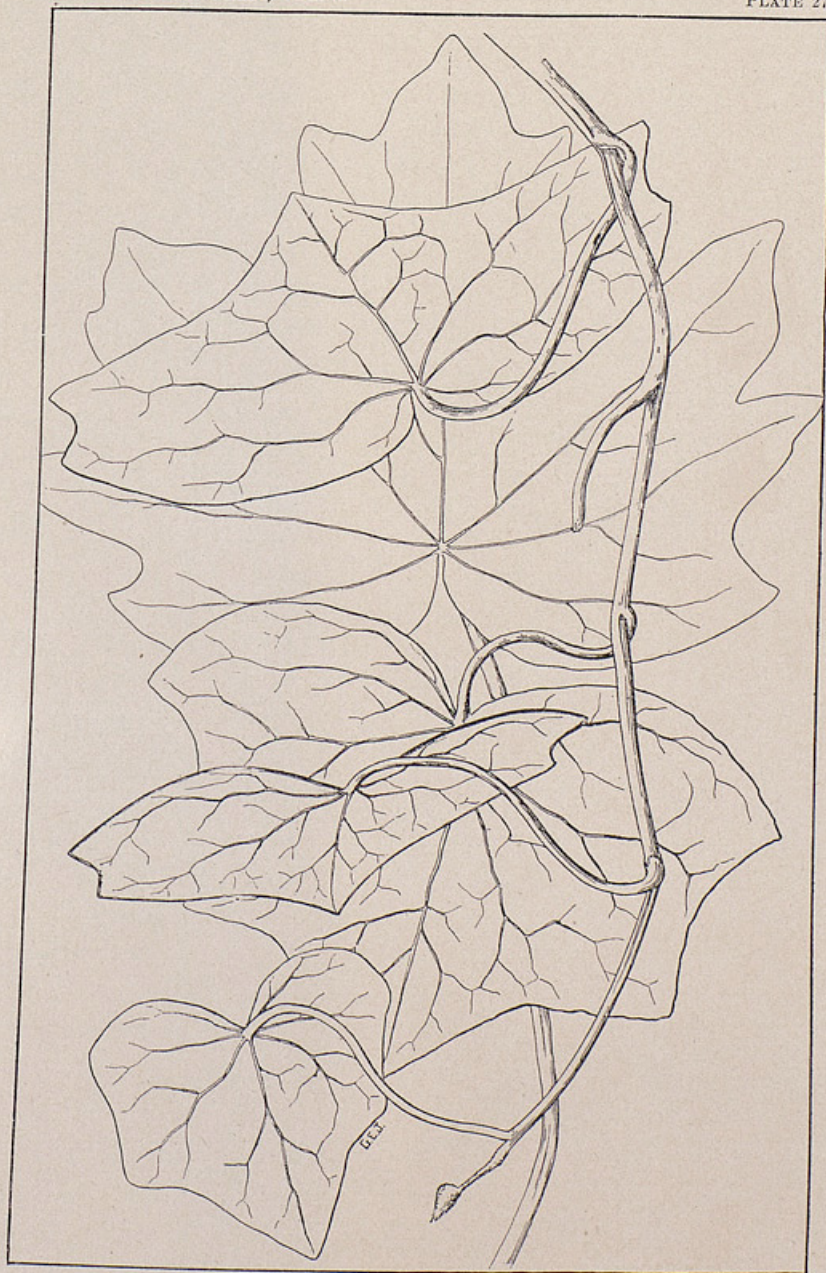
AMMI SEUBERTIANUM.



AMMI TRIFOLIATUM.



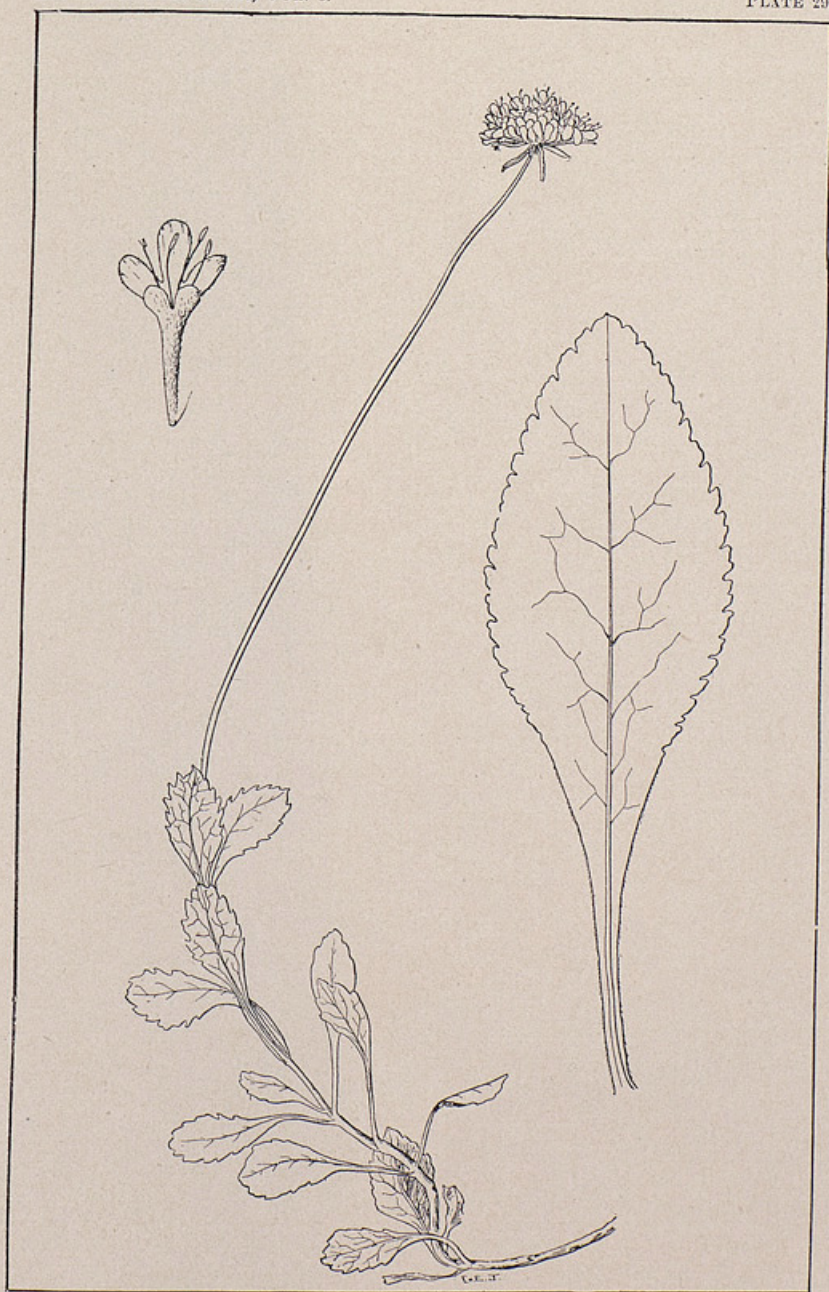
CHAEROPHYLLUM AZORICUM.



HEDERA CANARIENSIS.



VIBURNUM TINUS, VAR. SUBCORDATUM.



SCABIOSA NITENS.



ANTHEMIS NOBILIS, VAR. AUREA.



CHRYSANTHEMUM MYCONIS?



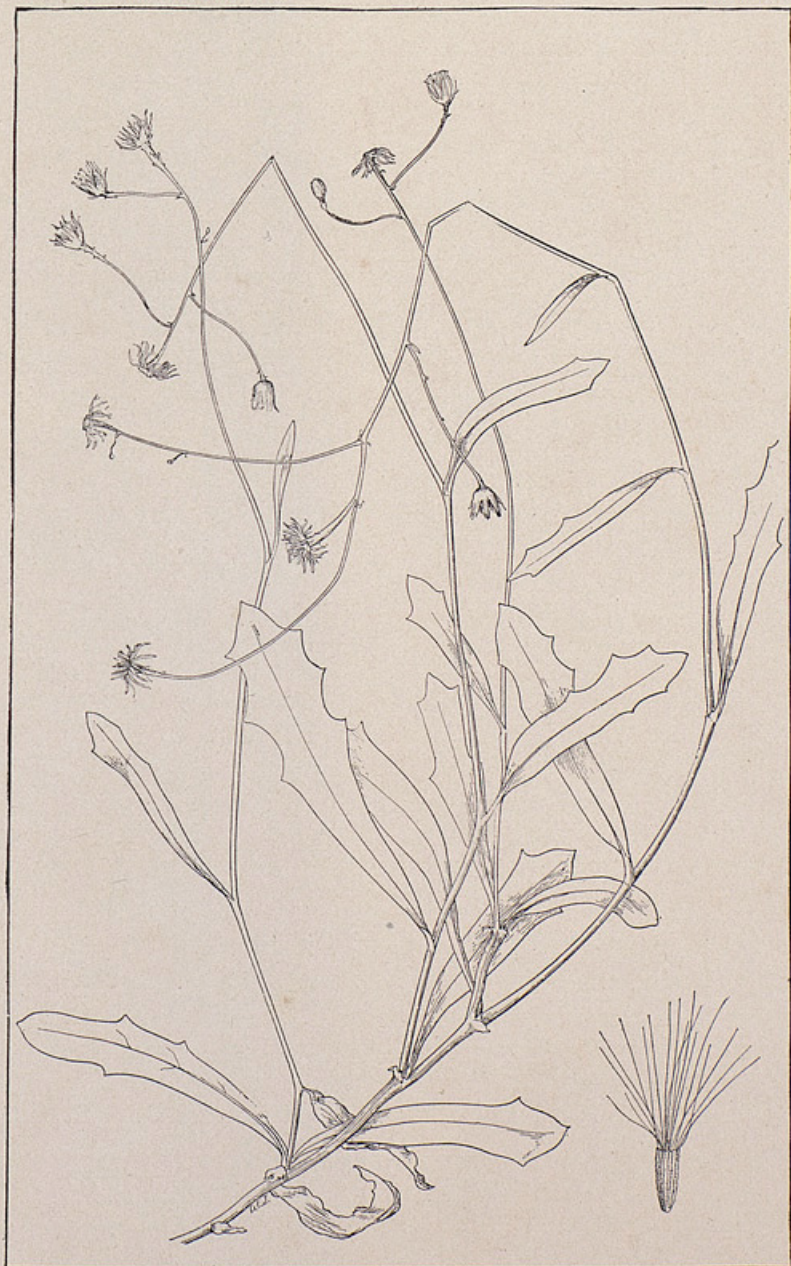
SENECIO MIKANIOIDES.



