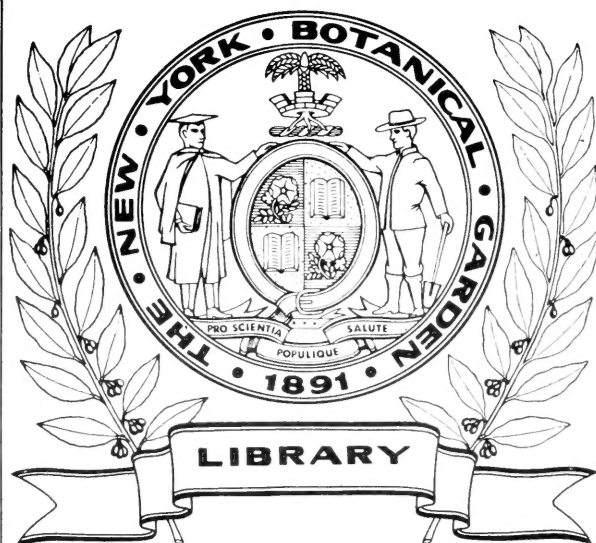


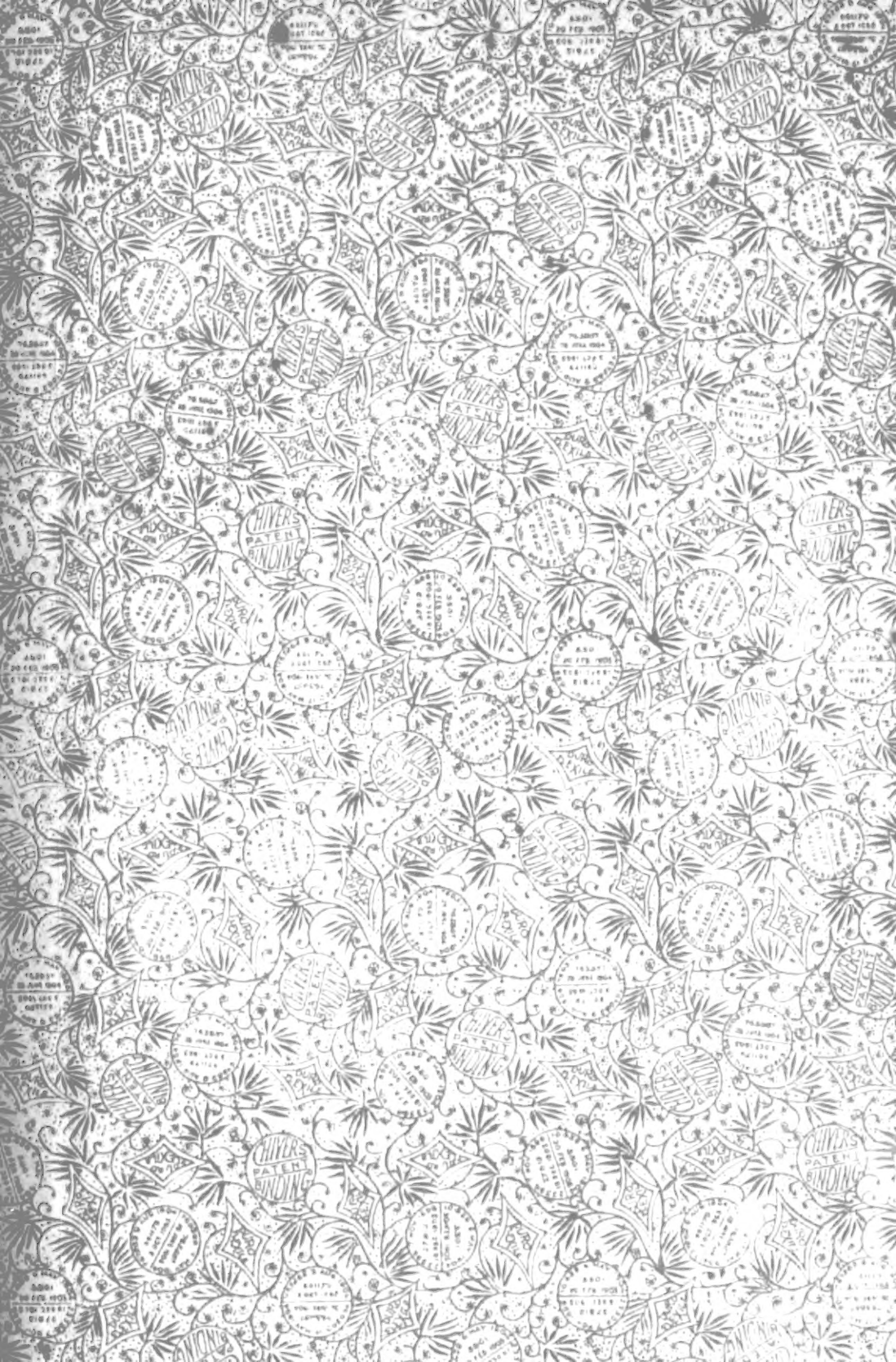
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EXPEDITION OF THE CALIFORNIA ACADEMY OF  
SCIENCES TO THE GALAPAGOS  
ISLANDS, 1905-1906

II  
A BOTANICAL SURVEY OF THE GALAPAGOS ISLANDS

BY ALBAN STEWART  
*Botanist to the Expedition*

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January 14, 1911

## INTRODUCTION

In the spring of 1905 I received the appointment of botanist of the scientific expedition sent to the Galapagos Islands by the California Academy of Sciences. In preparing for this expedition the California Academy purchased the U. S. Ship "Ernest," a two masted schooner of eighty-seven tons burden, and after refitting, rechristened her the "Academy." Our party consisted of eleven members, as follows: R. H. Beck, chief; F. X. Williams, entomologist; W. H. Ochsner, geologist and conchologist; J. R. Slevin, herpetologist; J. S. Hunter and E. W. Gifford, ornithologists; E. S. King, assistant herpetologist; Frederick T. Nelson, mate; J. J. Parker, navigator; James W. White, cook; and myself, botanist. All of the scientific members of the expedition shipped as seamen, so that the expedition was made up mostly of sailor-scientists.

The expedition left San Francisco on the morning of June 28, 1905, and arrived at Hood Island, the most southern member of the Galapagos group, on September 24, nearly three months having been consumed on the trip, during which short stops were made at Ensenada, Lower California, and on San Martin, San Benito, San Geronimo, Cerros, Natividad, San Benedicto, Socorro, and Clipperton islands, Mexico, and Cocos Island, Costa Rica, on the most of which small collections of plants were made. The expedition left the Galapagos Islands on the 25th of the following September, so that a year and one day was spent in the archipelago, during which time all of the islands were visited at least once, and the larger and more important ones two or more times at different seasons of the year.

Up to the present time our knowledge of the flora of the Galapagos Islands has been due mainly to the collections of Darwin, Andersson, Baur, and Snodgrass and Heller, and to the writings of Hooker, Andersson, and Robinson.<sup>1</sup>

<sup>1</sup> For a table of the botanical collections made on the Galapagos Islands, see Robinson, *Flora of the Galapagos Islands*, Proceedings of the American Academy of Arts and Sciences, v. 38, no. 4, pp. 221-223.



Unfortunately many of the former collectors of plants remained but a short time upon the islands, and as most of them were not botanists, our knowledge of the general botanical conditions has remained rather meager.

It was the intention at first to incorporate the entire botanical results of the expedition in a single paper, but as the present paper has assumed greater proportions than was expected, it seems best to divide the subject and publish the parts separately. The present paper consists of a rather detailed account of the different species of vascular plants, including their range in elevation and their distribution on the different islands; a brief description of the different botanical regions; an account of the general features of the flora; an account of the factors governing the growth of vegetation; and an account, so far as possible, of the evidence offered by the collection concerning the origin of the islands and of the flora. A second paper will deal entirely with a description of the botanical conditions on each island of the group, and short papers will treat of the lichens and mosses.

The plan of treatment of the first part of this paper is in general the same as that pursued by Robinson in his "Flora of the Galapagos Islands," as I was unable to devise a plan which I thought would be better. Many of the statistical tables are simply revisions of the tables as given by Dr. Robinson, although a few new ones have been added where it seemed necessary. The entire nomenclature has been carefully gone over and revised to make it conform with the new rules of the Vienna conference. The ferns have been treated as a single family and not split up into several different families as has been done by some authors. Treating the group in this manner has enabled me to handle it to better advantage in the latter part of this paper. With but one exception the nomenclature of Christensen, "Index Filicum," has been used in this family. Unfortunately none of our instruments of measurement were graduated with the metric system, otherwise it would have been used. In order to economize space, the names of former collectors are only mentioned where there

are neither specimens or notes of a species from a given locality in the collection under consideration.

The collections of vascular plants were identified by myself at the Gray Herbarium of Harvard University under the direction of Dr. B. L. Robinson, Curator of the Gray Herbarium. I wish here to express my thanks to Dr. Robinson for his kindness in giving me free access to the excellent collections of plants from the Galapagos Islands which are in the Gray Herbarium, as well as for advice and assistance in innumerable places, rendered doubly valuable on account of his intimate knowledge of the flora of these islands. Dr. Robinson has also been kind enough to read and criticise the manuscript and to give advice about the arrangement of the same. I wish also to express my thanks to Dr. W. G. Farlow of Harvard University for identifying the lichens and mosses, and to Miss Mary A. Day, Librarian of the Gray Herbarium, for assistance in looking up the rather large amount of literature made necessary in revising the nomenclature. I wish further to acknowledge the kindness of Prof. M. L. Fernald of the Gray Herbarium for assistance in many places, of Mr. Casimir de Candolle of Geneva, Switzerland, for assistance on *Peperomia*, of Mr. A. S. Hitchcock of the U. S. Department of Agriculture for aid in regard to the Gramineae, of Mr. H. D. House for assistance in the identification of some of the members of the Convolvulaceae, of Mr. W. H. Ochsner, geologist of the expedition, and Mr. E. W. Gifford, joint ornithologist of the expedition, for information about their particular subjects, and of Mr. H. H. Bartlett of the U. S. Department of Agriculture for assistance in translating many of the descriptions of the new species, varieties, and forms into Latin.

## ACCOUNT OF THE SPECIES OF VASCULAR PLANTS

## PTERIDOPHYTA

## FILICES

**Acrostichum L.**

**A. aureum** L. Sp. Pl. 1069 (1753); Rob. (1), 104.—ALBEMARLE ISL.: Villamil; occasional in protected places at 3150 ft. (nos. 773-774). Further distr. general in tropical countries.

**Adiantum L.**

**A. aethiopicum** L. Sp. Pl. ed. 2, 1560 (1763); Rob. (1), 105.—GALAPAGOS IDS.: acc. to Moore. Further distr. general in tropical countries.

**A. Alarconianum** Gaud. \*Voy. Bon. Bot. t. 99 (1846). *A. incisum* Presl, Rel. Haenk. I. 61, t. 10, f. 3 (1830); Rob. (1), 105.—GALAPAGOS IDS.: acc. to Moore. Further distr. Mex., S. Am.

**A. concinnum** H. & B. in Willd. Sp. V. 451 (1810); Rob. (1), 105.—ABINGDON ISL.: common in lava cracks at 550 ft. (no. 776). ALBEMARLE ISL.: Cowley Bay, common among shady rocks at 2000 ft. (no. 779); Iguana Cove, common on side of the cliff above the cove (no. 780); Tagus Cove, common in lava cracks at 1600 ft. (no. 778); Villamil, common in lava caverns at 1350 ft. (nos. 781-782). CHARLES ISL.: on moist shady rocks at 1000 ft. (nos. 783-784). JAMES ISL.: *Darwin*; *Scouler*. NARBOROUGH ISL.: south side, *Snodgrass and Heller*. Further distr. Mex., W. Ind., northern S. Am.

**A. diaphanum** Bl. Enum. 215 (1828).—ALBEMARLE ISL.: Villamil, occasional in moist places on the south side of the mountain at 3150 ft. (no. 785). Further distr. Old World.

**A. Henslovianum** Hook. f. (3), 169; Rob. (1), 105.—ABINGDON ISL.: common in shady places 1500-1650 ft. (nos. 786-788). ALBEMARLE ISL.: Tagus Cove, occasional at 400

ft., abundant at 4000 ft., (no. 790); Villamil, common in lava caverns at 1350 ft. (nos. 789, 791-793). CHARLES ISL.: *Darwin*. CHATHAM ISL.: Wreck Bay, occasional at 1700 ft. (no. 794). INDEFATIGABLE ISL.: Academy Bay, common in shady places at 550 ft. (no. 795). JAMES ISL.: James Bay, common on moist shady banks at 2150 ft. (nos. 796-797). Further distr. Andean S. Am.

**A. macrophyllum** Sw. Prodr. 135 (1788).—ALBEMARLE ISL.: Villamil, common in lava caverns at 1350 ft. (no. 799). INDEFATIGABLE ISL.: Academy Bay, occasional in dense shade above 500 ft. (no. 800). JAMES ISL.: James Bay, on shady banks at 2100 ft. (no. 801). Further distr. Mex., W. Ind., northern S. Am. This fern is always found in the densest shade where there is a considerable amount of moisture.

**A. parvulum** Hook. f. (3), 168; Rob. (1), 106.—CHARLES ISL.: *Darwin*. Endemic.

**A. patens** Willd. Sp. V. 439 (1810); Rob. (1), 106.—GALAPAGOS IDS.: acc. to Moore. Further distr. Mex., northern S. Am.

**A. petiolatum** Desv. Berl. Mag. V. 326 (1811). *A. Kaulfussii* Kunze, Linnaea, XXI. 221 (1848); Rob. (1), 105.—CHATHAM ISL.: acc. to Moore. INDEFATIGABLE ISL.: Academy Bay, common in shady places at 500 ft. (no. 798). Further distr. Mex., W. Ind., S. Am.

**A. tetraphyllum** H. B. Willd. Sp. V. 441 (1810). *A. prionophyllum* HBK. Nov. Gen. & Sp. I. 20 (1815); Rob. (1), 106.—CHATHAM ISL.: acc. to Moore. Further distr. Mex. W. Ind., S. Am.

#### Anogramma Link

**A. chaerophylla** (Desv.) Link, Fil. Sp. 138 (1841). *Gymnogramme chaerophylla* Desv. Berl. Mag. V. 305 (1811); Rob. (1), 109.—CHARLES ISL.: *Darwin*. Further distr. Mex., W. Ind., S. Am. Robinson, l. c., expresses doubt as to the identity of the *Darwin* specimen.

**A. leptophylla** (L.) Link, Fil. Sp. 137 (1841). *Polypodium leptophylla* L. Sp. Pl. 1092 (1753). *Gymnogramme leptophylla* (L.) Link, Fil. Sp. 137 (1841).

*phylla* Desv. Jour. Bot. I. 26 (1813); Rob. (1), 109.—  
CHARLES ISL.: *Baur*. Widely distributed in tropical regions.

### Aspidium Sw.

**A. martinicense** Spr. Anleit. III. 133 (1804). *Nephrodium macrophyllum* Bak. Syn. Fil. 300 (1874); Rob. (1), 110.—  
ALBEMARLE ISL.: Villamil, common in protected places on the south side of the mountain at 3150 ft. (no. 902). JAMES ISL.: James Bay, common in moist situations at 2000 ft. (no. 901). Further distr. Mex., W. Ind., northern S. Am.

### Asplenium L.

**A. anisophyllum** Var. *latifolium*, Hook. Sp. Fil. III. 111 (1860); Rob. (1), 106.—GALAPAGOS IDS.: *Capt. Wood*. JAMES ISL.: *Darwin*. Further distr. Mex., W. Ind., S. Am., Old World.

**A. cristatum** Lam. Ency. II. 310 (1786). *A. cicutarium* Sw. Prod. 130 (1788); Rob. (1), 107.—ABINGDON ISL.: common around 1950 ft. (no. 820). ALBEMARLE ISL.: Villamil, common in lava caverns at 1350 ft. (no. 821). CHATHAM ISL.: Wreck Bay, occasional in protected places around 1800 ft. (no. 822). INDEFATIGABLE ISL.: Academy Bay, common in shady places above 550 ft. (no. 823). JAMES ISL.: James Bay, rare in lava caverns at 1000 ft., common on moist shady rocks at 2150 ft., (nos. 824-827). Further distr. Mex., W. Ind., S. Am., Africa.

**A. formosum** Willd. Sp. V. 329 (1810); Rob. (1), 107.—  
ABINGDON ISL.: abundant at 1400 ft. (no. 825). ALBEMARLE ISL.: Iguana Cove, abundant in shade at 250 ft. (no. 833); Tagus Cove, common in lava crevices, 1600-2800 ft. (nos. 832, 834); Villamil, common among rocks at 1300 ft. (nos. 835-836). CHARLES ISL.: abundant on moist shady rocks at 1000 ft., and to some extent on the walls of the main crater at a somewhat higher elevation, (nos. 830, 844, 845). CHATHAM ISL.: Wreck Bay, common in moist shady places at 650 ft. (no. 837). INDEFATIGABLE ISL.: Academy Bay, in leaf mold among rocks 400-600 ft., larger and more abundant at

the higher elevation, (nos. 841-842); northwest side, among rocks at 900 ft., (no. 1027); southeast side, common on shady rocks at 625 ft. (no. 843). JAMES ISL.: James Bay, abundant in lava caverns at 900 ft., and in moist shady places at 2150 ft., where it reaches a height of 18 inches, (no. 838). NARBOROUGH ISL.: in the upper moist regions (no. 840). Further distr. general in tropical regions.

**A. laetum** Sw. Syn. Fil. 79, 271 (1806); Rob. (1), 107.—CHATHAM ISL.: *Capt. Wood*. Further distr. Mex., W. Ind., S. Am.

**A. lunulatum** Sw. Syn. Fil. 80 (1806); Rob. (1), 107.—CHARLES ISL.: *Lee*. Further distr. general in tropical regions.

**A. myriophyllum** (Sw.) Presl, Rel. Haenk. I. 48 (1825). *Caenopteris myriophylla* Sw. Schrad. Jour. 1800, 2, 60 (1801). *Asplenium rhizophyllum* Kze. Linnaea, IX. 71 (1834); Rob. (1), 107.—GALAPAGOS IDS.: *Capt. Wood*. JAMES ISL.: *Darwin*. Further distr. general in tropical regions.

**A. praemorsum** Sw. Prod. 130 (1788). *A. furcatum* Thunb. Prodr. Fl. Cap. 172 (1800); Rob. (1), 107.—ALBEMARLE ISL.: Tagus Cove, in lava caverns on the west side of the mountain at 2200 ft. (no. 847); Villamil, occasional on trees in the upper moist regions, specimens taken at 1350 ft. (no. 846). INDEFATIGABLE ISL.: Academy Bay, occasional in leaf mold at 425 ft. (no. 848). NARBOROUGH ISL.: (no. 852). JAMES ISL.: James Bay, occasional on the branches of trees at 2150 ft. (nos. 850-851) Further distr. general in tropical regions.

**A. pumilum** Sw. Prod. 129 (1788).—CHARLES ISL.: in moist lava crevices at 1000 ft. (no. 853). INDEFATIGABLE ISL.: Academy Bay, common in leaf mold in open places in the vegetation at 425 ft. (no. 854). Further distr. Mex., W. Ind., northern S. Am.

**A. rutaceum** (Willd.) Metten. Asplen. 129, t. 5, f. 32-33 (1859). *Aspidium rutaceum* Willd. Sp. V. 266 (1810). *Asplenium rutaceum* Metten. l. c.: Rob. (1), 108.—GALA-

PAGOS IDS.: acc. to Hook. & Bak. Syn. Fil. 220. Further distr. Mex., W. Ind., S. Am.

**A. Serra** Langsd. & Fisch. Fil. 16, t. 16 (1810-1818); Rob. (1), 108.—ALBEMARLE ISL.: Villamil, common on moist rocks in protected places at 1500 ft. and in similar situations at 3150 ft. (nos. 856-857). CHATHAM ISL.: Wreck Bay, abundant in a dense growth of *Lycopodium clavatum* and other ferns at 2050 ft. (no. 858). DUNCAN ISL.: common in a restricted area among rocks at 1300 ft. (no. 859). JAMES ISL.: James Bay, occasional above 2000 ft. (no. 860). Further distr. Mex., W. Ind., S. Am., Africa.

**A. serratum** L. Sp. Pl. 1079 (1753); Rob. (1), 108.—GALAPAGOS IDS.: *Capt. Wood*. CHATHAM ISL.: acc. to Moore. Further distr. Mex., W. Ind., S. Am., Polynesia.

**A. sulcatum** Lam. Ency. II. 308 (1786). *A. auritum* Sw. Fl. Ind. Occ. 1616 (1806); Rob. (1), 106.—ABINGDON ISL.: common on the south side of the mountain at 1950 ft. and to some extent lower down (no. 806). ALBEMARLE ISL.: Villamil, common on the trunks and branches of trees, 500-1300 ft., (no. 804). CHARLES ISL.: common on moist shady rocks at 1000 ft. and on the branches of trees in protected places around 1700 ft. (nos. 808-811). CHATHAM ISL.: Wreck Bay, fairly common on the branches of trees at 700 ft. (no. 805). INDEFATIGABLE ISL.: Academy Bay, common on the branches of trees above 600 ft., especially abundant on trees of *Pisonia floribunda*, (nos. 815-816). JAMES ISL.: James Bay, abundant in lava caverns at 1000 ft. and on the branches of trees above 2000 ft. (nos. 812-814). Further distr. Mex., W. Ind., S. Am. The Galapagos form of this species is considered a variety by some authors.

Var. **macilentum** Moore, Ind. Fil. 115 (1859); Rob. (1), 107.—GALAPAGOS IDS.: acc. to Moore. Further distr. Mex., W. Ind., S. Am., Old World.

### Blechnum L.

**B. blechnoides** (Lag.) C. Chr. Ind. 151 (1905). *Asplenium blechnoides* Lag. Sw. Syn. 76 (1806). *B. unilaterale*

Sw. Berl. Mag. 79, t. 3, f. 1 (1810).—CHATHAM ISL.: Wreck Bay, common in open country and on exposed rocks 1700-2000 ft. (nos. 780-781). Further distr. Mex., W. Ind., northern S. Am.

**B. occidentale** L. Sp. Pl. 1077 (1753); Rob. (1), 108.—ABINGDON ISL.: south side, common above 1000 ft. ALBEMARLE ISL.: Tagus Cove, common in lava caverns at 2200 ft. where the rocks are kept constantly moist from a seepage of water (no. 863); Villamil, in lava caverns, on the sides of moist cliffs, and in open woodland at 1350 ft. (no. 862). CHARLES ISL.: in protected places around 1600 ft. (nos. 864-866). CHATHAM ISL.: *Baur*. DUNCAN ISL.: in protected places at 1250 ft. (no. 867). JAMES ISL.: James Bay, common on moist shady rocks at 2150 ft. (nos. 868-869). Further distr. Mex., W. Ind., S. Am.

Var. **caudatum** Hook. Sp. Fil. III. 51 (1860); Rob. (1), 108.—GALAPAGOS IDS.: *Capt. Wood*. Further distr. Mex., S. Am., Philippines.

#### Ceropteris Link

**C. tartarea** (Cav.) Link, Fil. Sp. 142 (1841). *Acrostichum tartaraeum* Cav. Desc. 242 (1802). *Gymnogramme tartarea* Desv. Berl. Mag. V. 305 (1811); Rob. (1), 109.—ALBEMARLE ISL.: Iguana Cove, *Snodgrass and Heller*; Tagus Cove, *Snodgrass and Heller*; Villamil, occasional on the floor of the crater at 2750 ft., form with very coriaceous fronds, (no. 893). BINDLOE ISL.: near steam jets in the interior of the island (no. 888). CHARLES ISL.: occasional above 1400 ft. CHATHAM ISL.: Wreck Bay, fairly abundant in open grassy country above 1700 ft. (no. 889). DUNCAN ISL.: in moist shady places in vegetable mold at 1300 ft. (No. 890). JAMES ISL.: James Bay, occasional in lava caverns at 900 ft. and in moist places at 2150 ft. (nos. 891-892). Further distr. Mex., W. Ind., S. Am., tropics of the Old World.

#### Cheilanthes Sw.

**C. microphylla** Sw. Syn. Fil. 127 (1806); Rob. (1), 108.—ABINGDON ISL.: occasional on rocks at 450 ft., common at



1050 ft., (nos. 872-873). ALBEMARLE ISL.: Cowley Bay, common at 2000 ft. (no. 877); Iguana Cove, abundant in shady places near the shore (nos. 874-875); Tagus Cove, common in lava crevices around 2100 ft. (no. 876). CHARLES ISL.: rare at 1400 ft. (no. 878). CHATHAM ISL.: Wreck Bay, *Baur*. INDEFATIGABLE ISL.: southeast side, occurs first at 350 ft. where a few stunted specimens were found growing in lava crevices, common in woodland at 625 ft., (nos. 879-881). Further distr. S. U. S., Mex., W. Ind., S. Am.

**C. myriophylla** Desv. Berl. Mag. V. 328 (1813); Rob. (1), 109.—ALBEMARLE ISL.: Iguana Cove, *Snodgrass and Heller*. Further distr. Mex., Ecuador to Peru, India.

#### **Cyclopeltis** J. Sm.

**C. semicordata** (Sw.) J. Sm. Bot. Mag. 72, Comp. 36 (1846). *Polypodium semicordatum* Sw. Prodr. 132 (1788). *Aspidium semicordatum* Sw. Syn. Fil. 45 (1806); Rob. (1), 106.—GALAPAGOS IDS.: *Capt. Wood*. Further distr. Mex., W. Ind., S. Am., Old World.

#### **Cystopteris** Bernh.

**C. fragilis** (L.) Bernh. in Schrad. Neues Jour. Bot. I. pt. 2, 26, 49, t. 2, f. 9 (1806). *Polypodium fragile* L. Sp. Pl. 1091 (1753). *C. fragilis* Bernh. l. c.; Rob. (1), 109.—CHARLES ISL.: acc. to Wolf. Robinson l. c. has already expressed some doubt about the identity of the Galapagos Island specimen. As this was one of the islands most thoroughly explored by our party, and as this species does not appear in the collection, it seems very likely that Wolf was wrong in his determination. Widely distributed.

#### **Doryopteris** J. Sm.

**D. concolor** (Langsd. & Fisch.) Kuhn. v. Deck. Reis. III. 3 Bot. 19 (1879). *Pteris concolor* Langsd. & Fisch. Ic. Fil. 19, t. 21 (1810). *Pellaea geraniaefolia* Fée Gen. Fil. 130 (1850-1852); Rob. (1), 111.—GALAPAGOS IDS.: *Douglas*.

Owing to the fact that this fern has not reappeared in any of the recent collections from these islands it seems not at all unlikely that the specimen collected by *Douglas* was *D. pedata* which resembles this species very much in general appearance. Further distr. general in tropical regions.

**D. pedata** (L.) Fée Gen. Fil. 133 (1850-1852). *Pteris pedata* L. Sp. Pl. 1075 (1753); Rob. (1), 114.—ABINGDON ISL.: occasional above 1000 ft., reported by *F. X. Williams*. ALBEMARLE ISL.: Cowley Bay, occasional in shady places above 2100 ft. (no. 1001); Iguana Cove, common in shady places at 250 ft. (no. 1003); Tagus Cove, occasional in lava crevices at 4000 ft.; Villamil, common in woodland, 450-1300 ft. (no. 1011). CHARLES ISL.: rare at 1650 ft. (no. 1006). CHATHAM ISL.: Wreck Bay, occasional in shady woodland at 650 ft., and in open country at 2100 ft. around the summit of the mountain, (nos. 1004-1005). INDEFATIGABLE ISL.: Academy Bay, occasional in rather open places in the vegetation around 300 ft., above 600 ft. it is found growing among dense vegetation where it is more abundant and larger than at the lower elevation, (no. 1008); southeast side, above 600 ft. (no. 1007); northwest side, first seen at 650 ft. JAMES ISL.: James Bay, occasional among rocks at 900 ft., abundant in woodland at 2100 ft., (nos. 1009-1010). Further distr. Mex., W. Ind., S. Am.

### Dryopteris Adans.

**D. brachyodus** (Kze.) O. Ktze. Rev. Gen. Pl. II. 812 (1891). *Polypodium brachyodus* Kze. Linnaea IX. 48 (1834). *Nephrodium brachyodon* Hook. Sp. Fil. IV. 83 (1862); Rob. (1), 110.—GALAPAGOS IDS.: *Capt. Wood*. Further distr. Mex., W. Ind., S. Am., Old World.

**D. furcata** (Kl.) O. Ktze. Rev. Gen. Pl. II. 812 (1891). *Aspidium furcatum* Kl. Linn. XX. 371 (1847). *Polypodium paleaceum* Hook. f. (3), 166; Rob. (1) 112.—ALBEMARLE ISL.: Iguana Cove, *Snodgrass and Heller*; Villamil, occasional in lava caverns at 1350 ft. (no. 959). CHARLES ISL.: occasional on moist rocks at 1000 ft. (no. 957). CHATHAM

ISL.: Wreck Bay, occasional in moist shady places at 650 ft. (no. 960). INDEFATIGABLE ISL.: Academy Bay, occasional in open places in the vegetation at 550 ft. (no. 963). JAMES ISL.: James Bay, common on moist shady banks at 2750 ft. (nos. 961-962). Further distr. S. Am.

**D. parasitica** (L.) O. Ktze. Rev. Gen. II. 811 (1891). *Polypodium parasiticum* L. Sp. Pl. 1090 (1753). *Nephrodium molle* Desv. Mém. Soc. Linn. VI. 258 (1827); Rob. (1), 110.—ALBEMARLE ISL.: Iguana Cove, *Snodgrass and Heller*; Villamil, in lava caverns at 1350 ft. and in protected places at 3150 ft. (nos. 904-905). CHARLES ISL.: common on moist rocks at 1000 ft. (nos. 908-910). CHATHAM ISL.: Wreck Bay, occasional in shady places at 1000 ft., abundant at 2100 ft. (nos. 906-907). DUNCAN ISL.: occasional in moist shady places at 1300 ft. (no. 911). JAMES ISL.: James Bay, abundant around 2000 ft. (nos. 912-913). Further distr. Mex., W. Ind., S. Am., tropics of the Old World.

**D. pseudotetragona** Urban, Symb. Ant. IV. 20 (1903). *Nephrodium tetragonum* Presl, Rel. Haenk. I. 35 (1825).—INDEFATIGABLE ISL.: Academy Bay, common in dense shade above 550 ft. (nos. 884-885). Further distr. southern U. S., Mex., northern S. Am.

**D. reticulata** (L.) Urban, Symb. Ant. IV. 22 (1903). *Polypodium reticulatum* L. Syst. Nat. ed. 10, 2, 1352 (1759). INDEFATIGABLE ISL.: Academy Bay, rare in shady places above 550 ft. (no. 900). Further distr. Mex., W. Ind., northern S. Am.

**D. rudis** (Kze.) C. Chr. Ind. 289 (1905). *Polypodium rude* Kze. Linnaea XIII. 133 (1839); Rob. (1), 113.—GALAPAGOS IDS.: *Capt. Wood*. Further distr. Mex., northern S. Am.

**D. tricholepis** (Bak.) C. Chr. Ind. 298 (1905). *Nephrodium tricholepis* Bak. Hems. Biolog. Cent. Am. Bot. III. 651 (1885).—CHATHAM ISL.: Wreck Bay, common in moist places at 2000 ft. (no. 914). JAMES ISL.: James Bay, common at 2150 ft. (no. 915). Further distr. Mex.

**D. villosa** (L.) O. Kze. Rev. Gen. II. 814 (1891). *Polypodium villosum* L. Sp. Pl. 1093 (1753). *Nephrodium villosum* Presl, Rel. Haenk. I. 38 (1830); Rob. (1), 110.—CHATHAM ISL.: *Capt. Wood*. Further distr. Mex., W. Ind., S. Am.

#### Elaphoglossum Schott

**E. muscosum** (Sw.) Moore, Ind. Fil. 362 (1857). *Acrostichum muscosum* Sw. Fl. Ind. Occ. 1591 (1806); Rob. (1), 104.—ALBEMARLE ISL.: Villamil, abundant on the sides of steep banks on the south side of the mountain at 3150 ft. (no. 775). JAMES ISL.: *Darwin*. Further distr. Mex., W. Ind., S. Am.

**E. petiolatum** (Sw.) Urban, Symb. Ant. IV. 61 (1903). *Acrostichum petiolatum* Sw. Prod. 128 (1788). *A. viscosum* Sw. Syn. Fil. X. 193 (1806); Rob. (1), 105.—JAMES ISL.: *Darwin*. Widely distributed in tropical regions.

#### Gleichenia Sm.

**G. linearis** (Burm.) Clarke, Trans Linn. Soc. II. Bot. I. 428 (1880). *Polypodium lineare* Burm. Fl. Ind. 235, t. 67, f. 2 (1768). *G. dichotoma* Hook. Sp. Fil. I. 12 (1846); Rob. (1), 109.—CHATHAM ISL.: Wreck Bay, occasional in shady protected places at 1300 ft., abundant 1800-2100 ft., (no. 886). DUNCAN ISL.: rare at 1300 ft. (no. 887). Further distr. general in tropical regions.

#### Hemitelia R. Br.

**H. multiflora** (Sm.) R. Br. Prod. Fl. N. Hol. 158 (1810). *Cyathia multiflora* Sm. Mém. Ac. V. 416 (1793).—ALBEMARLE ISL.: Villamil, common on the south, east, and south-east inner walls of the crater at 3150 ft. and occasional on the outside above 2450 ft. (no. 894). CHATHAM ISL.: Wreck Bay, trees 6-10 ft. high common on the south and southeast sides of the main mountain at 1800-2000 ft. (no. 895). JAMES ISL.: James Bay, trees 8-10 ft. high on south and southeast sides above 2750 ft., forming a well marked belt, (no. 896). Further distr. W. Ind., S. Am.

### Histiopteris Agardh.

**H. incisa** (Thbg.) J. Sm. Hist. Fil. 295 (1875). *Pteris incisa* Thbg. Fl. Cap. 733 (1823); Rob. (1), 114.—ABINGDON ISL.: occasional around 1950 ft. (no. 997). ALBEMARLE ISL.: Villamil, common in the upper moist regions (nos. 998, 1000). JAMES ISL.: James Bay, abundant in the moist regions (no. 999). Further distr. general in tropical regions.

### Hymenophyllum Sm.

**H. hirsutum** (L.) Sw. Schrad. Jour. 1800, 2, 99 (1801). *Trichomanes hirsutum* L. Sp. Pl. 1098 (1753).—CHATHAM ISL.: Wreck Bay, abundant in moist shady places around 1750 ft. (no. 898). Further distr. Mex., W. Ind., Brazil, Mascarine Ids.

**H. polyanthos** Sw. Schrad. Jour. 1800, 2, 102 (1801).—DUNCAN ISL.: in dense tufts on the southeast sides of rocks at 1300 ft. (no. 899). Widely distr. in tropical regions.

### Hypolepis Bernh.

**H. repens** (L.) Presl, Tent. Pterid. 162 (1836). *Lonchitis repens* L. Sp. Pl. 1078 (1753). *H. repens*. Presl, l. c.; Rob. (1), 109.—GALAPAGOS IDS.: *Capt. Wood*. Further distr. Mex., W. Ind., S. Am.

### Nephrolepis Schott

**N. biserrata** (Sw.) Schott, Gen. Fil. ad t. 3 (1834). *Aspidium biserratum* Sw. Schrad. Jour. 1800, 2, 32 (1801). *N. acuta* Presl, Tent. Pterid. 79 (1836); Rob. (1), 110.—ABINGDON ISL.: forming heavy brakes above 1650 ft. (nos. 916-917). ALBEMARLE ISL.: Villamil, abundant in the vicinity of the shore, forming brakes 6 or more ft. in height. The area in which this fern occurs at this place is very limited and its presence here is due to several seepages of comparatively fresh water coming down from the upper parts of the island through crevices in the lava. This is one of the very few places on the islands where ferns occur at sea level, (no. 921).

BINDLOE ISL.: common in moist places in the interior (no. 920). JAMES ISL.: James Bay, occasional in lava caverns around 1000 ft. (no. 918). WENMAN ISL.: common in lava caverns and on the sides of the cliffs (no. 919). Further distr. Mex., W. Ind., S. Am., tropics of the Old World.

*N. pectinata* (Willd.) Schott, Gen. Fil. ad t. 3 (1834). *Aspidium pectinatum* Willd. Sp. V. 223 (1810). *N. pectinata* Schott. l. c.; Rob. (1), 110.—ABINGDON ISL.: covering tree trunks and sides of banks around 1950 ft. (no. 992). ALBEMARLE ISL.: Villamil, abundant on the sides of lava crevices at 1350 ft. (no. 928). CHATHAM ISL.: Wreck Bay, common on the trunks of tree ferns, *Hemitelia multiflora*, at 1800 ft. and in dense growths of *Lycopodium clavatum* and ferns at 2100 ft. (no. 926). DUNCAN ISL.: in shady protected places on the south side of the island at 1300 ft. (no. 924). INDEFATIGABLE ISL.: Academy Bay, occasional in shady woodland above 500 ft. JAMES ISL.: James Bay, occasional at 150 ft. in crevices in the recent lava south of the bay, occasional in lava caverns at 900 ft. From 2150-2850 ft. it is very abundant on the trunks of trees, often completely covering them with a dense network of fibrous roots. The roots of this fern seem to contain a volatile oil, as they burn with great intensity when ignited, (nos. 923-925). Further distr. Mex., W. Ind., S. Am., Old World.

#### Notholaena R. Br.

*N. sulphurea* (Cav.) J. Sm. Bot. Voy. Herald 233 (1852-1857). *Pteris sulphurea* Cav. Descr. 269 (1802). *Nothochleana sulphurea* J. Sm. l. c.; Rob. (1), 111.—ALBEMARLE ISL.: Elizabeth Bay, mountain north of, *Snodgrass and Heller*; Cowley Bay, on rocks at 1450 ft. (no. 932); Iguana Cove, abundant above 200 ft. (no. 930); Tagus Cove, in lava crevices 300-2900 ft. (no. 931). JAMES ISL.: James Bay, occasional on the walls of a small tufa crater, south of the bay, at 75 ft., (no. 933). NARBOROUGH ISL.: common on the north side above 500 ft. (no. 934). This is usually one of the first ferns to be seen in going up the sides of the mountains. Further distr. S. W. U. S., Mex., Andean S. Am.

## Polypodium L.

**P. angustifolium** Sw. Prod. 130 (1788); Rob. (1), 111.—JAMES ISL.: James Bay, on the trunks and branches of trees around 2100 ft. (no. 935). Further distr. Mex., W. Ind., S. Am.

**P. aureum** L. Sp. Pl. 1087 (1753); Rob. (1), 111.—ALBEMARLE ISL.: Villamil, common on rocks at 1500 ft., also common on the trunks and branches of *Zanthoxylum Fagara* at 3150 ft., (nos. 936-937). DUNCAN ISL.: occasional on the sides of perpendicular cliffs at 1250 ft. (no. 939). JAMES ISL.: James Bay, common on the trunks of trees at 2150 ft. and in similar situations at 2800 ft. (no. 938). Further distr. S. U. S., Mex., W. Ind., S. Am., "Australia" acc. to Rob. (1), 111.

**P. crassifolium** L. Sp. Pl. 1083 (1753); Rob. (1), 112.—ALBEMARLE ISL.: Tagus Cove, in the upper regions on the southeast side of the mountain (no. 941). INDEFATIGABLE ISL.: Academy Bay, occasional in dense shade at 550 ft. (no. 940). Further distr. Mex., W. Ind., northern S. Am.

**P. lanceolatum** L. Sp. Pl. 1082 (1753); Rob. (1), 112.—ABINGDON ISL.: common on trees above 1650 ft. (no. 946). ALBEMARLE ISL.: Iguana Cove, common on trees above 400 ft. (no. 948); Villamil, common on the trunks and branches of trees, 350-3150 ft., (no. 951). CHARLES ISL.: common on trees at 1000-1700 ft. (no. 950). DUNCAN ISL.: occasional on bushes and small trees at 1300 ft. (no. 949). INDEFATIGABLE ISL.: Academy Bay, common on tree trunks above 400 ft. (no. 947). JAMES ISL.: *Darwin*. Further distr. tropics of both hemispheres.

**P. lepidopteris** (Langsd. & Fisch.) Kze. Linnaea XIII. 132 (1839). *Acrostichum lepidopteris* Langsd. & Fisch. Ic. Fil. V. t. 2 (1810). *P. lepidopteris* Kze. l. c.; Rob. (1), 112.—ALBEMARLE ISL.: Villamil, common on trunks and branches of trees, 500-600 ft., (no. 952). DUNCAN ISL.: occasional on bushes and small trees at 1200 ft.; nearly all of the specimens are small, a fact which is probably due to the somewhat xerophytic conditions which prevail around the top of this island,

(no. 954). INDEFATIGABLE ISL.: Academy Bay, on trees, 375-450 ft., (no. 956); southeast side, rare on trees at 625 ft. JAMES ISL.: James Bay, on trees at 1300 ft. (no. 955). This fern is usually found in the transition and lower moist regions. Further distr. Mex., S. Am.

**P. loriceum** L. Sp. Pl. 1086 (1753); Rob. (1), 112.— GALAPAGOS IDS.: *Moore*. Further distr. Mex., W. Ind., S. Am.

**P. pectinatum** L. Sp. Pl. 1085 (1753); Rob. (1), 113.— ABINGDON ISL.: occasional among rocks in the wooded region above 1000 ft. (no. 961). ALBEMARLE ISL.: Cowley Bay, occurs first among rocks in shady woodland at 2000 ft. Below this elevation the soil is composed entirely of pumice, which is not well adapted to support a fern flora; Iguana Cove, among rocks in woodland near the shore; Tagus Cove, common in lava caverns at 2200 ft. and on the west side of the mountain at 4000 ft. (no. 967); Villamil, common among rocks 100-3150 ft. (no. 969). CHARLES ISL.: common in lava crevices on the inner walls of the main crater at 1400 ft. (no. 968). CHATHAM ISL.: Wreck Bay, fairly abundant in shady woods at 700 ft. (no. 966). INDEFATIGABLE ISL.: Academy Bay, common in vegetable mold among rocks, 350-500 ft., (no. 962); northwest side, occasional at 1000 ft.; southeast side, common among rocks at 625 ft. JAMES ISL.: James Bay, common above 1300 ft. (no. 966). This fern is most abundant in the lower part of the moist region but usually disappears when the vegetation becomes dense. Further distr. Mex., W. Ind., S. Am.

**P. percussum** Cav. Prael. 243 (1801); Rob. (1), 113.— GALAPAGOS IDS.: *Capt. Wood*. Further distr. Mex., S. Am.

**P. Phyllitides** L. Sp. Pl. 1083 (1753); Rob. (1), 113.— JAMES ISL.: James Bay, common in open woodland above 1500 ft. (no. 969). "Large sword ferns" were reported from the upper regions of ABINGDON ISL., and Banks Bay, ALBEMARLE ISL. by *Mr. F. X. Williams*, the entomologist of the expedition. From his description it seems very likely that it was this species that he saw. Further distr. S. U. S., Mex., W. Ind., S. Am.



**P. pleiosoros** Hook. f. (3), 166 (as *pleiosorum*); Rob. (1), 113.—JAMES ISL.: *Darwin*. Endemic.

**P. polypodioides** (L.) Hitchcock, Rep. Mo. Bot. Gard. IV. 156 (1893). *Acrostichum polypodioides* L. Sp. Pl. 1068 (1753). *P. incanum* Sw. Prod. 131 (1788); Rob. (1), 112.—ALBEMARLE ISL.: Villamil, common on the trunks of trees at 600 ft. (no. 944). CHARLES ISL.: *Darwin*. INDEFATIGABLE ISL.: Academy Bay, on the trunks and branches of trees above 425 ft. (no. 942); southeast side, common on tree trunks at 625 ft. (no. 943). Widely distributed.

**P. squamatum** L. Sp. Pl. 1086 (1753); Rob. (1), 113.—ABINGDON ISL.: common on rocks at 450 ft., occasional on the trunks and branches of trees on the upper parts of the island, (no. 978). ALBEMARLE ISL.: Iguana Cove, *Snodgrass and Heller*; Tagus Cove, common in lava crevices at 2800 ft. (no. 986); Villamil, common on recent lava near the shore and in woodland above 350 ft. BINDLOE ISL.: common on lava in the upper interior parts of the island (no. 971). CHARLES ISL.: occasional in open woodland at 1000 ft., abundant at 1400 ft., (no. 972). CHATHAM ISL.: Basso Point, first seen at 900 ft.; Wreck Bay, abundant in shady woodland at 600 ft., fairly common in open country at 1700 ft., occasional at 2100 ft., (nos. 973-974). DUNCAN ISL.: occurs first at 1000 ft. on the north side of the island, and at 700 ft. on the south side where the vegetation is bathed by the fog-laden wind, common at 1300 ft. on the south side, (no. 975). HOOD ISL.: occasional on the southeast side of cliffs at 600 ft. (no. 979). INDEFATIGABLE ISL.: Academy Bay, occasional at 50 ft., abundant, covering rocks in open woodland, at 350-500 ft., (no. 985); northwest side, occasional at 650 ft.; southeast side, occasional at 600 ft., forming low brakes around 700 ft., (no. 987). JAMES ISL.: James Bay, abundant on recent lava beds above 500 ft., apparently one of the first vascular plants to invade the recent lava above this elevation, (no. 977). JERVIS ISL.: occasional in a very limited area around 1050 ft. (no. 984). NARBOROUGH ISL.: south side, common in the upper regions. Further distr. Mex., W. Ind., northern S. Am.

*P. thyssanolepis* A. Br. Kl. Linn. XX. 392 (1847).—ALBEMARLE ISL.: Villamil, abundant at 600 ft., on trees at 1300 ft., (nos. 989-990). JAMES ISL.: James Bay, occasional on the trunks of trees at 2750 ft. (no. 991). Further distr. S. U. S., Mex., W. Ind., northern S. Am.

### *Polystichum* Roth.

*P. aculeatum* (L.) Schott, Gen. Fil. ad t. 9 (1834). *Polypodium aculeatum* L. Sp. Pl. 1090 (1753). *Aspidium aculeatum* Sw. Schrad. Jour. 1800, 2, 37 (1801).—ALBEMARLE ISL.: Villamil, occasional on the south side of the mountain at 3150 ft. (no. 802). Widely distributed.

*P. adiantiforme* (Forst.) J. Sm. Hist. Fil. 220 (1875). *Polypodium adiantiforme* Forst. Prod. 82 (1786). *Aspidium coriaceum* Sw. Syn. Fil. 57 (1806); Rob. (1), 106.—ALBEMARLE ISL.: Villamil, occasional on the south side of the mountain at 3150 ft. (no. 803). JAMES ISL.: *Darwin*. Further distr. W. Ind., S. Am., Old World.

*P. apiifolium* (Sw.) C. Ch. Ind. 64 (1905), 578 (1906). *Dicksonia apiifolia* Sw. Schrad. Jour. 1800, 2, 91 (1801).—JAMES ISL.: James Bay, occasional at 2000 ft. (nos. 882-883). Further distr. Mex., W. Ind., Andean S. Am.

### *Pteris* L.

*P. aquilina* var. *esculenta* Hook. f. Fl. N. Zeal. II. 25 (1855); Rob. (1), 114.—ABINGDON ISL.: forms extensive brakes on the south side of the island above 1600 ft. (no. 992). ALBEMARLE ISL.: Iguana Cove, *Snodgrass and Heller*; Villamil, common in open woodland, 1200-1400 ft.; also common on the southeast side of the mountain at 3150 ft., and on the floor of the crater at 2750 ft., where it forms extensive brakes, (no. 993). CHATHAM ISL.: Wreck Bay, occurs first at 1000 ft., forming extensive brakes at 1700 ft., common at 2100 ft., (nos. 994-996). Further distr. general in tropical regions.

*P. propinqua* var. *Cumingiana* Ag. Sp. Gen. Pterid. 65 (1839); Rob. (1), 115.—GALAPAGOS IDS.: *Capt. Wood*. Further distr. Mex., northern S. Am.

### Trachypteris André

**T. pinnata** (Hook. f.) C. Chr. Ind. 634 (1906). *Hemionitis pinnata* Hook. f. Trans. Linn. Soc. XX. 167 (1847). *Acrostichum aureonitens* Hook. f. Ic. Pl. X. t. 933 (1854); Rob. (1), 104.—ABINGDON ISL.: abundant on rocks at 600-1000 ft. (no. 772). ALBEMARLE ISL.: Cowley Bay, common around 2000 ft.; Iguana Cove, abundant on shady rocks near the shore (no. 768); Tagus Cove, abundant at 500-4000 ft. (nos. 766-767); Villamil, on rocks in shady places, 100-1300 ft., (no. 771). CHARLES ISL.: common on moist rocks at 1000 ft. (no. 1026). CHATHAM ISL.: Basso Point, on rocks at 900 ft.; Wreck Bay, occasional at 900 ft. INDEFATIGABLE ISL.: Academy Bay, occasional on the sides of steep bluffs at 50 ft., abundant above 350 ft., (no. 766); southeast side, rare at 450 ft., abundant above 500 ft. JAMES ISL.: James Bay, on rocks in open woodland, 800-1300 ft., (no. 770). NARBOROUGH ISL.: south side, *Snodgrass and Heller*.

### Trichomanes L.

**T. pusillum** Sw. Prod. 136 (1788).—JAMES ISL.: James Bay, common on moist tufa walls at 2050 ft. (no. 1012). Further distr. Mex., W. Ind., northern S. Am., Africa.

### Vittaria J. Sm.

**V. angustifolia** (Sw.) Bak. Fl. Bras. I. 2, 544 (1870). *Pteris angustifolia* Sw. Prod. 129 (1788). *Taenitis angustifolia* R. Br. Prod. 154, in note (1810); Rob. (1), 115.—GALAPAGOS IDS.: *Capt. Wood*. Further distr. Mex., W. Ind., S. Am.

## SALVINIACEAE

### Azolla Lam.

**A. caroliniana** Willd. Sp. V. 541 (1810); Rob. (1), 115.—CHARLES ISL.: abundant on mud and floating in water around springs at 1000 ft. (no. 3441). CHATHAM ISL.: Wreck Bay, common in small streams, 1000-1700 ft., (no. 3442). Further distr. U. S., Mex., S. Am.

**Salvinia L.**

**S. sp.** Wolf, (1), 284; Rob. (1), 115.—CHARLES ISL.: in brooks near the hacienda, acc. to Wolf l. c.

## EQUISETACEAE

**Equisetum L.**

**E. bogotense** HBK. Nov. Gen. & Sp. I. 42 (1815).—ALBEMARLE ISL.: Villamil, rare on the south rim of the crater at 3150 ft. (no. 3443). Further distr. Mex. (Cent. Am.), W. Ind., S. Am.

## LYCOPODIACEAE

**Lycopodium L.**

**L. clavatum** L. Sp. Pl. 1101 (1753); Rob. (1), 115.—CHATHAM ISL.: Wreck Bay, forming thick tangled masses 2-3 ft. high above 1500 ft. (no. 1014). JAMES ISL.: James Bay, rare around 2500 ft. (no. 1015). Widely distributed.

**L. complanatum** L. Sp. Pl. 1104 (1753).—ALBEMARLE ISL.: Villamil, occasional at 3150 ft. (no. 1016). Widely distributed.

**L. dichotomum** Jacq. Enum. Vindob. 314 (1762); Rob. (1), 115.—ALBEMARLE ISL.: Villamil, common on the higher branches of trees, 500-700 ft., (no. 1017). INDEFATIGABLE ISL.: Academy Bay, on the trunks and branches of trees, 400-500 ft., (no. 1019); northwest side, common on the higher branches of *Psidium galapageium* trees above 1000 ft. Further distr. Mex., W. Ind., S. Am., Madagascar.

**L. reflexum** Lam. Encyc. III. 653 (1789).—ALBEMARLE ISL.: Villamil, common at 3150 ft. (no. 1020). Further distr. Mex., W. Ind., S. Am.

**L. taxifolium** Sw. Fl. Ind. Occ. III. 1573 (1806).—CHARLES ISL.: abundant on branches of *Acnistus ellipticus* trees at 1700 ft. (no. 1021). Wolf l. c. 283 refers to two undetermined species of *Lycopodium* from this island and it seems likely that this is one of them. JAMES ISL.: James Bay,

common on the branches of *Zanthoxylum Fagara* trees at 2150 ft. (nos. 1023-1024). Further distr. Mex., W. Ind., northern S. Am.

## SPERMATOPHYTA

### MONOCOTYLEDONEAE

## POTAMOGETONACEAE

### Potamogeton Tourn.

**P. pectinatus** L. Sp. Pl. 127 (1753); Rob. (1), 115.—ALBEMARLE ISL.: Iguana Cove, *Snodgrass and Heller*. Widely distributed.

### Ruppia L.

**R. maritima** L. Sp. Pl. 127 (1753); Rob. (1), 116.—ALBEMARLE ISL.: Elizabeth Bay, *Snodgrass and Heller*. Widely distributed.

## NAJADACEAE

### Najas L.

**N. marina** L., var. *latifolia* A. Br. ex Schum. in Mart. Fl. Bras. III. pt. 3, 725 (1894); Rob. (1), 116.—ALBEMARLE ISL.: Iguana Cove, *Snodgrass and Heller*. Further distr. tropical S. Am.

## GRAMINEAE

### Ammophila Host.

**A. arenaria** (L.) Link, Hort. Berol. I. 105 (1827). *Arundo arenaria* L. Sp. Pl. 82 (1753).—SEYMOUR ISL., SOUTH: forming a patch about one-fourth mile long on a sand beach on the west side of the island. The specimen is sterile and somewhat doubtful as to species, (no. 1195). Further distr. N. Am., Europe.

### Anthephora Schreb.

**A. hermaphrodita** (L.) O. Kze. Rev. Gen. II. 759 (1891). *Tripsacum hermaphroditum* L. Sp. Pl. ed. 2, 1397 (1763). *Anthephora elegans* Schreb. Besch. Gräs. II. 105 t. 44 (1810); Rob. (1), 116.—ALBEMARLE ISL.: Tagus Cove, occasional in

tufaceous soil in open sunny places on the lower parts (no. 1196). CHARLES ISL.: rare at 850 ft., common in tufaceous soil at 1200 ft., (nos. 1197-1198). CHATHAM ISL.: north side, *Baur*. INDEFATIGABLE ISL.: northwest side, *Andersson*. JAMES ISL.: James Bay, *Snodgrass and Heller*. Further distr. Mex., W. Ind., S. Am.

### Aristida L.

**A. divulsa** Anderss. (1), 143, and (2), 49; Rob. (1), 116.—ABINGDON ISL.: *Snodgrass and Heller*. BINDLOE ISL.: *Baur*. CHATHAM ISL.: Sappho Cove, occasional in bunches on the recent lava in the vicinity of the cove, (no. 1200). JAMES ISL.: James Bay, common in lava crevices near the shore (no. 1199). Endemic.

**A. repens** Trin. Mém. Acad. Pétersb. ser. VI. I. 87 (1831); Rob. (1), 117.—JAMES ISL.: *Douglas*. Endemic.

**A. subspicata** Trin. & Rupr. Mém. Acad. Pétersb. ser. VI. I. 125 (1842); Rob. (1), 117.—ABINGDON ISL.: common in lava crevices in the vicinity of the shore and also sparingly at 1100 ft. (nos. 1201-1203). ALBEMARLE ISL.: Cowley Bay, common in soil of pumiceous origin at 1000 ft. (no. 1207); Elizabeth Bay, *Snodgrass and Heller*; Iguana Cove, common on the side of the cliffs above the cove, also common in open places around 300 ft., (no. 1206); Tagus Cove, common in open country near the shore and around 1000 ft. (no. 1208); Villamil, common in lava crevices near the shore (nos. 1204-1205). BARRINGTON ISL.: occasional in loose soil among masses of lava (no. 1210). BINDLOE ISL.: common near the shore and on the crests of tufa ridges in the interior of the island (no. 1211). BRATTLE ISL.: (no. 1212). CHARLES ISL.: abundant at 850 ft., occasional at 1750 ft., (nos. 1213, 1214, 1216, 1217); Cormorant Bay, occasional in lava crevices (no. 1215). CHATHAM ISL.: Basso Point, occasional on lava and in open places in the dry region where the soil is very loose in texture (no. 1218). GARDNER ISL. (near HOOD ISL.): common everywhere (no. 1219). HOOD ISL.: occasional among rocks (no. 1220). INDEFATIGABLE ISL.: Academy Bay, abundant in open places in the vegetation on the lower parts (no. 1221); north side, abundant in ashy soil on the

lower parts (no. 1224); northeast side, abundant on the flat area near the shore (no. 1222); northwest side, common in tufaceous soil (no. 1225). JAMES ISL.: James Bay, *Snodgrass and Heller*; northeast side, occasional in sand and in lava crevices (no. 1226). NARBOROUGH ISL.: north side, abundant in lava crevices (no. 1227). SEYMOUR IDS., NORTH and SOUTH: *Snodgrass and Heller*. Further distr. S. Am. This is one of the most abundant and wide spread grasses of the dry region. It occurs commonly where the soil is too porous to support much large vegetation, and in such situations it often covers considerable areas.

**A. villosa** Rob. & Greenm. (1), 144, 149; Rob. (1), 117.—DUNCAN ISL.: abundant on the lower and dry parts of the island (nos. 1228-1229). JERVIS ISL.: *Baur*. Endemic.

#### Bouteloua Lag.

**B. pilosa** (Hook. f.) Benth. acc. to Watson, Proc. Am. Acad. XVIII. 179 (1883). *Eutriana pilosa* Hook. f. (3), 173. *B. pilosa* Benth. l. c.: Rob. (1), 117.—ABINGDON ISL.: occasional in open places at 1050 ft. (no. 1230). ALBEMARLE ISL.: Iguana Cove, in spreading bunches among thick vegetation at 250 ft. (no. 1231); Tagus Cove, abundant in tufaceous soil on the lower parts of the island (no. 1232); Villamil, occasional in woodland at 250 ft. (no. 1233). BARRINGTON ISL.: *Snodgrass and Heller*. CHATHAM ISL.: north side, *Andersson*. INDEFATIGABLE ISL.: north side, *Snodgrass and Heller*. JAMES ISL.: James Bay, *Snodgrass and Heller*. JERVIS ISL.: *Baur*. NARBOROUGH ISL.: north side, abundant on lava beds near the shore (no. 1234). SEYMOUR IDS., NORTH and SOUTH: *Snodgrass and Heller*. Endemic.

#### Cenchrus L.

**C. distichophyllus** Griesb. Cat. Pl. Cub. 234 (1866); Rob. (1), 118.—ALBEMARLE ISL.: Villamil, *Baur*. CHATHAM ISL.: Sappho Cove, forming dense mats on sand beaches (no. 1236). HOOD ISL.: fairly common on sand beaches (no. 1235). Further distr. Cuba.

**C. granularis** Anderss. (1), 140, and (2), 47; Rob. (1), 118.—ALBEMARLE ISL.: Tagus Cove, common at 100-4000 ft.

(nos. 1237-1238). CHARLES ISL.: rare at 900 ft. (no. 1240). CHATHAM ISL.: *Andersson*; *A. Agassiz*. NARBOROUGH ISL.: north side, abundant on lava beds (no. 1239). SEYMOUR ISL., SOUTH: *Snodgrass and Heller*.

**C. platyacanthus** Anderss. (1), 139, (2), 47; Rob. (1), 118.—ABINGDON ISL.: occasional on the lower parts (no. 1241). ALBEMARLE ISL.: Iguana Cove, in spreading bunches on the sides of the cliffs above the cove (no. 1242). BARRINGTON ISL.: *Snodgrass and Heller*. BINDLOE ISL.: *Snodgrass and Heller*. BRATTLE ISL.: (no. 1244). CHARLES ISL.: *Snodgrass and Heller*. CHATHAM ISL.: Wreck Bay, abundant near the shore and in open places in the vegetation to 150 ft. (nos. 1245-1246). GARDNER ISL. (near HOOD ISL.): *Snodgrass and Heller*. HOOD ISL.: *Baur*. INDEFATIGABLE ISL.: Academy Bay, abundant in sandy soil near the shore; north side, *Snodgrass and Heller*. JAMES ISL.: northeast side, occasional in lava crevices; JAMES BAY, *Snodgrass and Heller*. NARBOROUGH ISL.: *Snodgrass and Heller*. Endemic.

**C. sp.** Rob. (1), 118.—CHATHAM ISL.: *Snodgrass and Heller*.

#### Chloris Sw.

**C. anisopoda** Rob. (1), 118.—CHARLES ISL.: occasional among rocks near the shore (no. 1250). INDEFATIGABLE ISL.: north side, fairly abundant in lava crevices near the shore (no. 1251); southeast side, on the lower dry parts (no. 1252). Endemic.

**C. elegans** HBK. Nov. Gen. & Sp. I. 166, t. 49 (1815); Rob. (1), 119.—CHARLES ISL.: *Snodgrass and Heller*. SEYMOUR ISL., NORTH: *Snodgrass and Heller*. Further distr. S. W. U. S., Mex.

**C. radiata** (L.) Sw. Prodr. 26 (1788). *Agrostis radiata* L. Syst. 10, ed. 2, 873 (1759). *C. radiata* Sw. l. c.; Rob. (1), 119.—CHARLES ISL.: *Baur*. Further distr. W. Ind., S. Am.

#### Dactyloctenium Willd.

**D. aegyptium** (L.) Richter, Plan. Eur. I. 68 (1890). *Cynosurus aegyptius* L. Sp. Pl. 72 (1753). *Eleusine aegyptica* Desf. Fl. Alt. I. 85 (1798); Rob. (1), 119.—CHARLES ISL.:



abundant near the shore (no. 1253). CHATHAM ISL.: Wreck Bay, abundant in dry sandy soil near the beach (no. 1254). HOOD ISL.: *Baur*. INDEFATIGABLE ISL.: Academy Bay, abundant in sand near the shore (no. 1255). Widely distributed.

#### **Digitaria Scop.**

**D. sanguinalis** (L.) Scop. F. Carn. ed. 2, 1, 52 (1772). *Panicum sanguinale* L. Sp. Pl. 57 (1753); Rob. (1), 123.—CHARLES ISL.: occasional in open places at 1100 ft. (no. 1304). CHATHAM ISL.: Wreck Bay, common in open sunny places to 450 ft. (nos. 1303, 1305). Of wide distribution.

#### **Eleusine Gaertn.**

**E. indica** Gaertn. Fruct. I. 8 (1788); Rob. (1), 120.—CHARLES ISL.: abundant in open meadows at 1000 ft., also common at 1500-1750 ft., (nos. 1255-1258). CHATHAM ISL.: Wreck Bay, abundant at 300-800 ft., occasional at 1300 ft., (nos. 1259-1261). Widely distributed. Probably an introduced species on the islands.

#### **Eragrostis Host.**

**E. bahiensis** Roem. & Sch. Mant. II. 318 (1824); Rob. (1), 120.—ABINGDON ISL.: occasional in bunches around 1000 ft. (no. 1262). ALBEMARLE ISL.: Iguana Cove, *Snodgrass and Heller*. Further distr. S. Am.

**E. ciliaris** (L.) Link, Hort. Berol. I. 192 (1827). *Poa ciliaris* L. Syst. ed. 10, 875 (1760). *Eragrostis ciliaris* Link, l. c.; Rob. (1), 120.—ABINGDON ISL.: *Snodgrass and Heller*. ALBEMARLE ISL.: *Macrae*; Tagus Cove, *Snodgrass and Heller*. BINDLOE ISL.: on the upper parts (no. 1263). CHARLES ISL.: abundant 430-1100 ft. (nos. 1264-1265). CHATHAM ISL.: *Darwin*; *Andersson*; *Snodgrass and Heller*. HOOD ISL.: *Snodgrass and Heller*. JAMES ISL.: James Bay, common in dry places on sides of cliffs around the bay (no. 1266). NARBOROUGH ISL.: north side, abundant on recent lava beds (no. 1267). TOWER ISL.: *Baur*; *Snodgrass and Heller*. Widely distributed.

**E. megastachya** (Koehl.) Link, Hort. Berol. I. 187 (1827). *Poa megastachya* Koehl. Descr. Gram. 181 (1802). *Eragros-*

*tis major* Host. Gram. IV. 14, t. 24 (1809); Rob. (1), 120.—BARRINGTON ISL.: *Snodgrass and Heller*. BRATTLE ISL.: (no. 1268). CHARLES ISL.: common above 450 ft. (nos. 1269-1270). CHATHAM ISL.: Wreck Bay, common in dry sandy soil near the shore (no. 1271). DUNCAN ISL.: occasional near the shore. GARDNER ISL. (near HOOD ISL.): *Snodgrass and Heller*. HOOD ISL.: *Snodgrass and Heller*. INDEFATIGABLE ISL.: Academy Bay, fairly abundant near the shore (no. 1272). SEYMOUR ISL., SOUTH: *Snodgrass and Heller*. TOWER ISL.: *Snodgrass and Heller*. WENMAN ISL.: (no. 1273). Widely distributed.

**E. pilosa** (L.) Beauv. Agrost. 71 (1812). *Poa pilosa* L. Sp. Pl. 68 (1753). *E. pilosa* Beauv. l. c.; Rob. (1), 120.—JAMES ISL.: *Darwin*. Widely distributed.

#### **Eriochloa** HBK.

**E. distachya** HBK. Nov. Gen. & Sp. I. 95, t. 30 (1815); Rob. (1), 121.—CHATHAM ISL.: *Snodgrass and Heller*. Further distr. northern S. Am.

**E. punctata** (L.) Desv. in Ham. Prod. Pl. Ind. Occ. 5 (1825). *Milium punctatum* L. Sp. Pl. ed. 2, 91 (1763).—CHATHAM ISL.: Basso Point, occasional in open places at 900 ft. (no. 1274). Further distr. U. S., W. Ind., S. Am.

#### **Leptochloa** Beauv.

**L. albemarlensis** Rob. & Greenm. (1), 145, 149; Rob. (1), 121.—ABINGDON ISL.: common on lava beds at 450 ft. (no. 1275). ALBEMARLE ISL.: Villamil, *Baur*; Iguana Cove, *Snodgrass and Heller*. Endemic.

**L. filiformis** (Lam.) Roem. & Sch. Syst. II. 580 (1817). *Festuca filiformis* Lam. Illust. I. 191 (1791). *L. filiformis* Roem & Sch. l. c.; Rob. (1), 121.—DUNCAN ISL.: *Snodgrass and Heller*. SEYMOUR ISL., SOUTH: *Snodgrass and Heller*. Widely distributed in tropical regions.

**L. Lindleyana** Kunth, Rev. Gram. II. 655, t. 215 (1829); Rob. (1), 121.—ABINGDON ISL.: occasional on lava beds in the lower dry region (no. 1276). ALBEMARLE ISL.: *Macrae*;

Cowley Bay, *Baur*; Tagus Cove, (no. 1277). BINDLOE ISL.: *Snodgrass and Heller*. CHATHAM ISL.: *Andersson*. NARBOROUGH ISL.: north side, abundant on lava beds (no. 1278). Endemic.

**L. mucronata** (Michx.) Kunth, Rev. Gram. I. 91 (1829). *Eleusine mucronata* Michx. Fl. Bor. Am. 65 (1803). *L. mucronata* Kunth, l. c.; Rob. (1), 121.—BARRINGTON ISL.: (no. 1279). GARDNER ISL., (near HOOD ISL.): (no. 1281). HOOD ISL.: common in scant soil among rocks (no. 1280). Further distr. S. U. S., Mex., W. Ind., S. Am.

**L. virgata** (L.) Beauv. Agrost. 71 (1812). *Cynosurus virgatus* L. Sp. Pl. ed. 2, 106 (1762). *L. virgata* Beauv. l. c.; Rob. (1), 121.—CHARLES ISL.: upper grassy region acc. to *Andersson*. CHATHAM ISL.: Wreck Bay, occurs first at 650 ft. (no. 1282). Further distr. Mex., W. Ind., S. Am.

#### **Oplismenus** Beauv.

**O. setarius** (Lam.) Roem. & Sch. Syst. II. 481 (1817). *Panicum setarium* Lam. Ill. I. 170 (1791). *O. setarius* Roem. & Sch. l. c.; Rob. (1), 121.—CHATHAM ISL.: Wreck Bay, in shady places in cultivated ground around 1000 ft. (no. 1283). Probably an introduced species. Further distr. U. S., Mex., W. Ind., S. Am.

#### **Panicum** L.

**P. colonum** L. Syst. ed. 10, 870 (1760); Rob. (1), 122.—CHARLES ISL.: *Darwin*; *Andersson*. Further distr. general in tropical regions.

**P. fasciculatum** Sw. Prodr. 22 (1788); Rob. (1), 122. *P. fuscum* Sw. Prodr. 23 (1788); Rob. (1), 122.—ALBEMARLE ISL.: Turtle Cove, in dense patches 4-6 ft. high in moist places near the shore (no. 1284); Villamil, in dense patches 5-6 ft. high in low places 2-3 miles back from the beach. The soil in these areas is kept moist the greater part of the time by the underflow of water from the interior of the island, (nos. 1285-1286). CHARLES ISL.: *Snodgrass and Heller*. CHATHAM ISL.: Wreck Bay, abundant on the sides of the road leading to the hacienda. This grass was only seen in January and February, when there is considerable water standing in the low

places where it occurs, (no. 1286). INDEFATIGABLE ISL.: north side, *Andersson*. JAMES ISL.: James Bay, *Snodgrass and Heller*. Further distr. Mex., W. Ind., S. Am.

**P. geminatum** Forsk. Fl. Aeg.-Arab. 18 (1775). *P. fluitans* Retz. Obs. III. 8 (1783); Rob. (1), 122.—CHARLES ISL.: abundant on the sides of a moist cliff above a spring at 1000 ft. (nos. 1287-1288). CHATHAM ISL.: Wreck Bay, common in large bunches at 450 ft. (no. 1290). DUNCAN ISL.: common in bunches at 900 ft. (no. 1291). HOOD ISL.: on the margin of a mud lake acc. to *Snodgrass and Heller*. The dry culms of a grass, probably this one, were noticed in the dry bed of this lake in June. Further distr. W. Ind., S. Am., Old World.

**P. hirticaulum** J. & C. Presl, Rel. Haenk. I. 308 (1830); Rob. (1), 122.—BARRINGTON ISL.: *Snodgrass and Heller*. CHARLES ISL.: *Andersson*. CHATHAM ISL.: Wreck Bay, common in open places on the lower parts of the island, (no. 1293). GARDNER ISL., (near HOOD ISL.): dried remains of this grass were found in June (no. 1294). HOOD ISL.: abundant (no. 1297). INDEFATIGABLE ISL.: Academy Bay, abundant (no. 1297); north side, *Snodgrass and Heller*; northeast side, common on the table land above the beach (no. 1296). SEYMOUR IDS., NORTH and SOUTH: *Snodgrass and Heller*. Robinson, l. c., suggests that this grass is a recent introduction to the islands. It might be mentioned in this connection that the islands on which it occurs are frequently visited by the inhabitants of both Albemarle and Chatham Ids. Further distr. Mex.

Var. **minus** Anderss. (1), 135, and (2), 44; Rob. (1), 123.—CHARLES ISL.: *Andersson*; *Snodgrass and Heller*. CHATHAM ISL.: *Andersson*. Endemic.

**P. molle** Sw. Prod. 22 (1788); Rob. (1), 123.—CHATHAM ISL.: *Chierchia*. Further distr. W. Ind., S. Am., tropical Asia.

**P. multiculmum** Anderss. (1), 133, and (2), 43; Rob. (1), 123.—ALBEMARLE ISL.: Iguana Cove, *Snodgrass and Heller*; Turtle Cove, occasional in scant soil near the shore (no. 1298); Villamil, occasional in lava crevices near the shore (no. 1299). BARRINGTON ISL.: *Snodgrass and Heller*. CHARLES ISL.: in open places near the shore (no. 1300). CHATHAM ISL.:

Wreck Bay, occasional in low places around 300 ft. The soil is very wet in this region during the season in which the species occurs, (no. 1301). DUNCAN ISL.: *Snodgrass and Heller*. GARDNER ISL. (near HOOD ISL.): *Snodgrass and Heller*. HOOD ISL.: common among rocks (no. 1302). Endemic.

**P. serotinum** (Michx.) Trin. Gram. Panic. 166 (1826). *Digitaria serotina* Michx. Fl. I. 46 (1803). *P. serotinum* Trin. l. c.; Rob. (1), 123.—CHARLES ISL.: *Edmonston*. Robinson l. c. suggests that there may have been some mistake in the identification of this specimen. Further distr. S. U. S.

**P. sp.**—CHARLES ISL.: (no. 1306).

**P. sp.**—CHATHAM ISL.: (no. 1308).

**P. sp.**—DUNCAN ISL.: (no. 1307).

All three of the above specimens are in too poor a condition for determination. They probably represent three distinct species.

#### **Paspalum L.**

**P. canescens** Anderss. (1), 132, and (2), 42; Rob. (1), 123. *P. longe-pedunculatum* Rob. (1), 124, not Le Conte.—ALBEMARLE ISL.: Cowley Bay, *Andersson*; Iguana Cove, in bunches on the sides of the cliffs above the cove (nos. 1317-1318); Tagus Cove, in large bunches, 600-4000 ft., (nos. 1309, 1319-1320); Villamil, common at 3150 ft. (no. 1311). BINDLOE ISL.: *Snodgrass and Heller*. CHARLES ISL.: *Darwin*; *Andersson*. CHATHAM ISL.: Wreck Bay, occasional, 450-2100 ft., (nos. 1321-1322). NARBOROUGH ISL.: north side (no. 1310). Endemic.

**P. conjugatum** Berg. Act. Helv. VII. 129, t. 8 (1772); Rob. (1), 123.—ALBEMARLE ISL.: Villamil, one of the commonest grasses in the region above 1500 ft. It also occurs to some extent below this elevation, (no. 1312). CHARLES ISL.: common on the sides of moist tufa walls around 1000 ft. (no. 1312). CHATHAM ISL.: Wreck Bay, common in the grassy country above 700 ft. (nos. 1314-1315). JAMES ISL.: James Bay, abundant in open places and in open woodland above 1500 ft. (no. 1316). This is the principal forage grass on the islands where it occurs. Further distr. Mex., W. Ind., S. Am., Tropical Africa.

**P. distichum** L. Amoen. Acad. V. 391 (1760); Rob. (1), 123.—JAMES ISL.: Orchilla Bay, *Baur*. Further distr. tropical and subtropical regions.

**P. penicillatum** Hook. f. (3), 171; Rob. (1), 124.—CHARLES ISL.: *Darwin*. Endemic.

**P. scrobiculatum** L. Mant. I. 29 (1767); Rob. (1), 124.—CHATHAM ISL.: *Chierchia*. Further distr. general in tropics of old world.

**P. sp.** Rob. (1), 124.—INDEFATIGABLE ISL.: north side, *Snodgrass and Heller*. Probably a new species, acc. to Robinson, l. c.

#### Pennisetum Rich.

**P. exalatum** (Anderss.) Hook. f. & Jacks. Ind. Kew. I. 112 (1893). *Amphochaeta exalata* Anderss. (1), 137, (2), 45, t. 1, f. 2. *P. pauperum* Nees acc. to Steud. Syn. 102 (1855); Rob. (1), 119.—ALBEMARLE ISL.: Cowley Bay, *Andersson*; Iguana Cove, occasional in dense patches 6-7 ft. high on the sides of the cliffs above the cove (no. 1323); Tagus Cove, a considerable area is covered with a dense growth of this grass around the top of the mountain, 3850-4000 ft., (no. 1324). The dried culms, collected at Elizabeth Bay and ascribed to *Chusquea* sp. by Robinson, (1), 119, no doubt belong to this species. NARBOROUGH ISL.: *Mr. R. H. Beck* reported a heavy growth of grass around the top of this island. From his description it is probably of this species. Endemic.

#### Setaria Beauv.

**S. floriana** Anderss. (1), 138, (2), 46; Rob. (1), 124.—CHARLES ISL.: *Andersson*. Endemic.

**S. setosa** (Sw.) Beauv. Agrost. 51 (1812). *Panicum setosum* Sw. Prodr. 22 (1788). *S. setosa* Beauv. l. c.; Rob. (1), 124.—ALBEMARLE ISL.: Elizabeth Bay, *Snodgrass and Heller*; Iguana Cove, (no. 1091); Tagus Cove, abundant in tufaceous soil around the base of the mountain (no. 1090); Villamil, occasional in bunches on the lower parts (no. 1092). BARRINGTON ISL.: *Snodgrass and Heller*. CHARLES ISL.: abundant around 1750 ft. (nos. 1293-1294). CHATHAM ISL.:

Sappho Cove, on lava beds near the shore (no. 1295); Wreck Bay, grows in shady places at 250-600 ft. (nos. 1296-1297). DUNCAN ISL.: dried remains (no. 1179). HOOD ISL.: occasional around 600 ft. (nos. 1180-1181). INDEFATIGABLE ISL.: Academy Bay, abundant in open woodland around 350 ft.; southeast side, in rather open country around 500 ft. (no. 1182). JAMES ISL.: James Bay, common on the lower parts (no. 1183). NARBOROUGH ISL.: *Snodgrass and Heller*. Further distr. tropical regions.

**S. n. sp.?** Hook. f. (3), 172; Rob. (1), 125.—ALBEMARLE ISL.: *Macrae*. Endemic.

### Sporobolus R. Br.

**S. domingensis** (Trin.) Kunth, Enum. I. 214 (1833). *Vilfa domingensis* Trin. in Spreng. neue Ent. II. 59 (1821). *S. domingensis* Kunth l. c.; Rob. (1), 125.—ABINGDON ISL.: *Snodgrass and Heller*. ALBEMARLE ISL.: Iguana Cove, *Snodgrass and Heller*; Tagus Cove, occasional on the lower parts and at 4000 ft. (nos. 1184-1185). HOOD ISL.: *Snodgrass and Heller*. Further distr. Mex., W. Ind.

**S. indicus** (L.) R. Br. Prod. I. 170 (1810). *Agrostis indica* L. Sp. Pl. 63 (1753). *S. indicus* R. Br. l. c.; Rob. (1), 125.—ALBEMARLE ISL.: Villamil, common at 3150 ft. (no. 1186). CHARLES ISL.: occasional at 1600 ft. (no. 1187). CHATHAM ISL.: Wreck Bay, occasional in bunches at 1700 ft. (no. 1188). Widely distributed.

**S. virginicus** (L.) Kunth, Rev. Gram. I. 67 (1829). *Agrostis virginica* L. Sp. Pl. 63 (1753). *S. virginicus* Kunth, l. c.; Rob. (1), 125.—ALBEMARLE ISL.: Elizabeth Bay, *Snodgrass and Heller*; Villamil, covers a considerable area on the low flat just back of the beach (no. 1189). CHARLES ISL.: common on sand beaches (no. 1190). CHATHAM ISL.: *Andersson*; *A. Agassiz*; *Snodgrass and Heller*. INDEFATIGABLE ISL.: Academy Bay, in dense mats on sand beaches (no. 1191); southeast side, common on the shore and around the borders of salt water lagoons where the soil is strongly impregnated with salt (no. 1191). JAMES ISL.: northeast side, on sand beaches. Further distr. U. S., Mex., W. Ind., S. Am.

**Stenotaphrum** Trin.

**S. secundatum** (Walt.) O. Kze. Rev. Gen. II. 794 (1891). *Ischaemum secundatum* Walt. Fl. Car. 249 (1788). *Stenotaphrum glabrum* Trin. Fund. Agrost. 176 (1820); Rob. (1), 126.—ALBEMARLE ISL.: Iguana Cove, *Snodgrass and Heller*. CHATHAM ISL.: Wreck Bay, forms thick mats in open country around 650 ft. (no. 1193). Further distr. tropical shores of both continents.

**Stipa** L.

**S. rostrata** Anderss. (1), 142, (2), 48; Rob. (1), 126.—CHARLES ISL.: in open places near the beach, evidently a younger specimen than the one described by *Andersson*, (no. 1194). CHATHAM ISL.: *Andersson*. Endemic.

## CYPERACEAE

**Cyperus** L.

**C. aristatus** Rottb. Descr. Nov. Pl. 23, t. 6, f. 1 (1786); Rob. (1), 126.—ALBEMARLE ISL.: Iguana Cove, common in lava cracks near the shore (no. 1028); Tagus Cove, common on lava beds at 4000 ft. (no. 1027). CHARLES ISL.: *Darwin*. CHATHAM ISL.: Wreck Bay, in swampy places, 1000-1750 ft., (no. 1029). JAMES ISL.: *Scouler*. NARBOROUGH ISL.: *Snodgrass and Heller*. Widely distributed.

**C. brachystachys** Anderss. (2), 53, t. 13, f. (2); Rob. (1), 126.—ABINGDON ISL.: occasional at 600 ft., common in open places in the vegetation at 1400 ft., (no. 1030). ALBEMARLE ISL.: Iguana Cove, *Snodgrass and Heller*; Tagus Cove, common above 300 ft. (no. 1032); Villamil, *Baur*. CHARLES ISL.: occasional on rocks near the shore (no. 1033). CHATHAM ISL.: *Baur*. DUNCAN ISL.: common around 1300 ft. (no. 1034). JAMES ISL.: occasional on lava at 850 ft. (no. 1035). JERVIS ISL.: (no. 1036). TOWER ISL.: *Snodgrass and Heller*. Endemic.

**C. confertus** Sw. Prodr. 20 (1788); Rob. (1), 127.—ALBEMARLE ISL.: Iguana Cove, common to above 400 ft.; Tagus Cove, occasional on lava beds, 100-600 ft., (nos. 1038-1039); Villamil, occasional at 650 ft. (no. 1040). BINDLOE ISL.: *Snodgrass and Heller*. CHARLES ISL.: occasional at 1000-



1250 ft. (nos. 1042-1244). CHATHAM ISL.: Wreck Bay, on rocks at 500 ft. (no. 1041). DUNCAN ISL.: *Snodgrass and Heller*. HOOD ISL.: *Snodgrass and Heller*. INDEFATIGABLE ISL.: northwest side, *Andersson*. JAMES ISL.: *Andersson*. Widely distributed.

**C. esculentus** L. Sp. Pl. 45 (1753); Rob. (1), 127.—ALBEMARLE ISL.: Tagus Cove, occasional on rocky cliffs at 100 ft. (no. 1045). CHATHAM ISL.: Wreck Bay, occasional in sandy soil near the shore (no. 1046). Widely distributed.

**C. galapagensis** Caruel (1), 621; Rob. (1), 127.—CHATHAM ISL.: *Chierchia*. Endemic.

**C. grandifolius** Anderss. (1), 157, (2), 56; Rob. (1), 127.—CHARLES ISL.: occasional among rocks at 1550 ft. (no. 1047). CHATHAM ISL.: Wreck Bay, common in large bunches above 1800 ft. (no. 1048). Endemic.

**C. laevigatus** L. Mant. II. 179 (1771); Rob. (1), 127.—ALBEMARLE ISL.: Elizabeth Bay, *Snodgrass and Heller*; Villamil, occasional in brackish pools on the lower parts of the island (no. 1049). INDEFATIGABLE ISL.: southeast side, abundant in brackish pools near the shore (no. 1050). Further distr. tropical regions.

**C. ligularis** L. Amoen. Acad. V. 391 (1760); Rob. (1), 127.—ALBEMARLE ISL.: Elizabeth Bay, *Snodgrass and Heller*; Iguana Cove, *Snodgrass and Heller*; Tagus Cove, *Snodgrass and Heller*; Villamil, common in lava crevices near the shore and to some extent around 650 ft. (nos. 1051-1053). BINDLOE ISL.: (no. 1054). INDEFATIGABLE ISL.: Academy Bay, in pools of slightly brackish water near the shore (no. 1055). Further distr. W. Ind., tropical S. Am., Africa.

**C. Mutisii** (HBK.) Anderss. (2), 53. *Mariscus Mutisii* HBK. Nov. Gen. & Sp. I. 216, t. 66 (1815). *Cyperus Mutisii* Anderss. l. c.; Rob. (1), 128.—ABINGDON ISL.: abundant around steam jets at 1000 ft. (no. 1056). ALBEMARLE ISL.: Elizabeth Bay, *Snodgrass and Heller*; Iguana Cove, abundant in open places in the vegetation above the cove (no. 1057); Tagus Cove, (nos. 1059-1061); Villamil, common in lava crevices on the lower parts and at 500 ft. BINDLOE ISL.: occasional

in tufaceous soil on the lower parts (no. 1062). CHARLES ISL.: rare among rocks at 50 ft., common at 1450 ft., (no. 1063). CHATHAM ISL.: *Andersson*; *Baur*. GARDNER ISL. (near HOOD ISL.): (no. 1065). INDEFATIGABLE ISL.: Academy Bay, occasional at 100 ft. (no. 1067); southeast side, common at 450 ft. (no. 1066). NARBOROUGH ISL.: south and east sides, *Snodgrass and Heller*; north side, common on lava beds near the shore (no. 1068). SEYMOUR ISL., SOUTH: *Snodgrass and Heller*. TOWER ISL.: dried remains, the specific identity of which is somewhat in doubt, (no. 1069). WENMAN ISL.: common on tops of the cliffs. Possibly this is the species of which *Mr. Heller* noticed dried remains on the islet north of Wenman, mentioned by Robinson (1), 251. Endemic.

**C. polystachyus** Roth. Desc. & Ic. 39, t. 11, f. 1 (1786). *C. fugax* Liebm. Mex. Halv. 8 (1850); Rob. (1), 127.—CHATHAM ISL.: Wreck Bay, *Baur*. Widely distributed.

**C. rotundus** Hook. f. (3), 177; Rob. (1), 128.—ALBEMARLE ISL.: *Macrae*. The specific identity of the *Macrae* specimen is somewhat in doubt. Endemic?