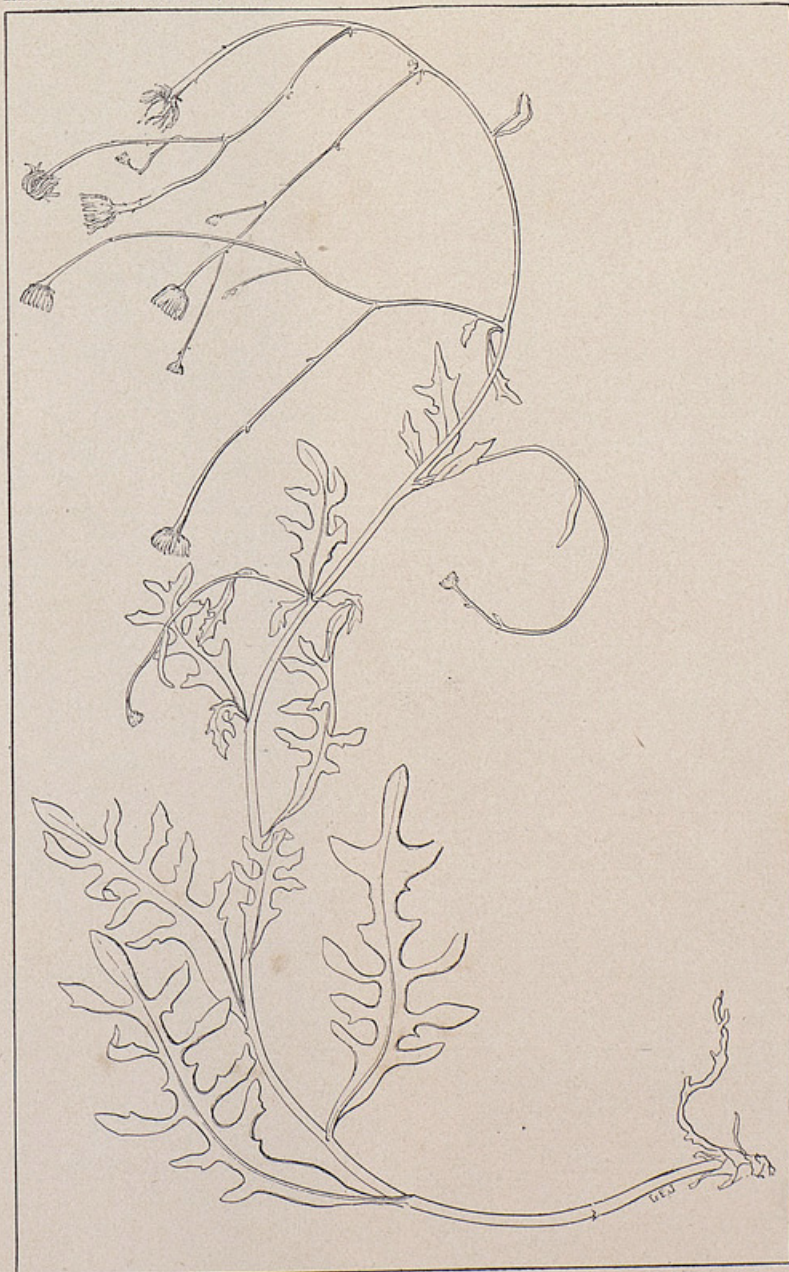
TOLPIS NOBILIS, VAR. PETIOLARIS.



TOLPIS.



TOLPIS FRUTICOSA.



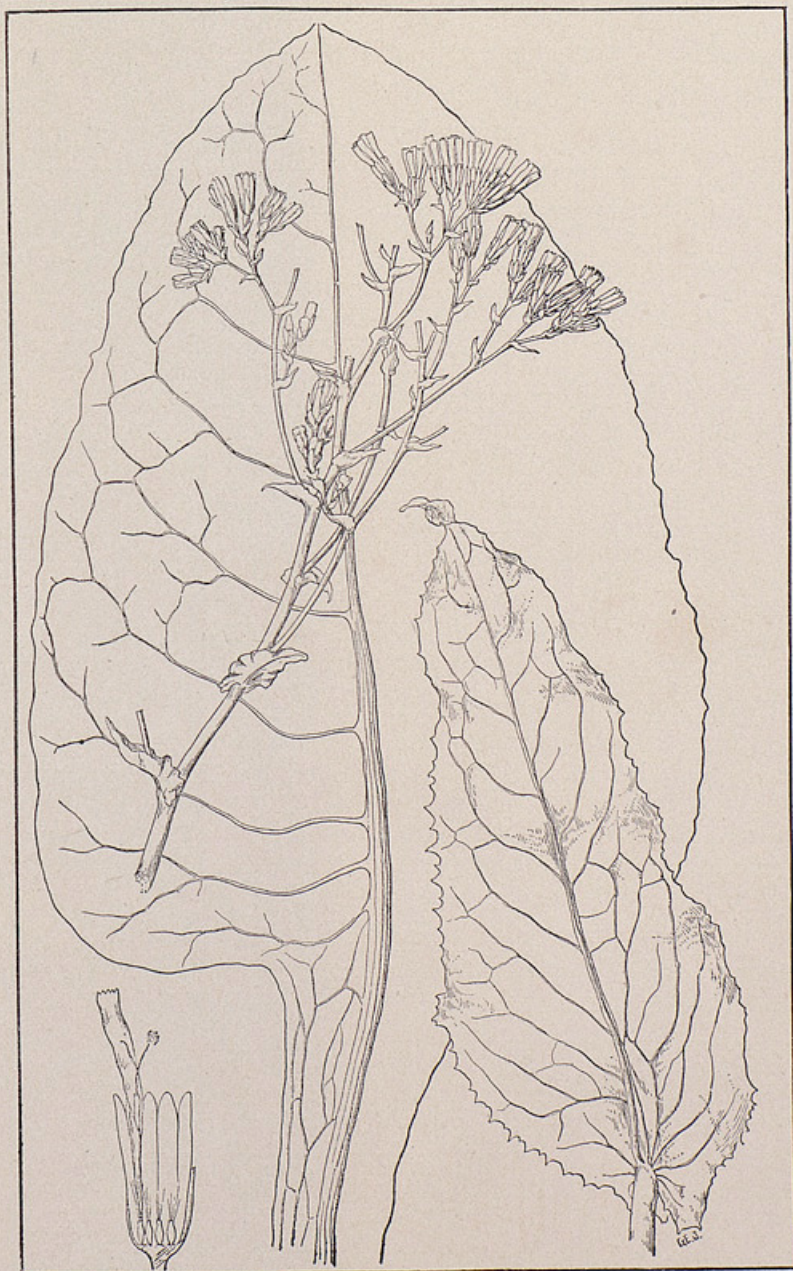
TOLPIS FRUTICOSA.