**C. rubiginosus** Hook. f. (3), 178; Rob. (1), 128.—CHARLES ISL.: *Darwin*. CHATHAM ISL.: Wreck Bay, abundant in moist places, 450-700 ft., (no. 1070). DUNCAN ISL.: abundant among rocks at 1000 ft. (no. 1071). Endemic.

Var. **cornutus** Rob. (1), 128. *Mariscus cornutus* Anderss. (1), 151. *C. cornutus* Anderss. (2), 53, t. 13, f. 1.—BARRINGTON ISL.: common around dried pools (no. 1074). CHARLES ISL.: *Andersson*. DUNCAN ISL.: *Snodgrass and Heller*. SEYMOUR ISL., SOUTH: *Snodgrass and Heller*. Endemic.

**C. strigosus** L. Sp. Pl. 47 (1753); Rob. (1), 128.—CHARLES ISL.: *Darwin*. CHATHAM ISL.: *Andersson*. Further distr. U. S.

**C. suranimensis** Rottb. Descr. Nov. Pl. 35, t. 6, f. 5 (1786); Rob. (1), 129.—CHATHAM ISL.: Wreck Bay, in open grassy areas at 1750 ft. (no. 1075). JAMES ISL.: *Darwin*. Further distr. S. U. S., Mex., W. Ind., S. Am.

**C. tristachyus** Boeck. *Linnaea* XXXV. 454 (1867-1868); Rob. (1), 129.—CHATHAM ISL.: Wreck Bay, *Baur*. Further distr. Mex., northern S. Am.

**C. sp.**—BARRINGTON ISL.: dried remains of a *Cyperus* were found growing quite abundantly in coarse sandy soil in the vicinity of the shore. It seems to be different from any of the other species collected on the islands, (no. 1076).

**C. sp.** Rob. (1), 129.—NARBOROUGH ISL.: *Snodgrass and Heller*.

**C. sp.** Rob. (1), 129.—WENMAN ISL.: *Snodgrass and Heller*. Probably *C. Mutisii*.

#### Dichronema Michx.

**D. colorata** (L.) Hitchk. *Baham*, in *Mo. Bot. Gard.* 1V. 141 (1893). *Schoenus coloratus* L. *Sp. Pl.* 41 (1753). *D. leucocephala* Michx. *Fl. I.* 37 (1803); Rob. (1), 129.—CHATHAM ISL.: Wreck Bay, covers the ground in dense mats in the open country around 650 ft. (no. 1077). Further distr. S. U. S., Mex., W. Ind., S. Am.

#### Eleocharis R. Br.

**E. capitata** (L.) R. Br. *Prodr.* 225 (1810). *Scirpus capitatus* L. *Sp. Pl.* 48 (1753).—ALBEMARLE ISL.: Villamil, occasional in rather loose dry soil on the south side of the rim of the crater at 3150 ft. (no. 1078). CHATHAM ISL.: Wreck Bay, abundant in marshy ground around 1700 ft. (no. 1079). Further distr. tropical regions.

**E. fistulosa** (Poir.) Schult. *Mant.* II. 89 (1824). *Scirpus fistulosa* Poir. *Encycl.* VI. 749 (1804). *E. fistulosa* Schult. l. c.; Rob. (1), 129.—CHATHAM ISL.: Wreck Bay, common in pools of water at 1000-1750 ft. (no. 1080). Widely distributed.

**E. mutata** (L.) R. Br. *Prodr.* 224 (1810). *Scirpus mutatus* L. *Syst.* ed. 10, 867 (1759). *E. mutata* R. Br. l. c.; Rob. (1), 129.—ALBEMARLE ISL.: Elizabeth Bay, *Snodgrass and Heller*; Villamil, abundant in brackish swamps and in other moist situations in the vicinity of the shore. The inhabitants of this

island use the dried stalks of this species for making pads for pack-saddles, and sleeping mats, (no. 1081). Further distr. U. S., Mex., W. Ind., S. Am.

### Fimbristylis Vahl

**F. capillaris** (L.) A. Gray, Man. Bot. ed. 5, 567 (1869). *Scirpus capillaris* L. Sp. Pl. 49 (1753). *F. capillaris* A. Gray, l. c.; Rob. (1), 129.—ALBEMARLE ISL.: Tagus Cove, abundant in lava crevices, 500-4000 ft., (nos. 1083-1084); Villamil, occasional in lava crevices on the floor of the crater at 2750 ft. (no. 1082). BINDLOE ISL.: *Snodgrass and Heller*. CHARLES ISL.: common among rocks near the shore (no. 1085). NARBOROUGH ISL.: Mangrove Point, *Snodgrass and Heller*. Widely distributed.

**F. diphylla** (Rtz.) Vahl, Enum. II. 289 (1805). *Scirpus diphyllus* Rtz. Obs. V. 7 (1789). *F. diphylla* Vahl, l. c.; Rob. (1), 129.—HOOD ISL.: *Snodgrass and Heller*. Widely distributed in tropical regions.

### Hemicarpha Nees

**H. micrantha** (Vahl) Britton, Bull. Torr. Club. XV. 104 (1888). *Scirpus micranthus* Vahl. Enum. II. 254 (1805). *H. subsquarrosa* Nees, in Mart. Fl. Bras. II. pt. 1, 61 (1824); Rob. (1), 130.—CHATHAM ISL.: Wreck Bay, *Baur*. Further distr. U. S., Mex., W. Ind., S. Am.

### Kyllinga Rottb.

**K. pumila** Michx. Fl. I. 28 (1803); Rob. (1), 130.—CHARLES ISL.: in moist shady places around 1000 ft. (nos. 1086-1087). CHATHAM ISL.: Wreck Bay, occasional in open country around 600 ft. (no. 1088). Further distr. Mex., W. Ind., S. Am.

### Scleria Berg.

**S. pterota** Presl in Oken, Isis, XXI. 269 (1828). *S. pratensis* Lindl. ex Nees, Nov. Act. Nat. Cur. XIX. Suppl. I. 121 (1843); Rob. (1), 130.—CHATHAM ISL.: Wreck Bay, occasional patches at 650 ft. (no. 1089). Further distr. Mex., W. Ind., S. Am.

## LEMNACEAE

**Lemna** L.

**L. minor** L. Sp. Pl. 970 (1753).—ALBEMARLE ISL.: Villamil, common in pools of slightly brackish water near sea level (no. 1100). CHATHAM ISL.: Wreck Bay, abundant on the surface of pools and streams, 1000-1800 ft., (no. 1101). Widely distributed.

**L. sp.**, Wolf (1), 284.—CHARLES ISL.

## BROMELIACEAE

**Tillandsia** L.

**T. insularis** Mez in DC. Monog. IX. 756 (1896); Rob. (1), 130.—ALBEMARLE ISL.: Tagus Cove, rare above 2500 ft. on the west side of the mountain; on the southeast side it often covers the ground in great profusion over considerable areas; Villamil, common on the branches of trees and on the ground in vegetable mold, 350-1300 ft. CHARLES ISL.: common on bushes, on small trees, among rocks in vegetable mold at 1400 ft. CHATHAM ISL.: Wreck Bay, among rocks in vegetable mold, and covering the branches of *Hippomane Mancinella* trees around 700 ft. DUNCAN ISL.: on rocks and in vegetable mold, 1150-1250 ft. INDEFATIGABLE ISL.: Academy Bay, on the branches of trees and in vegetable mold, 350-550 ft., (no. 1119); northwest side, occasional at 550 ft., abundant in the region around 700 ft., where it often forms large patches on the ground in places where the vegetation is not too dense for its growth. JAMES ISL.: James Bay, occasional on the sides of the bluffs, 1300-1500 ft. NARBOROUGH ISL.: south side, upper regions acc. to *R. H. Beck*. This is the only tank epiphyte found on the islands. Specimens often contain as much as a pint of water, from which they seem to obtain their entire supply of moisture during dry weather. The root system is so poorly developed that a slight push will uproot a specimen when found growing on the ground. Endemic.

## COMMELINACEAE

**Commelina** Plum.

**C. nudiflora** L. Sp. Pl. 41 (1753); Rob. (1), 130.—ABINGDON ISL.: common in the upper regions (no. 1122). ALBE-

MARLE ISL.: Iguana Cove, common on the sides of the cliffs above the cove (no. 1124); Tagus Cove, occasional on lava beds at 1400 ft. (no. 1123). CHARLES ISL.: common at 1750 ft. (no. 1127). CHATHAM ISL.: Wreck Bay, common at 350-2100 ft. (nos. 1125-1126). DUNCAN ISL.: common on the sides of cliffs at 1250 ft. (no. 1128). INDEFATIGABLE ISL.: Academy Bay, abundant above 100 ft. (nos. 1130-1131); southeast side, occasional in open woods at 450 ft. (no. 1129). JAMES ISL.: *Darwin*. Further distr. general in tropics.

**Commelinacea**, Caruel (1), 621; Rob. (1), 131.—CHARLES ISL.: *Chierchia*. Same as the preceding, acc. to Rob. l. c.

## IRIDACEAE

### *Iris* L.

**I. sp.** ALBEMARLE ISL.: Villamil, a few sterile specimens of a small *Iris* were collected on the south rim of the crater at 3150 ft. (no. 1133).

## CANNACEAE

### *Canna* L.

**C. sp.** ALBEMARLE ISL.: Villamil, occasional at 700 ft. INDEFATIGABLE ISL.: Academy Bay, acc. to *J. S. Hunter*. JAMES ISL.: James Bay, occasional in woodland at 1500 ft. The specimens are all sterile.

## AMARYLLIDACEAE

### *Furcraea* Vent.

**F. cubensis** Vent. in Bull. Soc. Philom. I. 66 (1793).—ALBEMARLE ISL.: Villamil, around habitations. CHARLES ISL.: around former habitations (no. 1134). CHATHAM ISL.: Wreck Bay, formerly used as hedges around the plantation. INDEFATIGABLE ISL.: northwest side, occurs first at 450 ft. and extends to above 1000 ft. This species was introduced on this island many years ago by the tortoise hunters who planted it at their plantation above 1000 ft. *Capt. Thomas Levick*, of Chatham Isl., told us that on one of his trips to Indefatigable, a few years ago, he took some of the seed with him and scattered it along the trail as he came down the side of the moun-

tain. From these seeds the plant has grown abundantly and now forms impenetrable thickets, many acres in extent, along the trail. The inhabitants of Chatham Isl. use the fiber of this plant for rope, of which it makes a very good quality. Widely distributed in tropical regions through cultivation. Probably introduced on the islands.

### **Hypoxis** L.

**H. decumbens** L. Amoen. Acad. V. 396 (1759); Rob. (1), 131.—ALBEMARLE ISL.: Villamil, common in open woodland at 600 ft., rare at 1300 ft., (nos. 1135-1136). CHARLES ISL.; *Darwin*. CHATHAM ISL.: Wreck Bay, *Baur*. Further distr. Mex., W. Ind., S. Am.

**H. sp.**—ABINGDON ISL.: an *Hypoxis*, which is probably the last mentioned, occurs on this island. No specimens were taken.

## ORCHIDACEAE

### **Epidendrum** L.

**E. spicatum** Hook. f. (3), 180; Rob. (1), 131.—ABINGDON ISL.: on the trunks and branches of trees around 1900 ft. (no. 1137). ALBEMARLE ISL.: Villamil, abundant on the trunks and branches of trees, 1200-3150 ft., (no. 1138). CHARLES ISL.: *Lee*. JAMES ISL.: James Bay, on trees above 2100 ft. (no. 1139). Endemic.

### **Eulophia** R. Br.

**E. sp.**—INDEFATIGABLE ISL.: Academy Bay, a sterile specimen of an Orchid, with foliage similar to an *Eulophia*, was found growing in vegetable mold in densely shaded places at 600 ft. Hemsley, Gard. Chron. 177 (1900), refers to an *Eulophia* from the Galapagos Ids. It is possible that the specimen Mr. Hemsley refers to and the one under consideration belong to the same species, (no. 1144).

### **Ionopsis** HBK.

**I. utricularioides** (Sw.) Lindl. Coll. Bot. t. 39 A (1821-1825). *Epidendrum utricularioides* Sw. Prodr. 122 (1788).—ALBEMARLE ISL.: Villamil, common on the trunks and

branches of trees, 300-700 ft., (no. 1141). CHARLES ISL.: fairly common on trees at 1300 ft. (no. 1142). DUNCAN ISL.: rare on bushes at 1250 ft. (no. 1144). INDEFATIGABLE ISL.: Academy Bay, on the branches of trees, 350-500 ft.; northwest side, occasional at 800 ft.; southeast side, common on bushes and trees above 450 ft. (no. 1145). JAMES ISL.: James Bay, occasional on the branches of trees at 1000 ft. It is not abundant and does not seem to extend above this elevation, (no. 1146). Further distr. W. Ind.

**Ponthieva R. Br.**

**P. maculata** Lindl. in Ann. & Mag. Nat. Hist. I. XV. 385 (1845).—JAMES ISL.: James Bay, rare on the branches of trees in the upper moist regions. Specimen collected by *Mr. R. H. Beck*, identified by the late Mr. A. A. Eaton, (no. 1147). Further distr. Mex., northern S. Am.

DICOTYLEDONEAE

PIPERACEAE

**Peperomia R. & P.**

**P. flagelliformis** Hook. f. ex. Miq. in Hook. Lond. Jour. Bot. IV. 423 (1845), and (3), 181; Rob. (1), 131.—JAMES ISL.: *Darwin*. Endemic.

**P. galapagensis** Hook. f. ex. Miq. in Hook. Lond. Jour. Bot. IV. 426 (1845), and (3), 180; Rob. (1), 131.—ABINGDON ISL.: occasional on trees at 1500 ft. (no. 1153). ALBEMARLE ISL.: Villamil, common on the branches of trees above 400 ft. (no. 1158). DUNCAN ISL.: on rocks and bushes at 1275 ft. (no. 1149). INDEFATIGABLE ISL.: Academy Bay, on rocks and trees above 350 ft. (no. 1152); southeast side, on trees and bushes at 625 ft. (no. 1151). JAMES ISL.: James Bay, on the branches of trees above 1300 ft. (no. 1150). Specimens determined by Mr. Casimir de Candolle. Endemic.

**P. galioides** HBK. Nov. Gen. & Sp. I. 71, t. 17 (1815); Rob. (1), 131.—ABINGDON ISL.: common in woodland at 1650 ft. (no. 1154). ALBEMARLE ISL.: Villamil, occasional in vegetable mold among rocks, 1300-1500 ft., (no. 1156). CHATHAM



ISL.: Wreck Bay, on rocks, 650-700 ft., (no. 1158). INDEFATIGABLE ISL.: Academy Bay, occasional in vegetable mold among rocks in open woodland at 400 ft. (no. 1159); north-west side, common above 500 ft. (no. 1155). The specimens from Albemarle and Indefatigable Ids. were determined by Mr. Casimir de Candolle. Further distr. Mex., S. Am.

**P. obtusilimba** C. DC. nov. sp.

Foliis ternis-quaternis breviter petiolatis subovato-ellipticis basi et apice rotundatis utrinque glabris superne minutissime in margine ciliatis, 5-nerviis, nerviis tenuissimis; nervulo marginali obscuro ab apice fere usque ad medium decurrente; petiolo margine minute ciliatis; spicis axillaribus terminalibusque, pedunculis minutissime puberulis petiolos superantibus; spicis ipsis limbos multo vel pluries superantibus filiformibus sublaxifloris, bractea orbiculari centro subsessili; ovario obovato emerso fere in apice stigmatifero, stigmatem minuto glabro; bacca subovato-globosa glandulis asperulata. Caulis  $\frac{1}{2}$  mm. crassus minutissime puberulus. Limbi in sicco membranaceis rufescentes epunctati, usque ad 10 mm. longi et 5 mm. lati. Petioli  $1\frac{1}{2}$  mm. longi. Pedunculis usque ad 6 mm. longi. Spicae terminales 5 cm. axillares  $2\frac{1}{2}$  cm. longae,  $\frac{1}{2}$  mm. crassae. Bractea diametro  $\frac{1}{2}$  mm. brevior. Bacca  $\frac{1}{2}$  mm. paululo longior.

CHARLES ISL.: common on rocks and low bushes at 1400 ft. (nos. 1160-1161). Endemic.

**P. petiolata** Hook. f. (3), 181; Rob. (1), 131.—JAMES ISL.: *Darwin*. Endemic.

**P. ramulosa** Anderss. (1), 158, and (2), 57; Rob. (1), 131.—CHARLES ISL.: common in decayed moss on the branches of trees at 1700 ft. (no. 1162). Endemic.

**P. Snodgrassii** C. DC. in Rob. (1), 131.—ALBEMARLE ISL.: Iguana Cove, *Snodgrass and Heller*. Endemic.

**P. Stewartii** C. DC. nov. sp.

Foliis sat longe petiolatis oblongo-ovatis basi acutis apice subacutis, utrinque glabris superne margine ciliatis, 6-nerviis, nerviis tenuissimis; petiolo margine crispulo-hirtello; pedunculis terminalibus glabris petiolos fere aequantibus; spicis folia pluries superantibus sub densifloris; bractea obovata supra centrum longiuscule pedicellata; antheris rotundatis quam filamenta multo brevioribus; ovario emerso ovato apice obtuso, stigmatem puberulo; bacca ovata glandulis globosis asperata.

Caulis crispulo-hirtellus filiformis fere  $\frac{3}{4}$  mm. crassus. Folia alterna, internodia 6-7 mm. longa. Limbi in sicco membranacei, superi 15-18 mm. longi et 8-9 mm. lati, inferi magis ovati. Petioli circiter 6 mm. longi. Spicae circiter 5 cm. longae et 1 mm. crassae. Bractee infimae orbiculares, aliae ut in diagnosi. Ovarium paullo sub apice stigmatiferum. Bacca 1 mm. longa, sessilis.

ABINGDON ISL.: common on rocks at 1050 ft. (no. 1163). ALBEMARLE ISL.: Villamil, common among rocks in woodland, 350-1500 ft., (nos. 1164-1165). CHARLES ISL.: in moist shady places at 1000 ft. (no. 1166). INDEFATIGABLE ISL.: Academy Bay, in shady places, 50-400 ft., (no. 1168, Type); northwest side, common in shade at 950 ft. (no. 1170). JAMES ISL.: James Bay, in woodland at 850 ft., not common, (no. 1171). This is one of the most common species of *Peperomia* found on the islands and is usually the first species to be seen in ascending the sides of the mountains. Endemic.

**P. n. sp. Rob. (1), 132.**—ALBEMARLE ISL.: Tagus Cove, *Snodgrass and Heller*. Endemic.

**P. sp. Rob. & Greenm. (1), 148.**—CHATHAM ISL.: *Baur*.

## URTICACEAE

### *Fleurya* Gaud.

**F. aestuans** Gaud. in Freyc. Voy. Bot. 497 (1826); Rob. (1), 132.—ABINGDON ISL.: common, 800-1100 ft., (no. 1172). ALBEMARLE ISL.: Iguana Cove, abundant from the beach to 600 ft. (no. 1325); Tagus Cove, common in lava crevices in shade, 300-2900 ft., (no. 1177); Villamil, abundant among rocks, 300-1300 ft., (nos. 1174-1175). CHARLES ISL.: occasional among rocks at 1550 ft. (no. 1326). CHATHAM ISL.: Basso Point, occasional in shady places at 900 ft. (no. 1327). DUNCAN ISL.: common on the sides of steep lava cliffs at 1000 ft., also common around 1250 ft., (no. 1328). HOOD ISL.: occasional in lava crevices, 400-600 ft., (no. 1329). INDEFATIGABLE ISL.: Academy Bay, occasional among rocks at 50 ft. At this elevation the specimens are low and with many stinging hairs on the stem. This same species also grows very abundantly around 600 ft., where it attains a height of 3-4 ft. and has fewer stinging hairs on both the stems and leaves than do the specimens taken from the lower elevations, (nos. 1130-1331). JAMES ISL.: James Bay, *Snodgrass and Heller*. NARBOROUGH ISL.: south side, *Snodgrass and Heller*. This species shows much variation both in size and in the arming of the stem and leaves, but the differences are not sufficient to be of formal value. Further distr. Mex., W. Ind., S. Am.

**Parietaria L.**

**P. debilis** G. Forst. Fl. Ins. Aust. Prodr. 73 (1786); Rob. (1), 132.—ALBEMARLE ISL.: Iguana Cove, in protected places on the sides of the cliffs above the cove (no. 1334); Tagus Cove, occasional at 1000 ft., common in lava crevices at 2850 ft., (no. 1333); Villamil, common among rocks at 550 ft. (no. 1332). CHARLES ISL.: in shady places among rocks at 1550 ft. (no. 1335). JAMES ISL.: *Darwin*. Widely distributed in tropical regions.

**Pilea Lindl.**

**P. Baurii** Rob. (1), 133.—ABINGDON ISL.: common in moist shady places around 1650 ft. (no. 1336). CHARLES ISL.: *Baur*. CHATHAM ISL.: Wreck Bay, common in open country around 1000 ft. (no. 1338). JAMES ISL.: James Bay, occasional around 2000 ft. (no. 1339). There is much variation in the specimens found growing in sun and in shade, those growing in the shade having a green stem, thinner leaves, and a much less branched inflorescence. Endemic.

**P. microphylla** (L.) Liebm. in Vidensk. Selk. Skr. ser. 5, II. 296 (1851). *Parietaria microphylla* L. Sp. Pl. ed. 2, 1492 (1763). *Pilea muscosa* Lindl. Coll. Bot. t. 4 (1821); Rob. (1), 133.—JAMES ISL.: *Darwin*. Further distr. Mex., W. Ind., S. Am.

**P. peploides** (Gaud.) Hook & Arn. Bot. Beech. 96 (1832). *Dubreulia peploides* Gaud. in Freyc. Voy. Bot. 495 (1826). *P. peploides* Hook & Arn. l. c.; Rob. (1), 133.—ALBEMARLE ISL.: Tagus Cove, in lava crevices at 2850 ft. (no. 1340). CHARLES ISL.: common on moist rocks at 1000 ft., occasional at 1550 ft., (nos. 1339, 1341). CHATHAM ISL.: Wreck Bay, rare in shady places at 700 ft. (no. 1342). JAMES ISL.: *Darwin*. Further distr. Pacific Ids., Asia.

**Urera Gaud.**

**U. alceaefolia** (Poir.) Gaud. in Freyc. Voy. Bot. 497 (1826). *Urtica alceaefolia* Poir. Suppl. 227 (1816).—ALBEMARLE ISL.: Villamil, common bushes, 650-1500 ft. The leaves of many of the specimens are variegated, (no. 1343). INDEFATIGABLE ISL.: Academy Bay, common bushes above

500 ft. They increase in size and abundance above this elevation, according to *Mr. F. X. Williams*, of the Academy's expedition, (no. 1344). JAMES ISL.: James Bay, occasional bushes in open woodland around 2000 ft. (no. 1345). Further distr. Mex., S. Am.

## LORANTHACEAE

### *Phoradendron* Nutt.

**P. florianum** (Anderss.) Rob. (1), 133. *Viscum florianum* Anderss. (1), 219, (2), 92.—CHARLES ISL.: *Andersson*. Endemic.

**P. galapageium** (Hook. f.) Rob. (1), 133. *Viscum galapageium* Hook. f. (3), 216.—CHATHAM ISL.: *Darwin*; *Andersson*. Endemic.

**P. Henslovii** (Hook. f.) Rob. (1), 133. *Viscum Henslovii* Hook. f. (3), 216.—ABINGDON ISL.: common on trees and bushes, 450-1000 ft., (no. 1102). ALBEMARLE ISL.: Cape Rose, on trees near the shore (no. 1103); Cowley Bay, on trees and bushes above 400 ft. (no. 1106); Iguana Cove, common on trees above 300 ft. (no. 1104); Tagus Cove, on trees and bushes, 400-4000 ft.; Villamil, common on bushes near the shore. It also occurs throughout the wooded regions to 1500 ft. and is present on small trees and bushes on the rim of the crater at 3150 ft., as well as on trees of *Zanthoxylum Fagara* on the floor of the same at 2750 ft., (no. 1105). CHARLES ISL.: common on bushes of *Lipochaeta laricifolia*, 600-1000 ft., also common on trees of *Zanthoxylum Fagara* and *Scalesia pedunculata* at 1100 ft., (no. 1108). CHATHAM ISL.: Basso Point, occasional on trees at 900 ft. (no. 1107); Sappho Cove, on trees and bushes near the shore; Wreck Bay, *Baur*. DUNCAN ISL.: occasional on bushes at 1250 ft. (no. 1109). INDEFATIGABLE ISL.: Academy Bay, abundant on trees and bushes near the shore. It increases in size and abundance with the elevation above sea level, (no. 1102); southeast side, common on trees and bushes above 400 ft.; northwest side, abundant above 700 ft. JAMES ISL.: James Bay, abundant on bushes to 2500 ft.; northeast side, on trees and bushes above 100 ft. JERVIS ISL.: occasional on bushes above 700 ft. This species

varies greatly in size at different elevations. Specimens from the moist region are usually much larger than those found in the dry and transition regions. Endemic.

**P. uncinatum** Rob. (1), 134.—NARBOROUGH ISL.: *Snodgrass and Heller*. Endemic.

## POLYGONACEAE

### **Polygonum** L.

**P. acre** HBK. Nov. Gen. & Sp. II. 179 (1817).—CHATHAM ISL.: Wreck Bay, common in pools of water at 1000 ft. (no. 1121). Further distr. U. S., Mex., W. Ind., S. Am.

**P. acuminatum** HBK. Nov. Gen. & Sp. II. 178 (1817); Rob. (1), 134.—GALAPAGOS ISL.: according to Griesb. Fl. W. Ind. 161. It is probable that the next species has been mistaken for this one, as the two resemble each other rather closely. Further distr. Mex., W. Ind., S. Am.

**P. galapagense** Caruel (1), 624; Rob. (1), 134.—ALBEMARLE ISL.: Villamil, occasional above 2500 ft. CHATHAM ISL.: Wreck Bay, common in large bunches 2-4 ft. high in the open grassy country above 1700 ft. (no. 1120). Endemic.

## CHENOPODIACEAE

### **Atriplex** L.

**A.** sp. Rob. (1), 134.—INDEFATIGABLE ISL.: north side, low shrubs on sand beaches (no. 1346). SEYMOUR ISL., NORTH: *Snodgrass and Heller*. All of the specimens are sterile and indeterminate as to species.

**A.** sp. Rob. (1), 134.—WENMAN ISL.: *Snodgrass and Heller*.

### **Salicornia** L.

**S.** sp. (?).—JAMES ISL.: northeast side, a plant resembling a *Salicornia* in habit and inflorescence was seen growing on the shores of salt lagoons. No specimens were secured.

## AMARANTACEAE

*Alternanthera* Forsk.

**A. radicata** Hook. f. (4), 261, 262; Rob. (1), 134.—CHATHAM ISL.: *Darwin*. CHARLES ISL.: abundant in barren places among lava boulders near the shore (no. 1347). HOOD ISL.: *Snodgrass and Heller*. Endemic.

**A. rigida** Rob. & Greenm. (1), 143, 148; Rob. (1), 135.—JAMES ISL.: northeast side, occasional bushes 6-10 inches high on lava beds near the shore, and to some extent at 700 ft., (no. 1348). Endemic.

**A. subscaposa** Hook. f. (3), 189; Rob. (1), 135.—CHARLES ISL.: *Darwin*. DUNCAN ISL.: rare in moist protected places around 1250 ft. (no. 1349). Endemic.

*Amaranthus* L.

**A. caracasanus** HBK. Nov. Gen. & Sp. II. 195 (1817); Rob. (1), 135.—ALBEMARLE ISL.: Iguana Cove, rare on the sides of the cliffs above the cove (no. 1351); Tagus Cove, *Snodgrass and Heller*; Villamil, fairly common in open places on the lower parts (no. 1350). CHARLES ISL.: abundant from the beach to 1000 ft. during the rainy season (no. 1354). CHATHAM ISL.: Wreck Bay, abundant near the shore (no. 1356). INDEFATIGABLE ISL.: northwest side, *Andersson*. One of the common spring weeds of the islands where it occurs. Further distr. northern S. Am.

**A. celosioides** HBK. Nov. Gen. & Sp. II. 194 (1817); Rob. (1), 135.—CHARLES ISL.: *Darwin*; *Andersson*. CHATHAM ISL.: *Andersson*. Further distr. northern S. Am.

**A. sclerantoides** Anderss. (2), 59, t. 2, f. 1; Rob. (1), 135.—BARRINGTON ISL.: *Snodgrass and Heller*. CHARLES ISL.: common in open sunny places at 450 ft. (no. 1357). CHATHAM ISL.: Wreck Bay, common near the shore (no. 1358). NARBOROUGH ISL.: east side, *Snodgrass and Heller*. Endemic.

Forma **abingdonensis** nov. forma.

Ramulis diffusis; foliis linearibus late patentibus circa 2.5 cm. longis, ad apicem 1 mm. latis.

ABINGDON ISL.: occasional among rocks at 700 ft. (no. 1359). Plate II, fig. 1. Endemic.

Forma **albemarlensis** nov. forma.

Foliis subappressis ad apices dilatis 1.9 cm. longis, 5 mm. latis.

ALBEMARLE ISL.: Turtle Cove, common on sand beaches, (no. 1360). Plate II, fig. 2. Endemic.

Forma **chathamensis** Rob. & Greenm. (1), 140; Rob. (1), 135.—CHATHAM ISL.: Wreck Bay, *Baur*. Endemic.

Forma **hoodensis** Rob. & Greenm. (1), 140; Rob. (1), 135.—GARDNER ISL. (near HOOD ISL.): common on sand beaches (no. 1361). HOOD ISL.: *Baur; Snodgrass and Heller*. Endemic.

**A. spinosus** L. Sp. Pl. 991 (1753); Rob. (1), 135.—CHARLES ISL.: *Andersson*. Of wide distribution.

**A. squamulatus** (Anderss.) Rob. Proc. Am. Acad. XLIII. 22 (1907). *Scleropus squamulatus* Anderss. (1), 162, (2), 60. *A. squarrulosus* Uline & Bray, Bot. Gaz. XIX. 270 (1894); Rob. (1), 135.—ALBEMARLE ISL.: Cowley Bay, occasional at 2000 ft. (no. 1363); Tagus Cove, occasional in tufaceous soil at 100 ft. (no. 1362). CHARLES ISL.: *Snodgrass and Heller*. CHATHAM ISL.: *Andersson*. DUNCAN ISL.: *Snodgrass and Heller*. INDEFATIGABLE ISL.: Academy Bay, (no. 1364); north side, *Snodgrass and Heller*; northeast side, fairly abundant in loose ashy soil near the shore (no. 1365). JAMES ISL.: James Bay, fairly common in rocky soil on the lower parts (no. 1356). JERVIS ISL.: *Baur*. SEYMOUR ISL., NORTH: *Snodgrass and Heller*. Endemic.

**A. urceolatus** Benth. Bot. Sulph. 158 (1844); Rob. (1), 136.—INDEFATIGABLE ISL.: *Andersson*. Further distr. adjacent S. Am. from Peru northward. Lower California acc. to Rob. l. c.

**A. viridis** L. Sp. Pl. ed. 2, 1405 (1763); Rob. (1), 136.—ALBEMARLE ISL.: Villamil, occasional to 650 ft., abundant at 1300 ft., (nos. 1357-1359). BARRINGTON ISL.: *Snodgrass and Heller*. CHATHAM ISL.: Wreck Bay, abundant in sandy soil near the shore and in clay soil in open sunny places at 50 ft. (nos. 1360-1361). Further distr. general in warm countries.

**Froelichia Moench.**

**F. juncea** Rob. & Greenm. (1), 143, 148; Rob. (1), 136.—ALBEMARLE ISL.: Elizabeth Bay, *Snodgrass and Heller*; Tagus Cove, *Snodgrass and Heller*; Villamil, in dense somewhat prostrate clumps on lava beds near sea level (no. 1362). INDEFATIGABLE ISL.: southeast side, low bushes at 450 ft. (no. 1363). Endemic.

**F. lanigera** Anderss. (2), 63; Rob. (1), 136. *F. lanata* Anderss. (2), t. 3, f. 1.—ALBEMARLE ISL.: Cowley Bay, prostrate bushes in pumice soil near the shore (no. 1364); Tagus Cove, abundant on the sides and top of the mountain at 4000 ft. (no. 1365). DUNCAN ISL.: low bushes on the sides and top of the island (no. 1366). NARBOROUGH ISL.: north side, low bushes on recent lava. Endemic.

**F. nudicaulis** Hook. f. (3), 192; Rob. (1), 136.—CHARLES ISL.: *Darwin*; *Andersson*. CHATHAM ISL.: *Andersson*. Endemic.

**F. scoparia** Rob. (1), 136.—JAMES ISL.: James Bay, common bushes on the lower parts (no. 1367). NARBOROUGH ISL.: south side, *Snodgrass and Heller*. Endemic.

**Iresine L.**

**I. Edmonstonei** Hook. f. (3), 190; Rob. (1), 137.—CHARLES ISL.: *Darwin*. Endemic.

**Pleuropetalum Hook. f.**

**P. Darwinii** Hook. f. (1), t. 2, (3), 221; Rob. (1), 137.—ALBEMARLE ISL.: Iguana Cove, *Snodgrass and Heller*; Villamil, occasional bushes 2-3 ft. high in woodland at 400-700 ft. (no. 1358). JAMES ISL.: James Bay, common bushes in woodland above 1500 ft. (nos. 1369-1370). Endemic.

**Telanthera R. Br.**

**T. echinocephala** (Hook. f.) Moq.-Tand in DC. Prodr. XIII. pt. 2, 373 (1849). *Brandesia echinocephala* Hook. f. (3), 189. *T. echinocephala* Moq.-Tand. l. c.; Rob. (1), 137.—ABINGDON ISL.: common in thickets of *Laguncularia race-*



*mosa* near the shore, common bushes at 1000 ft. The specimens taken from the vicinity of the shore have much smaller leaves than do those taken at 1000 ft., (nos. 1371-1372). ALBEMARLE ISL.: Cowley Bay, common bushes at 2100 ft. (no. 1376); Iguana Cove, bushes 3-4 ft. high, all over the lower parts, (no. 1374); Villamil, common bushes to 600 ft. (no. 1375). BARRINGTON ISL.: *Snodgrass and Heller*. CHARLES ISL.: *Darwin*; *A. Agassiz*; *Andersson*; *Snodgrass and Heller*. CHATHAM ISL.: Wreck Bay, occasional bushes 4-5 ft. high to 250 ft. (no. 1377). DUNCAN ISL.: *A. Agassiz*; *Baur*; *Snodgrass and Heller*. GARDNER ISL. (near HOOD ISL.): *Snodgrass and Heller*. HOOD ISL.: common bushes (nos. 1378-1380). INDEFATIGABLE ISL.: Academy Bay, common bushes 5-6 ft. high in the vicinity of the shore, occasional to 300 ft., (no. 1381); north side, *Snodgrass and Heller*; southeast side, common bushes on the lower parts (no. 1382). JAMES ISL.: James Bay, common bushes to above 1000 ft. (nos. 1383-1384). Endemic.

**T. filifolia** (Hook. f.) Moq.-Tand. in DC. Prodr. XIII. pt. 2, 368 (1849). *Bucholtzia filifolia* Hook. f. (3), 192. *T. filifolia* Moq.-Tand. l. c.; Rob. (1), 138.—JAMES ISL.: *Scouler*. Endemic.

**T. flavicoma** Anderss. (1), 166, (2), 61, t. 5, f. 2; Rob. (1), 138.—ABINGDON ISL.: prostrate bushes, common, 900-1400 ft., (nos. 1386-1387). ALBEMARLE ISL.: Cowley Bay, occasional bushes at 2000 ft. (no. 1393); Villamil, species in doubt (no. 1392). CHARLES ISL.: *Andersson*. CHATHAM ISL.: Basso Point, low bushes in open places at 875 ft. (no. 1388); Sappho Cove, occasional on lava flows and in the vicinity of the coast (no. 1389); Wreck Bay, low bushes near the beach (no. 1390). GARDNER ISL. (near HOOD ISL.): *Snodgrass and Heller*. HOOD ISL.: abundant in crevices of the lava (no. 1391). INDEFATIGABLE ISL.: Academy Bay, occasional low bushes near the beach and in the interior to 100 ft. (nos. 1394-1395). JAMES ISL.: James Bay, occasional bushes 12-18 inches high to 2150 ft. (nos. 1396-1397). Endemic.

**T. galapagensis** nov. sp.

Suffrutescens circa 2.5 dm. alta; ramis oppositis vel alternis terebibus striatis glaucescentibus ad nodos lanuginoso-ciliatis; foliis oppositis 1.2-2.8 cm. longis, 0.6-1.3 cm. latis, oblanceolatis apice obtusis basi

cuneatis sessilibus vel brevi-petiolatis integerrimis glaberrimis glaucescentibus; spicis densifloris 3-9 mm. longis terminalibus et axillaribus sessilibus; bracteis ovatis carinatis acutis hispidis; sepalis exterioribus lanceolatis plerumque 3-costatis bruneis hispidis apice subflavis; sepalis interioribus linearilanceolatis acutis carinatis margine hyalinis; staminodiis ad apices laciniatis elongatis.

This species is closely related to *T. Snodgrassii* Rob. but differs in the glabrous glaucous character of the leaves and in the smaller size of the spikes. GARDNER ISL. (near CHARLES ISL.): (no. 1403). *J. R. Slevin*, collector. Plate II, figs. 3-4. Endemic.

**T. glaucescens** (Hook. f.) Moq.-Tand. in DC. Prodr. XIII. pt. 2, 369 (1849). *Bucholtzia glaucescens* Hook. f. (3), 191. *T. glaucescens* Moq.-Tand. l. c.; Rob. (1), 138.—CHARLES ISL.: *Andersson*. CHATHAM ISL.: *Darwin*; *Andersson*. Endemic.

**T. halimifolia** (Lam.) n. comb. *Achyranthes halimifolia* Lam. Dict. I. 547 (1783). *T. frutescens* Moq.-Tand. in DC. Prodr. XIII. pt. 2, 365 (1849); Rob. (1), 138.—ALBEMARLE ISL.: Villamil, common in moist places in the upper regions, especially in open woodland around 1300 ft., (no. 1398). CHATHAM ISL.: Wreck Bay, common in woodland above 200 ft. (no. 1399). INDEFATIGABLE ISL.: Academy Bay, small specimens of this species occur at 300 ft., but at 600 ft. the specimens are larger and more abundant, (no. 1401); northwest side, common at 400 ft. (no. 1400); southeast side, abundant in shady places at 625 ft. (no. 1402). Further distr. S. Am.

**T. Helleri** Rob. (1), 138.—CULPEPPER ISL.: low bushes among rocks near the shore (no. 1404). *F. X. Williams*, collector. Endemic.

Var. **obtusior** Rob. (1), 139.—WENMAN ISL.: common bushes, 2-3 ft. high, (no. 1424).

**T. nudicaulis** (Hook. f.) Moq.-Tand. in DC. Prodr. XIII. pt. 2, 369 (1849). *Bucholtzia nudicaulis* Hook. f. (3), 191. *T. nudicaulis* Moq.-Tand. l. c.; Rob. (1), 139.—ABINGDON ISL.: common bushes on the lower parts (no. 1405). ALBEMARLE ISL.: Cowley Bay, *Baur*; Tagus Cove, common bushes at 4000 ft. (no. 1407); Villamil, low and somewhat prostrate bushes (no. 1406). BRATTLE ISL.: (no. 1408). CHARLES

ISL.: common bushes (no. 1409). CHATHAM ISL.: north side, *Baur*. DUNCAN ISL.: *Snodgrass and Heller*. HOOD ISL.: species in doubt (no. 1411). INDEFATIGABLE ISL.: northeast side, occasional low shrubs (no. 1410). JERVIS ISL.: occasional low bushes at 1050 ft. (no. 1412). JAMES ISL.: James Bay, fairly abundant to 1200 ft. (no. 1413); Orquilla Bay, *Baur*. Further distr. S. Chili.

**T. rugulosa** Rob. (1), 139.—CHATHAM ISL.: Wreck Bay, occasional low trees 10-12 ft. high around 1800 ft. (no. 1414). Endemic.

**T. Snodgrassii** Rob. (1), 140.—ALBEMARLE ISL.: Villamil, low bushes, fairly common at 550 ft., (no. 1415). JAMES ISL.: James Bay, (no. 1416). SEYMOUR ISL., NORTH: *Snodgrass and Heller*. Endemic.

**T. strictiuscula** Anderss. (1), 166; Rob. (1), 140.—ALBEMARLE ISL.: Iguana Cove, common bushes near the shore (no. 1418); Villamil, low bushes at 550 ft. (no. 1417). CHARLES ISL.: bushes 2-3 ft. high among rocks at 1400 ft. (no. 1420). CHATHAM ISL.: Wreck Bay, common bushes 3-6 ft. high at 500 ft. (no. 1419). INDEFATIGABLE ISL.: southeast side, low bushes at 600 ft. (no. 1421). NARBOROUGH ISL.: south side, *Snodgrass and Heller*. Endemic.

**T. vestita** Anderss. (1), 169, (2), 63, t. 4, f. 1; Rob. (1), 140.—INDEFATIGABLE ISL.: Academy Bay, common bushes on the lower parts (no. 1423); north side, common in lava crevices (no. 1422). Endemic.

## BATIDACEAE

### **Batis** L.

**B. maritima** L. Syst Nat. ed. 10, 1376 (1760); Rob. (1), 141.—CHARLES ISL.: common on sand beaches (no. 1425). CHATHAM ISL.: Sappho Cove, common near the shore (no. 1426). INDEFATIGABLE ISL.: north side, common on sand beaches (no. 1427); southeast side, common on sand beaches (no. 1428). JAMES ISL.: James Bay, common around salt lagoons and around the borders of a crater lake south of the bay (no. 1430). Widely distributed on tropical shores.

## BASELLACEAE

**Boussingaultia** HBK.

**B. baselloides** HBK. Nov. Gen. & Sp. VII. 196, t. 645 (1825); Rob. (1), 141.—CHARLES ISL.: *Darwin*. DUNCAN ISL.: trailing vines covering rocks at 1150 ft. (no. 1431). Further distr. Mex., W. Ind., S. Am.

## PHYTOLACCACEAE

**Phytolacca** L.

**P. octandra** L. Sp. Pl. ed. 2, 631 (1762). *P. decandra* Hook. f. (3), 193, not L.; Anderss. (1), 227, (2), 97; Rob. (1), 141.—ALBEMARLE ISL.: Villamil, prostrate bushes, common around 3150 ft., (no. 1433). JAMES ISL.: James Bay, common bushes 4-5 ft. high above 2150 ft. (no. 1432). Robinson, l. c., suggested that this species might possibly be *P. octandra*. The specimens secured confirm this suggestion. Further distr. Mex., W. Ind., S. Am.

**Rivina** Plum.

**R. humilis** L. Sp. Pl. 121 (1753).—ALBEMARLE ISL.: Villamil, low bushes in dense woodland at 500 ft. (no. 1434). INDEFATIGABLE ISL.: Academy Bay, rare near sea level, common in dense woodland at 300-450 ft., (nos. 1435-1436). JAMES ISL.: James Bay, fairly abundant in woodland around 2100 ft. (no. 1437). Further distr. S. U. S., Mex., W. Ind., S. Am.

## NYCTAGINACEAE

**Boerhaavia** L.

**B. erecta** L. Sp. Pl. 3 (1753); Rob. (1), 141.—ALBEMARLE ISL.: *Macrae*. CHARLES ISL.: common to 600 ft. during the spring months; during the autumn it was found occasionally among rocks at 1450 ft., (no. 1438). CHATHAM ISL.: *Andersson*. INDEFATIGABLE ISL.: *Andersson*. Further distr. S. U. S., Mex., W. Ind., S. Am.

**B. paniculata** Rich. Act. Soc. Nat. Hist. Par. I. 105 (1792); Rob. (1), 141.—ALBEMARLE ISL.: Tagus Cove, common in

open sunny places in tufaceous soil on the lower parts (no. 1440). JAMES ISL.: *Darwin*. NARBOROUGH ISL.: north side, occasional in lava crevices (no. 1441). Further distr. S. U. S., Mex., S. Am.

**B. scandens** L. Sp. Pl. 3 (1753); Rob. (1), 141.—ALBEMARLE ISL.: Iguana Cove, abundant near the shore (no. 1443); Villamil, abundant in open places on the lower parts of the island (no. 1442). CHARLES ISL.: common in open grassy places around 1000 ft. (no. 1444). CHATHAM ISL.: *Anderson; Snodgrass and Heller*. DUNCAN ISL.: occasional among bushes at 1150 ft. (no. 1466). INDEFATIGABLE ISL.: northwest side, common to 800 ft., very abundant in woodland around 650 ft., where it often forms the principal undergrowth, (no. 1445); southeast side, fairly common at 600 ft. (no. 1446). JAMES ISL.: James Bay, common in open woods at 850 ft. (no. 1447). Further distr. S. U. S., Mex., W. Ind., S. Am.

**B. viscosa** Lag. & Rod. Anal. Cienc. Nat. IV. 256 (1801); Rob. (1), 142.—ABINGDON ISL.: common on lava beds near the shore (no. 1448). ALBEMARLE ISL.: Tagus Cove, common in open sunny places in tufaceous soil to 1000 ft. (no. 1449); Villamil, abundant in light ashy soil and on lava beds on the lower parts (no. 1450). BRATTLE ISL.: (no. 1455). CHARLES ISL.: common in tufaceous soil to 650 ft. (no. 1451). CHATHAM ISL.: Basso Point, common on sand beaches (no. 1454). GARDNER ISL. (near HOOD ISL.): *Snodgrass and Heller*. HOOD ISL.: common on hillsides at 250 ft. (no. 1456). INDEFATIGABLE ISL.: north side, *Snodgrass and Heller*; southeast side, common in tufaceous soil at 600 ft. (no. 1458). JAMES ISL.: James Bay, *Snodgrass and Heller*. A species which is rather characteristic of open sunny places in the dry region. Further distr. S. W. U. S., Mex., W. Ind., S. Am.

### **Cryptocarpus** HBK.

**C. pyriformis** HBK. Nov. Gen. & Sp. II. 188, t. 124 (1817); Rob. (1), 142.—ABINGDON ISL.: forming low thickets on sand beaches (no. 1458). ALBEMARLE ISL.: Elizabeth Bay, *Snodgrass and Heller*; Iguana Cove, in dense thickets near the shore; Tagus Cove, *Snodgrass and Heller*; Turtle Cove, cover-

ing large areas with a dense growth of low bushes in the vicinity of the shore; Villamil, common on sand beaches and to some extent in the interior around brackish water pools (no. 1459). BARRINGTON ISL.: forming low thickets on sand beaches (no. 1462). BINDLOE ISL.: *Snodgrass and Heller*. Occasional thickets of this species were noticed at various places along the north shore. CHARLES ISL.: bushes 3-6 ft. high, forming tangled thickets on sand beaches, (no. 1460). CHATHAM ISL.: Basso Point, on sand beaches and on lava flows in the interior; Sappho Cove, bushes on the beach and in the interior (no. 1461); Wreck Bay, fairly common near the shore. DUNCAN ISL.: bushes near the shore. GARDNER ISL. (near HOOD ISL.): low bushes on the beach. HOOD ISL.: very abundant in dense low thickets on sand beaches, and to some extent in the interior at 600 ft., (no. 1463). INDEFATIGABLE ISL.: Academy Bay, common on the beach and occasional at various places in the lower dry region; north side, low bushes on the beach; southeast side, common in thickets among rocks and in sand (no. 1465). It was also noticed in various other places on the shore, while the "Academy" was sailing around the island. JAMES ISL.: James Bay, common bushes on the beach and around the shores of salt water lagoons (no. 1456). JERVIS ISL.: low bushes on the beach. NARBOROUGH ISL.: east side, *Snodgrass and Heller*. SEYMOUR ISL., SOUTH: occasional on the beach and in thickets of *Discaria pauciflora* and *Maytenus obovata* bushes. Further distr. Ecuador, Bolivia.

#### Mirabilis L.

**M. Jalapa** L. Sp. Pl. 177 (1753).—ALBEMARLE ISL.: Villamil, in gardens, and undoubtedly introduced, (no. 1459).

#### Pisonia L.

**P. floribunda** Hook. f. (3), 193; Rob. (1), 143.—ABINGDON ISL.: common trees, 450-1650 ft., (no. 1460). ALBEMARLE ISL.: Cowley Bay, common trees above 1300 ft.; Iguana Cove, *Snodgrass and Heller*; Tagus Cove, forest trees above 1500 ft.; Villamil, large trees, 100-900 ft. CHARLES ISL.: trees 10-30 ft. high, occasional around 1000 ft., (no. 1461). DUNCAN ISL.: low trees and bushes around 1150 ft.

(no. 1463). INDEFATIGABLE ISL.: Academy Bay, small trees near the shore, one of the common forest trees above 350 ft., (no. 1463); north side, trees above 1000 ft.; northwest side, small trees at 150 ft., forming large forest trees at 500-800 ft. JAMES ISL.: James Bay, common trees, 450-1700 ft., (nos. 1464-1465); northeast side, trees above 600 ft. This species forms one of the most common forest trees in the transition and moist regions on the islands where it occurs. Hooker, op. c. 194, describes it as an almost leafless tree, but we found it to be usually covered with a dense growth of leaves. As a rule the trunk is short and the branches are large and broadly spreading. Owing to the rough nature of the bark it is usually covered with epiphytes when it occurs in the moist regions. Endemic.

## AIZOACEAE

### *Mollugo* L.

*M. flavescens* Anderss. (1), 226, (2), 96, t. 15, f. 2; Rob. (1), 143.—ALBEMARLE ISL.: *Darwin*; *Macrae*; *Baur*. CHARLES ISL.: *Snodgrass and Heller*. CHATHAM ISL.: Sappho Cove, in lava crevices at 800 ft. (no. 1466); Wreck Bay, *Baur*. INDEFATIGABLE ISL.: north side, *Snodgrass and Heller*. Endemic.

Var. *floriana* Rob. (1), 143.—CHARLES ISL.: Cormorant Bay, abundant in coarse gravelly soil near the shore (no. 1467). Endemic.

*M. gracillima* Anderss. (1), 226, (2), 96; Rob. (1), 143.—ALBEMARLE ISL.: Iguana Cove, occasional in ashy soil on sides of the cliff above the cove (no. 1468); Tagus Cove, abundant in tufaceous soil (no. 1470); Villamil, common in open places at 550 ft. (no. 1469). BRATTLE ISL.: (no. 1471). CHARLES ISL.: common in open grassy areas at 600 ft. The specimens taken here are very small, but they seem to possess the characters of this species, (no. 1472). CHATHAM ISL.: Basso Point, occasional in lava crevices (no. 1473). DUNCAN ISL.: common in dry places near the shore (no. 1474). JAMES ISL.: Orchilla Bay, *Baur*. NARBOROUGH ISL.: north side, common on lava beds (no. 1476). WENMAN ISL.: (no. 1477). Endemic.

**M. Snodgrassii** Rob. (1), 144.—ALBEMARLE ISL.: Cowley Bay, bushes 1 ft. and more in height, rare in pumice soil, (no. 1478); Elizabeth Bay, *Snodgrass and Heller*; Tagus Cove, *Snodgrass and Heller*. NARBOROUGH ISL.: Mangrove Point, *Snodgrass and Heller*. Endemic.

### Sesuvium L.

**S. Edmonstonei** Hook. f. (3), 221; Rob. (1), 144.—BARRINGTON ISL.: common covering rocks along the shore (no. 1479). BRATTLE ISL.: (no. 1480). CHARLES ISL.: common on sand beaches, forming bright red patches when seen from a distance, (no. 1481). CULPEPPER ISL.: common on the sides of cliffs. DUNCAN ISL.: common among rocks along the shore and in occasional patches up to 250 ft. (no. 1482). GARDNER ISL. (near HOOD ISL.): *Snodgrass and Heller*. HOOD ISL.: very abundant on the tops of the cliffs at the east end of the island (no. 1483). The stems and leaves of this plant are usually bright red when it grows in open sunny places, but are green with but a small amount of the red color when it grows in the shade. Endemic.

**S. Portulacastrum** L. Syst. Nat. ed. 10, 1058 (1760); Rob. (1), 144.—ABINGDON ISL.: occasional on sand beaches. ALBEMARLE ISL.: Elizabeth Bay, *Snodgrass and Heller*; Turtle Cove, abundant on sand beaches (no. 1484). BARRINGTON ISL.: on sand beaches. CHARLES ISL.: forms thick mats on sand beaches. It also occurs around the shores of salt lagoons where the water is saturated with salt. In such situations the leaves are somewhat reduced in size, (no. 1485). CHATHAM ISL.: Sappho Cove, common on sand beaches (no. 1486). INDEFATIGABLE ISL.: southeast side, common on sand dunes (no. 1487). JAMES ISL.: northeast side, on sand beaches. SEYMOUR ISL., NORTH: *Snodgrass and Heller*. Further distr. S. U. S., W. Ind., S. Am., China.

### Trianthema L.

**T. Portulacastrum** L. Sp. Pl. 223 (1753); Rob. (1), 144.—ALBEMARLE ISL.: Turtle Cove, fairly abundant on sand beaches (no. 1488); Villamil, in dry sandy soil in open places near sea level (no. 1489). BARRINGTON ISL.: *Snodgrass and*



*Heller*. CHARLES ISL.: common near the shore and in loose ashy soil at 450 ft. (nos. 1490-1491). CHATHAM ISL.: *Andersson*. DUNCAN ISL.: (no. 1492). GARDNER ISL. (near HOOD ISL.): abundant in loose soil mixed with fragments of lava (no. 1493). HOOD ISL.: *Snodgrass and Heller*. INDEFATIGABLE ISL.: *Andersson*. JAMES ISL.: *Andersson*. SEYMOUR IDS., NORTH and SOUTH: *Snodgrass and Heller*. Widely distributed on tropical shores.

**Aizoacea** (?) sp. Sterile specimens of bushes 4-5 ft. high with succulent leaves were collected on BRATTLE ISL. and on the beach at Cormorant Bay, CHARLES ISL. The family is doubtful (nos. 1494-1495).

## PORTULACACEAE

### **Portulaca** L.

**P. oleracea** L. Sp. Pl. 445 (1753); Rob. (1), 145.—ABINGDON ISL.: common among rocks on the lower parts of the island (no. 1496). ALBEMARLE ISL.: Iguana Cove, abundant on the sides of the cliffs above the cove (no. 1498); Tagus Cove, common in tufaceous soil on the lower parts; Villamil, abundant in open places in the lower parts (no. 1497). CHARLES ISL.: common around 1750 ft. during the dry season; during the rainy season it occurs abundantly all over the lower parts of the island, (no. 1499). CHATHAM ISL.: Wreck Bay, common at 450 ft. (nos. 1500-1501). GARDNER ISL. (near HOOD ISL.): *Snodgrass and Heller*. HOOD ISL.: occasional at 250 ft. (no. 1502). NARBOROUGH ISL.: north side, common in crevices in the lava (no. 1503). The fact that this species is found on such unfrequented islands as Abingdon and Narborough would seem to indicate that it might not have been distributed by intercommunication among the islands as suggested by Robinson, l. c. At the time Dr. Robinson's paper was written it had only been found on the more frequented islands. Widely distributed.

**P.** sp. (?). Sterile specimens of a species of *Portulaca* (?), were found on ABINGDON, BARRINGTON, BRATTLE, CHARLES, JERVIS, and WENMAN ISLANDS. It is the *P.* sp.?, mentioned by Robinson, l. c. 145. (nos. 1504-1510).

**P. sp.**—CHATHAM ISL.: Sappho Cove, low bushes on lava in the vicinity of the coast. The specimen has a brownish-gray succulent stem, linear leaves, and rather large pinkish-white flowers. It is a new species to the islands and possibly to science, but the specimen is too poor for accurate description (no. 1511).

### CARYOPHYLLACEAE

#### *Drymaria* Willd.

**D. cordata** (L.) Willd. ex Roem. & Sch. Syst. V. 406 (1819). *Holosteum cordatum* L. Sp. Pl. 88 (1753). *Drymaria cordata* Willd. l. c.; Rob. (1), 145.—ALBEMARLE ISL.: Tagus Cove, abundant in open places on the inner wall of the crater at 4000 ft. (no. 1512); Villamil; common in moist places, 600-1300 ft., (no. 1513). CHARLES ISL.: occasional in vegetable mold among rocks, 1000-1450 ft., (nos. 1514-1516). CHATHAM ISL.: Wreck Bay, common above 900 ft. (no. 1517). JAMES ISL.: *Darwin*. Widely distributed.

### MENISPERMACEAE

#### *Cissampelos* L.

##### **C. galapagensis** nov. sp.

Scandens lignosa, caulibus canaliculatis glabris subtus glaucis; foliorum laminis peltatis triangularibus vel subcordatis 4.3 cm. longis 4.7 cm. latis apice obtusis vel rotundatis mucronatis utrinque subglaucis, petiolis 8-44 mm. longis canaliculatis; inflorescentia mascula axillari cymosa longipedunculata ad pedunculi basis bractea membranacea praedita; sepalis orbiculari-rhombis 1.5 mm. longis, nervo medio prominulo; corolla disciformi 1.2 mm. lata.

INDEFATIGABLE ISL.: Academy Bay, abundant on bare lava in rather open woods near the coast. A species which is closely related to *C. glaberrima* St. Hil. but differs principally in having the male flowers in cymes instead of panicles, and in the sepals being orbicular rhombic instead of lanceolated, with a medium rib on each, (nos. 1518-1519). Plate III, figs. 9-10. Endemic.

**C. Pareira** L. Sp. Pl. 1031 (1753); Rob. (1), 146.—ABINGDON ISL.: common above 500 ft. (no. 1523). ALBEMARLE ISL.: Cowley Bay, occasional at 1600-2000 ft., abundant on trees above 2000 ft.; Iguana Cove, common on trees and

bushes everywhere (no. 1522); Tagus Cove, common at 2000 ft.; Villamil, abundant covering rocks in a moist area on the lower parts some distance back from the shore, abundant throughout the transition and moist regions, (nos. 1520-1521). CHARLES ISL.: abundant in woodland at 1000 ft., covering rocks and trees at 1450 ft., (nos. 1524-1526). CHATHAM ISL.: Basso Point, abundant in woodland above 900 ft.; Wreck Bay, common throughout the wooded areas below 1000 ft. (no. 1527). DUNCAN ISL.: occasional on bushes at 1200 ft. (no. 1528). INDEFATIGABLE ISL.: Academy Bay, abundant on trees above 100 ft., around 600 ft. it covers the trees and bushes with a dense growth, (nos. 1530-1531); northeast side, common above 300 ft.; southeast side, fairly common on bushes at 600 ft. (no. 1529). JAMES ISL.: James Bay, abundant on trees and bushes above 1000 ft. (no. 1532); northeast side, fairly common above 400 ft. NARBOROUGH ISL.: north side, (no. 1533). This species shows much variation in the size, shape, and amount of pubescence on the leaves. Further distr. general in tropical regions.

## ANONACEAE

### *Anona* L.

**A. cherimolia** Mill. Gard. Dict. ed. VIII. n. 5 (1768).—CHARLES ISL.: forming a small grove at 1000 ft. Probably introduced, (no. 1535). Further distr. Mex., W. Ind., S. Am.

**A. glabra** L. Sp. Pl. 537 (1753).—ALBEMARLE ISL.: Villamil, bushes and small trees in low moist places in the vicinity of the shore (no. 1536). Further distr. S. U. S., W. Ind.

## CRUCIFERAE

### *Brassica* L.

**B. arvensis** (L.) Kze. Rev. Gen. I. 19 (1891). *Sinapis arvensis* L. Sp. Pl. 668 (1753). *B. Sinapistrum* Boiss. Voy. Esp. II. 39 (1839-1845); Rob. (1), 146.—CHARLES ISL.: *Andersson*. Widely distributed.

**B. campestris** L. Sp. Pl. 666 (1753); Rob. (1), 146.—CHARLES ISL.: *Snodgrass and Heller*. CHATHAM ISL.: Wreck

Bay, around habitations at 900 ft. Probably introduced. Widely distributed.

#### Coronopus Ludw.

**C. didymus** (L.) Sm. Fl. Brit. II. 691 (1800). *Lepidium didymum* L. Mant. 92 (1767). *Senebiera pinnatifida* DC. Mém. Soc. Hist. Nat. Par. VII. 144, t. 9 (1799); Rob. (1), 146.—ALBEMARLE ISL.: Villamil, abundant in open grassy country around 1300 ft. (no. 1540). JAMES ISL.: Darwin. Widely distributed.

#### Lepidium L.

**L. virginicum** L. Sp. Pl. 645 (1753).—CHATHAM ISL.: Wreck Bay, around habitations, probably introduced, (no. 1538). Widely distributed.

#### Raphanus L.

**R. sativus** L. Sp. Pl. ed. 2, 935 (1763); Rob. (1), 146.—CHARLES ISL.: Andersson. CHATHAM ISL.: Wreck Bay, in cultivated ground. A species concerning whose introduction there can be but little doubt, (no. 1539). Widely distributed through cultivation.

### CRASSULACEAE

#### Crassuvia Comm.

**C. floripendia** Comm. ex. Lam. Encycl. II. 141 (1786). *Bryophyllum calycinum* Salisb. Parad. Lond. t. 3 (1806).—CHATHAM ISL.: Wreck Bay, around habitations. Probably introduced. Further distr. U. S., Mex., W. Ind., S. Am.

### LEGUMINOSAE

#### Acacia Willd.

**A. farnesiana** (L.) Willd. Sp. IV. 1083 (1806). *Mimosa farnesiana* L. Sp. Pl. 521 (1753). *A. farnesiana* Willd. l. c.; Rob. (1), 147.—ALBEMARLE ISL.: Darwin; Macrae. INDEFATIGABLE ISL.: north side, small trees at 250 ft. (no. 1541). Further distr. Mex., S. Am.

**A. macracantha** H. & B. in Willd. Sp. IV. 1080 (1806); Rob. (1), 147.—ALBEMARLE ISL.: Tagus Cove, small trees and bushes in tufaceous soil, lower parts, (no. 1544); Villa-

mil, bushes and small trees below 100 ft. (nos. 1542-1543, 1545). CHARLES ISL.: common below 700 ft., varying in size from low bushes to trees 25 ft. in height, (nos. 1547-1549). CHATHAM ISL.: Wreck Bay, bushes 6-7 ft. high at 300 ft. (no. 1550). DUNCAN ISL.: prostrate bushes at 1275 ft. (no. 1551). HOOD ISL.: occasional bushes and small trees (no. 1552). INDEFATIGABLE ISL.: Academy Bay, low trees and bushes below 100 ft. (no. 1556); north side, bushes and low spreading trees above 100 ft. (no. 1557); southeast side, common bushes, often prostrate, (nos. 1559-1560). Further distr. W. Ind., S. Am.

**A. tortuosa** (L.) Willd. Sp. IV. 1083 (1806). *Mimosa tortuosa* L. Sp. Pl. ed. 2, 1505 (1763). *A. tortuosa* Willd. l. c.; Rob. (1), 147.—CHARLES ISL.: *Andersson*. CHATHAM ISL.: *Andersson*. INDEFATIGABLE ISL.: northeast side, low bushes near the shore (nos. 1615-1616); southeast side, occasional bushes. JAMES ISL.: northeast side, (no. 1667); James Bay, small trees 10-12 ft. high on the lower parts. Further distr. Mex., W. Ind., S. Am.

**A. sp. affin. *A. macracantha*** H. & B.; Rob. (1), 147.—ALBEMARLE ISL.: Elizabeth Bay, *Snodgrass and Heller*; Tagus Cove, *Snodgrass and Heller*.

**A. sp.?** Hook. f. (4), 261; Rob. (1), 147.—CHARLES ISL.: *Edmonston*.

**A. sp.** Rob. (1), 147.—JAMES ISL.: *Snodgrass and Heller*.

#### Astragalus L.

**A. Edmonstonei** (Hook. f.) Rob. (1), 148. *Phaca Edmonstonei* Hook. f. (3), 227.—CHARLES ISL.: *Edmonston*. Endemic.

#### Caesalpinia L.

**C. Bonducella** (L.) Fleming in As. Res. XI. 159 (1810). *Guilandina Bonducella* L. Sp. Pl. ed. 2, 545 (1763). *C. Bonducella* Fleming l. c.; Rob. (1), 148.—ALBEMARLE ISL.: Villamil, bushes 4-6 ft. high in low moist places near sea level (no. 1619). Further distr. general in warm countries.

**C. pulcherrima** (L.) Sw. Obs. 166 (1791). *Poinciana pulcherrima* L. Sp. Pl. 380 (1753). *C. pulcherrima* Sw. l. c.;

Rob. (1), 148.—CHARLES ISL.: common in the vicinity of former habitations. CHATHAM ISL.: Wreck Bay, in gardens around 1000 ft. Further distr. general in tropics.

#### Canavalia Adans.

**C. obtusifolia** (Lam.) DC. Prodr. II. 404 (1825). *Dolichos obtusifolius* Lam. Dict. II. 295 (1786). *C. obtusifolia* DC. l. c.; Rob. (1), 148.—BINDLOE ISL.: on the shore and in the interior of the island (no. 1620). Further distr. general in tropics.

#### Cassia L.

**C. hirsuta** L. Sp. Pl. 378 (1753); Rob. (1), 148.—CHARLES ISL.: *Lec.* Further distr. Mex., S. Am.

**C. occidentalis** L. Sp. Pl. 377 (1753); Rob. (1), 148.—ALBEMARLE ISL.: Iguana Cove, occasional low bushes (no. 1622); Villamil, occasional low bushes in lava crevices on the lower parts of the island to 600 ft. (nos. 1621, 1623). CHARLES ISL.: *Andersson; Snodgrass and Heller.* CHATHAM ISL.: Wreck Bay, low bushes, 150-800 ft., (nos. 1624-1625). Widely distributed.

**C. picta** Don. Syst. II. 444 (1832); Rob. (1), 149.—ALBEMARLE ISL.: Cowley Bay, common bushes in open country, 1500-2000 ft., (no. 1628); Iguana Cove, low bushes at 200 ft. (no. 1629); Tagus Cove, low bushes, 1500-2200 ft., (no. 1626); Villamil, low bushes in woodland, 100-550 ft., (no. 1627). CHARLES ISL.: rare at 350 ft. (no. 1630). CHATHAM ISL.: Wreck Bay, occasional bushes 4-5 ft. high at 200 ft. (nos. 1631-1632). Further distr. Ecuador.

**C. sericea** Sw. Prodr. 66 (1788); Rob. (1), 149.—CHATHAM ISL.: *Andersson.* INDEFATIGABLE ISL.: *Andersson.* SEYMOUR ISL., SOUTH: *Snodgrass and Heller.* Further distr. Mex., W. Ind., S. Am.

#### Crotalaria L.

**C. glabrescens** Anderss. (1), 248, (2), 109; Rob. (1), 149.—ALBEMARLE ISL.: Tagus Cove, common in tufaceous soil on the lower parts (no. 1633). CHATHAM ISL.: *Andersson; A. Agassiz.* Endemic.

**C. pumila** Ort. Dec. II. 23 (1797); Rob. (1), 149.—ABINGDON ISL.: occasional at 1100 ft. (no. 1634). ALBEMARLE ISL.: Iguana Cove, common at 500 ft. (no. 1640); Tagus Cove, occasional on lava beds at 600 ft., common at 4000 ft., (no. 1637); Villamil, occasional to 550 ft. (nos. 1636, 1639, 1643). CHARLES ISL.: occasional in protected places at 1650 ft. (no. 1644). CHATHAM ISL.: *Andersson; Baur; Snodgrass and Heller*. INDEFATIGABLE ISL.: southeast side, occasional in tufaceous soil at 550 ft. (no. 1645). JAMES ISL.: James Bay, *Snodgrass and Heller*. NARBOROUGH ISL.: *Snodgrass and Heller*. SEYMOUR ISL., SOUTH: *Snodgrass and Heller*. Further distr. Mex., W. Ind.

**C. setifera** DC. Prodr. II. 131 (1825); Rob. (1), 149.—ABINGDON ISL.: fairly common at 400 ft. (no. 1646). ALBEMARLE ISL.: Tagus Cove, abundant at 4000 ft. (no. 1647); Villamil, occasional, 250-800 ft., (no. 1648). INDEFATIGABLE ISL.: Academy Bay, common, 4-6 ft. high, in a dense growth of vines and bushes, 500-600 ft., (no. 1650); northwest side, occasional in tufaceous soil near the shore. Further distr. Mex.

#### Dalea L.

**D. domingensis** DC. Prodr. II. 246 (1825).—CHATHAM ISL.: Basso Point, bushes 5-6 ft. high at 900 ft. (no. 1651). Further distr. S. U. S., Mex., W. Ind., S. Am.

**D. parvifolia** Hook. f. (3), 225; Rob. (1), 150.—ALBEMARLE ISL.: Tagus Cove, *Snodgrass and Heller*. CHARLES ISL.: bushes 5 ft. high at 550 ft. (no. 1652). CHATHAM ISL.: *Andersson*. INDEFATIGABLE ISL.: Academy Bay, common bushes on the lower parts (no. 1654); southeast side, occasional bushes 4-5 ft. high at 400 ft. (no. 1653); northwest side, *Baur*. JAMES ISL.: *Darwin; Baur*. Endemic.

**D. tenuicaulis** Hook. f. (3), 226; Rob. (1), 150.—ALBEMARLE ISL.: Tagus Cove, bushes 4-5 ft. high to 2500 ft. (no. 1655); Villamil, *Baur*. CHATHAM ISL.: *Andersson*. Endemic.

#### Desmanthus Willd.

**D. depressus** H. & B. ex. Willd. Sp. IV. 1046 (1806); Rob. (1), 150.—ABINGDON ISL.: occasional among rocks at 550

ft. (no. 1656). CHARLES ISL.: common near the shore, and at 550 ft., (nos. 1657-1658). CHATHAM ISL.: *A. Agassiz*; *Baur*. DUNCAN ISL.: among rocks on the lower parts (no. 1659). GARDNER ISL. (near HOOD ISL.): *Snodgrass and Heller*. HOOD ISL.: occasional among rocks (nos. 1660-1661). JERVIS ISL.: (no. 1662). Further distr. S. U. S., Mex., W. Ind., S. Am.

#### Desmodium Desv.

*D. galapagense* Rob. (1), 150. *D. filiforme* Hook. f. (3), 227.—JAMES ISL.: *Darwin*. Endemic.

*D. incanum* (Sw.) DC. Prodr. II. 332 (1825). *Hedysarum incanum* Sw. Prodr. 107 (1788). *D. incanum* DC. l. c.; Rob. (1), 150.—CHATHAM ISL.: Wreck Bay, occasional in open woodland at 350 ft., very abundant in the open grassy country above 700 ft., (nos. 1663-1664). Further distr. Mex., W. Ind., S. Am., Old World.

*D. molle* (Vahl.) DC. Prodr. II. 332 (1825). *Hedysarum molle* Vahl. Symb. II. 83 (1790). *D. molle* DC. l. c.; Rob. (1), 150.—ABINGDON ISL.: occasional around 600 ft. (no. 1665). ALBEMARLE ISL.: Tagus Cove, common in tufaceous soil around the sides and base of the mountain (no. 1666). BINDLOE ISL.: *Baur*; *Snodgrass and Heller*. CHARLES ISL.: *Andersson*; *Baur*. GARDNER ISL. (near HOOD ISL.): *Snodgrass and Heller*. HOOD ISL.: *Snodgrass and Heller*. INDEFATIGABLE ISL.: north side, *Snodgrass and Heller*; northwest side, rare in tufaceous soil near the shore (no. 1667). JERVIS ISL.: *Baur*. Further distr. Mex., W. Ind., S. Am.

*D. spirale* (Sw.) DC. Prodr. II. 332 (1825). *Hedysarum spirale* Sw. Prodr. 107 (1788). *D. spirale* DC. l. c.; Rob. (1), 151.—ALBEMARLE ISL.: Iguana Cove, abundant on the sides of the cliffs above the cove (no. 1562); Tagus Cove, occasional on the lower parts (no. 1561). BINDLOE ISL.: *Baur*. CHARLES ISL.: rare near the shore and from 500-800 ft. (nos. 1563-1565). GARDNER ISL. (near HOOD ISL.): *Snodgrass and Heller*. HOOD ISL.: *Snodgrass and Heller*. JAMES ISL.: *Snodgrass and Heller*. SEYMOUR ISL., NORTH: *Snodgrass and Heller*. Further distr. Mex., W. Ind., S. Am., Old World.



**D. uncinatum** (Jaq.) DC. Prodr. II. 331 (1825). *Hedy-sarum uncinatum* Jaq. Hort. Sch. III. t. 298 (1798). *D. uncinatum* DC. l. c.; Rob. (1), 151.—ALBEMARLE ISL.: Tagus Cove, common above 3,000 ft. (no. 1566). CHATHAM ISL.: Wreck Bay, *Baur*. INDEFATIGABLE ISL.: Academy Bay, among a dense growth of vines and bushes at 500 ft. (no. 1567). Further distr. Mex., W. Ind., S. Am.

### Erythrina L.

**E. velutina** Willd. Ges. Naturf. Fr. Neue Schr. III. 426 (1801); Rob. (1), 151.—ALBEMARLE ISL.: Banks Bay, acc. to *F. X. Williams*. INDEFATIGABLE ISL.: Academy Bay, small trees in the vicinity of the shore; northeast side, small trees about two miles inland (no. 1668); northwest side, small trees to 750 ft. JAMES ISL.: James Bay, large forest trees from near the shore to 1200 ft.; northeast side, small trees above 300 ft. WENMAN ISL.: the grove of leafless trees, mentioned by *Heller*, Rob. (1), 251, belongs to this species. This species sometimes forms forest trees three feet in diameter at the base and more than sixty feet in height. It is the largest tree found in the dry regions. Further distr. W. Ind., S. Am.

### Galactea P. Br.

**G. Jussiaeana** Kunth, var. *glabrescens* Benth. in Mart. Fl. Bras. XV. pt. 1, 143 (1859); Rob. (1), 152.—CHATHAM ISL.: Basso Point, occasional at 1000 ft. (no. 1585); Wreck Bay, (no. 1586). HOOD ISL.: generally distributed over the island but not common (no. 1587). Further distr. Brazil.

Var. *volubilis* Benth. l. c.; Rob. (1), 151.—ABINGDON ISL.: occasional vines on the lower parts of the island (no. 1571). ALBEMARLE ISL.: Iguana Cove, common on bushes on the lower parts (no. 1574); Tagus Cove, occasional on bushes on the sides of the mountain (no. 1572); Villamil, common on bushes to 400 ft. (no. 1573). CHARLES ISL.: on bushes, 575-1000 ft., (nos. 1576-1577). CHATHAM ISL.: Sappho Cove, abundant in lava crevices (no. 1579). DUNCAN ISL.: occasional at 700 ft., abundant on rocks at 1275 ft., (no. 1580). GARDNER ISL. (near HOOD ISL.): (no. 1582). INDEFATIGABLE ISL.: north side, common on lava near the shore (no. 1583). JAMES ISL.: James Bay, on the lower parts of the

island. JERVIS ISL.: occasional at 1000 ft. (no. 1584). NARBOROUGH ISL.: north side, *Snodgrass and Heller*. SEYMOUR ISL., NORTH: *Snodgrass and Heller*. None of the specimens of this species from the Galapagos Islands, either in the Gray Herbarium or in the Academy's collection, shows the ciliated standard as described and figured by Kunth, *Mimos.* 197, t. 55. There is also much variation in the size and shape of the leaves, as well as in the amount of pubescence. Further distr. S. Am.

**G. tenuiflora** (Willd.) Wight & Arn. *Prodr.* I. 206 (1834). *Glycine tenuiflora* Willd. *Sp.* III. 1059 (1801-1803). *Galactea dubia* DC. *Prodr.* II. 238 (1825).—INDEFATIGABLE ISL.: southeast side, common vines at 600 ft. (no. 1569). JAMES ISL.: James Bay, occasional on the lower parts of the island (no. 1570). All of the specimens collected are sterile, but they closely resemble specimens of this species in the Gray Herbarium in the foliage and in the length of the racemes. Further distr. Mex., W. Ind., S. Am., Old World.

**G. n. sp.** Hook. f. (4), 261; Rob. (1), 152.—CHARLES ISL.: *Edmonston*.

#### **Geoffroea** Jacq.

**G. striata** (Willd.) Morong, *Ann. N. Y. Acad. Sc.* VII. 87 (1893), as *Geoffroya striata*. *Robinia striata* Willd. *Sp.* III. 1132 (1803). *Geoffraea superba* H. & B. *Pl. Aequin.* II. 69, t. 100 (1809); Rob. (1), 152.—CHARLES ISL.: a grove of low spreading trees of this species is found in the vicinity of an old habitation at 450 ft. The specimens collected by *Snodgrass and Heller* are probably from this locality and not Hood Isl., as there are evidently no trees of this species there. The grove on Charles Isl. is just to the right of the main trail leading into the interior of the island, and is so situated that it would hardly be missed by any one collecting plants in the locality. (no. 1588). Further distr. trop. S. Am.

#### **Inga** Scop.

**I. edulis** Mart. *Herb. Fl. Bras.* 113 (1837).—CHARLES ISL.: trees 20-30 ft. high in wet soil around a spring at 1000 ft. (no. 1589). Further distr. Mex., S. Am.

**I. sp.**—CHATHAM ISL.: Wreck Bay, in gardens. Probably introduced.

**Mimosa L.**

**M. asperata** L. Syst. Nat. ed. 10, 1312 (1760); Rob. (1), 152.—CHARLES ISL.: *Edmonston*. Widely distributed in tropical and sub-tropical regions.

**Mucuna Adans.**

**M. rostrata** Benth. in Mart. Fl. Bras. XV. 1, 171 (1859-1862).—INDEFATIGABLE ISL.: Academy Bay, vines on trees at 700 ft. *Frederick T. Nelson* collector, (no. 1590). Further distr. Brazil.

**Neptunia Lour.**

**N. plena** (L.) Benth. in Hook. Jour. Bot. IV. 355 (1842). *Mimosa plena* L. Sp. Pl. 519 (1753). *N. plena* Benth. l. c.; Rob. (1), 152.—CHARLES ISL.: *Edmonston* (?); *Andersson*; Cuevas Bay, *Baur*. CHATHAM ISL.: Wreck Bay, in open places among rocks to 200 ft. (no. 1591). GARDNER ISL. (near HOOD ISL.): common among rocks. INDEFATIGABLE ISL.: north side, *Snodgrass and Heller*; northeast side, in loose ashy soil near the shore (no. 1594); northwest side, abundant in tufaceous soil near the shore. JERVIS ISL.: *Baur*. SEYMOUR IDS., NORTH and SOUTH: *Snodgrass and Heller*. Further distr. Mex., W. Ind., S. Am.

**Parkinsonia L.**

**P. aculeata** L. Sp. Pl. 375 (1753); Rob. (1), 152.—ALBEMARLE ISL.: Villamil, small trees abundant in rather low places near the shore (no. 1595). CHARLES ISL.: Post Office Bay, occasional small trees near the shore, and in the low flat country for some distance inland, where they form dense low forests with *Prosopis dulcis*. The craters around 450 ft. are often filled with these trees, (no. 1596). CHATHAM ISL.: Wreck Bay, small trees, abundant to 200 ft., (no. 1597). DUNCAN ISL.: abundant in a deep canyon on the northeast side of the island. HOOD ISL.: occasional bushes and small trees (no. 1598). INDEFATIGABLE ISL.: southeast side, fairly common all over the lower parts of the island (no. 1600). SEYMOUR ISL., SOUTH: *Snodgrass and Heller*. Further distr. S. U. S., Mex., W. Ind., S. Am.

**Phaseolus L.**

**P. adenanthus** G. F. W. Mey. Prim. Fl. Esseq. 239 (1818); Rob. (1), 153.—HOOD ISL.: *Snodgrass and Heller*. Further distr. tropics of New World, introduced (?), in E. Ind.

**P. mollis** Hook. f. (3), 228; Rob. (1), 153.—JAMES ISL.: *Darwin*. JERVIS ISL.: *Baur*. Specimen from Jervis Isl. somewhat doubtful acc. to Rob. l. c. Endemic.

**P. semierectus** L. Mant. I. 100 (1767); Rob. (1), 153.—CHARLES ISL.: occasional in open thickets of *Lipochaeta larici-folia* at 850 ft. (no. 1601). CHATHAM ISL.: Wreck Bay, common in sandy soil near the shore (no. 1602). Further distr. general in tropics.

**P. vulgaris** L. Sp. Pl. 723 (1753).—ALBEMARLE ISL.: Iguana Cove, common on the sides of the cliffs above the cove (no. 1603); Tagus Cove, common in thickets at 4000 ft. This species was probably introduced. Widely distributed.

**P. (?)** sp.—CHATHAM ISL.: Wreck Bay, sterile specimens with large leaves, the genus of which is in doubt.

**Piscidia L.**

**P. Erythrina** L. Sp. Pl. ed. 2, 993 (1763); Rob. (1), 153.—CHATHAM ISL.: Wreck Bay, common trees on the lower parts (no. 1608). INDEFATIGABLE ISL.: Academy Bay, forest trees, fairly common to 350 ft., (no. 1607); north side, common bushes in sand and in lava crevices near the shore, small trees around 500 ft., (no. 1606); northwest side, fairly common from the vicinity of the shore to 800 ft., small near the shore, but increasing in size with elevation, forming good sized trees at the upper limit of distribution, (no. 1607). JAMES ISL.: (?) acc. to Rob. l. c. Further distr. Mex., W. Ind., S. Am.

**Prosopis L.**

**P. dulcis** Kunth, Mimos. 110, t. 34 (1819); Rob. (1), 153.—ABINGDON ISL.: common bushes on lava beds near the shore (no. 1609). ALBEMARLE ISL.: Villamil, common in low thickets on the lower parts, where it forms a very important element of the flora in places. BARRINGTON ISL.: occasional

decumbent bushes around dried pools in the interior of the island (no. 1610). CHARLES ISL.: common bushes, forming open thickets near the shore, and trees around 650 ft., (nos. 1611-1613). CHATHAM ISL.: Wreck Bay, occasional low spreading trees in sandy soil near the shore (no. 1614). DUNCAN ISL.: occasional near the shore; at 1000 ft. it is very abundant as prostrate and decumbent bushes, often covering considerable areas on the floor of the crater; occasional at 1275 ft. The prostrate habit on the upper parts is probably due to the wind, (no. 1668). GARDNER ISL. (near HOOD ISL.): common bushes (no. 1670). HOOD ISL.: common bushes all over the island (nos. 1671-1673). INDEFATIGABLE ISL.: southeast side, common bushes to 600 ft. (nos. 1674-1675); northeast side, small stunted trees near the shore (no. 1676). JAMES ISL.: James Bay, *Snodgrass and Heller*. JERVIS ISL.: occasional prostrate bushes at 1050 ft. (no. 1677). SEYMOUR ISL., SOUTH: occasional bushes (no. 1678). Further distr. S. U. S., Mex., S. Am.

#### Rhynchosia Lour.

**R. minima** (L.) DC. Mém. Leg. IX. 363 (1825). *Dolichos minimus* L. Sp. Pl. ed. 2, 1020 (1763). *R. minima* DC. l. c.; Rob. (1), 154.—ABINGDON ISL.: common to above 1000 ft. The series of specimens from this island show well the marked foliar differences which occur between individuals from the dry and moist regions on practically all of the islands where this species is found at low and high levels. The specimens from the dry region have the leaflets villous on both surfaces, margins strongly reflexed, resin dots numerous and dark brown in color, venation prominent on the under surface; size of leaflets, 5.5 by 7 mm. Specimens from above 1000 ft. have the upper surface of the leaflets atomiferous, the lower softly pubescent, margins but slightly reflexed, resin dots few and amber colored, venation not prominent; size of leaflet, 31 by 43 mm. Specimens from 600 and 700 ft. show characters which closely correspond with the specimen from 1000 ft. except that the leaflets are smaller, (nos. 1679-1682). ALBEMARLE ISL.: Elizabeth Bay, *Snodgrass and Heller*; Iguana Cove, common in the vicinity of the cove; Tagus Cove, abundant in open areas in tufaceous soil all over the lower parts (no. 1683).

BARRINGTON ISL.: *Snodgrass and Heller*. BINDLOE ISL.: abundant near the shore, rare in the interior, (no. 1685). CHARLES ISL.: *Andersson*. CHATHAM ISL.: Basso Point, occasional at 900 ft. (no. 1688); Wreck Bay, abundant all over the lower parts (nos. 1686-1687). INDEFATIGABLE ISL.: Academy Bay, common all over the lower parts. All of the specimens taken in this locality are xerophytic in character, except a few which were found growing around a brackish water spring near the coast. These were mesophytic in character, closely resembling specimens taken from the transition or moist regions of other islands, (nos. 1691-1692); north side, common on rocks at 300 ft. (no. 1690); northwest side, common in tufaceous soil near the shore (no. 1693). NARBOROUGH ISL.: south side, *Snodgrass and Heller*. Further distr. tropical and subtropical regions.

**R. reticulata** (Sw.) DC. Prodr. II. 385 (1825). *Glycine reticulata* Sw. Prodr. 105 (1788). *R. reticulata* DC. l. c.: Rob. (1), 154.—CHATHAM ISL.: *Darwin*. Further distr. Mex., W. Ind., S. Am.

**R.** sp. Rob. (1), 154.—ALBEMARLE ISL.: Tagus Cove, *Snodgrass and Heller*.

**R.** sp. Rob. (1), 154.—BINDLOE ISL.: *Snodgrass and Heller*.

#### **Stylosanthes** Sw.

**S. scabra** Vog. Linnaea XII. 69 (1838); Rob. (1), 154.—ABINGDON ISL.: occasional on lava beds on the lower parts (no. 1694). ALBEMARLE ISL.: Tagus Cove, forming spreading bunches in tufaceous soil near the shore (no. 1695). BINDLOE ISL.: occasional in tufaceous soil near the beach (no. 1696). CHARLES ISL.: common in ashy soil, 450-1000 ft., (no. 1697). DUNCAN ISL.: occasional in shady protected places near the shore (no. 1698). INDEFATIGABLE ISL.: north side, *Snodgrass and Heller*; northwest side, common in tufaceous soil near the shore (no. 1699). JERVIS ISL.: *Baur*. Further distr. Cent. and S. Am.