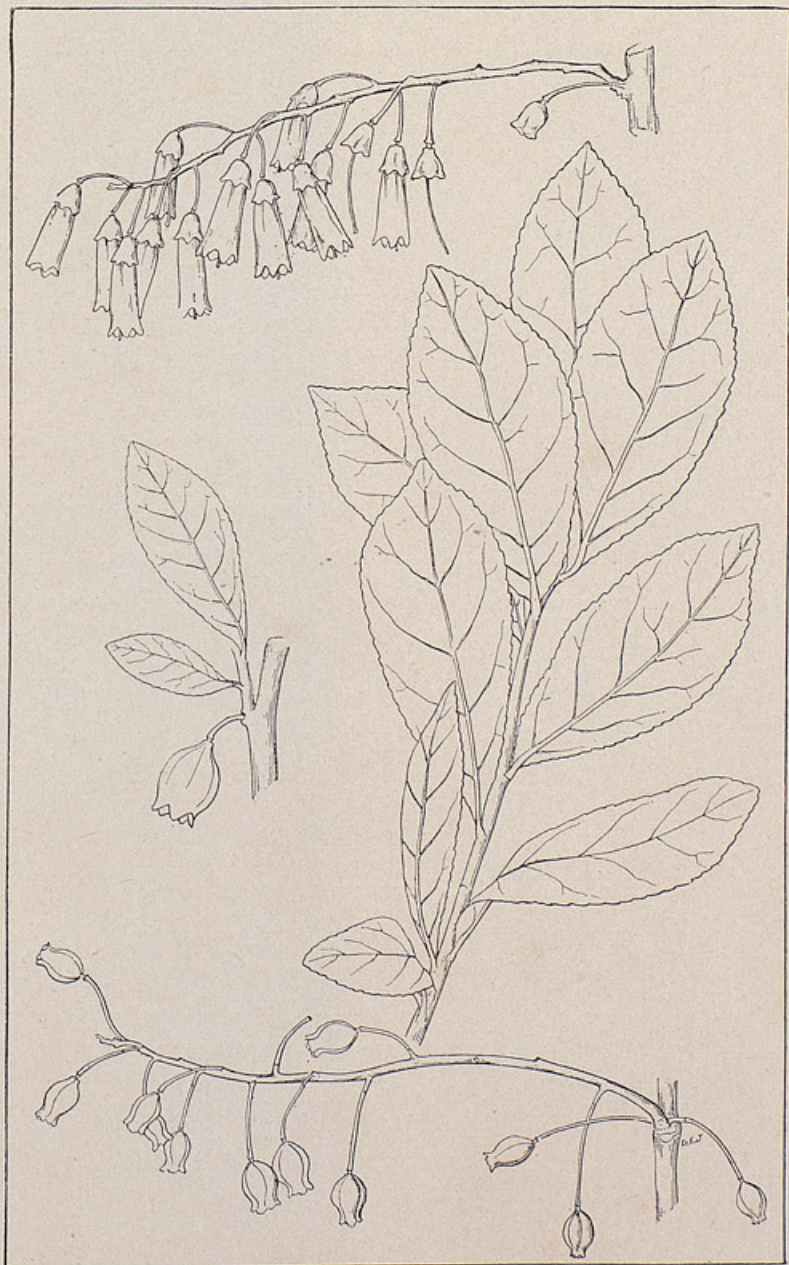
LEONTODON HIRTUS.



LEONTODON HIRTUS?



LACTUCA WATSONIANA.



VACCINIUM CYLINDRACEUM.



MYOSOTIS MARITIMA.



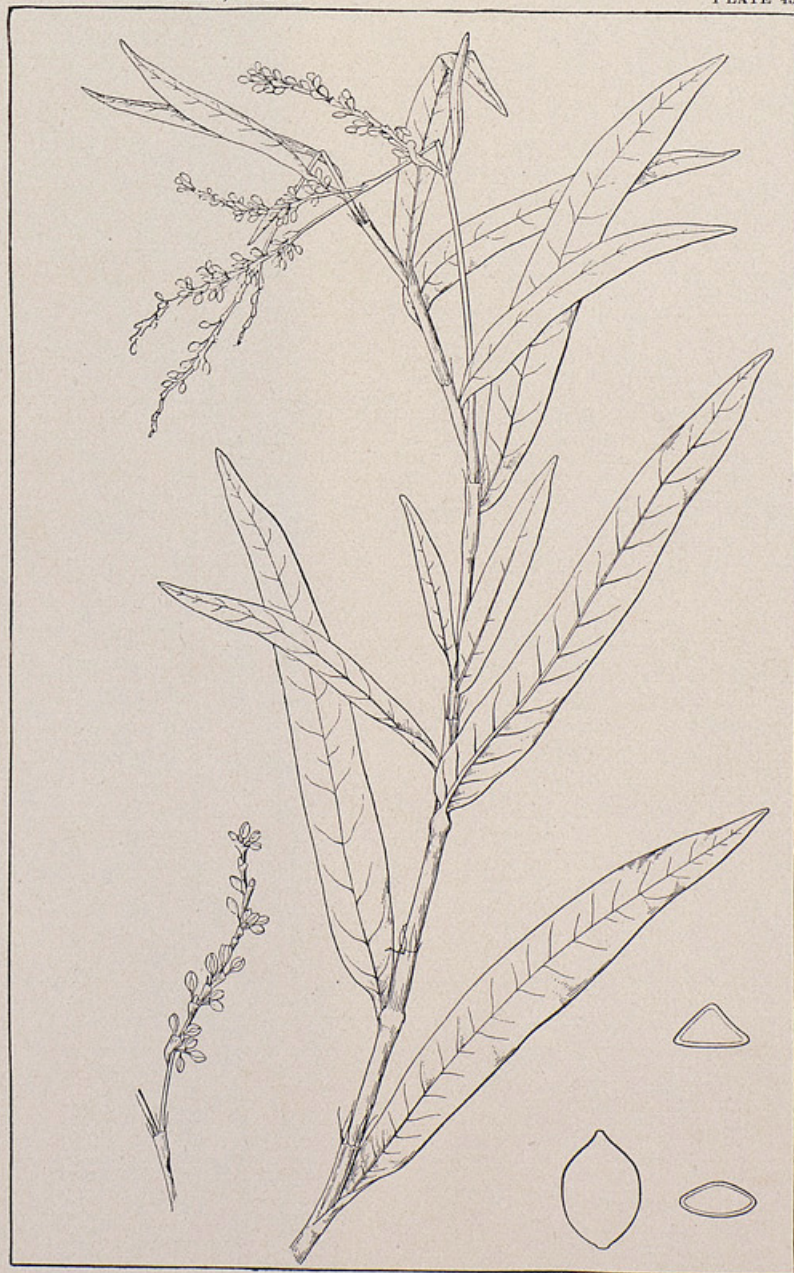
IPOMOEA CARNOSA.



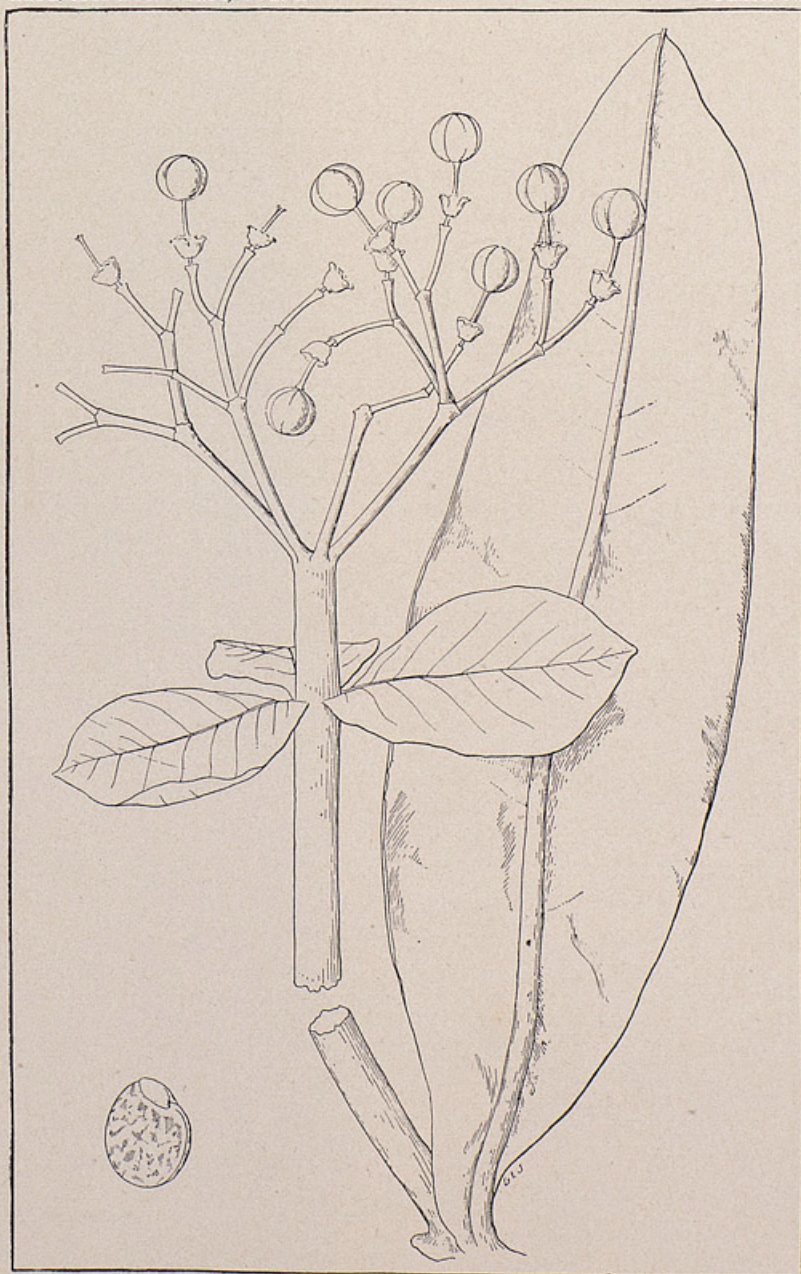
SOLANUM PSEUDOCAPSICUM.