#### **Tephrosia** Pers.

**T. cinerea** (L.) Pers. Syn. II. 328 (1807). *Galega cinerea* L. Syst. ed. 10, 1172 (1760). *T. cinerea* Pers. l. c.; Rob. (1).

155.—ABINGDON ISL.: common to 400 ft. (no. 1700). ALBEMARLE ISL.: Tagus Cove, abundant in open places at 250 ft. BARRINGTON ISL.: *Snodgrass and Heller*. BINDLOE ISL.: *Baur; Snodgrass and Heller*. CHARLES ISL.: common on the lower parts, occasional at 600 ft., (no. 1703). CHATHAM ISL.: Sappho Cove, occasional on recent lava near the shore (no. 1704). DUNCAN ISL.: in shady places on the lower parts (no. 1705). HOOD ISL.: rare around 250 ft., specimens being small and rather stunted, (no. 1706). INDEFATIGABLE ISL.: north side, *Snodgrass and Heller*. NARBOROUGH ISL.: *Snodgrass and Heller*. SEYMOUR ISL., SOUTH: *Snodgrass and Heller*. Further distr. Mex., W. Ind., S. Am.

#### Vigna Savi.

**V. owahuensis** Vog. *Linnaea* X. 585 (1836); Rob. (1), 155.—JAMES ISL.: *Darwin*. The identity of this plant is questioned by Rob. l. c.

#### Zornia Gmel.

**Z. diphylla** (L.) Pers. *Syn.* II. 318 (1807). *Hedysarum diphyllum* L. *Sp. Pl.* 747 (1753).—ALBEMARLE ISL.: Tagus Cove, common in tufaceous soil, 300-500 ft., (no. 1707). Widely distributed in tropical regions.

### OXALIDACEAE

#### Oxalis L.

**O. carnosa** Molina, *Sagg. Chile*, ed. 2, 288 (1810); Rob. (1), 156.—ABINGDON ISL.: common on exposed rocks in open grassy areas around 1100 ft. (no. 1708). CHARLES ISL.: common among rocks at 1550 ft. (no. 1709). DUNCAN ISL.: on rocks at 900 ft. and in vegetable mold on side of cliff at 1250 ft. (no. 1710). This species usually inhabits rather sterile places in the transition and moist regions, the roots finding a lodgement in small crevices in the lava. Further distr. Chili.

**O. Cornelli** Anderss. (1), 246, (2), 108; Rob. (1), 156.—ALBEMARLE ISL.: Iguana Cove, common in open places on the lower parts (no. 1713). BARRINGTON ISL.: *Snodgrass and Heller*. CHARLES ISL.: common among rocks near the shore

and in open country, 500-1100 ft., (nos. 1716-1717). CHATHAM ISL.: Wreck Bay, fairly common, 500-2050 ft., (nos. 1714-1715). DUNCAN ISL.: *A. Agassiz*; *Snodgrass and Heller*. GARDNER ISL. (near HOOD ISL.): *Snodgrass and Heller*. HOOD ISL.: *Baur*; *Snodgrass and Heller*. INDEFATIGABLE ISL.: north side, *Snodgrass and Heller*; northwest side, *Andersson*; *Baur*. JAMES ISL.: James Bay, *Snodgrass and Heller*. Endemic.

**O. corniculata** L. Sp. Pl. 435 (1753); Rob. (1), 156.—ALBEMARLE ISL.: Villamil, common in open grassy country at 1500 ft. (no. 1718). CHARLES ISL.: common at 1700 ft. (no. 1719). CHATHAM ISL.: Wreck Bay, *Baur*. Widely distributed.

## LINACEAE

### *Linum* L.

**L. oligophyllum** Willd. ex. Schult. Sys. VI. 758 (1820); Rob. (1), 156.—ALBEMARLE ISL.: Tagus Cove, low bushes, 2900-3850 ft., (no. 1720). Further distr. Ecuador and Peru.

## ZYGOPHYLLACEAE

### *Kallstroemia* Scop.

**K. adscendens** (Anderss.) Rob. (1), 156. *Tribulus adscendens* Anderss. (1), 245.—CHARLES ISL.: *Andersson*. CHATHAM ISL.: *Andersson*. DUNCAN ISL.: *A. Agassiz*. GARDNER ISL. (near HOOD ISL.): *Snodgrass and Heller*. HOOD ISL.: *Snodgrass and Heller*. Endemic.

### *Tribulus* L.

**T. cistoides** L. Sp. Pl. 387 (1753); Rob. (1), 157.—ABINGDON ISL.: rare among rocks near the shore. The specimen is sterile, but agrees with other specimens of the species in foliage, pubescence, etc., (no. 1721). ALBEMARLE ISL.: Villamil, in broadly spreading bunches in light ashy soil near sea level (no. 1722). BRATTLE ISL.: (no. 1723). CHARLES ISL.: common near the shore, and in open places in the vegetation, 600-700 ft., (nos. 1725-1727). DAPHNE ISL.: *F. X. Williams*, collector, (no. 1728). HOOD ISL.: *Snodgrass and Heller*. INDE-



FATIGABLE ISL.: *Andersson*. JAMES ISL.: *Darwin*. NARBOROUGH ISL.: north side, common on lava beds. SEYMOUR ISL., SOUTH: *Snodgrass and Heller*. Widely distributed.

Var. *anacanthus* Rob. (1), 157.—ALBEMARLE ISL.: Tagus Cove, common in tufaceous soil on the tops and sides of the hills surrounding the cove (no. 1730). Endemic.

*T. sericeus* Anderss. (1), 245, (2), 107; Rob. (1), 157.—CHARLES ISL.: occasional among rocks along the shore (no. 1732). CHATHAM ISL.: *Andersson*. Endemic.

*T.* sp. Rob. (1), 157.—CULPEPPER ISL.: sterile specimens, evidently of the same species as those collected by *Snodgrass and Heller* at this place, were found by *F. X. Williams*, (no. 1731).

## RUTACEAE

### *Zanthoxylum* L.

*Z. Fagara* (L.) Sarg. Gard. & For. III. 186 (1890). *Schinus Fagara* L. Sp. Pl. 389 (1753). *Z. Pterota* HBK. Nov. Gen. & Sp. VI. 3 (1823); Rob. (1), 158.—ABINGDON ISL.: common bushes above 450 ft.; above 1000 ft., small trees which are much covered with epiphytes. In the region around 1650 ft. they are scattered and somewhat stunted in appearance, (no. 1733). ALBEMARLE ISL.: Cowley Bay, occasional bushes at 600 ft., larger and more abundant above 1000 ft., (no. 1734); Iguana Cove, common bushes, forming dense thickets in places, (no. 1735); Tagus Cove, common bushes, 300-2200 ft.; Villamil, bushes on lava near the coast, increasing in size with the elevation until they form small forest trees around 1300 ft.; above 1500 ft. they form bushes or low stunted trees. A few specimens were found on the rim of the crater at 3150 ft., and on the floor at 2750 ft., (no. 1737). CHARLES ISL.: common bushes on the lower parts, small trees around 1000 ft., very abundant on the leeward sides of most of the craters 1000-1450 ft., (nos. 1738-1739). CHATHAM ISL.: Wreck Bay, common bushes and small trees, 150-800 ft., (no. 1740). DUNCAN ISL.: common bushes above 900 ft.; around 1200 ft. it forms low trees, (no. 1741). HOOD ISL.: low trees in a very restricted area around 600 ft. where it forms a belt around the top of the island (no. 1742). INDEFATIGABLE ISL.: Academy Bay, bushes in the vicinity of the

shore, forest trees 20-40 ft. high above 350 ft., (no. 1744); northwest side, common bushes above 100 ft., trees above 700 ft., (no. 1743); southeast side, common bushes, forming almost impenetrable thickets, above 450 ft. It does not grow as large here as it does at Academy Bay. JAMES ISL.: James Bay, common bushes on the lower parts, small forest trees around 2000 ft., stunted bushes around 2850 ft. where it is exposed to the wind; northeast side, common bushes above 350 ft. (nos. 1745-1746). NARBOROUGH ISL.: south side, *Snodgrass and Heller*. This species seems to be one of the favorite host plants for *Phoradendron Henslovii*. Owing to its long recurved thorns it is one of the most disagreeable bushes to contend with when traveling on the lower parts of the islands. Further distr. S. U. S., Mex., W. Ind., S. Am.

## SIMARUBACEAE

### *Castela* Turp.

**C. galapageia** Hook. f. (3), 229, (4), 262; Rob. (1), 158.—ALBEMARLE ISL.: Cowley Bay, low bushes to 1100 ft. CHATHAM ISL.: *Darwin*; *Baur*. HOOD ISL.: low bushes around 600 ft.; no specimens were taken. Endemic.

Forma **albemarlensis** Rob. (1), 158. Forma *jervensis* Rob. (1), 159.—ALBEMARLE ISL.: Tagus Cove, common bushes on the lower parts (no. 1747); Villamil, common bushes on lava beds to 200 ft. (no. 1762). INDEFATIGABLE ISL.: northeast side, common bushes 6-8 ft. high in loose ashy soil near the shore. Stem unarmed; leaves for the most part cuneate with revolute margins, but some are obtusely oblong and mucronate as in the specimens from Albemarle, (no. 1748); northeast side, occasional bushes on the lower parts. The specimens from this part of the island are armed, leaves usually oblong obtuse mucronate, but some are lance-oblong acute, (no. 1749); southeast side, common bushes to 600 ft. Stem unarmed; leaves oblong obtuse mucronate, (no. 1750). JERVIS ISL.: *Baur*. Considering the great variability of the forms as shown by subsequent specimens, the form *jervensis* seems to agree rather too closely with the type specimen of form *albemarlensis* to be considered as a good form. NARBOROUGH ISL.: north side, bushes 5-6 ft. high on lava beds (no. 1651).

Forma **bindloensis** Rob. (1), 158.—BINDLOE ISL.: common bushes. The specimens have the stem armed and many of the leaves are obtuse cuneate, (no. 1752).

Forma **carolensis** Rob. (1), 158.—ABINGDON ISL.: common bushes to 500 ft. (no. 1753). CHARLES ISL.: bushes 6-7 ft. high to 700 ft. Specimens taken below 350 ft. have larger leaves than do those from around 700 ft., (nos. 1758-1759). CHATHAM ISL.: Wreck Bay, common bushes on the lower parts. The type specimen of the species was collected on this island by *Darwin* and is described by Hook. f., l. c., as being unarmed with the leaves linear lanceolate acute. The specimen under consideration has the stem armed with the leaves varying from oblong obtuse to spatulate. It resembles the form *carolensis* very much, (no. 1757). SEYMOUR ISL., SOUTH: occasional bushes. Stem unarmed, leaves similar to those described by Rob. l. c., (no. 1760).

Forma **duncanensis** Rob. (1), 159.—BARRINGTON ISL.: bushes with procumbent armed branches, leaves oblanceolate acute with revolute margins, .4-1 cm. long, (no. 1754). DUNCAN ISL.: prostrate bushes above 300 ft. The specimen is armed with very strong spines, leaves oblanceolate with margins strongly revolute, .9-1.6 cm. long. The type specimen is evidently a young branch, the leaves at the base of which tend to assume the revolute form. There is a single weak spine on the type specimen, (no. 1755). JERVIS ISL.: occasional prostrate bushes to 1050 ft. Stem armed, leaves attenuate obtuse, .6-1.9 cm. long, (no. 1756). There is much variation in the arming of the stems and in the size of the leaves in the specimens from the different islands, as well as in specimens from the same island. The specimen from Barrington has the largest leaves and spines intermediate in size, that from Duncan has the leaves intermediate in size and the largest spines, while the specimen from Jervis has the smallest spines. The most important character which the specimens from the different islands have in common is the procumbent habit.

Forma **jacobensis** Rob. (1), 159.—JAMES ISL.: James Bay, bushes 4-5 ft. high, fairly common below 300 ft. Stem armed, leaves broadly oblong obtuse to lance-oblong acute, with or without revolute margins on the same specimen, (no. 1761).

From the above it can be seen that if formal differences occur in this species, such differences are not confined to a single island, as it often happens that specimens from different parts of the same island show quite as marked variations as do specimens from different islands.

## BURSERACEAE

### *Bursera* L.

**B. graveolens** (HBK.) Trian. & Planch. Ann. Sci. Nat. 5, XIV. 303 (1872). *Elaphrium graveolens* HBK. Nov. Gen. & Sp. VII. 31 (1825). *B. graveolens* Trian. & Planch. l. c.; Rob. (1), 159.—ABINGDON ISL.: common trees to 1000 ft., below 400 ft. they are small and scattered, (no. 1762). ALBEMARLE ISL.: Banks Bay, common trees to 1700 ft., according to *F. X. Williams*; Cowley Bay, small trees above 400 ft., common trees, 3-4 inches in diameter and 12-15 ft. high, around 1200 ft., large spreading trees much infested with *Usnea longissima* above 2000 ft.; Elizabeth Bay, *Snodgrass and Heller*; Iguana Cove, occasional small trees to 400 ft. The small size and scarcity of this species here may be due to the more moist conditions which prevail, (no. 1765); Tagus Cove, common trees in tufaceous soil on the lower parts and on the sides of the mountain to 2000 ft.; Villamil, low spreading trees common to 550 ft. BARRINGTON ISL.: small trees, leafless in October and July, much infested with *Roccela peruensis*. BINDLOE ISL.: northeast side, common trees in tufaceous soil. CHARLES ISL.: common trees to 1000 ft. CHATHAM ISL.: Basso Point, common trees to above 1000 ft.; Sappho Cove, common trees to above 800 ft.; Wreck Bay, common trees to 700 ft. CULPEPPER ISL.: low spreading trees, apparently of this species, were seen around the top of the island. GARDNER ISL. (near HOOD ISL.): small trees all over the island (no. 1767). HOOD ISL.: trees 12-18 ft. high, common on all sides of the island except the south, where they seem to be rather scarce, (no. 1768). INDEFATIGABLE ISL.: Academy Bay, common trees to 350 ft. (no. 1769); north side, small trees and bushes on lava beds; northwest side, common trees to 750 ft., attaining their largest size around 600 ft.; southeast side, common trees below 500 ft. JAMES ISL.: James Bay, abundant below 1000 ft.;

north side, extending to above 1800 ft. according to *F. X. Williams*. JERVIS ISL.: small trees on the lower parts (no. 1771). NARBOROUGH ISL.: north side, small trees on lava beds (no. 1772). TOWER ISL.: small trees, much infested with lichens. This species forms one of the most common trees in the dry and transition regions on the islands where it occurs. It seldom attains a great height, usually having a broadly spreading crown and a short thick trunk. Its absence from Duncan Island is rather peculiar, as it is found on all of the adjacent islands, and the conditions here do not seem to be such as would inhibit its growth. Further distr. Mex., W. Ind., S. Am. to Peru.

**B. malacophylla** Rob. (1), 160.—SEYMOUR IDS., NORTH (?) and SOUTH: *Snodgrass and Heller*. At both the times our party visited south Seymour, viz. in July and November, the *Bursera* trees were out of foliage. So far as is known this species does not occur on the north side of Indefatigable although this island is separated from Seymour by a channel which is only about a half mile in width and is probably of comparatively recent origin. Endemic.

## POLYGALACEAE

### *Polygala* L.

**P. Anderssonii** Rob. (1), 160. *P. puberula* Anderss. (1), 232, (2), 100.—INDEFATIGABLE ISL.: northwest side, *Andersson*; *Baur*. Endemic.

**P. galapageia** Hook. f. (3), 233; Rob. (1), 160.—ABINGDON ISL.: fairly abundant on the lava beds on the lower parts (no. 1773). ALBEMARLE ISL.: Cowley Bay, not abundant (no. 1775); Tagus Cove, abundant from the beach to 600 ft. (no. 1774). BINDLOE ISL.: occasional in tufaceous soil near the shore (no. 1776). CHARLES ISL.: *Darwin*; *Andersson*; *Baur*. CHATHAM ISL.: Wreck Bay, abundant in sandy soil near the shore (no. 1777); north side, *Baur*. INDEFATIGABLE ISL.: north side, abundant in light ashy soil near the shore (no. 1778); northwest side, abundant in tufaceous soil near the shore (no. 1779). JAMES ISL.: northeast side, specimens seen at 200 ft. JERVIS ISL.: *Baur*. Endemic.

Var. **insularis** Rob. (1), 161. *P. obovata* Hook. f. (3), 233.—ALBEMARLE ISL.: *Macrae*. CHARLES ISL.: Cormorant Bay, abundant on sand beaches (no. 1780). CHATHAM ISL.: Sappho Cove, abundant on sand beaches (no. 1782). INDEFATIGABLE ISL.: Academy Bay, common on the lower parts (no. 1783). JAMES ISL.: northeast side. JERVIS ISL.: *Baur*. Endemic.

## EUPHORBIACEAE

*Acalypha* L.

**A. Adamsii** Rob. (1), 161.—CHATHAM ISL.: Wreck Bay, *Baur*. Endemic.

**A. albemarlensis** Rob. (1), 163.—ALBEMARLE ISL.: Iguana Cove, occasional among dense vegetation at 300 ft. (no. 1784); Tagus Cove, *Snodgrass and Heller*. Endemic.

**A. Baurii** Rob. & Greenm. (1), 144, 148; Rob. (1), 163.—ALBEMARLE ISL.: Villamil, common in open woodland at 1300 ft. (no. 1793). CHATHAM ISL.: Wreck Bay, *Baur*. Endemic.

**A. chathamensis** Rob. (1), 163.—CHATHAM ISL.: Basso Point, occasional among rocks at 800 ft. (no. 1785); Wreck Bay, *Snodgrass and Heller*. Endemic.

**A. cordifolia** Hook. f. (3), 186; Rob. (1), 163.—CHARLES ISL.: *Darwin*. CHATHAM ISL.: *Andersson*. Identity doubtful acc. to Rob. l. c. Endemic.

**A. diffusa** Anderss. (1), 240, (2), 104, t. 14, f. 4; Rob. (1), 163.—ALBEMARLE ISL.: Cowley Bay, *Andersson*. CHATHAM ISL.: Wreck Bay, *A. Agassiz*. Endemic.

**A. flaccida** Hook. f. (3), 186; Rob. (1), 164.—JAMES ISL.: *Darwin*. Endemic.

**A. parvula** Hook. f. (3), 185; Rob. (1), 164.—ALBEMARLE ISL.: Iguana Cove, *Snodgrass and Heller*; Tagus Cove, common above 1500 ft. (no. 1786); Villamil, *Baur*. CHARLES ISL.: common in rather open brushy country around 1,100 ft. (no. 1787). Endemic.

**A. reniformis** Hook. f. (3), 187; Rob. (1), 164.—CHARLES ISL.: *Darwin*. Endemic.

**A. sericea** Anderss. (1), 238, (2), 103, t. 14, f. 1; Rob. (1), 164.—ABINGDON ISL.: occasional to 500 ft., abundant above this elevation. The specimens from the different elevations are similar in the size of the leaves and in the pubescence, (nos. 1788-1791). ALBEMARLE ISL.: *Andersson*. BINDLOE ISL.: *Baur*; *Snodgrass and Heller*. Endemic.

**A. spicata** Anderss. (1), 239, (2), 104, t. 14, f. 3; Rob. (1), 164.—ALBEMARLE ISL.: Iguana Cove, abundant on the sides of the cliff above the cove (no. 1792). CHARLES ISL.: occasional at sea level and at 1200 ft. (nos. 1794-1795). CHATHAM ISL.: north side, *Andersson*. DUNCAN ISL.: *Baur*. GARDNER ISL. (near HOOD ISL.): (no. 1796). HOOD ISL.: rare around 300 ft. (no. 1797). INDEFATIGABLE ISL.: Academy Bay, occasional below 75 ft. (no. 1800); northwest side, occasional in tufaceous soil near the shore (no. 1799). JERVIS ISL.: *Baur*. Endemic.

**A. strobilifera** Hook. f. (3), 187; Rob. (1), 164.—ALBEMARLE ISL.: Cowley Bay, *Baur*. CHATHAM ISL.: north side, *Darwin*; *Andersson*; *Baur*. Endemic.

**A. velutina** Hook. f. (3), 186; Rob. (1), 164.—CHARLES ISL.: *Darwin*; *Andersson*; *Baur*. CHATHAM ISL.: Wreck Bay, common in open shady woods around 700 ft. (no. 1801). Endemic.

Var. **minor** Hook. f. (3), 187; Rob. (1), 165.—CHARLES ISL.: *Darwin*; *Baur*. Endemic.

**A. sp.**—ALBEMARLE ISL.: Cowley Bay, occasional below 300 ft. Sterile and indeterminate, (no. 1802).

**A. sp.**—INDEFATIGABLE ISL.: north side, common at 250 ft. Indeterminate. Both of the above specimens probably belong to species already described from the islands.

**A. sp.** Rob. (1), 165. *A. parvula* var. *cordifolia*? Rob. & Greenm. (1), 148.—BARRINGTON ISL.: *Baur*. Endemic.

**A. sp.** Rob. (1), 165.—BARRINGTON ISL.: *Snodgrass and Heller*. Endemic.

**A. sp.** Rob. (1), 165.—BARRINGTON ISL.: *Baur*. Endemic.

**A. sp.** Rob. (1), 165.—INDEFATIGABLE ISL.: south of Con-way Bay, *Baur*. Endemic.

**A.** sp. Rob. (1), 165.—*A. parvula* var. *flaccida* Rob. & Greenm. (1), 148.—DUNCAN ISL.: *Baur*.

### Croton L.

**C. Scouleri** Hook. f. (3), 188; Rob. (1), 165.—ALBEMARLE ISL.: Villamil, common bushes, 100-350 ft., (no. 1804). BARRINGTON ISL.: bushes 6-8 ft. high all over the island (no. 1805). BINDLOE ISL.: common bushes in tufaceous soil (no. 1806). BRATTLE ISL.: low bushes, nearly leafless in October, (no. 1807). CHARLES ISL.: *Snodgrass and Heller*, approaching var. *incanus* according to Rob. l. c. CHATHAM ISL.: north side, *Darwin; Baur*. HOOD ISL.: bushes 10 ft. and more in height all over the island (no. 1808). INDEFATIGABLE ISL.: Academy Bay, occasional bushes to 550 ft.; southeast side, common bushes all over the lower parts, (nos. 1809-1810). JAMES ISL.: *Douglas; Scouler; Andersson*; James Bay, *Snodgrass and Heller*. JERVIS ISL.: bushes 4-5 ft. high all over the island (nos. 1812-1814). NARBOROUGH ISL.: south side, *Snodgrass and Heller*. TOWER ISL.: *Baur*. Endemic.

Var. **albescens** Muell. Arg. in DC. Prodr. XV. pt. 2, 605 (1862); Rob. (1), 165.—ALBEMARLE ISL.: *Andersson*; Elizabeth Bay, *Snodgrass and Heller*; Tagus Cove, occasional bushes to 4000 ft. (no. 1816). BINDLOE ISL.: *Baur*. CHARLES ISL.: *Andersson; A. Agassiz*. CHATHAM ISL.: Basso Point, common bushes to above 900 ft. (no. 1819); Wreck Bay, small trees and bushes on the lower parts (nos. 1817-1818). INDEFATIGABLE ISL.: north side, bushes 6-7 ft. high at 300 ft. (no. 1820). JAMES ISL.: *Andersson*; northeast side, small bushes on lava beds (no. 1821). Endemic.

Forma **microphyllus** Muell. Arg. l. c.; Rob. (1), 166.—ALBEMARLE ISL.: *Andersson*. Endemic.

Var. **brevifolius** Muell. Arg. l. c. *C. brevifolius* Anderss. (1), 241, (2), 105. Var. *brevifolius* Muell. Arg. l. c.; Rob. (1), 166.—ABINGDON ISL.: common bushes 4-5 ft. high below 1000 ft. (no. 1822). ALBEMARLE ISL.: Iguana Cove, *Snodgrass and Heller*. BINDLOE ISL.: common bushes (no. 1832). CHARLES ISL.: bushes rather characteristic of the region between 650 and 1100 ft. This species becomes more abundant with the increase in elevation and forms a belt, around the base



of the central mountain, which is noticeable from Black Beach Road during the dry season when most of the other vegetation is leafless or has the leaves very much reduced, (nos. 1823-1824). CULPEPPER ISL.: *F. X. Williams*, collector. Croton bushes appear to be very abundant on the top of the island. GARDNER ISL. (near HOOD ISL.): *Snodgrass and Heller*. HOOD ISL.: common bushes (no. 1826). INDEFATIGABLE ISL.: Academy Bay, occasional bushes and small trees 10-15 ft. high to 300 ft. (nos. 1828-1829); northwest side, bushes 6-10 ft. high (no. 1827). JAMES ISL.: James Bay, common bushes to 1000 ft. (no. 1830). SEYMOUR ISL., NORTH: *Snodgrass and Heller*. WENMAN ISL.: slender trees and bushes (no. 1833). Endemic.

Var. *glabriusculus* nov. var.

Foliis ovatis denticulatis acutis utrinque sparsim pubescentibus; pilis aliis simplicibus aliis stellatis lamina circa 4 cm. longa 2.4 cm. lata.

ABINGDON ISL.: small trees and bushes, 1000-1650 ft., (no. 1834). A variety closely related to var. *brevifolius*, differing in the slightly denticulate margins of the leaves and in the presence of simple trichomes. Endemic.

Var. *grandifolius* Muell. Arg. l. c.; Rob. (1), 166.—ABINGDON ISL.: bushes 6-10 ft. high, 1000-1650 ft., (no. 1835). ALBEMARLE ISL.: Villamil, bushes and small trees, abundant at 300-1300 ft., (no. 1836). It should be noted that *C. Scouleri* extends up to 350 ft., so there is a slight overlapping of the two forms. CHARLES ISL.: common bushes, 1000-1350 ft., (no. 1837). Var. *brevifolius* extends up to 1100 ft. here, and the leaves increase considerably in size with the elevation, so that there is a close resemblance between var. *grandifolius* and the more mesophytic form of var. *brevifolius*. CHATHAM ISL.: Wreck Bay, low bushes in open country around 700 ft. (no. 1838). JAMES ISL.: James Bay, small trees and bushes 6-12 ft. high above 1000 ft., very abundant in woodland around 2000 ft., (nos. 1839-1840). It should be noted again that the lower limit of this variety, at this place, is also about the upper limit of var. *brevifolius*. TOWER ISL.: *Snodgrass and Heller*. Endemic.

Var. *Macraei* Muell. Arg. l. c.; Rob. (1), 166.—ALBEMARLE ISL.: Cowley Bay, common bushes, 250-1300 ft., (no. 1842);

Tagus Cove, trees and bushes in tufaceous soil around the base of the mountain. In protected places in canyons it sometimes attains a height of over 20 ft. (no. 1841). CHARLES ISL.: low trees and bushes on the lower parts (no. 1843). INDEFATIGABLE ISL.: Academy Bay, bushes and small trees forming dense thickets in the vicinity of the shore (nos. 1844-1845); southeast side, bushes and small trees common below 500 ft. (no. 1846). JAMES ISL.: James Bay, *Andersson*; Orchilla Bay, *Baur*. Endemic.

Croton bushes form one of the most striking elements of the flora of the dry region and it is seldom that one can go very far away from the shore without encountering thickets of them. The bark is grayish white and the leaves grayish green in color, on most of the varieties found on the lower parts of the islands. The characteristically gray color of the vegetation in the dry regions is largely due to the number of these bushes.

In general *C. Scouleri* and the varieties *albescens* and *Macraei* are found in the dry regions, var. *brevifolius* in the transition region, and varieties *grandifolius* and *glabriusculus* in the moist regions, with occasional overlapping of the varieties as mentioned above.

### Euphorbia L.

**E. amplexicaulis** Hook. f. (3), 183; Rob. (1), 166.—ABINGDON ISL.: occasional low shrubs near the shore (no. 1847). BINDLOE ISL.: low shrubs in tufaceous soil near the shore (no. 1848). BRATTLE ISL.: (no. 1849). CHATHAM ISL.: *Darwin*. DAPHNE ISL.: (no. 1851). GARDNER ISL. (near CHARLES ISL.): (no. 1850). INDEFATIGABLE ISL.: north side, common on sand beaches (no. 1852). JAMES ISL.: on a small islet about one-half mile off the northeast side (no. 1853). SEYMOUR ISL., SOUTH: *Snodgrass and Heller*. TOWER ISL.: occasional low shrubs on the tops of cliffs (no. 1854). WENMAN ISL.: (no. 1855). This species is always found in close proximity to the shore. Endemic.

**E. apiculata** Anderss. (1), 234, (2), 101; Rob. (1), 166.—CHATHAM ISL.: *Andersson*. Endemic.

**E. articulata** Anderss. (1), 236, (2), 102, t. 12, f. 2; Rob. (1), 166.—ABINGDON ISL.: low bushes on lava beds on the lower parts of the island (no. 1856). ALBEMARLE ISL.:

Cowley Bay, common to 1200 ft. (no. 1857); Elizabeth Bay, *Snodgrass and Heller*; Tagus Cove, common in tufaceous soil to 600 ft. (no. 1858). BINDLOE ISL.: low shrubs near the shore (nos. 1859-1860). CHARLES ISL.: common bushes in loose soil among rocks (nos. 1861-1863). CHATHAM ISL.: Sappho Cove, abundant in lava crevices near the coast (no. 1864); Wreck Bay, *A. Agassiz*. INDEFATIGABLE ISL.: north-west side, bushes 2-3 ft. high common below 250 ft. (no. 1865). JAMES ISL.: northeast side, common near the shore (no. 1866); Orchilla Bay, *Baur*. SEYMOUR ISL., SOUTH: *Snodgrass and Heller*. Endemic.

Var. *bindloensis* nov. var.; *E. sp. aff. E. articulata* Anderss.; Rob. (1), 169.

Foliis ovatis basi cordatis 5 mm. longis 3 mm. latis; ramulis rigidis divaricatis.

ABINGDON ISL.: occasional low shrubs near the shore (no. 1867). BINDLOE ISL.: low shrubs in tufaceous soil in the vicinity of the shore (no. 1868). Plate III, fig. 5. Endemic.

*E. diffusa* Hook. f. (3), 184; Rob. (1), 167.—ALBEMARLE ISL.: Cowley Bay, *Andersson*; Tagus Cove, common in tufaceous soil on the sides of the hills surrounding the cove (no. 1869). CHATHAM ISL.: Wreck Bay, in dry sandy soil near the shore (no. 1872). DUNCAN ISL.: occasional in protected places on the lower parts (no. 1870). INDEFATIGABLE ISL.: north side, *Snodgrass and Heller*. JERVIS ISL.: *Baur*. NARBOROUGH ISL.: north side, abundant in lava crevices near the shore (no. 1871). Endemic.

*E. equisetiformis*, nov. sp.

Fruticosa glabra; caulibus erectis teretibus ramosis ad nodos perfragilibus; ramis ultimis in fasciculum ramulorum 2-3 pallido-viridum complanatorum terminantibus; foliis oppositis squamiformibus; involucri terminalibus solitariis rufo-bruneis brevipedunculatis bibracteatis; glandulis ellipticis appendiculas fimbriatas gerentibus; floribus masculis numerosis; squamis fimbriatis gracilibus truncatis numerosis; floribus femineis erectis, capsula obtuse angulata, involucreo trilobato.

ALBEMARLE ISL.: Villamil, occasional bushes 3-4 ft. high on the floor of the crater at 2750 ft. Most of the other vegetation in the vicinity is quite xerophytic in character, (no. 1873). Plate III, figs. 1-2. Endemic.

*E. flabellaris* Anderss. acc. to Boiss. in DC. Prodr. XV. pt. 2, 17 (1862); Rob. (1), 167.—ABINGDON ISL.: *Snodgrass*

and Heller. ALBEMARLE ISL.: Iguana Cove, abundant on the sides of the cliffs above the cove (no. 1874). BARRINGTON ISL.: *Snodgrass and Heller*. Identity doubtful acc. to Rob. l. c. CHARLES ISL.: *Darwin*. CHATHAM ISL.: Sappho Cove, occasional on the beach (no. 1876); Wreck Bay, occasional in open vegetation around 200 ft. (no. 1875). GARDNER ISL. (near HOOD ISL.): common in loose soil mixed with small particles of lava (no. 1878). INDEFATIGABLE ISL.: northwest side (no. 1879). JAMES ISL.: James Bay, *Snodgrass and Heller*. Identity doubtful acc. to Rob. l. c. SEYMOUR ISL., NORTH: *Snodgrass and Heller*. Endemic.

**E. galapageia** Rob. & Greenm. (1), 144, 148; Rob. (1), 167.—CHARLES ISL.: *Baur*. Endemic.

**E. nesiotica** Rob. (1), 167.—SEYMOUR ISL., SOUTH: *Snodgrass and Heller*. Endemic.

**E. nummularia** Hook. f. (3), 183; Rob. (1), 168.—CHATHAM ISL.: north side, *Andersson; Baur*; Wreck Bay, common in dry sandy soil near the shore (nos. 1880-1881). Endemic.

Var. **glabra** Rob. & Greenm. (1), 144, 148; Rob. (1), 168.—CHARLES ISL.: procumbent shrubs among rocks near the shore (no. 1882); Cuevas Bay, *Baur*. Endemic.

**E. pilulifera** L. Amoen. Acad. III. 115 (1756); Rob. (1), 168.—CHARLES ISL.: abundant in open places near the shore, occasional in rather open brushy country around 900 ft., rare in meadows around 1000 ft., abundant on the sides of the main mountain at 1250 ft. The specimen from the upper elevation is larger and less pubescent than the specimens taken lower down, (nos. 1883-1886). CHATHAM ISL.: Wreck Bay, abundant in dry sandy soil near the beach (no. 1887). JAMES ISL.: *Darwin*. Further distr. general in warm countries.

**E. punctulata** Anderss. (1), 235, (2), 102; Rob. (1), 168.—ALBEMARLE ISL.: Cowley Bay, *Andersson*. DUNCAN ISL.: *Baur*. HOOD ISL.: *Baur*. Endemic.

**E. recurva** Hook. f. (3), 182; Rob. (1), 168.—CHATHAM ISL.: north side, *Darwin; Andersson*. Endemic.

**E. Stevensii** nov. sp.

Caulibus erectis gracilibus teretibus glaberrimis; ramis divaricatis teretibus glaberrimis vel subtiliter pubescentibus; foliis oppositis lan-

ceolatis acutis basi obliquo-cordatis integerrimis vel crenatis supra pallido-viridibus subtus albidis utrinque glaberrimis pellucido-maculatis breviter petiolatis, laminis 1.9 cm. longis, 4.5 mm. latis; floribus axillaribus 3-umbellatis breviter pedunculatis; glandulis 4 nigris inappendiculatis; capsula 3 cocca parva puberula longipedunculata nutante acute angulata; seminibus subrufescentibus 4-angulatis rugulosis. Differs from *E. cumbrae* Boiss. in the pellucidly marked leaves, the black involucral glands, and the puberulent capsule; otherwise very similar.

ABINGDON ISL.: occasional at 1100 ft. (no. 1888). ALBEMARLE ISL.: Iguana Cove, occasional in shady places (no. 1890, type); Tagus Cove, common in moist shady places at the summit of the mountain, 4000 ft., (no. 1889). Plate II, figs. 3-4. Endemic.

*E. thymifolia* L. Sp. Pl. 454 (1753).—DUNCAN ISL.: occasional in moist vegetable mold at 1250 ft. (no. 1891). Further distr. tropics of both hemispheres.

*E. viminea* Hook. f. (3), 184; Rob. (1), 168.—ALBEMARLE ISL.: Cowley Bay, one of the most abundant bushes above 1200 ft. (no. 1899); Elizabeth Bay, *Snodgrass and Heller*; Tagus Cove, *Snodgrass and Heller*; Villamil, bushes 2-3 ft. high, abundant on beds of basaltic lava below 100 ft., (no. 1892). BINDLOE ISL.: common everywhere, very abundant on exposed tufa ridges in the interior of the island below 500 ft., (no. 1896). INDEFATIGABLE ISL.: north side, low and somewhat procumbent bushes in lava crevices in the vicinity of the shore (no. 1895); southeast side, bushes 3-5 ft. high, forming tangled thickets around 450 ft., (no. 1894). Endemic.

Forma *barringtonensis* Rob. & Greenm. (1), 139; Rob. (1), 168.—BARRINGTON ISL.: bushes about 3 ft. high, common on flat areas in the interior of the island. The specimen is too poor for accurate determination, (no. 1897). BINDLOE ISL.: *Baur; Snodgrass and Heller*. Endemic.

Forma *carolensis* Rob. & Greenm. (1), 139; Rob. (1), 168.—CHARLES ISL.: common bushes around 625 ft., (no. 1898). Endemic.

Forma *castellana* Rob. & Greenm. (1), 138; Rob. (1), 168.—ABINGDON ISL.: bushes 2-3 ft. high, common on lava beds to 800 ft., (nos. 1899-1900). GARDNER ISL. (near HOOD ISL.): low bushes among rocks near the shore (no. 1901). TOWER ISL.: low spreading bushes common everywhere (no. 1902). Endemic.

**Forma chathamensis** Rob. & Greenm. (1), 138; Rob. (1), 168.—CHATHAM ISL.: Basso Point, spreading bushes on lava fields near the coast (no. 1903); Wreck Bay, common bushes on sand beaches (no. 1904). Endemic.

**Forma jacobensis** Rob. & Greenm. (1), 138; Rob. (1), 169.—JAMES ISL.: Orchilla Bay, *Baur*. Endemic.

**Forma jervensis** Rob. & Greenm. (1), 139; Rob. (1), 169.—JERVIS ISL.: occasional low bushes on the sides of the island, and around the top at 1050 ft., (no. 1905). Endemic.

**Var. abingdonensis** Rob. & Greenm. (1), 139; Rob. (1), 169.—ABINGDON ISL.: *Baur*. Endemic.

**E. sp.**—CHARLES ISL.: Post Office Bay, occasional below 300 ft. (no. 1906). Probably endemic.

**E. sp.** Hook. f. (3), 185; Rob. (1), 169.—CHARLES ISL.: *Darwin*.

**E. sp.** Anderss. (1), 237, (2), 102; Rob. (1), 169.—CHATHAM ISL.: *Andersson*.

### Hippomane L.

**H. Mancinella** L. Sp. Pl. 1191 (1753); Rob. (1), 169.—ALBEMARLE ISL.: Elizabeth Bay, *Snodgrass and Heller*; Cape Rose, common in the vicinity of the shore; Iguana Cove, a few small trees at the end of the cove; Turtle Cove, low spreading trees near the shore; Villamil, islands of low spreading trees in the vicinity of the shore; in low areas, some distance back from the shore, the soil of which is kept constantly moist by telluric waters; and forming a belt of low trees in a rather dense forest of *Sapindus Saponaria* trees around 600 ft. No connection was found between the lower and upper belts of this species and so far as is known the lower belt ends a very little above sea level. CHARLES ISL.: a few trees on a sand beach (no. 1907). CHATHAM ISL.: Sappho Cove, dense groves of rather small trees in the interior; Wreck Bay, common trees in low places around 200 ft., and also in open forests around 700 ft., (no. 1908). INDEFATIGABLE ISL.: Academy Bay, a few trees in sandy soil near the shore; southeast side, low dense groves around brackish lagoons (no. 1909). JAMES

ISL.: James Bay, fringing a crater lake, south of the bay, the water of which is so saturated that a layer of pure white salt has crystallized out on the bottom; also occasional on the mountain side at 900 ft., (no. 1910).

From the above it is seen that this tree is found under the most varied conditions, from halophytic to mesophytic, without any perceptible change in its general appearance. In many respects it is a very unpleasant tree with which to come in contact. The milky sap has a very strong peppery taste and will blister the parts which it touches, if not soon removed. It is also very unpleasant, and in fact dangerous, to be under these trees during a rain, for if the water from the leaves gets into one's eyes, the sensation is very painful and the pain lasts for a considerable time. The fruit has a very pleasant odor when ripe, and resembles a small yellow apple in size and color, but it is extremely poisonous, according to the inhabitants of the islands. The tortoises around Cape Rose, Albemarle Island, eat the fruit in great quantity; but we found in cleaning some of these tortoises for specimens, that this diet had weakened the tissues of the alimentary canal greatly. But little vegetation is found under the trees of this species, as a rule, a condition which is probably brought about by the dense shade. Further distr. S. U. S., Mex., W. Ind., N. S. Am.

#### **Jatropha L.**

**J. curcas** L. Sp. Pl. 1006 (1753).—CHARLES ISL.: near former habitations and probably introduced (no. 1913). Widely distributed in tropical regions.

#### **Manihot Adans.**

**M. utilisissima** Pohl. Pl. Bras. Ic. I. 32, t. 24 (1827); Rob. (1), 169.—ALBEMARLE ISL.: Villamil, in gardens (no. 1911). CHARLES ISL.: *Chierchia*. INDEFATIGABLE ISL.: northwest side, a few specimens at 750 ft. (no. 1912). No doubt an introduced species. Widely distributed in tropical regions.

#### **Phyllanthus L.**

**P. carolinensis** Walt. Fl. Car. 228 (1788); Rob. (1), 169.—ABINGDON ISL.: occurs first at 725 ft., common above 1000 ft.,

(no. 1914). ALBEMARLE ISL.: Cowley Bay, common in woodland above 2000 ft.; Iguana Cove, abundant on side of cliff above the cove; Tagus Cove, *Snodgrass and Heller*; Villamil, common in the moist region above 400 ft. and on the rim of the crater at 3150 ft. The specimens from the rim of the crater have smaller leaves than do the specimens collected lower down, (nos. 1915, 1917-1919). CHARLES ISL.: occasional around 1700 ft. CHATHAM ISL.: Wreck Bay, fairly abundant in the grassy region above 900 ft. during the rainy season (nos. 1920-1921). DUNCAN ISL.: occasional in moist shady places among rocks at 1300 ft. (no. 1922). JAMES ISL.: James Bay, *Snodgrass and Heller*. NARBOROUGH ISL.: north and south sides, *Snodgrass and Heller*. Further distr. S. U. S., Mex., W. Ind., northern S. Am.

#### Ricinus L.

**R. communis** L. Sp. Pl. 1007 (1753); Rob. (1), 170.—CHARLES ISL.: *Andersson*. CHATHAM ISL.: Wreck Bay, around habitations, probably introduced. Widely distributed.

### CALLITRICHACEAE

#### Callitriche L.

**C. sp.** Wolf, (1), 284; Rob. (1), 170.—CHARLES ISL.: in a brook near the hacienda, according to *Wolf*. Probably around 1000 ft. elevation.