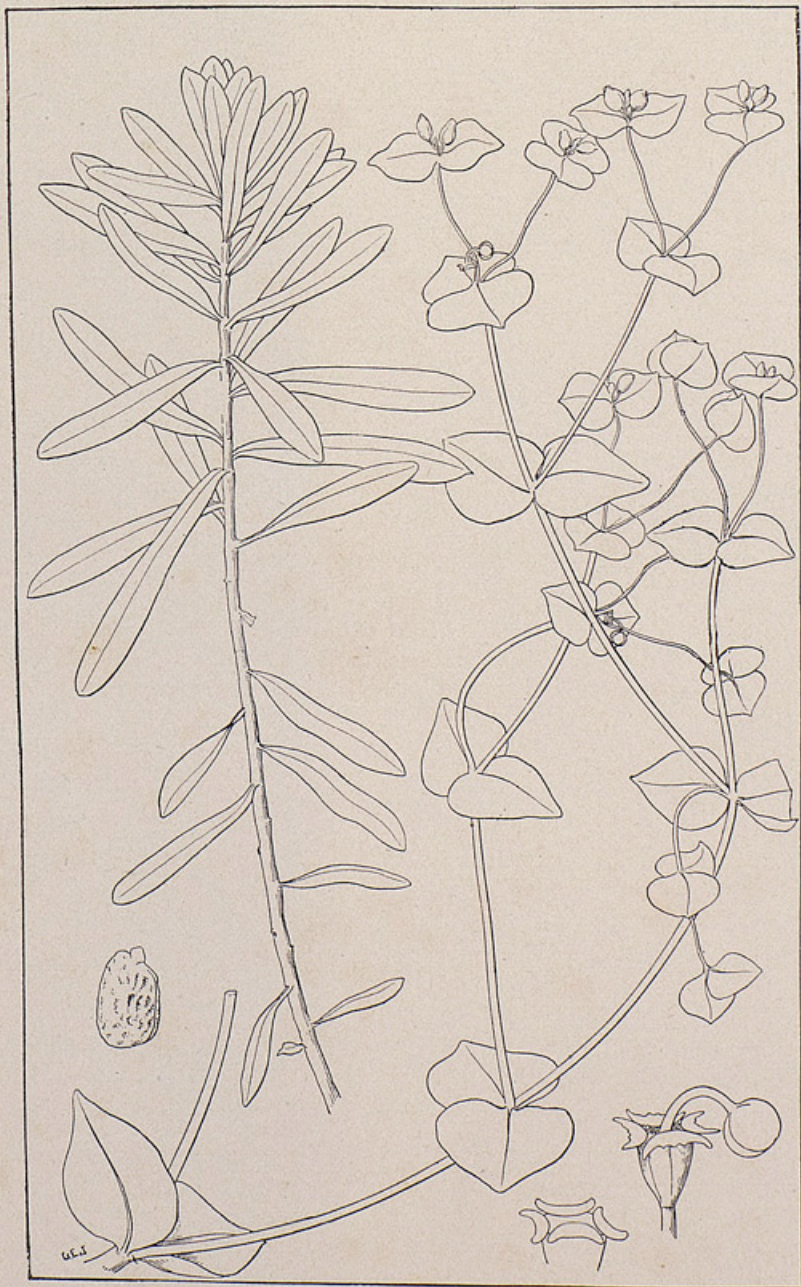
PHYSALIS PERUVIANA.



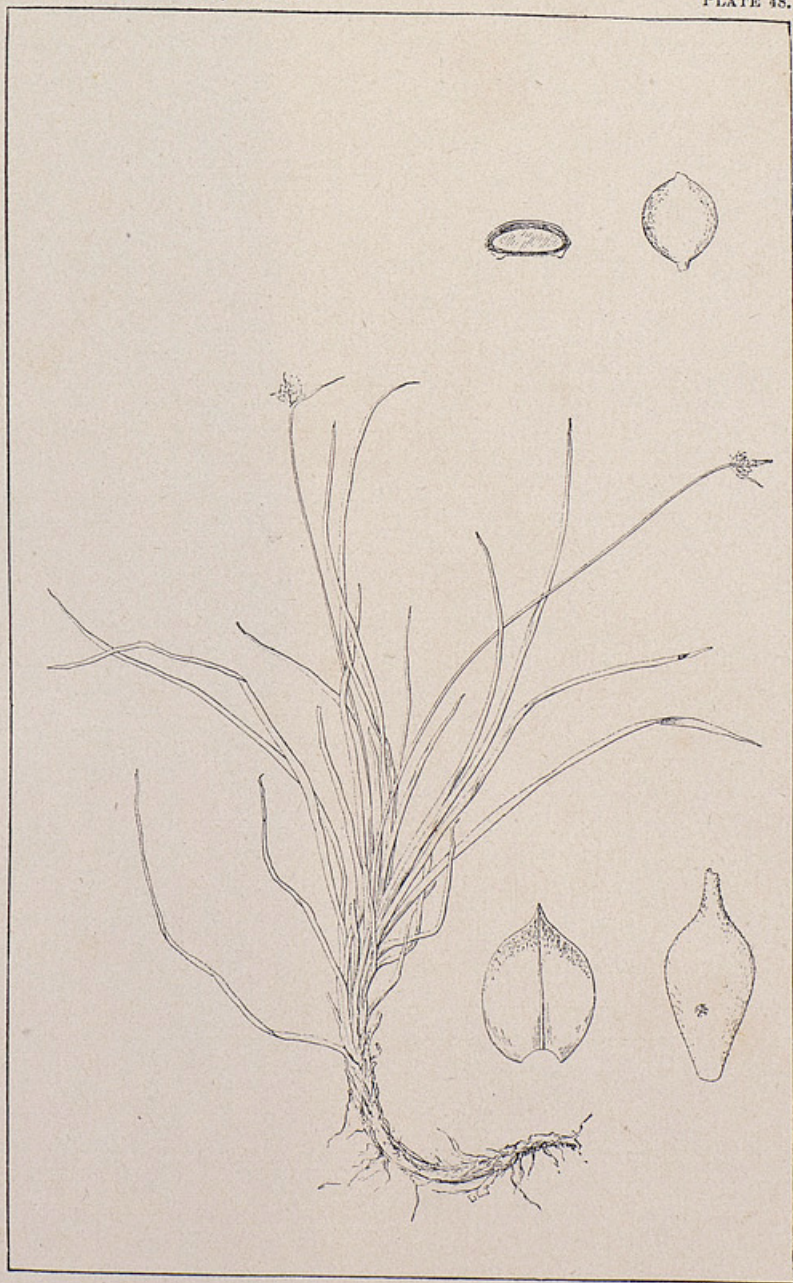
POLYGONUM SERRULATUM.



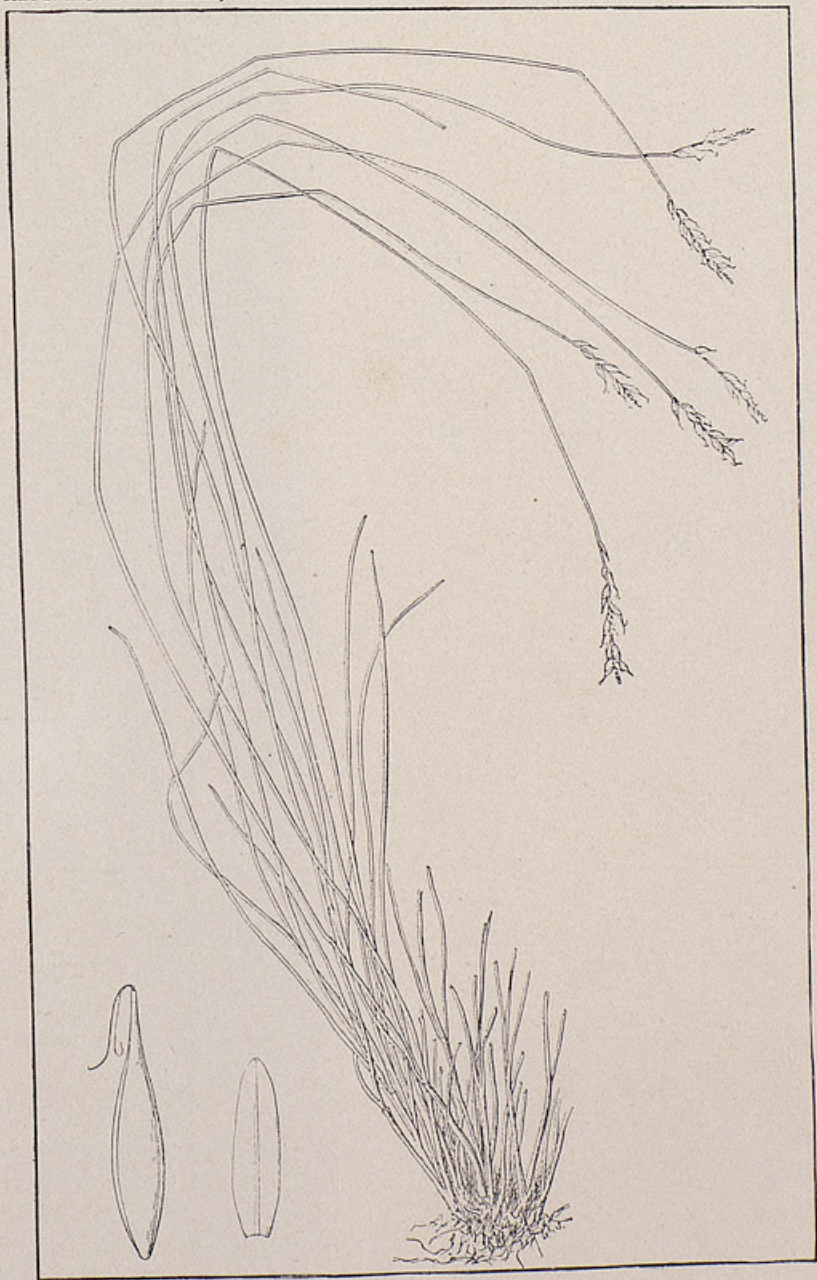
EUPHORBIA STYGIANA.