### CELASTRACEAE

#### Maytenus Feuill.

**M. obovata** Hook. f. (3), 230; Rob. (1), 170.—ALBEMARLE ISL.: Cowley Bay, occasional bushes near the beach; Elizabeth Bay, *Snodgrass and Heller*; Iguana Cove, *Snodgrass and Heller*; Tagus Cove, common bushes on the lower parts and on the sides of the mountain, occasional at 4000 ft.; Villamil, common bushes below 300 ft. (no. 1928). BARRINGTON ISL.: low bushes in the vicinity of the shore (no. 1925). CHARLES ISL.: common bushes in the vicinity of the shore, occasional as high as 1000 ft. The specimens from around the upper limit of distribution have much larger leaves than do the specimens taken near the shore, (nos. 1925-1926). CHATHAM ISL.:



Basso Point, common bushes to above 900 ft. (no. 1929); Wreck Bay, common bushes to 700 ft. The leaves are much larger on the specimens taken at 700 ft. than on the specimens from near the shore. DUNCAN ISL.: occasional procumbent bushes at 1000 ft. Bushes small and with leaves reduced in size. GARDNER ISL. (near HOOD ISL.): common bushes. HOOD ISL.: common bushes on sand beaches, and occasional bushes all over the island, (no. 1927). INDEFATIGABLE ISL.: Academy Bay, common bushes near the shore, small trees around 450 ft.; north side, common on sand beaches. The roots of many of these bushes are in contact with the sea water at high tide, and when found under such conditions the trunks are usually short and much twisted, while the leaves are more succulent than on specimens taken further away from the shore. JAMES ISL.: James Bay, common in sandy soil around salt lagoons, sometimes forming trees 25-30 ft. in height; northeast side, common bushes on sand beaches and around salt lagoons. JERVIS ISL.: bushes 5-7 ft. high near the shore, low procumbent bushes around 1050 ft. NARBOROUGH ISL.: *Snodgrass and Heller*. SEYMOUR ISL., SOUTH: abundant in thickets with *Discaria pauciflora* in sandy soil near the shore. Endemic.

## SAPINDACEAE

*Cardiospermum* L.

**C. Corindum** L. Sp. Pl. ed. 2, 526 (1762); Rob. (1), 170.—ALBEMARLE ISL.: Cowley Bay, around 1450 ft.; Elizabeth Bay, *Snodgrass and Heller*. CHARLES ISL.: *Andersson*. CHATHAM ISL.: Basso Point, common at 900 ft. (nos. 1933-1934); Wreck Bay, common at 700 ft. DUNCAN ISL.: covering rocks and bushes at 1300 ft. (no. 1935). INDEFATIGABLE ISL.: north side, on rocks and trees at 250 ft. (no. 1936); northwest side, occasional at 200 ft. JAMES ISL.: James Bay, *Andersson; Snodgrass and Heller*. WENMAN ISL.: on the upper parts, *R. H. Beck* collector. Further distr. S. W. U. S., Mex., W. Ind., S. Am.

**C. galapageium** Rob. & Greenm. Proc. Am. Acad. XXXII. 38 (1896); Rob. (1), 171.—ALBEMARLE ISL.: Villamil, very abundant on bushes near sea level (no. 1938). INDEFATIGABLE ISL.: Academy Bay, common near sea level (no. 1940); south-

east side, on rocks and bushes at 600 ft. (no. 1939). JAMES ISL.: James Bay, abundant below 1300 ft. Endemic.

#### Dodonaea L.

**D. viscosa** Jacq. Enum. Pl. Carib. 19 (1762); Rob. (1), 171.—ALBEMARLE ISL.: Cowley Bay, low bushes in disintegrated pumice near the shore (no. 1943); Villamil, occasional bushes on lava beds below 100 ft. (no. 1942). JAMES ISL.: James Bay, occasional bushes 4-5 ft. high on basaltic lava at 850 ft. (no. 1944). Further distr. general in warm countries.

Var. **spathulata** Benth. Fl. Aust. I. 476 (1863); Rob. (1), 171.—ALBEMARLE ISL.: Cowley Bay, small trees and bushes around 1800 ft. (no. 1946); Tagus Cove, bushes 4-5 ft. high, abundant on lava beds above 2000 ft., (no. 1945). There are occasional clumps of bushes, which apparently belong to this species, on the floor of the crater. Further distr. general in warm countries.

#### Sapindus L.

**S. Saponaria** L. Sp. Pl. 367 (1753); Rob. (1), 171.—ALBEMARLE ISL.: Villamil, forest trees, abundant at 350-700 ft., scattering specimens to 1300 ft. The largest forest tree found on the islands, (no. 1947). Further distr. S. U. S., Mex., W. Ind., S. Am.

### RHAMNACEAE

#### Discaria Hook.

**D. pauciflora** Hook. f. (3), 229; Rob. (1), 171.—ALBEMARLE ISL.: Cowley Bay, occasional bushes from the shore to 1300 ft.; Elizabeth Bay, *Snodgrass and Heller*; Cape Rose, occasional low bushes; Tagus Cove, occasional bushes near the coast; Villamil, common bushes on the lower parts. BARRINGTON ISL.: common bushes near the shore (no. 1949). CHARLES ISL.: common bushes near the beach (no. 1951). CHATHAM ISL.: Basso Point, common bushes to 900 ft.; Wreck Bay, abundant near the shore, occasional at 900 ft., (no. 1952). DUNCAN ISL.: procumbent bushes at 700 ft. HOOD ISL.: common bushes on sand beaches. The spines are unusually large and the leaves reduced on the specimens taken at this place, (no. 1950). INDEFATIGABLE ISL.: north side, *Snodgrass and Heller*; southeast side, common bushes on the lower

parts, especially abundant in gullies and small canyons, where they often form impenetrable thickets. JAMES ISL.: James Bay, common bushes to 1350 ft. JERVIS ISL.: abundant near the shore, occasional at 1050 ft. On the upper part of the island the branches are procumbent, the spines short and weak, and the leaves rather large, (no. 1954). SEYMOUR ISL., NORTH: *Snodgrass and Heller*; SOUTH: common in thickets of *Maytenus obovata* bushes. Further distr. Ecuador.

## VITACEAE

*Cissus* L.

**C. sicyoides** L. Syst. Nat. ed. 10, 897 (1760); Rob. (1), 172.—ALBEMARLE ISL.: Iguana Cove, common on rocks near the shore (no. 1955); Villamil, rare on the trunks of trees at 600 ft. (no. 1956). BINDLOE ISL.: *Snodgrass and Heller*. CHARLES ISL.: common on moist rocks at 1000 ft. (nos. 1957-1958). NARBOROUGH ISL.: *Snodgrass and Heller*. Further distr. Mex., W. Ind., S. Am.

*Vitis* L.

**V. vinifera** L. Sp. Pl. 202 (1753); Rob. (1), 172.—CHARLES ISL.: *Chierchia*. Further distr. Old World.

## TILIACEAE

*Corchorus* L.

**C. pilobolus** Link, Enum. Hort. Berol. II. 72 (1822); Rob. (1), 172.—ALBEMARLE ISL.: Iguana Cove, *Snodgrass and Heller*. CHARLES ISL.: occasional in dry ashy soil at 1200 ft. (no. 1959). GARDNER ISL. (near HOOD ISL.): *Snodgrass and Heller*. Further distr. Mex., W. Ind., S. Am.

*Triumfetta* L.

**T. semitriloba** Jacq. Enum. Pl. Carib. 22 (1762); Rob. (1), 172.—ALBEMARLE ISL.: Iguana Cove, *Snodgrass and Heller*; Turtle Cove, fruit of a *Triumfetta* was found attached to the hair of a cow killed by a member of the party in this vicinity. It probably belongs to this species. Widely distributed in warm countries.

## MALVACEAE

**Abutilon** Gaertn.

**A. depauperatum** (Hook. f.) Anderss. (1), 230, (2), 98. *Sida depauperata* Hook. f. (3), 232. *A. Anderssonianum* Garcke in Anderss. (1), 230, (2), 98, t. 15, f. 1; Rob. (1), 173.—ABINGDON ISL.: occasional low bushes around 650 ft. (no. 1960). ALBEMARLE ISL.: Iguana Cove, *Snodgrass and Heller*. The sterile specimen collected at this place by *Snodgrass and Heller* and called *Sida cordifolia* by Robinson l. c. no doubt belongs to this species; Tagus Cove, low bushes around the base of the mountain at 200 ft.; Villamil, common bushes below 500 ft. (no. 1961). BARRINGTON ISL.: *Snodgrass and Heller*. BINDLOE ISL.: *Snodgrass and Heller*. CHARLES ISL.: bushes 2-3 ft. high around 450 ft. (no. 1962). CHATHAM ISL.: Wreck Bay, bushes 2-3 ft. high in shady places around 300 ft. (nos. 1963-1964). DUNCAN ISL.: occasional low shrubs at 1300 ft. (no. 1965). GARDNER ISL. (near HOOD ISL.): *Snodgrass and Heller*. HOOD ISL.: common bushes in the interior of the island (no. 1966). INDEFATIGABLE ISL.: north side, *Snodgrass and Heller*. TOWER ISL.: occasional bushes (no. 1967). The principal differences between this species and *A. Anderssonianum*, as given by Garcke l. c., are the number of carpels, the number of seeds in each, and the shape of the lobes of the calyx. One specimen in the collection has seven carpels, which is intermediate in number between the two species, and there is considerable variation in the shape of the calyx lobes throughout. The fact that *A. depauperatum* has 3-5 seeds in a carpel, and *A. Anderssonianum* always 3, is hardly sufficient ground for the formation of two distinct species. It is likely that the specimens described as *A. Anderssonianum* are more mesophytic than the typical *A. depauperatum*. Endemic.

**A. crispum** (L.) Medic. Malv. 29 (1787). *Sida crispa* L. Sp. Pl. 685 (1753).—CHAMPION ISL.: *J. R. Stevin* collector (no. 1971). CHARLES ISL.: occasional at 450 ft. (nos. 1972-1973). DAPHNE ISL.: (no. 1970). Further distr. tropical regions.

**A. sp.**—INDEFATIGABLE ISL.: Academy Bay, occasional low bushes on the lower parts of the island, differing from *A. de-*

*pauperatum* in having the stem and leaves covered with a dense white tomentum. The specimen is sterile, (no. 1968).

**A. sp.**—INDEFATIGABLE ISL.: northeast side, sterile and indeterminate (no. 1969).

#### **Anoda Cav.**

**A. hastata** Cav. Diss. I. 38, t. 11, f. 2 (1790); Rob. (1), 173.—CHARLES ISL.: fairly common in open meadows around 1200 ft. (nos. 1974-1975). Further distr. U. S., Mex., W. Ind., S. Am.

#### **Bastardia HBK.**

**B. viscosa** (L.) HBK. Nov. Gen. & Sp. V. 256 (1821). *Sida viscosa* L. Syst. ed. 10, 1145 (1760). *B. viscosa* HBK. l. c.; Rob. (1), 173.—ABINGDON ISL.: common in open brushy country around 600 ft. (no. 1976). ALBEMARLE ISL.: Iguana Cove, *Snodgrass and Heller*. CHATHAM ISL.: Basso Point, abundant to above 900 ft. (no. 1977). DUNCAN ISL.: occasional low bushes all over the lower parts of the island (nos. 1979-1980). HOOD ISL.: on the margin of a dried lake in the interior of the island and at 600 ft. (nos. 1981-1982). INDEFATIGABLE ISL.: Academy Bay, occasional at 100 ft. (no. 1985); north side, common above 100 ft. (no. 1986); north-east side, (no. 1984); northwest side, bushes 2-3 ft. high in tufaceous soil near the shore. JAMES ISL.: James Bay, low bushes to 1000 ft. (no. 1987). Further distr. Mex., W. Ind., S. Am.

#### **Gossypium L.**

**G. barbadense** L. Sp. Pl. 693 (1753); Rob. (1), 173.—ABINGDON ISL.: occasional bushes on the lower parts (no. 1989). ALBEMARLE ISL.: Iguana Cove, *Snodgrass and Heller*; Tagus Cove, common bushes in the flat country around the base of the mountain and in deep canyons on its sides (no. 1990). BARRINGTON ISL.: *Baur*. CHARLES ISL.: *Andersson*; *Snodgrass and Heller*. CHATHAM ISL.: north side, *Darwin*; *Baur*; Wreck Bay, common bushes to 550 ft., very abundant in rocky soil in the vicinity of the shore. DUNCAN ISL.: bushes, 100-1300 ft., (no. 1993). GARDNER ISL. (near HOOD ISL.): *Snodgrass and Heller*. HOOD ISL.: common bushes to 450 ft. (nos. 1994-1995). INDEFATIGABLE ISL.: southeast side, common bushes to 625 ft. (no. 1996). JAMES ISL.: *Darwin*.

JERVIS ISL.: occasional bushes (no. 1998). SEYMOUR ISL., SOUTH: *Snodgrass and Heller*. Further distr. general in tropics.

**G. Klotzschianum** Anderss. (1), 228, (2), 97; Rob. (1), 174.—ALBEMARLE ISL.: Cowley Bay, *Andersson*. BINDLOE ISL.: *Snodgrass and Heller*. CHARLES ISL.: *Andersson*. CHATHAM ISL.: north side, *Andersson*. INDEFATIGABLE ISL.: Academy Bay, bushes on the lower parts of the island (no. 1999); north side, *Snodgrass and Heller*. Endemic.

### Hibiscus L.

**H. diversifolia** Jacq. Col. Bot. II. 307 (1788).—CHATHAM ISL.: Wreck Bay, bushes 3-4 ft. high on north hill-side at 2000 ft. (nos. 2000-2001). Further distr. Mex., tropics of Old World.

**H. Manihot** L. Sp. Pl. 696 (1753).—ALBEMARLE ISL.: Villamil, around habitations. Called "*Saibo*" by the inhabitants, and probably introduced, (no. 2002). Further distr. Mex., Old World.

**H. tiliaceus** L. Sp. Pl. 694 (1753); Rob. (1), 174.—ALBEMARLE ISL.: Turtle Cove, low spreading trees near the beach (no. 2003). CHARLES ISL.: *Edmonston*. INDEFATIGABLE ISL.: Academy Bay, low trees near the beach (no. 2004). Further distr. general in tropics.

### Malachra L.

**M. capitata** L. Syst. ed. 12, 458 (1767); Rob. (1), 174.—JAMES ISL.: *Darwin*. Further distr. general in tropical regions.

### Malvastrum A. Gray

**M. americanum** (L.) Torr. Bot. Mex. Bound. 38 (1859). *Malva americanum* L. Sp. Pl. 776 (1753). *Malvastrum tricuspidatum* A. Gray. Pl. Wright, I. 16 (1852).—CHARLES ISL.: abundant in rather open bushy country around 800 ft., in meadows at 1100 ft., and on the sides of the main mountain at 1750 ft., (nos. 2005-2008). CHATHAM ISL.: Wreck Bay, common in woodland, 400-500 ft., (nos. 2009-2010). Further distr. general in tropical regions.

**M. spicatum** (L.) A. Gray, Mem. Am. Acad. N. S. IV. 22 (1849). *Malva spicata* L. Syst. ed. 10, 1146 (1760).—CHATHAM ISL.: Wreck Bay, occasional bushes, 250-450 ft., (nos. 2011-2013). INDEFATIGABLE ISL.: southeast side, occasional low bushes around 600 ft. (nos. 2014-2015). Further distr. general in tropical regions.

#### Sida L.

**S. acuta** Burm. var. *carpinifolia* K. Schum. in Mart. Fl. Bras. XII. pt. 3, 326 (1891); Rob. (1), 174.—CHARLES ISL.: *Andersson*. Further distr. general in tropical regions.

**S. paniculata** L. Syst. ed. 10, 1145 (1760); Rob. (1), 175.—ALBEMARLE ISL.: Iguana Cove, *Snodgrass and Heller*. CHARLES ISL.: common above 450 ft. during the rainy season, in February and March; at other times it was not seen below 1000 ft., (nos. 2016-2018). CHATHAM ISL.: Wreck Bay, abundant in rather moist places (no. 2019). Further distr. Mex., W. Ind., S. Am.

**S. rhombifolia** L. Sp. Pl. 684 (1753); Rob. (1), 175.—CHARLES ISL.: *Edmonston; Lee; Snodgrass and Heller*. CHATHAM ISL.: Wreck Bay, common in woodland at 300-450 ft., and in open country around 900 ft., (nos. 2020-2022). Further distr. general in warm countries.

**S. spinosa** L. Sp. Pl. 683 (1753); Rob. (1), 175. *S. angustifolia* Lam. Dict. I. 4 (1783); Rob. (1), 175.—ABINGDON ISL.: occasional around 1100 ft. (no. 2023). ALBEMARLE ISL.: Cowley Bay, common in pumice soil around 1800 ft. (no. 2028); Iguana Cove, common on sides of cliff above the cove and occasional in woodland at 300 ft. (nos. 2024-2025); Tagus Cove, common in tufaceous soil on the lower parts (no. 2029); Villamil, common above 500 ft. (no. 2027). CHARLES ISL.: occasional in open country around 450 ft. (nos. 2030-2031). CHATHAM ISL.: Basso Point, (no. 2032); Wreck Bay, rare near the shore (no. 2033). DUNCAN ISL.: common among rocks at 1000 ft. (no. 2034). GARDNER ISL. (near HOOD ISL.): *Snodgrass and Heller*. INDEFATIGABLE ISL.: northwest side, rare in tufaceous soil near the shore (no. 2035). JAMES ISL.: *Darwin*. NARBOROUGH ISL.: north side, common in lava crevices (no. 2036). Further distr. general in warm countries.

**S. supina** L'Hér. Stirp. Nov. 109bis t. 52 (1785).—ABINGDON ISL.: common above 1000 ft. (no. 2037). ALBEMARLE ISL.: Tagus Cove, common, 1000-4000 ft., (nos. 2038-2041); Villamil, common in woodland, 500-1300 ft., (no. 2039). CHARLES ISL.: occasional in open country around 1000 ft. (no. 2042). DUNCAN ISL.: rare at 1250 ft. (no. 2043). Further distr. S. U. S., Mex., W. Ind., S. Am.

**S. veronicaefolia** Lam. var. **humilis** (Cav.) K. Schum. in Mart. Fl. Bras. XII. pt. 3, 320 (1891). *S. humilis* Cav. Diss. V. 277, t. 134, f. 2 (1788). Var. *humilis* K. Schum. l. c.; Rob. (1), 176.—ALBEMARLE ISL.: Iguana Cove, *Snodgrass and Heller*. Further distr. general in warm countries.

**Malvacea** sp.—ABINGDON ISL.: common in woodland above 1000 ft. Specimen sterile and indeterminate (no. 2044).

## STERCULIACEAE

### *Waltheria* L.

**W. reticulata** Hook. f. (3), 231; Rob. (1), 176.—ABINGDON ISL.: bushes, usually procumbent, to 1100 ft., (no. 2045). ALBEMARLE ISL.: Cowley Bay, occasional procumbent bushes on the lower parts, common bushes 2-4 ft. high around 2,000 ft., (no. 2046); Elizabeth Bay, *Snodgrass and Heller*; Tagus Cove, bushes 2-4 ft. high, 300-600 ft., (no. 2047); Villamil, common bushes on lava beds to 200 ft. (no. 2048). CHARLES ISL.: *Andersson*; *Baur*. DUNCAN ISL.: low bushes at 1275 ft. (no. 2049). JAMES ISL.: *Douglas*; *Macrae*; James Bay, *Snodgrass and Heller*. JERVIS ISL.: occasional bushes at 350 ft. (no. 2051). Endemic.

Forma **Anderssonii** Rob. (1), 176. Forma *acamata* Rob. (1), 176.—BARRINGTON ISL.: *Baur*. CHATHAM ISL.: north side, *Andersson*. INDEFATIGABLE ISL.: north side, low bushes above 100 ft. (no. 2063); northeast side, low bushes near the coast (no. 2052). NARBOROUGH ISL.: north side, *Snodgrass and Heller*. TOWER ISL.: procumbent bushes, common, (no. 2053). The more abundant material seems to show that the characters which distinguish forma *acamata*, Rob. l. c., apply



equally well to specimens of forma *Anderssonii*, on which account the two forms should probably be considered as one. Endemic.

Forma **intermedia** Rob. (1), 177.—ABINGDON ISL.: *Snodgrass and Heller*. ALBEMARLE ISL.: Iguana Cove, bushes 6-10 ft. high at 300 ft. (no. 2054). BINDLOE ISL.: low bushes in tufaceous soil (no. 2055). CHARLES ISL.: common bushes at 600 ft. (no. 2056); Cuevas Bay, *Baur*. CHATHAM ISL.: Basso Point, low spreading bushes on recent lava flows (no. 2057). GARDNER ISL. (near HOOD ISL.): common bushes 3-4 ft. high, sometimes procumbent, (no. 2062). INDEFATIGABLE ISL.: Academy Bay, occasional low bushes on the lower parts, (no. 2059); northwest side, common bushes to 750 ft.; southeast side, common bushes to 650 ft. JAMES ISL.: James Bay, bushes 5-7 ft. high to 1300 ft. (no. 2060). NARBOROUGH ISL.: north side, common bushes on lava near the coast (no. 2061). Endemic.

## HYPERICACEAE

### *Hypericum* L.

**H. thesiifolium** HBK. Nov. Gen. & Sp. V. 192 (1821).—ALBEMARLE ISL.: Villamil, common in loose ashy soil on the rim of the crater at 3150 ft., also found occasionally on the floor of the crater at 2750 ft. (nos. 2064-2065). CHATHAM ISL.: Wreck Bay, in dry exposed places at 1700 ft. (no. 2066). Further distr. Mex., S. Am.

## TURNERACEAE

### *Turnera* L.

**T. ulmifolia** L. Sp. Pl. 271 (1753); Rob. (1), 177.—CHARLES ISL.: *Edmonston*. Further distr. general in warm countries.

## PASSIFLORACEAE

### *Passiflora* L.

**P. foetida** L. Sp. Pl. 959 (1753); Rob. (1), 177.—ALBEMARLE ISL.: Tagus Cove, on the lower parts of the island and on the side of the mountain at 2800 ft. (no. 2067); Turtle

Cove, in open places along the beach (no. 2069); Villamil, abundant on rocks near the shore (no. 2068). CHARLES ISL.: common to 1200 ft. (nos. 2070-2071). CHATHAM ISL.: Wreck Bay, common on bushes and rocks on the lower parts of the island (no. 2072). INDEFATIGABLE ISL.: Academy Bay, covering bushes near the beach (no. 2073). Further distr. S. U. S., Mex., W. Ind., S. Am.

**P. lineariloba** Hook. f. (3), 222; Rob. (1), 177.—ALBEMARLE ISL.: Tagus Cove, occasional among rocks, 400-2000 ft., (no. 2074). CHARLES ISL.: *Darwin?*; *Andersson*. GARDNER ISL. (near HOOD ISL.): (no. 2075). HOOD ISL.: on trunks of *Opuntia galapageia* at 450 ft. (no. 2076). INDEFATIGABLE ISL.: southeast side, occasional at 600 ft. (no. 2077). JAMES ISL.: James Bay, common on bushes on the lower parts (no. 2078). NARBOROUGH ISL.: *Snodgrass and Heller*. Endemic.

**P. subrosa** L. Sp. Pl. 958 (1753). *P. puberula* Hook. f. (3), 223; Andersson (1), 221, (2), 93; Rob. (1), 177.—ABINGDON ISL.: common in the moist region (no. 2079). ALBEMARLE ISL.: Villamil, on rocks and bushes near sea level (no. 2080). CHATHAM ISL.: Wreck Bay, occasional, 400-650 ft., (no. 2081). DUNCAN ISL.: on rocks at 1275 ft. (no. 2082). JAMES ISL.: *Darwin*. Further distr. S. U. S., Mex., W. Ind., S. Am.

## CARICACEAE

### *Carica* L.

**C. Papaya** L. Sp. Pl. 1036 (1753); Rob. (1), 178.—ALBEMARLE ISL.: Villamil, around habitations in the region adjacent to the shore. CHARLES ISL.: around former habitations. CHATHAM ISL.: Wreck Bay, in gardens. Introduced into the islands. Further distr. general in the tropics.

## LOASACEAE

### *Mentzelia* L.

**M. aspera** L. Sp. Pl. 516 (1753); Rob. (1), 178.—ALBEMARLE ISL.: Iguana Cove, common on bluff above the cove (no. 2083); Tagus Cove, common in shady places in tufaceous

soil to 1000 feet. (no. 2084). CHARLES ISL.: common in open places among rocks near the shore (no. 2085); Cuevas Bay, *Baur*; CHATHAM ISL.: north side, *Andersson*; Wreck Bay, rare on sand beaches (no. 2086). DUNCAN ISL.: *Snodgrass and Heller*. GARDNER ISL. (near HOOD ISL.): *Snodgrass and Heller*. HOOD ISL.: *Snodgrass and Heller*. INDEFATIGABLE ISL.: Academy Bay, common in lava crevices near sea level (no. 2087); north side, *Snodgrass and Heller*. JAMES ISL.: *Andersson*; James Bay, *Snodgrass and Heller*. TOWER ISL.: *Snodgrass and Heller*. Further distr. U. S., Mex., W. Ind., S. Am.

#### Sclerothrix Presl

*S. fasciculata* Presl, *Symb. Bot.* II. 3, t. 53 (1858); Rob. (1), 178.—ALBEMARLE ISL.: Iguana Cove, (no. 2089); Tagus Cove, abundant at 4000 ft. (no. 2088). JAMES ISL.: James Bay, *Snodgrass and Heller*. NARBOROUGH ISL.: south side, *Snodgrass and Heller*. Further distr. Mex., S. Am.

### CACTACEAE

#### *Cereus* Mill.

*C. galapagensis* Weber, *Bull. du Mus. d'Hist. Nat. Paris* 1899, 312 (1899); Rob. (1), 179. *C. Thouarsii* Weber, l. c. 312; Rob. (1), 180.—CHARLES ISL.: common in the vicinity of the shore (no. 2090). CHATHAM ISL.: Basso Point, occasional specimens were seen up to 800 ft.; Sappho Cove, grows very abundantly on the recent lava beds between the cove and Finger Point, as well as on the older lava on the east side of the cove, where it occurs abundantly in forests of *Bursera graveolens*. This species reaches its largest size at this place, often attaining a height of 25 or more feet. The articulations are unusually thick here, sometimes being as much as 10-12 inches in diameter; Wreck Bay, common on the rocky coast and on the sides and tops of exposed lava hills (no. 2091). INDEFATIGABLE ISL.: Academy Bay, no specimens of this species were secured, but a photograph taken here shows a specimen very similar to this species in general appearance. Its presence, however, is doubtful. Endemic.

Weber, l. c., described two species of *Cereus* from Charles Isl., viz., *C. galapagensis* and *C. Thouarsii*, but gave no charac-

ters by which they could be recognized. As there is evidently but one species of *Cereus* on this island, it seems necessary to reduce them to one, *C. galapagensis*, which can be recognized by the following characters. Arborescent, often 8 or more meters in height; trunk cylindrical, 15-30 cm. in diameter; stems diverging; articulations short, robust, obtusely rounded at the extremities, with deep indentations at the points of union of the articulations, 18-angled, costae prominent. Flowers chocolate brown with yellow stripes. Outer petals broadly spatulate cochleariform, 2.3 cm. long, 2 cm. broad at tip, mucronate, margins entire to denticulate; inner petals cuneate mucronate, 2.4 cm. long, 8 mm. broad, margins dentate. Stigmas 11, fruit oval rounded, resembling a large prune, as described by Weber, l. c. A flower from a specimen of this species from Chatham Isl. shows considerable divergence from the above description in that the outer petals are narrowly spatulate, 3.1 cm. long, 8 mm. broad, abruptly acuminate, somewhat cochleariform; inner petals narrowly lanceolate, 3.2 cm. long, 5 mm. broad, acuminate, margins irregularly dentate. Excellent photographs of this species were published by Agassiz (1), Pl. XVI and XX, where specimens from both Charles and Chatham Ids. are shown.

**C. nesioticus** K. Sch. in Rob. (1), 179.—**ABINGDON ISL.:** fairly abundant on old cinder beds along the south side of the island. No other vegetation occurs near where the specimens were taken, (no. 2092). **ALBEMARLE ISL.:** Black Bight, *Snodgrass and Heller*; Christopher Point, *Snodgrass and Heller*; Elizabeth Bay, *Snodgrass and Heller*. **CHATHAM ISL.:** Sappho Cove, reported by *E. S. King*, one of the members of the expedition. **JAMES ISL.:** James Bay, common on recent lava south of the bay and along the south side of the island. **NARBOROUGH ISL.:** northeast side, common on recent lava (no. 2093); south side, occurs to above 500 ft. acc. to *J. S. Hunter*. **TOWER ISL.:** a few isolated bunches of this species were found on a small deposit of cinders around a blow-hole in the interior of the island (no. 2094).

This species is always found in the most sterile and desert situations and never occurs where there is much if any other vegetation. On both Narborough and James Islands it was found growing abundantly on beds of lava apparently as fresh

and uneroded as when first cooled, and it is usually in such situations that it is the most abundant. The branches of this species radiate upward and outward to a height of 2-3 ft., forming candelabra-like masses. The cactus with the habit of *C. peruvianus*, mentioned by Henslow, Mag. Zool. and Bot. 476 (1837), probably belongs to this species. Plate V. Endemic.

**C. sclerocarpus** K. Sch. in Rob. (1), 179.—ALBEMARLE ISL.: Banks Bay, an arborescent species of *Cereus* was reported from this place by *F. X. Williams*; it most likely belongs to this species; Black Bight, *Snodgrass and Heller*; Christopher Point, *Snodgrass and Heller*. It was noticed, in sailing by this portion of the island, that this species grows very abundantly on the barren lava fields near the coast; Tagus Cove, occasional on cinder beds in the vicinity of the cove and at various places on the side of the mountain. It also occurs fairly abundantly on the floor of the crater at about 3600 ft., where the conditions are desert in the extreme; Villamil, in barren rocky places in the vicinity of the shore, and in similar situations around the base of the mountain to 100 ft. A few specimens were noticed on the inside of the crater at 2750 ft., along with other xerophytic plants, (no. 2095). INDEFATIGABLE ISL.: Academy Bay, abundant in dry rocky places near the coast, seldom occurring any distance inland, (no. 2096). JAMES ISL.: James Bay, abundant on recent lava flows to 900 ft. south of the bay. It occurs most abundantly along the edges of the flows, but stops abruptly as soon as other large vegetation begins to appear, (no. 2097). NARBOROUGH ISL.: south side, a species of *Cereus* was reported by *J. S. Hunter* from this side of the island. It was probably this species.

This species can be distinguished from *C. galapagensis* by the following characters: branches few and usually parallel; articulations usually elongated, somewhat slender, 15-angled. All of the flowers secured were smaller than those described by Schumann, op. c. 180. The great variability in the flowers of this species is well illustrated by two flowers taken from the same plant on Indefatigable Isl. One of these has most of the petals broadly spatulate, truncate, and slightly emarginate, while the other has them mostly narrowly oblong and rounded.

All of the species of *Cereus* which grow on these islands are found only in the most open and desert situations. One may

often go for a mile or more inland without seeing a single specimen, but when an exposed lava ridge or a barren field of lava is encountered, where conditions are such that very little other vegetation will grow, specimens will occur abundantly. The probable reason for this is that the species of *Cereus* are shaded out as soon as any considerable amount of other vegetation appears. Plate VI. Endemic.

**C. sp.**—BINDLOE ISL.: *Heller*. Probably *C. sclerocarpus* acc. to Rob. (1), 180. No specimens of *Cereus* were seen by any of the members of our party when this island was visited.

### **Opuntia Raf.**

**O. galapageia** Hensl. Mag. Zoöl. and Bot. I. 467, t. 14, f. 2 (1837); Rob. (1), 180.—ABINGDON ISL.: common on lava beds to 1000 ft., occasional above this elevation to 1300 ft. The specimens from the lower parts form trees 8-10 ft. high and have the branches closely arranged, giving the crown a very dense appearance, while those from the upper parts have the branches rather loosely arranged. In general the specimens from the upper parts are much infested with lichens, and have a more sickly appearance than do the specimens on the lower parts, (no. 3001). CHAMPION ISL.: specimens low, with very thick trunks, and apparently very much more abundant than on the adjacent shores of Charles Island, (no. 2098). CHARLES ISL.: abundant below 500 ft., occasional to 1300 ft. on the west side of the main mountain. One of the specimens from this place is peculiar in that the fascicles are made up mostly of capillary bristles but in addition have one or two long pungent spines. There are fewer *Opuntias* here than on most of the other larger islands, a fact that is probably due to the presence of cattle, hogs, and burros which eat the smaller and less protected specimens. DUNCAN ISL.: occasional at 450 ft., abundant around 1000 ft., especially on the floor of the main crater, occasional to 1250 ft. The specimens on this island have the branches openly arranged and often covered with various species of lichens. See Plate X. GARDNER ISL. (near HOOD ISL.): an interesting variation of this species occurs here in that some of the specimens are stemless and have the branches procumbent. One individual of this kind was found growing immediately underneath a specimen with a stem 6-7

ft. high, the relative positions of the two being such that one would judge that the taller was the parent of the procumbent specimen. A short distance away from these there was another individual, with a stem approximately 2 ft. high and 1 ft. in diameter. The general arrangement of the branches, and the arming of the articulations in all three of these specimens, was the same, so that there seems to be but little doubt of their all belonging to the same species, (no. 3002). None of these low forms were noticed on the adjacent Hood Island, a fact that may be due to the presence of goats on the latter. It might be well to mention in this connection that stemless *Opuntias* also occur on Bindloe, Culpepper, Gardner (near Charles), Tower, and Wenman Islands, and with the exception of the Seymour Islands these are the only islands of importance in the group from which land-tortoises or their remains have not been reported. When this is considered together with the fact that the branches of *Opuntias* form the principal article of food of these animals on the lower parts of all of the islands where they occur, a suggestion is given as to the possible origin of the arborescent forms, or at least why the low forms have persisted on the islands where they have been undisturbed. HOOD ISL.: generally distributed all over the island except on the southeast side, where they appear to be almost entirely absent for a mile or more back from the shore, (no. 3003). JAMES ISL.: north-east side, abundant on lava beds to above 700 ft. Above 450 ft. the spines are more capillary than they are on specimens seen lower down.

This species has a relatively short trunk, which is usually 1-1½ ft. in diameter, but sometimes as much as 4½ ft. Branches are usually sent off 6-7 ft. above the ground, and as they all come off from about the same level, the crown is regularly rounded, broadly spreading, and somewhat umbrella-shaped. The outer articulations are disk-like and covered with fascicles of capillary bristles, while the proximal ones are thickened, unarmed, and covered with the same kind of brownish periderm that covers the trunk. The flowers are yellow, 7.5 cm. in diameter, contrary to Henslows' description, l. c. The fruit is green, and not red as mentioned by Andersson, see Hemsley, (3), 31. A *Cereus* was no doubt mistaken for an *Opuntia* in this instance, as *Cereus* is the only genus of this

family found on the islands, which has red fruit and forms candelabra-like objects.

The young of this species first appears as a flattened disk-shaped mass, dark green in color, and heavily covered with long rigid spines. This first articulation is followed by another above, which has its short axis at right angles to the corresponding axis of the articulation below, a process which is repeated until the plant has attained a height of 5-6 ft., when lateral branches, from which the crown of the tree is developed, are put out. In the meantime the articulations forming the trunk have been increasing in diameter, and as growth takes place more rapidly on the faces than on the edges of the articulations, the trunk soon assumes a more or less rounded form. The development is shown in Plates VII to IX. The trunk is heavily armed with long, ridged, and somewhat deflected spines, when the plant is in the young condition; but by the time the trunk has attained a diameter of a foot or more, most of these have been shed in the following manner. In the young segments the fascicles occupy deep pits in the surface. These pits extend into the cortical parenchyma from which the spines receive their nutrition. By the formation of periderm, inside of this, the nutrition is soon stopped and the spines drop off, remaining attached, however, for a considerable time after their physiological connection with the stem has ceased. The pits which contained the fascicles remain visible as slight indentations through the greater part of the life of the plant. The bark is reddish-brown in color, and is made up of alternating layers of cork and stone cells which slough off in large sheets, one-half inch or more in thickness. After the disintegration of the layers of cork cells, the stone cells remain as loosely arranged plates somewhat resembling the ordinary shellac of commerce in general appearance. Much of the calcium oxalate is got rid of through the bark, as cross sections show a large number of rosette-like crystals of this salt. Plates VII, fig. 2; VIII; IX, fig. 2; X; XI; and XII. Endemic.

**O. Helleri** K. Sch. in Rob. (1), 180.—**BINDLOE ISL.**: (?), a species of low *Opuntia* occurs on this island, which is very similar in general appearance to the one on Tower and Wenman Ids. It is very likely the same. **CULPEPPER ISL.**: owing to the fact that the low *Opuntias* which occur on this island are



on the inaccessible parts, no specimens were taken, but seen from a distance they had the general appearance of this species. TOWER ISL.: common in various places, forming dense thickets 3-4 ft. high. The specimens on this island are more erect than they are on Wenman, (no. 3005). WENMAN ISL.: common in thickets on tops of the cliffs, and hanging down the sides of the same, (no. 3006). Plates XIII, fig. 1; XIV. Endemic.

**O. insularis**, nov. sp.

Fruticosa circa 1 m. alta; caule spinoso; spinis pungentibus non cauducis; ramis brevibus; articulis ovatis apice rotundatis griseo-viridibus, circa 3 dm. longis, 2 dm. latis; areolis orbicularibus tuberculosis lanuginosis denique solum tomentellis; fasciculo 40-50 spinoso; spinis pungentibus flavescentibus inequalibus maximis 3 cm. longis; floribus fructuque ignotis.

A species easily distinguished from the others on the islands by its smaller size, and the shorter and more numerous spines. ALBEMARLE ISL.: Tagus Cove, common on the sides of the tufa hills surrounding the cove. A low *Opuntia* with numerous short stiff spines was reported from the Banks Bay region of this island by Mr. *F. X. Williams*. From his description it seems likely that it is this species, (no. 3014). Plates IX, fig. 1; XV. Endemic.

**O. myriacantha** Weber in Bois, Dict. d'Hort. 894 (1898); Rob. (1), 181.—ALBEMARLE ISL.: Cowley Bay, occasional on the lower parts, and up to within a few hundred feet of the top, acc. to *R. H. Beck*; Iguana Cove, rare in the immediate vicinity of the cove but abundant a short distance on either side of it; Tagus Cove, fairly abundant on the rim of the crater at 4000 ft. and at various places on the sides of the mountain; the specimens which occur here are smaller than is usually the case; Turtle Cove, common near the shore, specimens of large size; Villamil, very abundant on beds of basaltic lava on the lower parts, often forming forests 25-30 ft. in height; most abundant below 100 ft., but found to some extent as high up as 550 ft., where the specimens are smaller in size than lower down; occasional on the floor of the crater at 2750 ft., (no. 3008). BARRINGTON ISL.: abundant everywhere, forming trees 12 or more feet in height. The photograph of the so-called *O. galapageia*, published by Hemsley, (5), fig. 75, is evidently of this species, as it does not show the broadly spreading crown so characteristic of *O. galapageia*. The photograph shows the

trunk to be heavily covered with spines, which is rather unusual for a specimen of the size visible in the photograph. CHARLES ISL.: *Du Petit Thouars* (*Dr. Néboux*). The presence of this species on Charles Isl. is doubtful in the extreme. CHATHAM ISL.: Basso Point, occasional to above 900 ft.; Sappho Cove, common all over the lower parts; Wreck Bay, occasional to 400 ft. INDEFATIGABLE ISL.: Academy Bay, abundant below 200 ft., in many instances forming trees 30 or more feet in height. It extends up to 350 ft., but the specimens here are very scattered and small in size, 4-6 ft. being about the average height. At this place the species attains its largest size where the conditions near sea level are less xerophytic than is usually the case, Dr. Baur's statement, that *Opuntias* reach their largest size where conditions are most sterile, being incorrect so far as this species at least is concerned. The probable reason why this and other species do not attain their maximum size at higher altitudes is the greater amount of other vegetation, which tends to shade them too much, (no. 3009); southeast side, abundant on the lower parts, occasional and small at 600 ft. This species occurs most abundantly here in the region between 300 and 450 ft., where it forms a portion of a well-marked belt of *Opuntias* which extends along the south, southeast, and east sides of the island to within a short distance of that portion of the shore opposite Gordon Rocks, (no. 3011). JAMES ISL.: north side, common all over the lower parts; south side, occasional all over the lower parts to 900 ft. Many of the specimens here have very long slender trunks and but few branches, (no. 3012). JERVIS ISL.: abundant on the lower parts, where it is 3-7 ft. in height. It also occurs around the top of the island at 1050 ft., but the specimens here are all low, and it is likely that Dr. Baur, (2), 247, refers to these upper specimens when he says that the *Opuntias* from this island are very low, (no. 3013).

This species can be recognized by the following characters: stem long, relatively slender, and irregularly branched near the top, which forms an irregularly shaped crown owing to the fact that the branches arise at different elevations and that many of them are inclined to be pendant. Articulations mostly large, the outer ones oblong to oval and covered with fascicles of slender pungent spines. Corolla large, yellow, 6 cm. broad,

and set in a deep cup-like depression in the ovary. Ovary pyramidal, rounded, and covered with fascicles of short stiff spines set in a bunch of short velvety bristles. Style thickened, terminating in 9-11 stigmas variable in number on the same plant. Stamens numerous. Segments of the young plant elliptical oblong, yellowish green in color, and covered with fascicles of slender and rather flexible spines. This species can be readily distinguished from *O. galapageia* by the long slender trunk, irregularly shaped crown, pendant branches, and pungent spines. Plates VII, fig. 1; XIII, fig. 2; and XVI to XVIII. Endemic.

**O. sp.**—ALBEMARLE ISL.: Cape Rose, common on lava cinders near the coast. INDEFATIGABLE ISL.: north side, abundant; northeast side, occasional in loose ashy soil near the coast, abundant one or more miles inland. SEYMOUR ISL., SOUTH: abundant, forming low tree-like bushes 5-6 ft. high, (no. 3015).

This appears to be entirely distinct from any of the other species of *Opuntia* found on the islands, but as there is so much variation among the species of this genus here, it may prove to be an interesting variation of *O. myriacantha*, to which it is evidently most closely related. As no flowers were secured, its specific identity must remain in doubt. The stem is short, 1 to 1.5 m. high, and covered with fascicles of long stiff spines which remain attached to the plant throughout its life. The branches are short, segments yellowish green in color, and covered with fascicles of long and very stiff spines, some of which reach 7.5 cm. There are usually one or two of these long spines and 10 to 25 shorter ones in each fascicle. The branches sometimes show a tendency to droop, a character which is also common to *O. myriacantha*. As the present species is only found on Albemarle and Indefatigable Islands, where *O. myriacantha* also occurs, and on Seymour Island, which was evidently connected with Indefatigable at some not remote period, one is led to suspect that it may possibly be only a more xerophytic form of *O. myriacantha*. Plate XIX. Endemic.

**O. sp.**—NARBOROUGH ISL.: a species of an *Opuntia* was reported from the south side of this island by *J. S. Hunter*. It is probably one of the above.

## LYTHRACEAE

**Cuphea** P. Br.

**C. patula** St. Hil. Fl. Bras. Merid. III. 101 (1832-1833); Rob. (1), 182.—CHATHAM ISL.: Wreck Bay, fairly common in grassy areas around 1700 ft. Further distr. Brazil.