EUPHORBIA AZORICA.



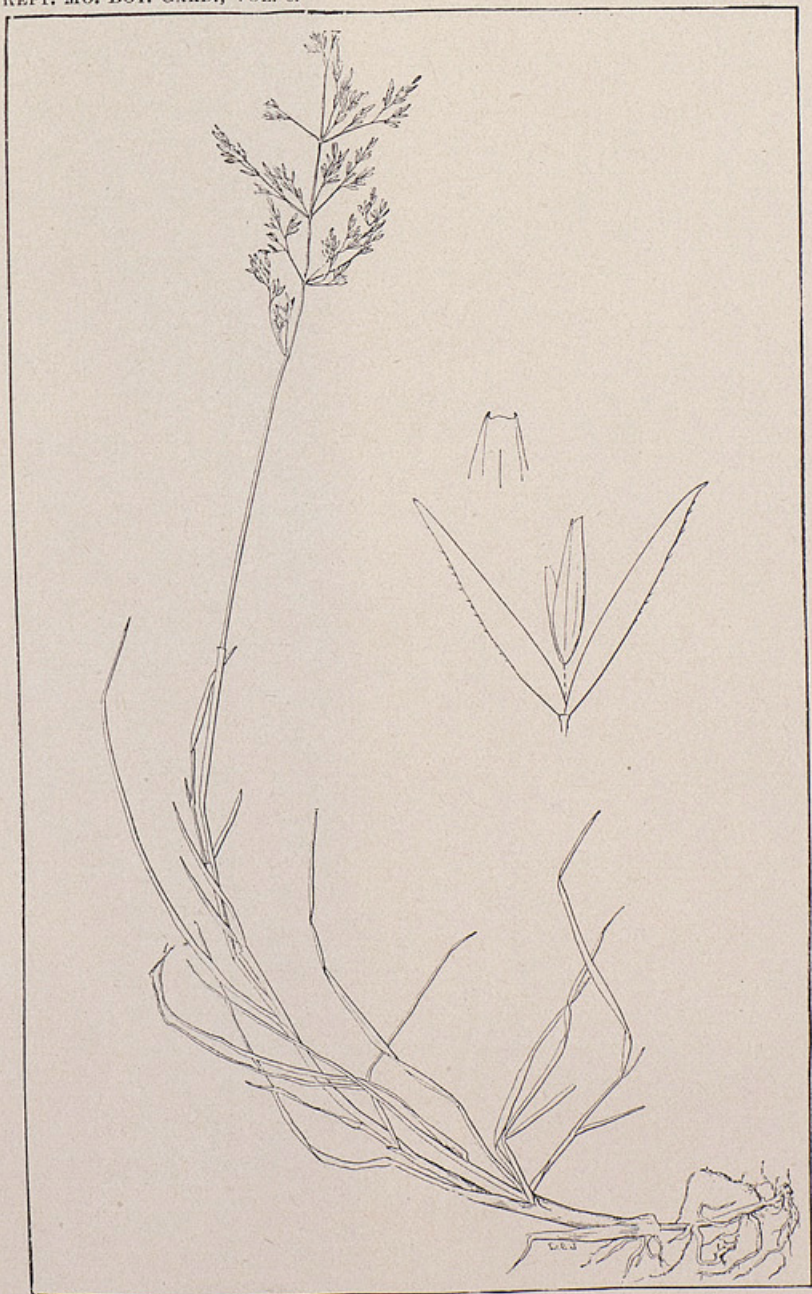
CAREX AZORICA.



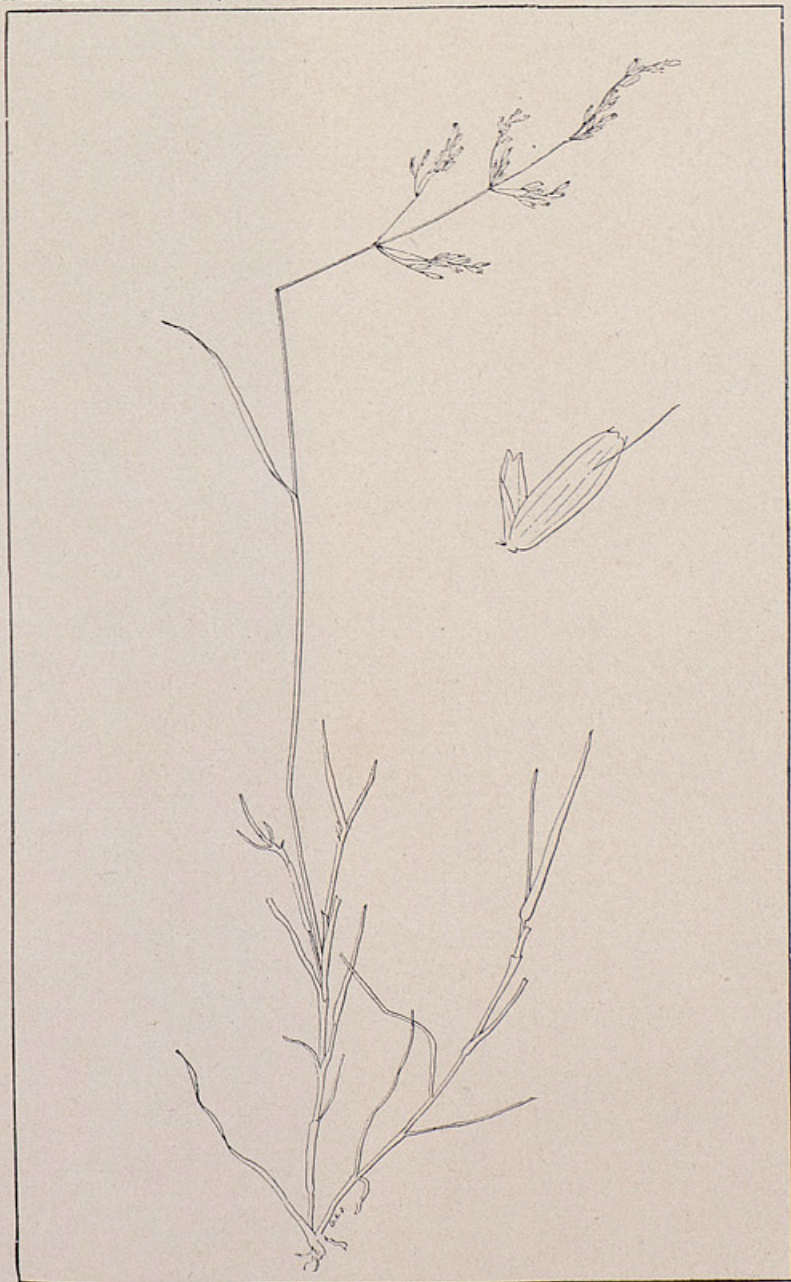
CAREX MACROSTYLA, VAR. PEREGRINA.



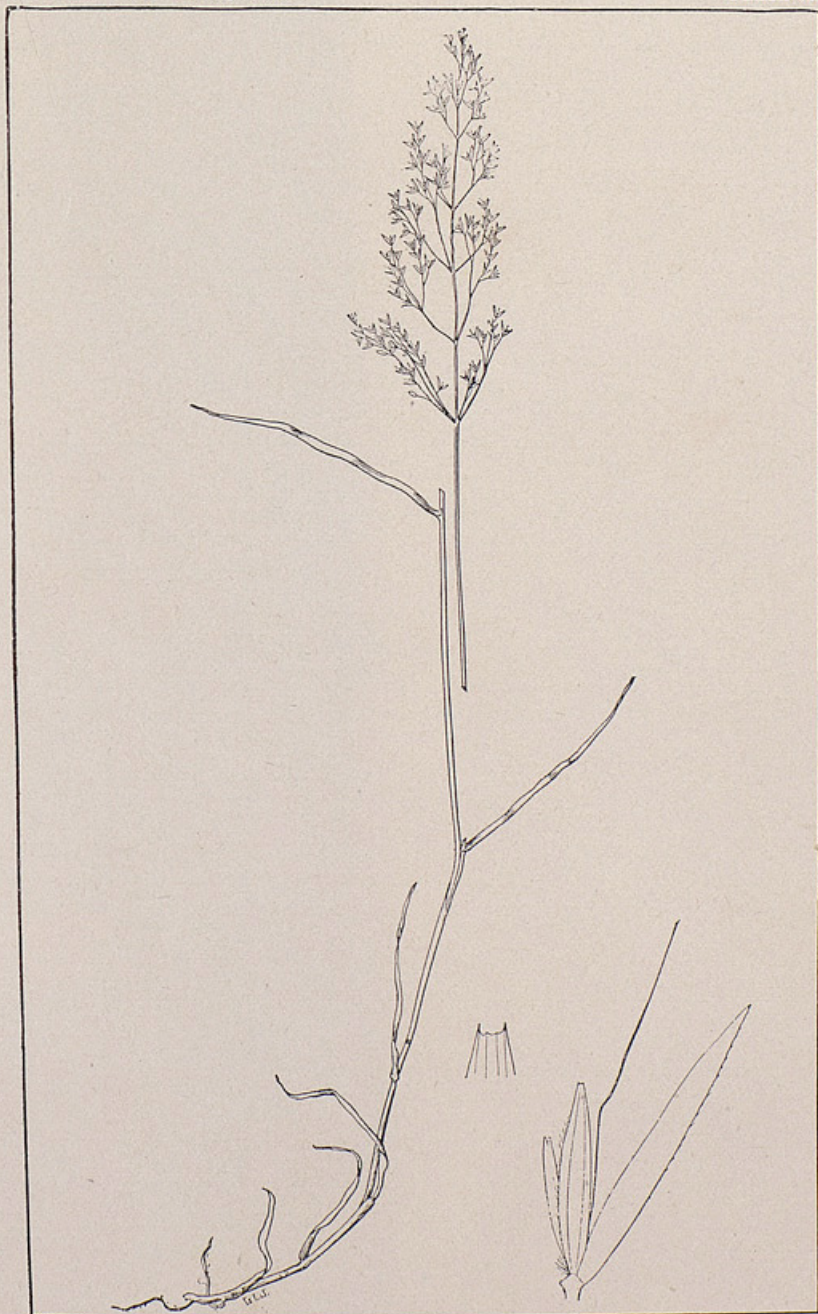
AGROSTIS VERTICILLATA X CASTELLANA?



AGROSTIS CASTELLANA, a.



AGROSTIS CASTELLANA, *b.*



AGROSTIS CASTELLANA, c.



AGROSTIS CASTELLANA, *d.*



AGROSTIS CASTELLANA, e.



AGROSTIS CASTELLANA, f.



DESCHAMPSIA FOLIOSA.



DESCHAMPSIA ARGENTEA.



ELEUSINE BARCINONENSIS.



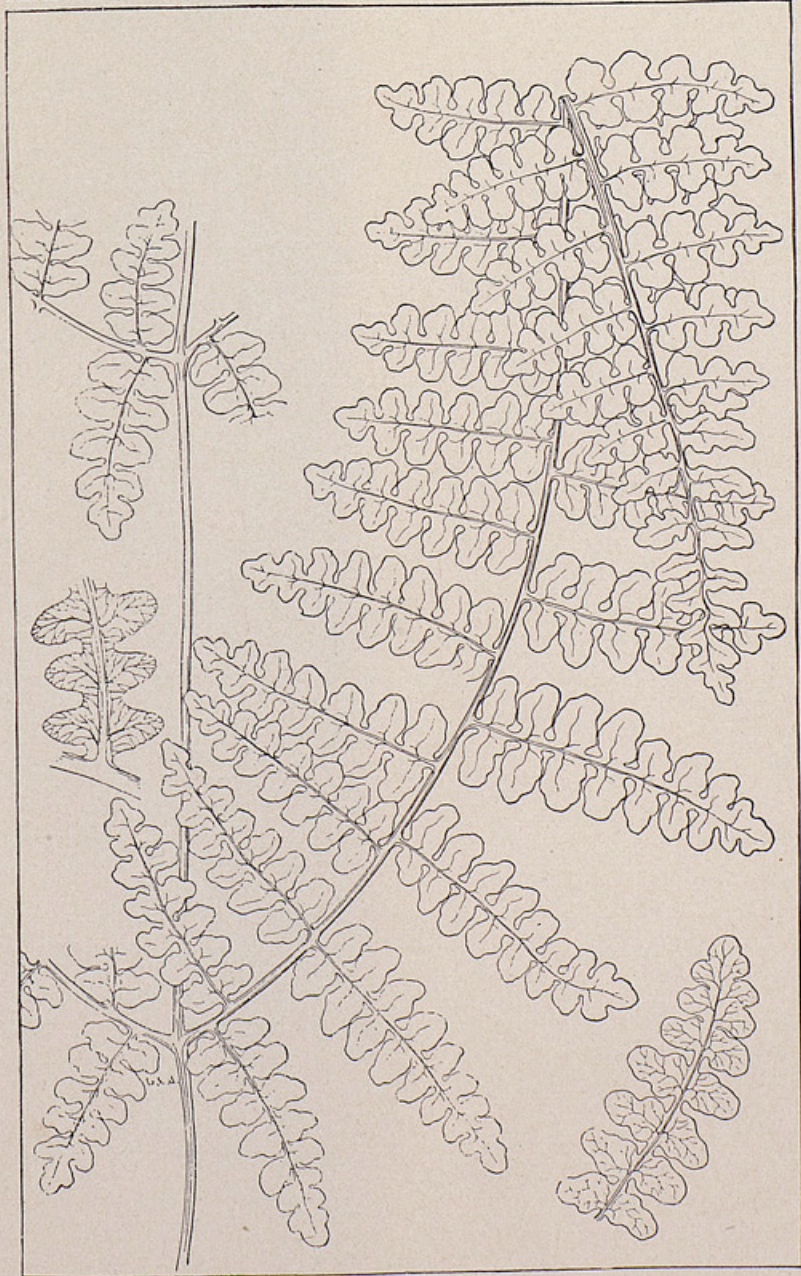
FESTUCA JUBATA.



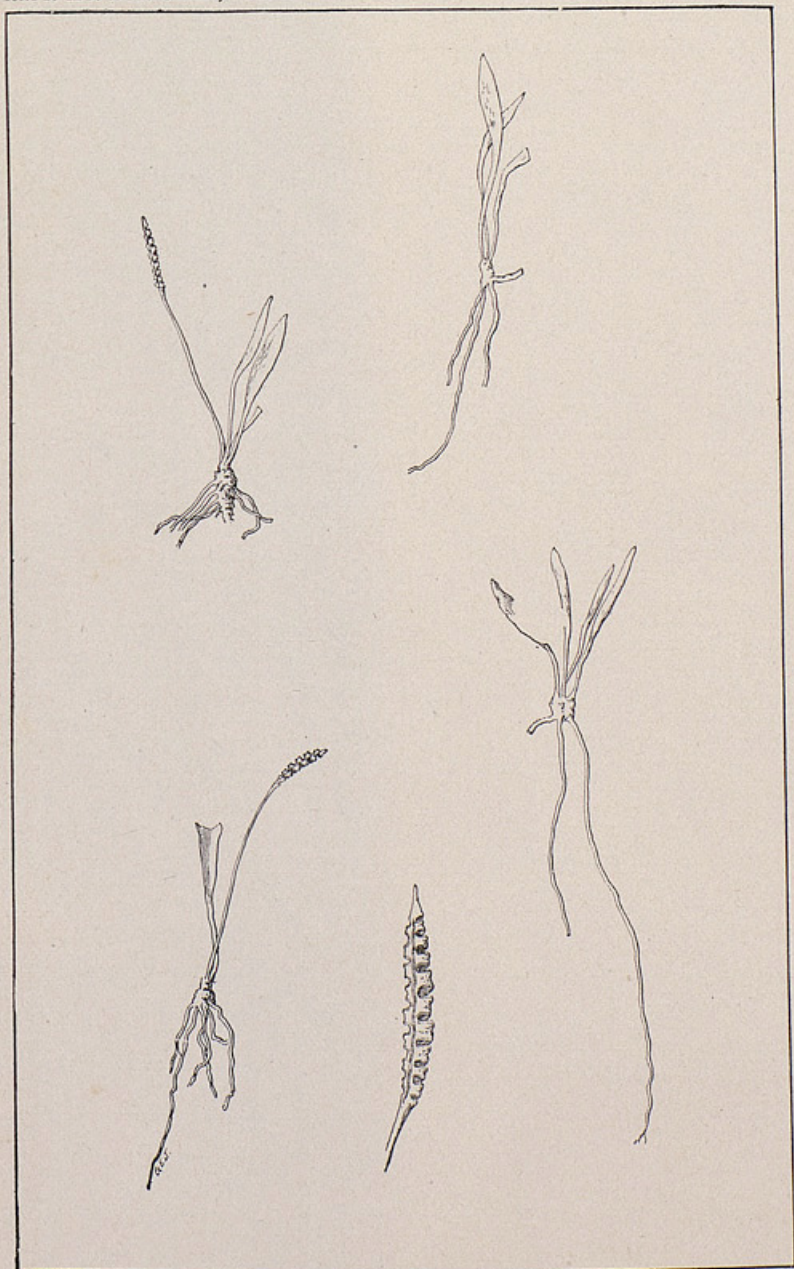
FESTUCA PETRAEA.