**Punica** L.

**P. Granatum** L. Sp. Pl. 472 (1853).—CHATHAM ISL.: Wreck Bay, common bushes and small trees around 700 ft. Widely distributed in tropical and subtropical regions through cultivation.

**P. sp.?**—CHARLES ISL.: specimen too poor for accurate determination.

## RHIZOPHORACEAE

**Rhizophora** L.

**R. Mangle** L. Sp. Pl. 443 (1753); Rob. (1), 182.—ALBEMARLE ISL.: Banks Bay, small mangroves occur along the shore at this place acc. to *F. X. Williams*; Cape Rose, small swamps in this vicinity; Cowley Bay, a small mangrove swamp occurs about one-half mile south of this place; Elizabeth Bay, extensive swamps occur in this vicinity and in several other places along the north side of the island; Tagus Cove, no mangroves occur at this place, but there are swamps a short distance north of it; Turtle Cove, specimens are not numerous at this place, but they are often of large size, sometimes attaining a height of 40 or more feet; Villamil, low swamps fringing the shores of the bay and in one or two places on the open coast, (no. 3016). CHARLES ISL.: small patches of low trees occur on the north side (no. 3017). CHATHAM ISL.: Sappho Cove, low trees surrounding the cove in places (nos. 3018-3019). DUNCAN ISL.: a small patch of rather stunted specimens occur in a cove on the northeast side of the island (no. 3020). HOOD ISL.: a few specimens occur on the north shore (no. 3021). INDEFATIGABLE ISL.: in occasional swamps around the shores of bays, lagoons, and on the open coast on all sides of the island except the east. The most extensive mangrove swamps occur on the north shore of this island, which may be due to the fact that this part of the island is

entirely shut off from the action of the southeast swell. In regard to the distribution of mangroves Schimper, Pflanzengeographie, 437, says: "Within the tropics its distribution nearly agrees with that of the rain forests. The mangrove is absent or poorly developed on coasts the inland vegetation of which possesses a xerophilous character, except where, as at the mouth of the Indus and other large rivers, there is a considerable freshening of the sea water." The vegetation of the interior, along the north shore of this island, is xerophilous in the extreme, and with the exception of a few showers in the spring and early summer no rain ever falls. JAMES ISL.: common in swamps on the south shore, occasional on the north shore. NARBOROUGH ISL.: forming large swamps of low trees around the quiet shores of a shallow bay on the northeast side, common at Mangrove Pt. TOWER ISL.: a small patch on the shore of the crater lake near the center of the island. No mangroves occur on the shores of this island, (no. 3023).

Epiphytic plants, other than marine algae, do not attach themselves to the mangrove trees, although it is often the case that non-halophytic plants, only a short distance away, are heavily covered with lichens. *Seedling plants are seldom seen underneath mangrove trees the roots of which are exposed to the action of sea water between tides, the reason for this being that the embryo plants are carried away before they have time to take root.* Further distr. general on tropical shores.

## MYRTACEAE

### *Eugenia* L.

**E. Jambos** L. Sp. Pl. 470 (1753).—CHATHAM ISL.: Wreck Bay, trees in gardens, introduced, (no. 3034). Widely distributed in tropical regions.

### *Psidium* L.

**P. galapageium** Hook. f. (3), 224; Rob. (1), 182.—ABINGDON ISL.: occasional small trees, 500-1000 ft., on the southwest side of the island. On the south and southeast sides the species apparently does not occur below 1000 ft., (no. 3030). ALBEMARLE ISL.: Banks Bay, at 2300 ft., according to *F. X. Williams*; Cowley Bay, low bushes at 1250 ft. At 2000 ft.

they increase somewhat in size, but do not form trees as is usually the case at this elevation; Iguana Cove, *Snodgrass and Heller*; Villamil, bushes at 100 ft., low forest trees common at 350-600 ft., (no. 3025). CHATHAM ISL.: Wreck Bay, common bushes and low trees, 150-400 ft., (nos. 3026-3027). INDEFATIGABLE ISL.: Academy Bay, bushes at 300 ft., gradually increasing in size to 600 ft., where the species occurs abundantly as forest trees often 2 ft. or more in diameter, (no. 3028). JAMES ISL.: James Bay, occasional small trees, 350-2800 ft., (no. 3029). There are usually no epiphytic plants found on this species, probably owing to the fact that the bark is so smooth that spores and small seeds would have difficulty in finding a lodgement. The wood is dark brown in color and is very close grained. It is used by the natives of Albemarle Island in making the hubs and felloes for their carts, a use for which it seems well adapted. Endemic.

## COMBRETACEAE

### *Conocarpus* Gaertn.

**C. erectus** L. Sp. Pl. 176 (1753); Rob. (1), 182.—ALBEMARLE ISL.: Iguana Cove, *Snodgrass and Heller*; Turtle Cove, bushes in low dense thickets just back of the beach; Villamil, common in thickets near the shore, trees 25 ft. and more in height around brackish pools some distance back from the shore, (no. 3031). CHATHAM ISL.: Sappho Cove, bushes on sand beaches (no. 3032). INDEFATIGABLE ISL.: Academy Bay, occasional low bushes on the beach (no. 3033). JAMES ISL.: James Bay, low bushes forming thickets on sand beaches (no. 3034). Widely distributed in tropical regions.

### *Laguncularia* Gaertn.

**L. racemosa** (L.) Gaertn. Fruct. III. 209, t. 217, f. 2 (1805). *Conocarpus racemosus* L. Syst. ed. 10, 930 (1760). *L. racemosa* Gaertn. l. c.; Rob. (1), 183.—ABINGDON ISL.: forming dense low thickets on sand beaches (no. 3035). ALBEMARLE ISL.: Cowley Bay, forming a grove of small trees on a gravel beach; Christopher Point, *Snodgrass and Heller*; Elizabeth Bay, *Snodgrass and Heller*; Turtle Cove, low dense thickets on the beach; Villamil, abundant, forming low dense forests of

bushes and small trees on sand beaches around the bay. CHARLES ISL.: low dense thickets on the beach (no. 3036). CHATHAM ISL.: Sappho Cove, bushes and small trees on sand beaches (no. 3037). DUNCAN ISL.: a few stunted bushes on the shore of a cove on the northeast side (no. 3038). INDEFATIGABLE ISL.: Academy Bay, common bushes and small trees around the shores of the bay (no. 3039); southeast side, low spreading trees, with rounded tops, near the shore; also noticed in various other places on the north and northwest sides of the island, (nos. 3040-3041). JAMES ISL.: James Bay, common on sand beaches (no. 3043). It also occurs in various other places on the north and south shores. JERVIS ISL.: bushes and small trees around a salt lagoon (no. 3042). NARBOROUGH ISL.: northeast side, common bushes around bays and lagoons; east side, *Snodgrass and Heller*. SEYMOUR ISL., SOUTH: groves of mangroves, either of this species or *Rhizophora Mangle*, possibly both, were noticed on the south shore of this island while we were cruising along the north shore of Indefatigable Island on one of our numerous turtle-fishing expeditions.

#### MELASTOMACEAE

##### *Miconia* R. & P.

**M. Robinsoniana** Cogniaux in Rob. (1), 183.—CHATHAM ISL.: Wreck Bay, in ditches, 1000-1700 ft. In various places in this region there are deep ditches with perpendicular walls, apparently dug. These bushes, along with several species of ferns, are usually found in such ditches, (no. 3044). Endemic.

#### ONAGRACEAE

##### *Jussiaea* L.

**J. repens** L. Sp. Pl. 388 (1753).—CHATHAM ISL.: Wreck Bay, in pools and in small streams, 1000-1700 ft., (no. 3045). Widely distributed in tropical countries.

#### HALORRHAGIDACEAE

##### *Myriophyllum* L.

**M. sp.** Wolf. (1), 284; Rob. (1), 183.—CHARLES ISL.: in a brook near the hacienda, according to Wolf, l. c. At the times

we visited this island there were no brooks except in the immediate vicinity of two small springs.

## UMBELLIFERAE

### *Apium* L.

**A. laciniatum** (DC.) Urb. in Mart. Fl. Bras. XI. 1, 343 (1879). *Helosciadium laciniatum* DC. Mém. Soc. Phys. Genève. IV. 495 (1828). *A. laciniatum* Urb. l. c.; Rob. (1), 184.—CHARLES ISL.: on the rim of a crater at 1550 ft. (no. 3046). Further distr. W. S. Am.

**A. leptophyllum** (DC.) F. Muell, acc. to Benth. Fl. Aust. III. 372 (1866). *Helosciadium leptophyllum* DC. Mém. Soc. Phys. Genève. IV. 493 (1828). *A. leptophyllum* F. Muell. l. c.; Rob. (1), 184.—ABINGDON ISL.: common among rocks in open grassy country around 1100 ft. (no. 3049). ALBEMARLE ISL.: Iguana Cove, *Snodgrass and Heller*; Tagus Cove, abundant in shady places at 4000 ft. (no. 3048); Villamil, common, 700-3150 ft., (no. 3047). CHATHAM ISL.: Wreck Bay, in open grassy country around 900 ft. (no. 3050). JAMES ISL.: *Darwin*. Widely distributed.

### *Centella* L.

**C. asiatica** (L.) Urb. in Mart. Fl. Bras. XI. 1, 287 (1879). *Hydrocotyle asiatica* L. Sp. Pl. 234 (1753). *C. asiatica* Urb. l. c.; Rob. (1), 184.—ALBEMARLE ISL.: Villamil, common in moist protected places among rocks at 1500 ft. (no. 3050). CHATHAM ISL.: Wreck Bay, abundant in grassy country above 1200 ft. (no. 3052). DUNCAN ISL.: in protected places around 1250 ft. (no. 3053). Widely distributed.

### *Hydrocotyle* L.

**H. galapagensis** Rob. (1), 184.—CHATHAM ISL.: upper regions, *Baur*. Endemic.

### *Petroselinum* Koch

**P. sativum** Hoffm. Gen. Umb. 177 (1814); Rob. (1), 184.—CHARLES ISL.: *Andersson*. Introduced from the Old World, according to Rob. l. c.



## PLUMBAGINACEAE

*Plumbago* L.

**P. scandens** L. Sp. Pl. ed. 2, 215 (1762); Rob. (1), 185.—  
 ABINGDON ISL.: common in woodland at 1300 ft. (no. 3054).  
 ALBEMARLE ISL.: Cowley Bay, common around 1900 ft. (no. 3059); Elizabeth Bay, *Snodgrass and Heller*; Iguana Cove, common near the shore (no. 3058); Tagus Cove, common in shady places to 2000 ft. (no. 3055); Villamil, common near sea level and in various places throughout the moist region (no. 3057). CHARLES ISL.: occurs to some extent near sea level, but is most abundant in shady places at 1000-1400 ft., (nos. 3061-3063). CHATHAM ISL.: *Andersson; Snodgrass and Heller*. DUNCAN ISL.: a few specimens were taken at 1300 ft. (no. 3064). GARDNER ISL. (near HOOD ISL.): (no. 3066). HOOD ISL.: occasional to 400 ft. (no. 3067). INDEFATIGABLE ISL.: Academy Bay, occasional to 400 ft. (no. 3070); north-west side, occasional to 400 ft.; southeast side, rare at 600 ft. (nos. 3069-3071). JAMES ISL.: James Bay, fairly common in the moist region (no. 3065). Further distr. general in tropical countries.

## APOCYNACEAE

*Vallesia* R. & P.

**V. glabra** (Cav.) Link, Enum. Hort. Berol. I. 207 (1821). *Rauwolfia glabra* Cav. Ic. III. 50, t. 297 (1795). *V. cymbae-folia* Ort. Hort. Matr. Dec. 58 (1798); Rob. (1), 185.—  
 ALBEMARLE ISL.: Christopher Point, *Snodgrass and Heller*; Tagus Cove, *Snodgrass and Heller*. CHARLES ISL.: bushes on the beach (no. 3073). CHATHAM ISL.: Sappho Cove, bushes on the beach (no. 3072); Wreck Bay, bushes 4-6 ft. high on the beach (no. 3071). HOOD ISL.: bushes on sand beaches (no. 3074). INDEFATIGABLE ISL.: southeast side, common bushes on the shore and to some extent in the interior in the dryer parts of the lower regions (no. 3075). JAMES ISL.: northeast side, common bushes near the shore (no. 3091). Further distr. S. U. S., Mex., W. Ind., S. Am.

**V. pubescens** Anderss. (1), 195, (2), 79; Rob. (1), 185.—  
 ALBEMARLE ISL.: Cowley Bay, occasional bushes near the beach (no. 3076). CHARLES ISL.: common on the beach and

to some extent in the interior to 600 ft. (no. 3081). HOOD ISL.: bushes at 600 ft. (no. 3077). INDEFATIGABLE ISL.: Academy Bay, low bushes near the shore (no. 3078); north and northeast sides, on the beach. Endemic.

## ASCLEPIADACEAE

### *Asclepias* L.

**A. angustissima** Anderss. (1), 196, (2), 79; Rob. (1), 185. *Vincetoxicum* ?, Rob. (1), 186.—ABINGDON ISL.: above 450 ft. (no. 3082). ALBEMARLE ISL.: Banks Bay, according to *F. X. Williams*; Christopher Point, *Snodgrass and Heller*; Cowley Bay, at 800 ft.; Tagus Cove, occasional on lava beds at 300 ft. (no. 3083); Villamil, abundant on bushes and rocks near sea level (no. 3084). CHARLES ISL.: occasional on lava fields. DUNCAN ISL.: vines covering rocks at 1275 ft. INDEFATIGABLE ISL.: southeast side, vines on rocks at 600 ft. (no. 3086). JAMES ISL.: James Bay, common to 900 ft., one of the first phanerogamic plants to invade the recent lava at this place, (no. 3087). JERVIS ISL.: occasional vines, 650-1050 ft., (no. 3088). NARBOROUGH ISL.: (no. 3089). Further distr. S. U. S., Mex., W. Ind., S. Am.

**A. curassavica** L. Sp. Pl. 215 (1753).—CHATHAM ISL.: Wreck Bay, abundant in the grassy region around 900 ft. (no. 3090). Further distr. S. U. S., Mex., W. Ind., S. Am.

## CONVOLVULACEAE

### *Argyrea* Lour.

**A. tiliifolia** (Desr.) Wight, Ic. Pl. Ind. IV. 1, 12, t. 1358 (1850). *Convolvulus tiliifolius* Desr. Lam. Ency. III. 544, no. 20 (1789). *Ipomoea campanulata* Rob. (1), 187, not L.—ALBEMARLE ISL.: Iguana Cove, common on trees and bushes; Turtle Cove, abundant in woodland near the shore (no. 3136); Villamil, on trees and completely covering large masses of lava in the vicinity of the shore, abundant, covering bushes in great profusion in open places in the vegetation, at 600-1000 ft., and occasional among rocks at 3150 ft., where the specimens have smaller leaves than on the lower levels, (nos. 3137-3140).

INDEFATIGABLE ISL.: Academy Bay, occasional, 400-500 ft., forming a thick and almost impenetrable mass of vines on trees and bushes, 500-650 ft., (nos. 3141-3142).

#### Calystegia R. Br.

**C. Soldanella** R. Br. Prodr. 483 (1810); Rob. (1), 186.—CHARLES ISL.: *Edmonston*. Widely distributed.

#### Cuscuta L.

**C. acuta** Engelm. Trans. Acad. Sci. St. Louis I. 497 (1859); Rob. (1), 186.—ALBEMARLE ISL.: Tagus Cove, common on *Rhynchosia minima* in open flat areas near the shore (no. 3092). BINDLOE ISL.: *Snodgrass and Heller*. CHARLES ISL.: on *Boerhaavia viscosa* on the lower parts (no. 3094). CHATHAM ISL.: Sappho Cove, occasional on small *Scalesia* bushes at 800 ft. (no. 3093). NARBOROUGH ISL.: south side, *Snodgrass and Heller*. Endemic.

**C. gymnocarpa** Engelm. l. c. 496 (1859); Rob. (1), 186.—ALBEMARLE ISL.: Cowley Bay, *Baur*. JAMES ISL.: James Bay, fairly common (no. 3095). Endemic.

#### Evolvulus L.

**E. hirsutus** HBK. Nov. Gen. & Sp. III. 117 (1818). *E. glaber* Spreng. Syst. I. 862 (1825); Rob. (1), 186.—ABINGDON ISL.: occasional among rocks near the shore (no. 3096). ALBEMARLE ISL.: Cowley Bay, *Andersson*; Iguana Cove, *Snodgrass and Heller*. CHARLES ISL.: abundant in open places in the vegetation above 450 ft. (no. 3097). CHATHAM ISL.: Basso Point, occasional in open woodland above 450 ft. (no. 3099); Wreck Bay, abundant among rocks on the lower parts (no. 3098). DUNCAN ISL.: common on the lower parts (no. 3100). INDEFATIGABLE ISL.: Academy Bay, common in open woodland at 350 ft. (no. 3101); northwest side, occasional at 200 ft. (no. 3102). JAMES ISL.: *Scouler*. SEYMOUR ISL., NORTH: *Snodgrass and Heller*. Further distr. W. Ind., S. Am.

**E. simplex** Anderss. (1), 211, (2), 87; Rob. (1), 187.—ALBEMARLE ISL.: Tagus Cove, occasional in the flat area near the shore and on the tufa hills surrounding the cove (nos.

3105-3107). CHARLES ISL.: common in rocky soil near the shore (no. 3104). CHATHAM ISL.: *Andersson; Baur*. INDEFATIGABLE ISL.: northwest side, common in tufaceous soil; north side, *Snodgrass and Heller*. JAMES ISL.: James Bay, *Snodgrass and Heller*. Endemic.

#### Ipomoea L.

**I. Bona-nox** L. Sp. Pl. ed. 2, 228 (1762); Rob. (1), 187.—ALBEMARLE ISL.: Cowley Bay, a species, similar to this one, was reported from the upper regions by *R. H. Beck*; Iguana Cove, covering bushes and small trees with a thick tangled mass of vines (nos. 3108-3109); Villamil, common on bushes in the open country, 600-1000 ft., (no. 3110). JAMES ISL.: James Bay, rare at 2100 ft. (no. 3111). Widely distributed.

**I. Habeliana** Oliv. in Hook. Ic. t. 1099 (1871); Rob. (1), 188.—ABINGDON ISL.: common on lava fields near the shore (no. 3112). BINDLÖE ISL.: occasional near the shore, abundant around 300 ft., where it ascends into trees of *Bursera graveolens*, forming quite a conspicuous liane. CHARLES ISL.: occasional among rocks near the shore (no. 3113-3114). DUNCAN ISL.: fairly abundant in rocky places at 1200 ft. (no. 3115). GARDNER ISL. (near HOOD ISL.): common on rocks at the south end of the island (no. 3116). HOOD ISL.: common at 600 ft. (no. 3117). JAMES ISL.: James Bay, common on rocks around 900 ft. TOWER ISL.: (no. 3118).

**I. Kinbergi** Anderss. (1), 212, (2), 88; Rob. (1), 188.—ABINGDON ISL.: common on lava beds near the shore, occasional at 800 ft., (no. 3119). BRATTLE ISL.: (no. 3120). CHATHAM ISL.: north side, *Andersson*. INDEFATIGABLE ISL.: northwest side, *Andersson; Baur*. JERVIS ISL.: occasional on the sides and at the top of the island at 1050 ft. (no. 3121). TOWER ISL.: *Snodgrass and Heller*. WENMAN ISL.: common on *Opuntia Helleri* (no. 3122). Endemic.

**I. linearifolia** Hook. f. (3), 204; Rob. (1), 188.—JAMES ISL.: *Darwin*. Further distr. Cape Verde Ids. according to Index Kewensis.

**I. Nil** Roth, Catalect. I. 36 (1797); Rob. (1), 188.—CHARLES ISL.: *Snodgrass and Heller*. CHATHAM ISL.:

Wreck Bay, *Baur*. INDEFATIGABLE ISL.: *Andersson*. Doubtful. Further distr. general in warm regions.

**I. pentaphylla** (L.) Jacq. Coll. II. 297 (1788). *Convolvulus pentaphyllus* L. Sp. Pl. ed. 2, 223 (1762). *I. pentaphylla* Jacq. l. c.; Rob. (1), 188.—ABINGDON ISL.: occasional at 500 ft. (no. 3123). ALBEMARLE ISL.: Tagus Cove, common in tufaceous soil near the shore and on the hills surrounding the cove (no. 3124). CHARLES ISL.: *Andersson*. CHATHAM ISL.: north side, *Andersson*. DUNCAN ISL.: *Snodgrass and Heller*. GARDNER ISL. (near HOOD ISL.): *Snodgrass and Heller*. HOOD ISL.: *Baur*. INDEFATIGABLE ISL.: northwest side, occasional in tufaceous soil on the lower parts; north side, *Snodgrass and Heller*. JAMES ISL.: *Andersson*. JERVIS ISL.: *Baur*. SEYMOUR ISL., NORTH: *Snodgrass and Heller*. TOWER ISL.: *Snodgrass and Heller*. Further distr. general in tropics.

**I. Pes-caprae** (L.), Sweet, Hort. Suburb. London, 35, (1818). *Convolvulus Pes-caprae* L. Sp. Pl. 159 (1753). *I. biloba* Rob. (1), 187, not Forsk.—ALBEMARLE ISL.: Black Bight, *Snodgrass and Heller*; Iguana Cove, *Snodgrass and Heller*; Villamil, on sand beaches (no. 3126). INDEFATIGABLE ISL.: southeast side, common vines, 75-100 ft. long, on the beach and in salt-incrusted sand around the shores of salt lagoons, (no. 3127). Widely distributed on tropical shores.

**I. triloba** L. Sp. Pl. 161 (1753). *I. galapagensis* Anderss. (1), 213, (2), 88; Rob. (1), 187.—ALBEMARLE ISL.: Iguana Cove, occasional on rocks at 200 ft. (no. 3135); Tagus Cove, common on the lower parts (nos. 3128-3129). CHARLES ISL.: rare among rocks near the shore (no. 3130). CHATHAM ISL.: Wreck Bay, abundant on the lower parts, occasional at 700 ft., (nos. 3131-3133). DUNCAN ISL.: *Snodgrass and Heller*. HOOD ISL.: *Snodgrass and Heller*. INDEFATIGABLE ISL.: Academy Bay, abundant on bushes and small trees in the open areas, 450-600 ft., and probably higher, (no. 3134). JAMES ISL.: James Bay, *Snodgrass and Heller*. SEYMOUR ISL., SOUTH: *Snodgrass and Heller*. Further distr. S. U. S., Mex., W. Ind., S. Am.

**I. tubiflora** Hook. f. (3), 204; Rob. (1), 189.—JAMES ISL.: *Darwin*. Endemic.

## HYDROPHYLLACEAE

*Hydrolea* L.

**H. dichotoma** Ruiz & Pavon, Fl. Per. III. 22, t. 244 (1802).  
—ALBEMARLE ISL.: Tagus Cove, occasional in lava crevices at 4000 ft. (no. 3144). Further distr. Mex., W. S. Am.

## BORAGINACEAE

*Coldenia* L.

**C. Darwini** (Hook. f.) Gürke in Engl. & Prantl, Nat. Pflanzenf. IV. Ab. 3a, 90 (1893). *Galapagoa Darwini* Hook. f. (3), 196. *C. Darwini* Gürke l. c.; Rob. (1), 189.—ABINGDON ISL.: common on lava beds near the shore (no. 3144). ALBEMARLE ISL.: Tagus Cove, common in tufaceous soil on the lower parts (no. 3146); Villamil, abundant in loose ashy soil in open places near sea level (no. 3145). BINDLOE ISL.: common near the shore (no. 3147). CHARLES ISL.: abundant on sand beaches (no. 3148). CHATHAM ISL.: Basso Point, common on the beach (no. 3149). INDEFATIGABLE ISL.: north side, abundant on sand beaches (no. 3151); northwest side, *Baur*; southeast side, common on sand beaches and to some extent in dry open places in the interior (no. 3150). JAMES ISL.: Orquilla Bay, *Baur*. JERVIS ISL.: a few specimens were seen at 950 ft. (no. 3152). There is much variation in the size of the glomerules, these being large in some specimens and small in others. The arrangement of the glomerules varies from closely crowded to well separated. Some of the specimens are without rigid setae, a character which such specimens share with *C. fusca*. Endemic.

**C. fusca** (Hook. f.) Gürke l. c. *Galapagoa fusca* Hook. f. (3), 196. *C. fusca* Gürke l. c.; Rob. (1), 189.—ALBEMARLE ISL.: Tagus Cove, *Snodgrass and Heller*; Villamil, *Baur*. BARRINGTON ISL.: covers a small area at 350 ft. (no. 3155). BRATTLE ISL.: (no. 3156). CHARLES ISL.: occasional among rocks in the vicinity of the shore (no. 3154). CHATHAM ISL.: Wreck Bay, *Baur*. HOOD ISL.: abundant on sand beaches (no. 3153). INDEFATIGABLE ISL.: northwest side, *Andersson*. SEYMOUR ISL., SOUTH: *Snodgrass and Heller*. The two species of *Coldenia* found on these islands are so closely related to

each other that it is often difficult to decide to which species a specimen belongs. While the extremes present very pronounced specific characters, the intermediate forms often partake of the characters of both species to a greater or less extent. Endemic.

### **Cordia L.**

**C. Anderssoni** Gürke, op. c. 83; Rob. (1), 189.—CHARLES ISL.: *Andersson*; *Lee*. CHATHAM ISL.: north side, *Andersson*. JAMES ISL.: James Bay, occasional bushes (no. 3157). Endemic.

**C. galapagensis** Gürke, op. c. 83; Rob. (1), 190.—ABINGDON ISL.: common bushes above 450 ft. (no. 3158). ALBEMARLE ISL.: Cowley Bay, common bushes at 2000 ft. (no. 3163); Elizabeth Bay, *Snodgrass and Heller*; Iguana Cove, common near the shore (no. 3159); Tagus Cove, common bushes to 4,000 ft. (nos. 3161-3162). BARRINGTON ISL.: bushes 6-8 ft. high at 350 ft. (no. 3164). CHATHAM ISL.: Basso Point, low spreading bushes on recent lava (no. 3166); Wreck Bay, occasional bushes to 650 ft. (no. 3165). DUNCAN ISL.: occasional bushes to 650 ft. (no. 3167). HOOD ISL.: occasional bushes all over the island (no. 3168). INDEFATIGABLE ISL.: north-west side, *Andersson*; *Baur*. NARBOROUGH ISL.: *Snodgrass and Heller*. Endemic.

**C. Hookeriana** Gürke, l. c.; Rob. (1), 190.—ALBEMARLE ISL.: Cowley Bay, occasional bushes near the shore (no. 3171); Elizabeth Bay, *Snodgrass and Heller*; Iguana Cove, slender bushes on the side of a steep cliff above the cove (no. 3173); Tagus Cove, *Snodgrass and Heller*; Villamil, common bushes 6-8 ft. high on lava beds in the vicinity of the shore and up to 350 ft. (no. 3172). CHARLES ISL.: occasional bushes in tufaceous soil mixed with small pieces of lava at 1000 ft. (no. 3174). JAMES ISL.: James Bay, common bushes fringing recent lava flows on the lower parts (no. 3175); northeast side, occasional bushes 10-12 ft. high (no. 3176). NARBOROUGH ISL.: north side, bushes 4-6 ft. high on lava beds; south side, *Snodgrass and Heller*. Endemic.

**C. leucophlyctis** Hook. f. (3), 199; Rob. (1), 190.—ALBEMARLE ISL.: *Macrae*; *Darwin*. JAMES ISL.: *Scouler*; *Baur*. Endemic.

**C. lutea** Lam. Ill. I, 421 (1791); Rob. (1), 190.—ABINGDON ISL.: common bushes on lava beds to 450 ft., occasional to 700 ft. ALBEMARLE ISL.: Cowley Bay, occasional low bushes in the vicinity of the shore; Elizabeth Bay, *Snodgrass and Heller*; Iguana Cove, low trees at 200 ft. (no. 3179); Cape Rose, low bushes on lava cinders (no. 3180); Tagus Cove, bushes and small trees all over the lower parts and up to 1500 ft., especially abundant on the edges of recent lava flows, (no. 3181); Villamil, low trees and bushes near sea level (no. 3182). BARRINGTON ISL.: bushes in the vicinity of the shore, small trees at 350 ft., (no. 3184). BINDLOE ISL.: common bushes on the borders of cinder flows (no. 3185). CHARLES ISL.: *Andersson*; *A. Agassiz*; *Baur*; *Snodgrass and Heller*. CHATHAM ISL.: north side, *Darwin*; *Andersson*; Wreck Bay, common bushes in rocky soil near the shore (no. 3187). GARDNER ISL. (near HOOD ISL.): occasional low bushes (no. 3188). HOOD ISL.: occasional low bushes and trees to 500 ft. (nos. 3189-3191). INDEFATIGABLE ISL.: southeast side, abundant near the shore and at 600 ft. (no. 3192). JAMES ISL.: James Bay, (no. 3193). JERVIS ISL.: (no. 3194). SEYMOUR ISL.: *Snodgrass and Heller*. TOWER ISL.: occasional low bushes (no. 3265). Further distr. W. S. Am.

**C. revoluta** Hook. f. (3), 199; Rob. (1), 191.—CHARLES ISL.: *Darwin*. Endemic.

Var. **nigricans** Hook. f. (3), 199; Rob. (1), 191.—ALBEMARLE ISL.: *Macrae*. Endemic.

**C. Scouleri** Hook. f. (3), 200; Rob. (1), 191.—ALBEMARLE ISL.: Villamil, bushes 10-12 ft. high, 100-550 ft., (no. 3195). CHATHAM ISL.: north side, *Andersson*; Wreck Bay, *Baur*. JAMES ISL.: *Andersson*. Endemic.

**C. n. sp.?** Rob. (1), 191.—CHARLES ISL.: *Edmonston*.

#### Heliotropium L.

**H. Anderssonii** Rob. (1), 192. *H. asperrimum* Anderss. (2), 86, not R. Br.—INDEFATIGABLE ISL.: *Andersson*. Endemic.

**H. curassavicum** L. Sp. Pl. 130 (1753); Rob. (1), 192.—ABINGDON ISL.: abundant on sand beaches (no. 3196). AL-



BEMARLE ISL.: Villamil, on sand beaches and around brackish pools (no. 3197). BINDLOE ISL.: *Snodgrass and Heller*. BRATTLE ISL.: (no. 3198). CHATHAM ISL.: Basso Point, on sand beaches (no. 3199); Wreck Bay, abundant near the beach (no. 3200). GARDNER ISL. (near HOOD ISL.): on sand beaches (no. 3201). HOOD ISL.: *Snodgrass and Heller*. INDEFATIGABLE ISL.: southeast side, on sand beaches; north side, *Snodgrass and Heller*. JAMES ISL.: northeast side, common on sand beaches and on a rock one-half mile off the shore (no. 3204). SEYMOUR ISL., SOUTH: *Snodgrass and Heller*. Widely distributed.

**H. indicum** L. Sp. Pl. 130 (1753); Rob. (1), 192.—CHARLES ISL.: in mud near a spring at 1000 ft. (no. 3208). CHATHAM ISL.: Wreck Bay, in shady places, 450-900 ft., (no. 3206). Widely distributed in warm countries.

**H. parviflorum** L. Mant. 201 (1771); Rob. (1), 192.—ABINGDON ISL.: common on the lower parts, occasional above 1000 ft., (no. 3209). ALBEMARLE ISL.: Cowley Bay, occasional at 1800 ft. (no. 3210); Iguana Cove, common near the shore (no. 3213); Tagus Cove, common to 1600 ft. (nos. 3211-3212). BARRINGTON ISL.: *Snodgrass and Heller*. BRATTLE ISL.: (no. 3214). CHAMPION ISL.: *J. R. Stevin* collector (no. 3215). CHARLES ISL.: abundant in various situations all over the island (no. 3218). CHATHAM ISL.: Wreck Bay, common near the shore and to 350 ft. (nos. 3216-3217). GARDNER ISL. (near HOOD ISL.): (no. 3219). HOOD ISL.: occasional at 200 ft. (nos. 3220-3221). INDEFATIGABLE ISL.: northwest side, *Andersson*; southeast side, common on the lower parts and in the vicinity of the shore (no. 3222). JAMES ISL.: James Bay, abundant on the lower parts (no. 3223). NARBOROUGH ISL.: south side, *Snodgrass and Heller*. TOWER ISL.: *Snodgrass and Heller*. WENMAN ISL.: (no. 3224). Widely distributed in warm countries.

#### Tournefortia L.

**T. hirsutissima** L. Sp. Pl. 140 (1753); Rob. (1), 193.—CHATHAM ISL.: *Chierchia*. Robinson, l. c., suggests that this specimen may belong to *Tournefortia rufo-sericca*, a possibility which seems very likely, as subsequent collections have failed to show the species. Further distr. Mex., W. Ind., S. Am.

**T. psilostachya** HBK. Nov. Gen. & Sp. III. 78 (1818); Rob. (1), 193.—ABINGDON ISL.: common bushes, 1200-1300 ft., (no. 3225). ALBEMARLE ISL.: Iguana Cove, forming dense thickets near the shore; Tagus Cove, common bushes on the side of the mountain (no. 3227); Turtle Cove, common bushes on lava beds near the beach (no. 3228); Villamil, one of the commonest shrubs, 350-1300 ft., (no. 3226). CHARLES ISL.: common bushes in woodland at 1000 ft. (no. 3231). CHATHAM ISL.: Wreck Bay, common bushes in the vicinity of the shore (no. 3234). DUNCAN ISL.: common at 1275 ft. (no. 3230). HOOD ISL.: occasional bushes above 450 ft. (no. 3232). INDEFATIGABLE ISL.: Academy Bay, bushes 6-7 ft. high at 100 ft. (no. 3233). JAMES ISL.: *Douglas*; *Scouler*; *Snodgrass and Heller*. This species was probably overlooked by earlier collectors and has not become more abundant recently as suggested by Robinson, l. c. Further distr. tropical S. Am.

**T. pubescens** Hook. f. (3), 198; Rob. (1), 193.—ALBEMARLE ISL.: Iguana Cove, *Snodgrass and Heller*; Tagus Cove, *Snodgrass and Heller*; Villamil, common bushes above 100 ft. (nos. 3235-3236). CHARLES ISL.: common bushes in woodland at 1000 ft. CHATHAM ISL.: Basso Point, occasional bushes at 750 ft. (nos. 3237-3240); Wreck Bay, bushes 6-10 ft. high at 450 ft. DUNCAN ISL.: low bushes around 1300 ft. (nos. 3241-3242). INDEFATIGABLE ISL.: Academy Bay, common bushes on the lower parts (no. 3243); northwest side, *Andersson*; southeast side, occasional bushes at 600 ft. (nos. 3244-3246). JAMES ISL.: James Bay, low bushes, abundant at 1000 ft., (no. 3247). Endemic.

**T. rufo-sericea** Hook. f. (3), 197; Rob. (1), 193.—ABINGDON ISL.: common bushes above 900 ft. (no. 3248). ALBEMARLE ISL.: Iguana Cove, forming dense thickets in the flat area near the shore (no. 3250); Tagus Cove, common bushes at 1600 ft. (no. 3252); Turtle Cove, common bushes in thickets near the beach (no. 3251); Villamil, occurs at various elevations on the lower parts, but most abundant in open areas above 600 ft., also common in the grassy region above 1500 ft., and on the rim of the crater at 3150 ft., (no. 3249). CHARLES ISL.: common bushes in open woodland around 1000 ft. and on

the sides of the craters above this elevation to 1700 ft. (nos. 3253-3254). CHATHAM ISL.: Wreck Bay, common bushes above 400 ft. (no. 3255). DUNCAN ISL.: at 1275 ft. INDEFATIGABLE ISL.: Academy Bay, common bushes in a dense growth of vegetation in the open areas around 550 ft. and above (no. 3256). JAMES ISL.: James Bay, occurs to some extent on the lower parts, abundant at 2100 ft., occasional at 2850 ft., (nos. 3257-3258). There is much variation in the amount of pubescence. Endemic.

**T. strigosa** Anderss. (1), 207, (2), 85, t. 9, f. 3; Rob. (1), 194.—ALBEMARLE ISL.: Turtle Cove, occasional low spreading bushes in the vicinity of the shore (no. 3259); Villamil, *Baur*. CHARLES ISL.: *Andersson*. CHATHAM ISL.: *Andersson*. INDEFATIGABLE ISL.: Academy Bay, occasional bushes in sandy soil near the shore (no. 3262); north side, occasional bushes at 250 ft. (no. 3261); southeast side, bushes at 550 ft. (no. 3260). JAMES ISL.: James Bay, common bushes 4-7 ft. high (no. 3263). Endemic.

**T. syringaefolia** Vahl, *Symb.* III. 23 (1794). *T. laurifolia* Vent. Choix. Pl. 2 (1803); Rob. (1), 193.—CHATHAM ISL.: *Chierchia* according to Caruel. JAMES ISL.: *Andersson*. Possibly a less pubescent form of either *T. psilostachya* or *T. pubescens*. Further distr. Mex., tropical S. Am.

## VERBENACEAE

### *Avicennia* L.

**A. officinalis** L. Sp. Pl. 110 (1753); Rob. (1), 194.—ALBEMARLE ISL.: Elizabeth Bay, *Snodgrass and Heller*; Turtle Cove, common on pebble beaches, sometimes attaining the size of large trees, (no. 3266); Turtle Point, common, according to *J. S. Hunter*; Villamil, common trees around salt lakes, and to some extent on sand beaches. CHARLES ISL.: common on the beach and around a salt lake (no. 3267). CHATHAM ISL.: Sappho Cove, occasional small trees around salt pools (no. 3268). DUNCAN ISL.: a single small tree of this species was found in a cove on the northeast side of the island (no. 3269). INDEFATIGABLE ISL.: Academy Bay, low trees on the beach and around salt marshes (no. 3270); southeast side, small

trees around a brackish lake (no. 3271); north side, abundant in various places along the shore. Occasional isolated trees were seen on the shore at various places between Academy and Conway Bays. JAMES ISL.: James Bay, low spreading trees around a salt lake near the shore (no. 3272). JERVIS ISL.: low trees around a salt lagoon (no. 3273). SEYMOUR ISL., SOUTH: low trees around a salt lake on the west side of the island (no. 3274). Widely distributed on tropical shores.

#### Clerodendron L.

**C. molle** HBK. Nov. Gen. & Sp. II. 244 (1817); Rob. (1), 194.—ALBEMARLE ISL.: Iguana Cove, common bushes near the shore (no. 3275); Villamil, occasional bushes on lava beds near sea level and up to 500 ft. (no. 3276). CHARLES ISL.: common bushes, forming thickets, 450-650 ft., (no. 3277). CHATHAM ISL.: Wreck Bay, occasional bushes at 650 ft. (no. 3278). INDEFATIGABLE ISL.: Academy Bay, occasional bushes in woodland on the lower parts (no. 3279); northwest side, bushes to 550 ft. JAMES ISL.: *Scouler*; *Andersson*; *Snodgrass and Heller*. Further distr. Ecuador.

**C. sp.** Hook. f. (4), 261; Rob. (1), 195.—CHARLES ISL.: *Edmonston*.

**C. sp.** Hook. f., 1. c.; Rob. 1. c.—CHARLES ISL.: *Edmonston*.

#### Duranta L.

**D. repens** L. Sp. Pl. 637 (1753). *D. Plumieri* Jacq. Stirp. Am. 186, t. 176, f. 76 (1763); Rob. (1), 195.—ALBEMARLE ISL.: Tagus Cove, occasional bushes, 2100-3600 ft., (no. 3280); Villamil, low bushes on the rim of the crater at 3150 ft. (no. 3281). DUNCAN ISL.: common bushes 6-8 ft. high at 1275 ft. (no. 3283). Further distr. S. U. S., Mex., W. Ind., S. Am.

#### Lantana L.

**L. peduncularis** Anderss. (1), 200, (2), 81; Rob. (1), 195.—ABINGDON ISL.: common bushes on the lava beds on the lower parts, occasional at 1550 ft. ALBEMARLE ISL.: Cowley Bay, common bushes at 2100 ft. (no. 3288); Elizabeth Bay, *Snodgrass and Heller*; Iguana Cove, *Snodgrass and Heller*;

Tagus Cove, common in tufaceous soil on the lower parts, occasional at 4000 ft., (no. 3285); Turtle Cove, (no. 3286); Villamil, occasional bushes on lava beds (no. 3287). BARRINGTON ISL.: *Snodgrass and Heller*. BINDLOE ISL.: common bushes to 300 ft. (no. 3289). CHARLES ISL.: (no. 3290). CHAMPION ISL.: *J. R. Stevin* collector (no. 3291). CHATHAM ISL.: Wreck Bay, bushes 3-4 ft. high (no. 3292). DUNCAN ISL.: occasional bushes at 1100 ft. (no. 3293). GARDNER ISL. (near HOOD ISL.): (no. 3294). HOOD ISL.: one of the commonest bushes, often forming thickets 5-7 ft. high. INDEFATIGABLE ISL.: Academy Bay, low bushes near the shore (no. 3295). JAMES ISL.: James Bay, forming thickets 3-6 ft. high near the shore, occasional at 1000 ft., (no. 3298). JERVIS ISL.: *Baur*. NARBOROUGH ISL.: south side, *Snodgrass and Heller*. TOWER ISL.: *Snodgrass and Heller*. "Endemic" according to Rob., l. c., who suggests that it may ultimately be identified with one of the continental species, (cf. *L. lilacina* and *L. canescens* HBK.), or segregated into several more or less distinct forms.

#### *Lippia* Houst.

**L. canescens** HBK. Nov. Gen. & Sp. II. 263 (1817); Rob. (1), 196.—CHARLES ISL.: common in open meadows around 1000 ft. and on the side of the main mountain at 1600 ft. (nos. 3299-3301, 3303). CHATHAM ISL.: Wreck Bay, occasional in moist shady places on the lower parts in January (no. 3302). DUNCAN ISL.: *Snodgrass and Heller*. HOOD ISL.: a few specimens were seen in a flat area in the interior of the island, which is probably the mud lake from which *Snodgrass and Heller* obtained their specimens. Further distr. S. Am.

**L. rosmarinifolia** Anderss. (1), 198, (2), 80; Rob. (1), 196.—ABINGDON ISL.: occasional bushes at 650 ft., common at 1300-1550 ft., (no. 3304). ALBEMARLE ISL.: Cowley Bay, occasional bushes near the shore (no. 3306); Elizabeth Bay, *Snodgrass and Heller*; Tagus Cove, bushes 5-6 ft. high on the sides of the mountain to 4000 ft. (no. 3307); Villamil, occasional bushes on lava beds near sea level (no. 3308). The specimens from this place have the leaves slightly toothed, while those from Tagus Cove have this character very strongly marked. Also noted by Robinson, l. c. JAMES ISL.: (no.

3309). NARBOROUGH ISL.: north side, occasional bushes on lava beds (no. 3310). Endemic.