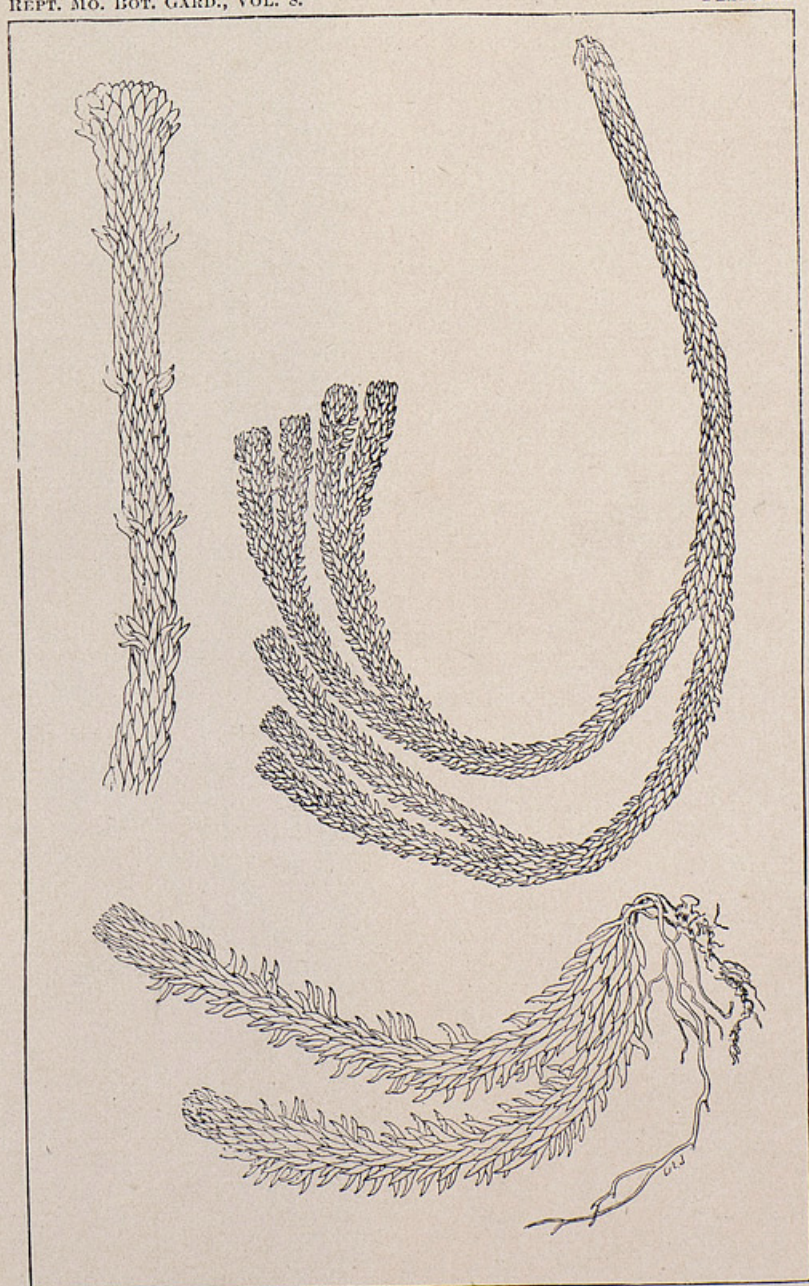
BROMUS UNIOLOIDES.



EUPTERIS AQUILINA.



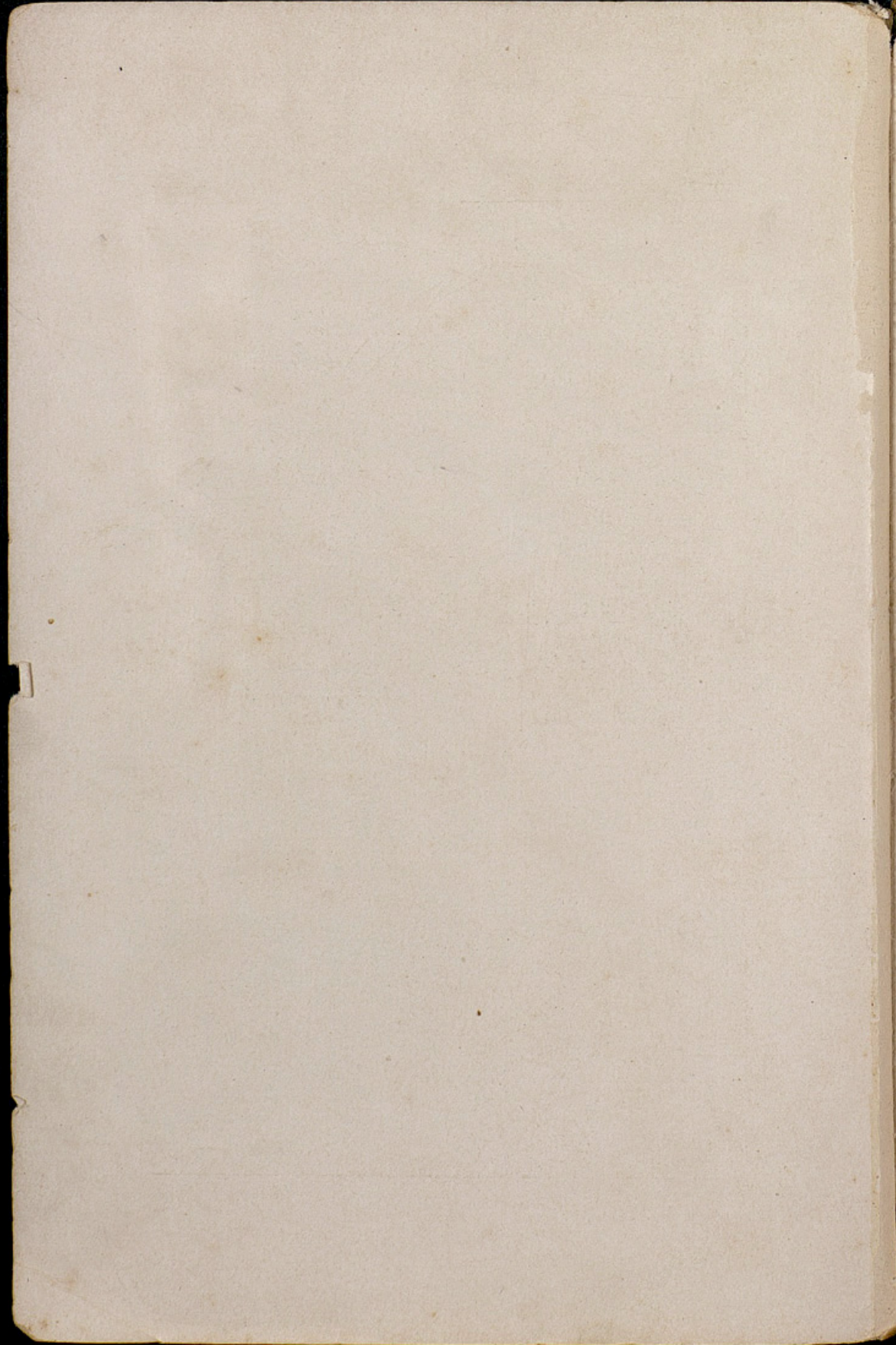
OPHIOGLOSSUM VULGATUM, VAR. POLYPHYLLUM.

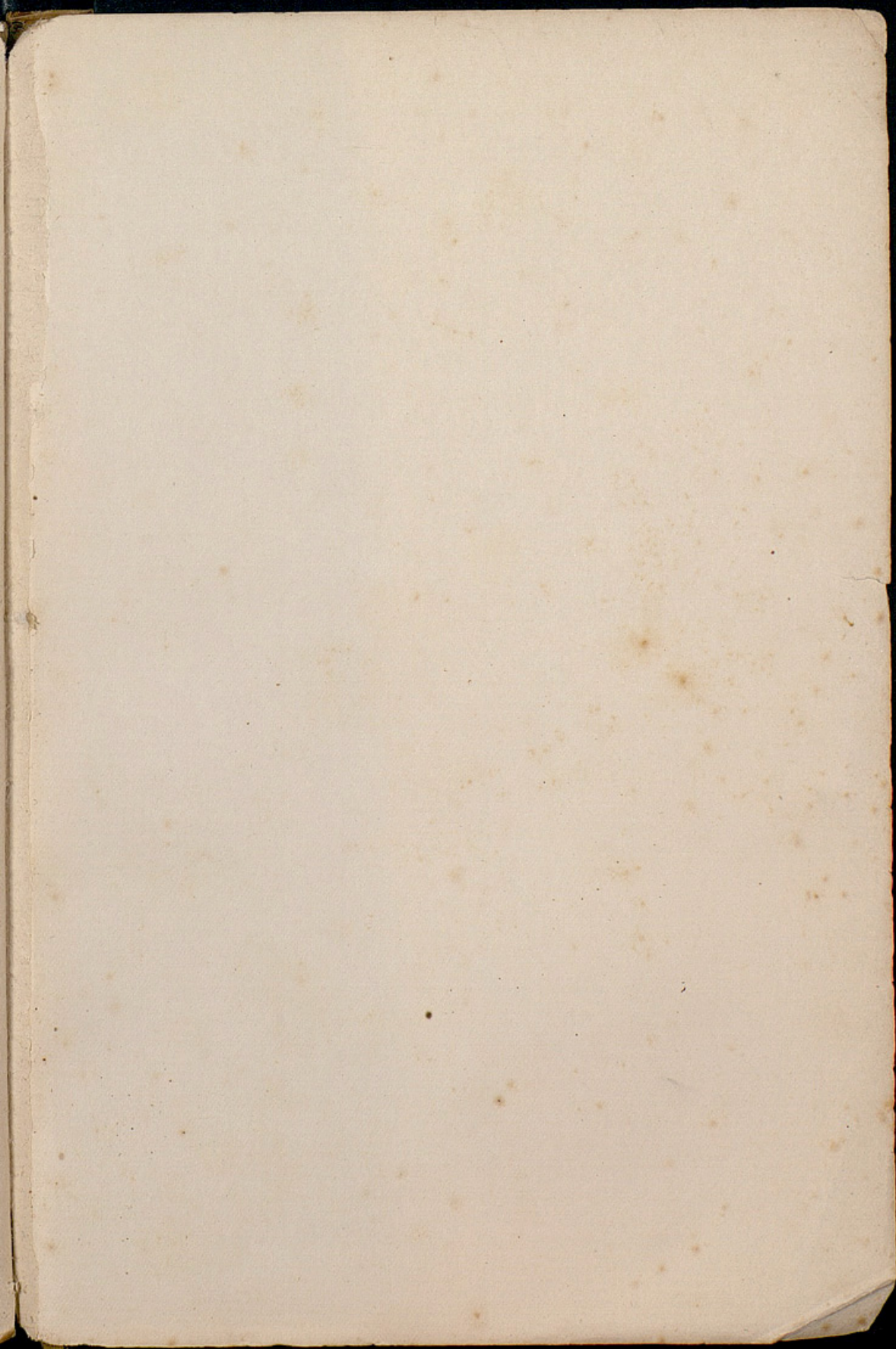


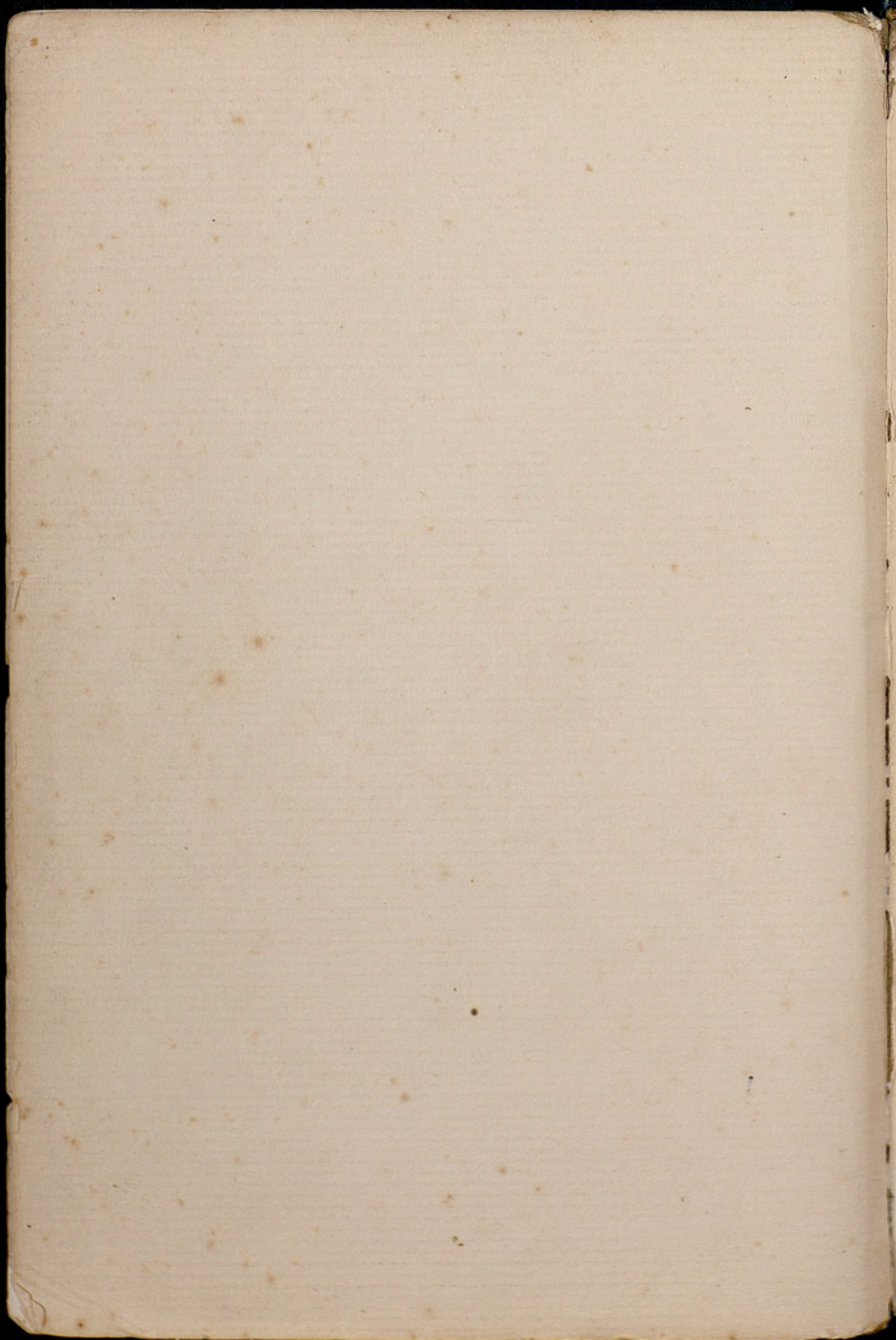
LYCOPODIUM SELAGO, VAR. SUBERECTUM.

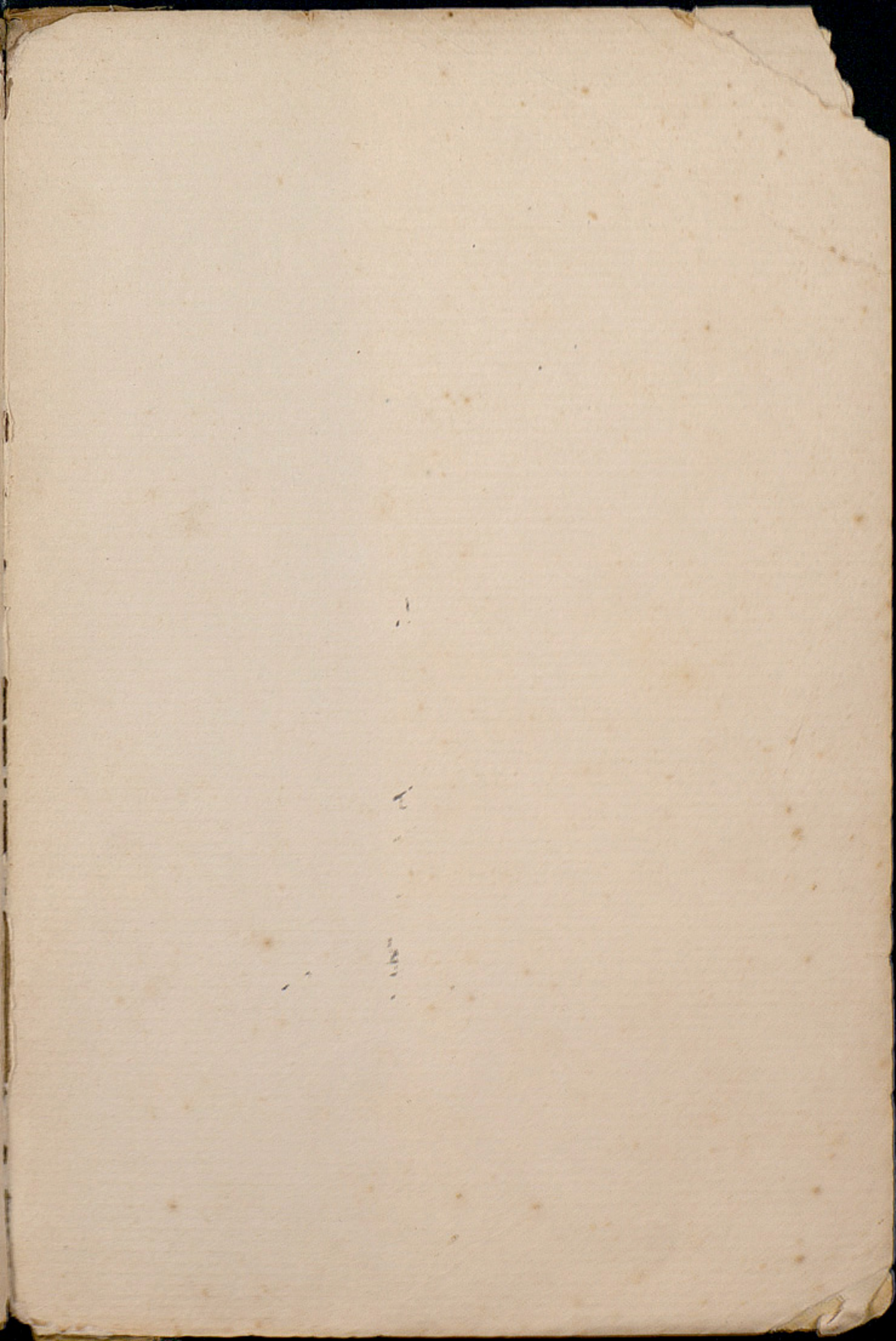


ISOETES AZORICA.











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