**L. salicifolia** Anderss. (1), 198, (2), 80; Rob. (1), 196.—CHARLES ISL.: *Andersson*. Endemic.

#### Priva Adans

**P. lappulacea** (L.) Pers. Syn. Pl. II. 139 (1807). *Verbena lappulacea* L. Sp. Pl. ed. 2, 28, (1762). *P. echinata* Juss. Ann. Mus. Par. VII. 69 (1806).—CHARLES ISL.: occasional in shady places around 1000 ft. (no. 3312). Further distr. S. U. S., Mex., W. Ind., S. Am.

#### Stachytarpheta Vahl

**S. dichotoma** (Ruiz & Pavon) Vahl, Enum. I. 207 (1804). *Verbena dichotoma* Ruiz & Pavon, Fl. Per. I. 23, t. 34, fig. b (1798). *S. dichotoma* Vahl, l. c.; Rob. (1), 196.—CHARLES ISL.: common, 1000-1200 ft., occasional at 1300 ft. This plant grows very abundantly on the southeast slopes of the large craters in the interior of the island, and in such places it forms the bulk of the vegetation, (nos. 3313-3314). Further distr. S. U. S., Mex., W. Ind., S. Am.

#### Verbena L.

**V. carolina** L. Syst. ed. 10, 852 (1760); Rob. (1), 196.—JAMES ISL.: *Darwin*. Further distr. U. S., Mex., S. Am.

**V. grisea** Rob. & Greenm. (1), 142, 147; Rob. (1), 197.—DUNCAN ISL.: rare around 1250 ft. (nos. 3315-3316). Endemic.

**V. litoralis** HBK. Nov. Gen. & Sp. II. 276, t. 137 (1817); Rob. (1), 197.—ALBEMARLE ISL.: Cowley Bay, common at 2000 ft. (no. 3318); Tagus Cove, common on lava beds at 300 ft. (no. 3320); Villamil, common, 600-1400 ft., and on the floor of the crater at 2750 ft. (no. 3317). CHARLES ISL.: common in wet soil near a spring at 1000 ft. (nos. 3321-3322). CHATHAM ISL.: Wreck Bay, abundant in open country around 900 ft. (no. 3324.) Further distr. S. U. S., Mex., S. Am.

**V. officinalis** L. Sp. Pl. 20 (1753); Rob. (1), 197.—JAMES ISL.: *Darwin*. Widely distributed in tropical regions.

## LABIATAE

**Hyptis** Jacq.

**H. capitata** Jacq. Ic. Pl. Rar. I. t. 114 (1781-1786), Col. Bot. I. 102 (1786); Rob. (1), 197.—ALBEMARLE ISL.: Villamil, occasional in open places around habitations at 650 ft. (no. 3324). CHARLES ISL.: *Edmonston*. Further distr. Mex., W. Ind., S. Am.

**H. spicata** ? Poit. Ann. Mus. Par. VII. 474, t. 28 (1806).—ALBEMARLE ISL.: Cowley Bay, occasional at 1200 ft., common at 2000 ft. Species doubtful, (no. 3326). Further distr. S. U. S., Mex., W. Ind., S. Am.

**H. subverticillata** Anderss. (1), 197, (2), 80; Rob. (1), 197. ALBEMARLE ISL.: Cowley Bay, *Andersson*; Tagus Cove, in lava crevices around 2100 ft. (no. 3325). INDEFATIGABLE ISL.: *Baur*. JAMES ISL.: James Bay, *Snodgrass and Heller*. NABROROUGH ISL.: *Snodgrass and Heller*. Endemic.

**Salvia** L.

**S. occidentalis** Sw. Prodr. 14 (1788); Rob. (1), 197.—ALBEMARLE ISL.: Iguana Cove, one of the most common herbs to 500 ft. and above (nos. 3327-3330); Tagus Cove, common around 1600 ft. (no. 3331); Villamil, common around 650 ft. (no. 3332). CHARLES ISL.: occasional at 800 ft., common at 1000-1200 ft., (nos. 3333-3334). CHATHAM ISL.: Wreck Bay, occasional in open woodland at 350 ft. (nos. 3335-3336). JAMES ISL.: James Bay, occasional in woodland at 850 ft., common at 2100 ft., (nos. 3337-3338). Further distr. Mex., W. Ind., S. Am.

**S. prostrata** Hook. f. (3), 200; Rob. (1), 198.—CHARLES ISL.: occasional in protected places, 1200-1550 ft., (nos. 3339-3340). JAMES ISL.: *Darwin*. Endemic.

**S. tiliaefolia** Vahl, Symb. III. 7 (1794); Rob. (1), 198.—CHARLES ISL.: *Darwin*. Further distr. Mex., W. Ind., S. Am.

**Teucrium** L.

**T. inflatum** Sw. Prodr. 88 (1788); Rob. (1), 198.—ALBEMARLE ISL.: Villamil, abundant above 500 ft. (no. 3341).

CHARLES ISL.: common among rocks at 1450 ft. (nos. 3342-3343). CHATHAM ISL.: Wreck Bay, common in open places at 650 ft. (no. 3344). Further distr. Mex., W. Ind., S. Am., Polynesia.

## SOLANACEAE

### *Acnistus* Schott

***A. ellipticus*** Hook. f. in Miers, Lond. Jour. Bot. IV. 343 (1845); Rob. (1), 198. *A. insularis* Rob. (1), 198.—ALBEMARLE ISL.: Villamil, bushes and small trees, 1200-1500 ft., and inside of the crater at 2750 ft. Calyx 5-crenate, stigma entire, leaves as described by Hook. f., l. c., (no. 3347). CHARLES ISL.: small trees on the steep inner wall of the main crater at 1700 ft. Calyx 5-dentate, stigma obscurely bilobed, leaves mostly ovate and glabrous, although a few are somewhat elliptical, (no. 3347). CHATHAM ISL.: occasional bushes around 2000 ft. Calyx truncate, stigmas bilobed and entire on the same plant, leaves orbicular to obovate, somewhat attenuate at base, sparingly pubescent above, tomentose below, (no. 3348). DUNCAN ISL.: small trees at 1300 ft. Calyx somewhat truncate, obscurely dentate, stigmas entire, leaves orbicular to obovate, mostly glabrous, although some show a slight tomentum on the lower surface around the veins. Both the flowers and leaves are smaller than is usually the case in this species, a fact that may be due to the more xerophytic conditions around the top of this island where the specimens were found, (no. 3349). JAMES ISL.: James Bay, small trees above 2200 ft. Calyx 5-crenate, stigmas bilobed and entire on the same plant, leaves agreeing with Hooker's description, l. c., (no. 3350). In consideration of the above varied characters which the more abundant material has brought to light, it seems best to combine *A. insularis* Rob. with *A. ellipticus* Hook. f. It is another instance of a very variable species, examples of which are common on the Galapagos Islands. It is hardly likely that the above variations are of formal value, as the specimens from Charles Isl. show nearly as much variation from the typical *A. ellipticus* as do the specimens from other islands. Endemic.



**Brachistus, Miers****B. pubescens, nov. sp.**

Fruticosus 2 dm.-1 m. altus, ramis teretibus dichotomis flavo-pubescentibus; ramulis teretibus divaricatis saepe geniculatis flavo-pubescentibus; foliis alternis ovatis acuminatis basi cuneatis integris utrinque flavo-pubescentibus petiolatis, laminis 3.2-5 cm. longis, 1.3-2.2 cm. latis; floribus axillaribus solitaribus pedunculatis; calyce pubescenti 5-angulato, 2.6 mm. lato; corolla rotata, limbo 5-lobo, lobis acutis margine denticulatis; staminibus limbo inclusis; stylo incrassato stigmatate capitato integerrimo; bacca orbiculari compressa viridi 6-seminata, seminibus flavo-bruneis.

ALBEMARLE ISL.: Villamil, bushes in woodland, 450-600 ft., (nos. 3351-3352). JAMES ISL.: James Bay, occasional bushes above 1600 ft. (no. 3353). This species resembles *B. Pringlei* Watson in many respects, differing principally in the presence of a yellow tomentum on both branches and leaves, and in the absence of the linear tooth at each angle of the calyx. Plate III, figs. 6-8. Endemic.

**Cacabus Bernh.**

**C. Hookeri** (Anderss.) n. comb. *Thinogeton Hookeri* Anderss. (1), 217; Rob. (1), 201.—INDEFATIGABLE ISL.: north-west side, *Andersson*. Endemic.

**C. Miersii** (Hook. f.) Wettst. in Engl. & Prantl, Nat. Pflanzenf. IV. Ab. 3b, 16 (1891). *Dictocalyx Miersii* Hook. f. (3), 203. *Thinogeton Miersii* Miers, Ann. Mag. Nat. Hist. 2, IV. 359 (1849); Rob. (1), 201.—ABINGDON ISL.: occasional among rocks near the shore (no. 3417). ALBEMARLE ISL.: Black Bight, *Snodgrass and Heller*; Iguana Cove, common near the shore (no. 3418); Tagus Cove, abundant in tufaceous soil on the tops of the cliffs near the shore (no. 3420); Turtle Cove, fairly abundant on lava near the beach (no. 3419); Villamil, occasional near brackish pools several miles inland (no. 3421). BARRINGTON ISL.: *Snodgrass and Heller*. CHARLES ISL.: *Darwin*; *Andersson*. CHATHAM ISL.: *Andersson*; *Snodgrass and Heller*. CULPEPPER ISL.: *Snodgrass and Heller*. GARDNER ISL. (near HOOD ISL.): among rocks just above high tide mark (no. 3422). HOOD ISL.: occasional on sand beaches (no. 3423). NARBOROUGH ISL.: Mangrove Point, *Snodgrass and Heller*; north side, *Snodgrass and Heller*. Endemic.

**Capsicum L.**

**C. annuum** L. Sp. Pl. 188 (1753); Rob. (1), 199.—CHARLES ISL.: occasional at 450 ft., and on moist rocks at 1000 ft., (nos. 3354-3355). CHATHAM ISL.: Wreck Bay, occasional at 350 ft. (nos. 3356-3357).

**Datura L.**

**D. Tatula** L. Sp. Pl. ed. 2, 256 (1762); Rob. (1), 199.—ALBEMARLE ISL.: Villamil, occasional at sea level, common at 600 ft., (no. 3358). CHARLES ISL.: common in the vicinity of former habitations (nos. 3359-3360). Widely distributed.

**D. sp.**—ALBEMARLE ISL.: Iguana Cove, *Snodgrass and Heller*.

**Lycium L.**

**L. geniculatum** Fernald, ? Proc. Am. Acad. XXXV. 566 (1900). *Nyctaginacea?* Rob. (1), 143.—DUNCAN ISL.: occasional bushes (no. 3362). HOOD ISL.: bushes 4-6 ft. high around 600 ft. (no. 3361). SEYMOUR ISL., NORTH: *Snodgrass and Heller*. Further distr. Mex.

**L. sp.** Rob. (1), 199.—ABINGDON ISL.: common bushes, forming thickets 2-3 ft. high near the shore, (no. 3363). ALBEMARLE ISL.: Turtle Cove, bushes near the shore (no. 3364); Villamil, common bushes on lava beds near the shore (no. 3365). CHARLES ISL.: bushes near the shore. DUNCAN ISL.: occasional bushes at 1000 ft. (no. 3366). GARDNER ISL. (near HOOD ISL.): (no. 3367). HOOD ISL.: (no. 3368). Unfortunately all of the above specimens are sterile and indeterminate as to species.

**Lycopersicum Hill.**

**L. esculentum** Mill. var. *minor* Hook. f. (3), 202; Rob. (1), 199.—ABINGDON ISL.: common, 700-1600 ft., (no. 3369). ALBEMARLE ISL.: Cowley Bay, occasional at 2100 ft. (no. 3371); Christopher Point, *Snodgrass and Heller*; Tagus Cove, *Snodgrass and Heller*; Villamil, common near sea level (no. 3372). CHATHAM ISL.: Sappho Cove, occasional on recent lava (no. 3374). GARDNER ISL. (near HOOD ISL.): (no. 3373). HOOD ISL.: *Baur; Snodgrass and Heller*. INDEFATIGABLE ISL.: north side, common among rocks at 200 ft. (no. 3376); southeast side, rare at 550 ft. (no. 3375). JAMES

ISL.: James Bay, fairly abundant to 1000 ft. (nos. 3377-3378).  
 NARBOROUGH ISL.: Mangrove Point, *Snodgrass and Heller*.  
 Further distr. S. Am., Polynesia.

**L. peruvianum** (L.) Mill., var. **parviflorum** Hook. f. (3),  
 202; Rob. (1), 199.—CHATHAM ISL.: *Darwin*. Further distr.  
 Andean S. Am.

**L. pimpinellifolium** Mill. Dict. ed. 8, no. 4 (1768); Rob. (1),  
 199.—ALBEMARLE ISL.: Iguana Cove, abundant on the side  
 of the cliff above the cove (no. 3379); Villamil, common at  
 650 ft. (no. 3380). CHARLES ISL.: *Andersson*. CHATHAM  
 ISL.: north side, *Darwin*; *Andersson*. JAMES ISL.: *An-*  
*dersson*. Further distr. Andean S. Am.

**L. sp.** Rob. (1), 200.—CHATHAM ISL.: *Snodgrass and*  
*Heller*.

#### Nicotiana L.

**N. glutinosa** L. Sp. Pl. 181 (1753); Rob. (1), 200.—  
 CHARLES ISL.: *Edmonston*; *Darwin*; *Andersson*. Further  
 distr. Andean S. Am.

**N. Tabacum** L. Sp. Pl. 180 (1753); Rob. (1), 200.—ALBE-  
 MARLE ISL.: Iguana Cove, (no. 3383); Villamil, common in  
 gardens and escaped from cultivation (no. 3382). CHARLES  
 ISL.: *Chierchia*. Widely distributed through cultivation.

**N. sp.** Hook. f. (4), 261; Rob. (1), 200.—CHARLES ISL.:  
*Edmonston*.

#### Physalis L.

**P. angulata** L. Sp. Pl. 183 (1753); Rob. (1), 200.—ALBE-  
 MARLE ISL.: Villamil, fairly abundant on the lower parts (no.  
 3384). CHARLES ISL.: common in open country, 450-1100 ft.,  
 (nos. 3385-3386). CHATHAM ISL.: *Snodgrass and Heller*.  
 Widely distributed.

**P. ixocarpa** Brot. in Hornem. Hort. Hafn. Suppl. 26  
 (1819); Rob. (1), 200.—ALBEMARLE ISL.: Villamil, occa-  
 sional at 550 ft. (no. 3388). CHARLES ISL.: occasional near  
 the shore (no. 3387). Widely distributed.

**P. pubescens** L. Sp. Pl. 183 (1753); Rob. (1), 200.—ALBE-  
 MARLE ISL.: Cowley Bay, occasional in woodland at 2100 ft.

(no. 3395); Iguana Cove, occasional in shady places at 300 ft. (no. 3392); Tagus Cove, in shady places around 900 ft. (nos. 3389, 3393); Villamil, common above 600 ft. (nos. 3390, 3396). BINDLOE ISL.: *Snodgrass and Heller*. CHARLES ISL.: occasional in shady places near the shore (nos. 3397-3398). CHATHAM ISL.: Wreck Bay, occasional in shady places at 400 ft. (no. 3399). DUNCAN ISL.: rare around 1000 ft. (no. 3400). HOOD ISL.: occasional in shady places. INDEFATIGABLE ISL.: northwest side, occasional in tufaceous soil near the shore. Dried remains, somewhat doubtful as to species, (no. 3401). JAMES ISL.: James Bay, in shady places near the shore (nos. 3402-3403). NARBOROUGH ISL.: south side, *Snodgrass and Heller*. Further distr. U. S., Mex., W. Ind., S. Am.

*P. sp.*—ABINGDON ISL.: dry remains at 500 ft.

#### Solanum L.

*S. Edmonstonei* Hook. f. (3), 201; Rob. (1), 201.—CHARLES ISL.: *Edmonston*. Endemic.

*S. nigrum* L. Sp. Pl. 186 (1753); Rob. (1), 201.—ABINGDON ISL.: common in woodland, 1400-1550 ft., (nos. 3405-3406). ALBEMARLE ISL.: Villamil, common, 500-1300 ft., (no. 3409). CHARLES ISL.: occasional among rocks at 1550 ft. (no. 3408). CHATHAM ISL.: Wreck Bay, abundant at 2050 ft. (no. 3407). DUNCAN ISL.: rare at 1275 ft. (nos. 3410-3411). JAMES ISL.: *Scouler; Darwin; James Bay, Snodgrass and Heller*. Widely distributed.

*S. Quitoense* Lam. Ill. 16 (1793).—JAMES ISL.: James Bay, occasional on the southeast side of the main crater at 2800 ft., *J. S. Hunter* collector, (no. 3412). Possibly an introduced species, although there has never been a permanent settlement on this island. Further distr. western S. Am.

*S. verbascifolium* L. Sp. Pl. 184 (1753); Rob. (1), 201.—ALBEMARLE ISL.: Villamil, common bushes in low moist areas near sea level, small trees in open woodland at 1300 ft., bushes on the rim of the crater at 3150 ft., (nos. 3414-3416). CHARLES ISL.: *Andersson*. JAMES ISL.: *Darwin*. NARBOROUGH ISL.: south side, *Snodgrass and Heller*. Widely distributed in tropical regions.

*S. sp.* Hook. f. (4), 261; Rob. (1), 201.—CHARLES ISL.: *Edmonston*.

*S. sp.* Hook. f., l. c.; Rob. (1), 201.—CHARLES ISL.: *Edmonston*.

## SCROPHULARIACEAE

### *Bacopa* Aubl.

*B. monniera* (L.) Wettst. in Engl. & Prantl, Nat. Pflanzenf. IV. 3b. 77 (1891). *Gratiola monniera* L. Amoen. Acad. IV. 306 (1759). *Monniera calycina* (Forsk.) O. Ktze. Rev. Gen. 462 (1891).—ALBEMARLE ISL.: Villamil, occasional at 3150 ft. (nos. 3437-3438). CHATHAM ISL.: Wreck Bay, rare at 1300 ft. (no. 3439). Further distr. U. S., Mex., W. Ind., S. Am.

### *Capraria* L.

*C. biflora* L. var. *pilosa* Griseb. Fl. Brit. W. Ind. 427 (1861); Rob. (1), 202.—CHARLES ISL.: common bushes, 6-18 inches high, throughout the open brushy country, 450-1750 ft., (nos. 3425-3427). CHATHAM ISL.: Wreck Bay, common in sandy soil near the shore (nos. 3424, 3428). Further distr. S. U. S., Mex., W. Ind., S. Am.

*C. peruviana* Benth. in DC. Prodr. X. 430 (1846); Rob. (1), 202.—CHARLES ISL.: common bushes 4-6 ft. high, 450-1400 ft., (nos. 3429-3431). Further distr. Ecuador, Peru.

### *Galvezia* Domb.

*G. fruticosa* Domb. Gmel. Syst. 937 (1791).—JERVIS ISL.: occasional near the shore and from 500-950 ft. (nos. 3440-3442). No flowering specimens were secured, so that the species is somewhat doubtful. Further distr. Peru.

### *Scoparia* L.

*S. dulcis* L. Sp. Pl. 116 (1753); Rob. (1), 202.—ALBEMARLE ISL.: Cowley Bay, occasional bushes at 1800 ft. (no. 3432). CHARLES ISL.: low bushes common in open country above 1000 ft. (nos. 3433-3434). CHATHAM ISL.: Wreck

Bay, abundant in shady woodland at 250 ft. (no. 3435). JAMES ISL.: James Bay, low bushes in woodland around 2500 ft. (no. 3436). Further distr. tropical and subtropical America.

### BIGNONIACEAE?

#### *Tecoma* Juss.?

*T. sp.?* Caruel (1), 622; Rob. (1), 202.—CHATHAM ISL.: *Chierchia*.

### ACANTHACEAE

#### *Dicliptera* Juss.

*D. peruviana* (Lam.) Juss. Ann. Mus. Par. IX. 268 (1806). *Justicia peruviana* Lam. Dict. I. 633 (1783). *D. peruviana* Juss. l. c.; Rob. (1), 203.—JAMES ISL.: James Bay, common in shady places at 850 ft. (nos. 3443-3444). Further distr. W. S. Am.

#### *Justicia* L.

*J. galapagana* Lindau, in Rob. (1), 203.—ABINGDON ISL.: common, 550-1450 ft., (nos. 3445-3447). ALBEMARLE ISL.: Iguana Cove, common above 500 ft. (no. 3448); Villamil, occasional in woodland, 400-1300 ft., (nos. 3449-3452). INDEFATIGABLE ISL.: Academy Bay, common in woodland, 350-500 ft., (nos. 3454-3455). JAMES ISL.: James Bay, occasional, 350-2850 ft., (nos. 3458-3460). Endemic.

#### *Ruellia* Plum.

*R. paniculata* L. Sp. Pl. 635 (1753).—CHATHAM ISL.: Basso Point, occasional at 750 ft. (no. 3461). Further distr. Mex., W. Ind., S. Am.

#### *Tetramerium* Nees

*T. hispidum* Nees in DC. Prodr. XI. 468 (1847); Rob. (1), 204.—ALBEMARLE ISL.: Cowley Bay, common around 2000 ft. (no. 3462); Elizabeth Bay, *Snodgrass and Heller*; Iguana Cove, a few specimens on the side of the cliff above the cove (no. 3464). CHARLES ISL.: common in flat country near Post Office Bay at 200 ft., and in crevices of the lava at 650 ft., (nos. 3465-3466). CHATHAM ISL.: Wreck Bay, common in open sunny places around 200 ft. (nos. 3467-3468). INDE-

FATIGABLE ISL.: Academy Bay, occasional on the lower parts (no. 3469); north side, common above 200 ft. (no. 3470).  
 JAMES ISL.: James Bay, fairly common at 1300 ft. (no. 3472); north side, common on lava beds on the lower parts (no. 3471).  
 Further distr. S. U. S., Mex., S. Am.

## PLANTAGINACEAE

*Plantago* L.

*P. major* L. Sp. Pl. 112 (1753); Rob. (1), 204.—ALBEMARLE ISL.: Villamil, common in swamps near the shore (no. 3473). CHARLES ISL.: occasional at 1500 ft. (no. 3474).  
 CHATHAM ISL.: Wreck Bay, abundant, 800-1800 ft., (no. 3475). Widely distributed.

*P. tomentosa* var. (?) *pumila* Hook. f. (3); 194; Rob. (1), 204.—JAMES ISL.: *Darwin*. Identity doubtful, according to Rob. l. c.

## RUBIACEAE

*Borreria* Meyer

*Tardavel* Adans. Fam. II. 145 (1763), and *Chenocarpus* Neck, Elem. I. 202 (1790) are doubtful synonyms of this genus.

*B. basalis* Anderss. (1), 191; (2), 76, t. 8, f. 4; Rob. (1), 204.—CHATHAM ISL.: *Andersson*. Endemic.

*B. Baurii* Rob. & Greenm. (1), 140, 146; Rob. (1), 204.—CHATHAM ISL.: Wreck Bay, *Baur*. Endemic.

*B. dispersa* Hook. f. (3), 217; Rob. (1), 204.—ALBEMARLE ISL.: Iguana Cove, a few specimens were found in the open vegetation at 150 ft. (no. 3476); Tagus Cove, occasional on hill-sides in tufaceous soil at 400 ft. (no. 3477). CHARLES ISL.: *Darwin*; *Baur*. CHATHAM ISL.: Wreck Bay, *Baur*. INDEFATIGABLE ISL.: northwest side, *Andersson*. JAMES ISL.: *Darwin*. Endemic.

*B. divaricata* Hook. f. (3), 219; Rob. (1), 204.—CHARLES ISL.: *Darwin*; *Baur*. Endemic.

*B. ericaefolia* Hook. f. (3), 218; Rob. (1), 205.—ABINGDON ISL.: common bushes near the shore, occasional at 1100 ft.,

(nos. 3478-3479). ALBEMARLE ISL.: Cowley Bay, low bushes in pumice soil at 300 ft. (no. 3480); Elizabeth Bay, *Snodgrass and Heller*; Iguana Cove, *Snodgrass and Heller*; Tagus Cove, low bushes, fairly common, 300-4000 ft., (nos. 3482-3483); Villamil, low bushes on lava near the coast (no. 3481). CHARLES ISL.: *Baur*. CHATHAM ISL.: Sappho Cove, occasional bushes on lava (no. 3484). INDEFATIGABLE ISL.: south-east side, low bushes at 600 ft. (no. 3486). JAMES ISL.: James Bay, bushes 1-3 ft. high, abundant on recent lava flows, (no. 3487). JERVIS ISL.: occasional bushes at 1050 ft. (no. 3488). NARBOROUGH ISL.: north side, occasional bushes on lava beds (no. 3489); Mangrove Point, *Snodgrass and Heller*. Endemic.

**B. falcifolia** Hook. f. (3), 219; Rob. (1), 205.—ALBEMARLE ISL.: *Macrae*? acc. to Hook. f., l. c. Endemic.

**B. galapageia** Rob. & Greenm. (1), 140, 146; Rob. (1), 205.—DUNCAN ISL.: occasional among rocks at 1250 ft. (no. 3490). Endemic.

**B. linearifolia** Hook. f. (3), 217; Rob. (1), 205.—JAMES ISL.: *Darwin*. Endemic.

**B. ovalis** Anderss. (1), 192, (2), 76, t. 8, f. 3; Rob. (1), 205.—CHARLES ISL.: bushes among rocks near the shore (nos. 3491-3492). Endemic.

**Forma abingdonensis** Rob. (1), 205.—ABINGDON ISL.: *Baur*. Endemic.

**B. pacifica** Rob. & Greenm. (1), 140, 146; Rob. (1), 205.—INDEFATIGABLE ISL.: Academy Bay, common bushes near the shore (no. 3493); northwest side, *Baur*. Endemic.

**B. parvifolia** Hook. f. (3), 218; Rob. (1), 205.—ALBEMARLE ISL.: *Macrae*. Endemic. "A pubescent form of *B. ericaefolia*?" acc. to Rob. (1), 205.

**B. perpusilla** Hook. f. (3), 218; Rob. (1), 206.—JAMES ISL.: *Darwin*. Endemic.

**B. rotundifolia** Anderss. (2), 77; Rob. (1), 206.—INDEFATIGABLE ISL.: northwest side. *Andersson*. Endemic.

**B. suberecta** Hook. f. (3), 217; Rob. (1), 206.—ALBEMARLE ISL.: Iguana Cove, fairly abundant among rocks on



the sides of the cliffs above the cove (nos. 3494-3495); Tagus Cove, *Snodgrass and Heller*; Villamil, on lava beds near the coast (no. 3496). BARRINGTON ISL.: *Baur*. Identity doubtful acc. to Rob. l. c. Endemic.

**B. sp. Rob.** (1), 206.—CHATHAM ISL.: Wreck Bay, *Snodgrass and Heller*. It is likely that some of the above species, which have not been found by more recent collectors, will prove to be synonyms of *B. ericaefolia* or some of the other more common species.

#### Chiococca P. Br.

**C. alba** (L.) Hitchc. Rep. Mo. Bot. Gard. IV. 94 (1893). *Lonicera alba* L. Sp. Pl. 175 (1753). *C. racemosa* L. Syst. ed. 10, 917 (1760); Rob. (1), 206.—ABINGDON ISL.: common bushes above 450 ft. (nos. 3497-3498). ALBEMARLE ISL.: Elizabeth Bay, *Snodgrass and Heller*; Iguana Cove, (no. 3499); Villamil, occasional bushes on the lower parts (no. 3501). BINDLOE ISL.: *Snodgrass and Heller*. CHARLES ISL.: occasional bushes at 600 ft. (no. 3502). CHATHAM ISL.: Wreck Bay, common bushes to 500 ft. (no. 3503). DUNCAN ISL.: low bushes at 1275 ft. (no. 3504). INDEFATIGABLE ISL.: Academy Bay, bushes and small trees on the lower parts (no. 3505); southeast side, common bushes to 600 ft. (no. 3506). JAMES ISL.: James Bay, occasional bushes on the lower parts, small trees and bushes at 2150 ft., (nos. 3507-3509). NARBOROUGH ISL.: north side, occasional bushes on lava (no. 3510). Further distr. S. U. S., Mex., W. Ind., S. Am.

#### Coffea L.

**C. arabica** L. Sp. Pl. 172 (1753).—CHATHAM ISL.: Wreck Bay, in cultivated ground and escaped from cultivation (no. 3511). Coffee is exported from this island to Guayaquil, Ecuador. Widely distributed through cultivation.

#### Diodia L.

**D. Radula** (Roem. & Sch.) Cham. & Schlecht. Linnaea III. 342 (1828). *Spermacoce Radula* Roem. & Sch. Syst. III. 531 (1818). *D. Radula* Cham. & Schlecht. l. c.; Rob. (1), 206.—ALBEMARLE ISL.: Villamil, on the rim of the crater at 3150 ft. (no. 3512). CHARLES ISL.: fairly abundant at 1250 ft.

(no. 3513). CHATHAM ISL.: common, 900-1000 ft., (no. 3514). JAMES ISL.: James Bay, common in moist woodland at 2100 ft. (no. 3515). Further distr. Brazil.

### Psychotria L.

**P. angustata** Anderss. (1), 193, (2), 78, t. 9, f. 1; Rob. (1), 207.—CHARLES ISL.: *Darwin*. Endemic.

**P. rufipes** Hook. f. (3), 220; Rob. (1), 207.—ABINGDON ISL.: common bushes around 1500 ft. (no. 3517). ALBEMARLE ISL.: Iguana Cove, *Snodgrass and Heller*; Villamil, common bushes in woodland around 500 ft. CHARLES ISL.: occasional bushes in woodland around 1000 ft. CHATHAM ISL.: Wreck Bay, occasional bushes in woodland, 300-700 ft. INDEFATIGABLE ISL.: Academy Bay, bushes 5-6 ft. high above 400 ft., one of the most common bushes in the open areas around 550 ft.; northwest side, occasional bushes at 450 ft., abundant above 700 ft. JAMES ISL.: James Bay, occasional low bushes at 900 ft., more or less abundant in woodland above this elevation, forming dense thickets around the top of the mountain at 2800 ft., (no. 3523). Endemic.

### Relbunium Endl.

**R. hypocarpium** (L.) Hemsl.? *Biolog. Cent.-Am. Bot.* II. 63 (1881-1882). *Valantia hypocarpia* L. Sp. Pl. ed. 2, 149 (1763).—CHARLES ISL.: rare at 1300 ft. (no. 3524). The specimen is sterile but agrees closely in other respects with specimens of this species in the Gray Herbarium. It is possible that this may be the *Rubia* sp. which was collected on Charles Isl. by *Darwin* and was mentioned by Hooker f. (3), 216. Further distr. Mex., W. Ind., S. Am.

### Spermacoce L.

**S. tenuior** L. Sp. Pl. 102 (1753); Rob. (1), 207.—CHATHAM ISL.: *Baur*. JAMES ISL.: *Darwin*. Further distr. S. U. S., Mex., W. Ind., S. Am.

## CUCURBITACEAE

### Citrullus Neck.

**C. vulgaris** Schrad. ex Eckl. & Zeyh. Enum. 279 (1836); Rob. (1), 207.—ALBEMARLE ISL.: Turtle Cove, near the

shore; Villamil, in gardens. CHARLES ISL.: *Andersson*. Widely distributed through cultivation.

### Cucurbita L.

**C. Pepo** L. Sp. Pl. 1010 (1753); Rob. (1), 207.—ALBEMARLE ISL.: Villamil, in gardens. CHARLES ISL.: in cultivated ground, upper region, acc. to *Andersson*. Widely distributed.

### Elaterium Jacq.

**E. cordatum** Hook. f. (3), 224; Rob. (1), 208.—ABINGDON ISL.: common in woodland, 600-1600 ft., (no. 3535). ALBEMARLE ISL.: Tagus Cove, occasional, 500-1500 ft. CHATHAM ISL.: Wreck Bay, abundant at 2050 ft. (no. 3536). JAMES ISL.: *Darwin*. Endemic.

### Momordica L.

**M. Charantia** L. Sp. Pl. 1009 (1753); Rob. (1), 208.—ALBEMARLE ISL.: Villamil, *Baur*. Widely distributed in tropics.

### Sicyos L.

**S. villosus** Hook. f. (3), 223; Rob. (1), 208.—CHARLES ISL.: *Darwin*. Endemic.

## CAMPANULACEAE

### Lobelia L.

**L. Cliffortiana** L. Sp. Pl. 931 (1753). *L. xalapensis* HBK. Nov. Gen. & Sp. III. 315 (1818); Rob. (1), 208.—ALBEMARLE ISL.: Villamil, rare at 3150 ft. (no. 3537). CHARLES ISL.: occasional in moist soil at 1000 ft. (no. 3538). JAMES ISL.: according to Hook. f. Further distr. Mex., W. Ind., S. Am.

## GOODENIACEAE

### Scaevola L.

**S. Plumieri** (L.) Vahl, Symb. II. 36 (1791). *Lobelia Plumieri* L. Sp. Pl. 929 (1753). *S. Lobelia* Murr. Syst. ed. 13, 178 (1774); Rob. (1), 208.—ALBEMARLE ISL.: Villamil, low bushes on sand beaches (no. 3539). CHARLES ISL.: occasional bushes on the beach at Cormorant Bay (no. 3540). CHATHAM

ISL.: Basso Point, fruiting in February. INDEFATIGABLE ISL.: southeast side, bushes on the beach. Widely distributed in warm countries.

## COMPOSITAE

### *Acanthospermum* Schrank.

**A. lecocarpoides** Rob. & Greenm. (1), 141, 146; Rob. (1), 208.—CHATHAM ISL.: Sappho Cove, common bushes 3-4 ft. high in woodland at 800 ft. Except for the presence of spines on the achenes the specimens from this island are more like *Lecocarpus foliosus* than an *Acanthospermum*, (no. 700). GARDNER ISL. (near HOOD ISL.): common bushes 2 ft. high. Some of the specimens from this island have some of the leaves deeply cut, as do the specimens from Chatham Isl., while others have them shallowly pinnatifid, as described by Rob. & Greenm., l. c., from specimens taken on the adjacent Hood Island, (no. 701). HOOD ISL.: *Baur; Snodgrass and Heller*. Endemic.

**A. microcarpum** Rob. (1), 208.—CHARLES ISL.: *Snodgrass and Heller*. Endemic.

### *Ageratum* L.

**A. conyzoides** L. Sp. Pl. 839 (1753). *A. latifolium* Hemsl. Biolog. Cent.-Am. Bot. II. 82 (1881); Rob. (1), 209.—ALBEMARLE ISL.: Villamil, common at 1800 ft. and on the southeast rim of the crater at 3150 ft. (no. 702). CHARLES ISL.: occasional, 1250-1550 ft., (nos. 703-705). CHATHAM ISL.: Wreck Bay, fairly abundant in the open grassy country around 1700 ft. (no. 706). Further distr. Costa Rica.

### *Ambrosia* L.

**A. artemisiaefolia** L. Sp. Pl. 988 (1753).—CHARLES ISL.: abundant in a restricted area in the open bushy country at 1000 ft. (no. 708). Widely distributed.

### *Aplopappus* Cass.

**A. lanatus** Hook. f. (3), 215; Rob. (1), 209.—GALAPAGOS ISL.: *Du Petit-Thouars*. Endemic.

### *Baccharis* L.

**B. pilularis** DC. Prodr. V. 407 (1836); Rob. (1), 209.—CHARLES ISL.: *Edmonston*. Further distr. Pacific Coast of U. S.

**B. Pingraea** DC. var. **angustissima** DC. Prodr. V. 420 (1836); Rob. (1), 209.—ALBEMARLE ISL.: Cowley Bay, bushes 2-3 ft. high around 1050 ft. (no. 709); Villamil, occasional bushes at 250 ft. (no. 710). INDEFATIGABLE ISL.: southeast side, low bushes at 600 ft. The specimen is sterile and doubtful as to species, (no. 710). Further distr. coast of Chili, according to Rob. l. c.

**B. Steetzii** Anderss. (1), 177, (2), 68; Rob. (1), 209.—CHARLES ISL.: bushes 5-8 ft. high, 1000-1200 ft., (nos. 711-712). CHATHAM ISL.: Basso Point, low bushes around 800 ft. (no. 713). Endemic.

**B. sp.**—JAMES ISL.: James Bay, bushes 7 ft. high. Sterile and doubtful, (no. 714).

### Bidens L.

**B. chilensis** DC. Prodr. V. 603 (1836); Rob. (1), 210.—ALBEMARLE ISL.: Iguana Cove, occasional near the shore (no. 715); Tagus Cove, abundant in thickets at 4000 ft. (no. 716). Further distr. Chili.

**B. pilosa** L. Sp. Pl. 832 (1753); Rob. (1), 210.—ALBEMARLE ISL.: Cowley Bay, *Andersson*; Villamil, above 1500 ft. (no. 717). CHARLES ISL.: occasional, 1000-1400 ft., (nos. 718-720). CHATHAM ISL.: Wreck Bay, occasional at 1000 ft. (no. 721). Widely distributed in tropical regions.

**B. refracta** Brandegee, Zoe, I. 310 (1890); Rob. (1), 210.—ALBEMARLE ISL.: Iguana Cove, abundant in open places at 200 ft. (no. 743); Tagus Cove, common on the lower parts (no. 742). CHARLES ISL.: common on the lower parts (no. 744). CHATHAM ISL.: Wreck Bay, abundant in open woodland at 1000 ft. (no. 745). HOOD ISL.: *Snodgrass and Heller*. JAMES ISL.: James Bay, common on the lower parts of the island (no. 746). NARBOROUGH ISL.: south side, *Snodgrass and Heller*. Further distr. Mex.

### Blainvillea Cass.

**B. dichotoma** (Murr.) Cass. acc. to Hemsl. Biolog. Cent.-Am. Bot. IV. 112 (1886-1888). *Verbesina dichotoma* Murr. Comm. Goett. II. 15, t. 4 (1779). *B. rhomboidea* Cass. Dict. XXIX. 493 (1823); Rob. (1), 210.—ABINGDON ISL.: com-

mon on the lower parts (no. 747). ALBEMARLE ISL.: Iguana Cove, common in woodland (no. 748); Tagus Cove, common on the lower parts, rare at 3500 ft., (no. 749). BARRINGTON ISL.: *Snodgrass and Heller*. CHARLES ISL.: common in open bushy country, 450-1000 ft., (nos. 751-752). CHATHAM ISL.: Wreck Bay, abundant at 250 ft. (no. 753). DUNCAN ISL.: *Baur*. HOOD ISL.: (no. 754). INDEFATIGABLE ISL.: north side, *Snodgrass and Heller*; northwest side, *Andersson*. JAMES ISL.: James Bay, abundant near the shore (no. 755). NARBOROUGH ISL.: south side, *Snodgrass and Heller*. SEYMOUR ISL., NORTH: *Snodgrass and Heller*. The fact that this plant occurs on such a remote and unfrequented island as Abingdon would seem to show that it was not a recent introduction as suggested by Rob. l. c. Widely distributed in tropical regions.

**B. tenuicaulis** Benth. & Hook. f. Gen. Pl. II. 370 (1873-1876); Rob. (1), 211.—ALBEMARLE ISL.: *Macrae*. CHARLES ISL.: *Edmonston*. Identity doubtful according to Rob. l. c. Endemic.

#### Brickellia Ell.

**B. diffusa** (Vahl.) A. Gray, Pl. Wright. I. 86 (1852). *Eupatorium diffusum* Vahl, Symb. III. 94 (1794). *B. diffusa* Gray, l. c.; Rob. (1), 211.—ALBEMARLE ISL.: Iguana Cove, common near the shore (nos. 757-758); Tagus Cove, common to 1800 ft. (no. 756). Further distr. Mex., W. Ind., S. Am.

#### Chrysanthellum Rich.

**C. erectum** Anderss. (1), 188, (2), 74; Rob. (1), 211.—CHATHAM ISL.: *A. Agassiz*; *Snodgrass and Heller*. INDEFATIGABLE ISL.: northwest side, *Andersson*. NARBOROUGH ISL.: south side, *Snodgrass and Heller*. Endemic.

**C. pusillum** Hook. f. (3), 214; Rob. (1), 211.—ALBEMARLE ISL.: *Darwin*. CHARLES ISL.: common, 700-1000 ft., occasional, 1700 ft., (nos. 759-760). CHATHAM ISL.: Wreck Bay, occasional in dry sandy soil near the shore (no. 761). Endemic.

#### Eclipta L.

**E. erecta** L. Mant. II. 286 (1771); Rob. (1), 211.—CHARLES ISL.: occasional on moist shady rocks at 1000 ft.

(no. 764). CHATHAM ISL.: Wreck Bay, common in open grassy country above 800 ft. (nos. 762-763). HOOD ISL.: *Snodgrass and Heller*. Widely distributed.

#### Elvira Cass.

**E. inelegans** (Hook. f.) Rob. (1), 212. *Desmocephalum inelegans* Hook. f. (3), 209.—CHARLES ISL.: *Darwin*. Endemic.

**E. repens** (Hook. f.) Rob. (1), 212. *Microcoecia repens* Hook. f. (3), 209.—ALBEMARLE ISL.: Tagus Cove, *Snodgrass and Heller*. JAMES ISL.: *Darwin*. Endemic.

#### Encelia Adans.

**E. hispida** Anderss. (1), 186, (2), 73; Rob. (1), 212.—BARRINGTON ISL.: common bushes, 2-3 ft. high, (no. 722). CHARLES ISL.: *Andersson*. CHATHAM ISL.: north side, *Andersson*. Endemic.

#### Erigeron L.

**E. lancifolius** Hook. f. (3), 208; Rob. (1), 212.—ALBEMARLE ISL.: Christopher Point, *Snodgrass and Heller*; Elizabeth Bay, *Snodgrass and Heller*; Tagus Cove, spreading bushes 3-4 ft. high, abundant on lava beds and tufa deposits above 500 ft., (no. 723). NARBOROUGH ISL.: south side, *Snodgrass and Heller*. The involucre bracts of this species vary from glabrous to pilose. Endemic.

#### Var. *glabriusculus* var. nov.

Foliis lanceolatis, sparsa glabriusculus subtus tomentosis, marginibus recurvis, remotis denticulatis.

ALBEMARLE ISL.: Villamil, bushes 3-4 ft. high on the rim of the crater at 3150 ft. (no. 724). Endemic.

**E. linifolius** Willd. Sp. III. 1955 (1804); Rob. (1), 212.—ALBEMARLE ISL.: Villamil, occasional in open grassy country above 1800 ft. (no. 725). CHARLES ISL.: common in open places at 1250 ft., occasional at 1650 ft., (nos. 726-727). CHATHAM ISL.: Wreck Bay, common in grassy country around 1400 ft. (no. 728). Widely distributed in warm countries.

**E. tenuifolius** Hook. f. (3), 207; Rob. (1), 212.—ABINGDON ISL.: common bushes 3-4 ft. high, 600-1650 ft., (nos. 729-730). ALBEMARLE ISL.: Cowley Bay, low bushes on pumice soil, 600-2000 ft., (no. 731); Elizabeth Bay, *Snodgrass and Heller*; Tagus Cove, *Snodgrass and Heller*; Villamil, common bushes on lava beds and in woodland below 550 ft. (no. 732). CHARLES ISL.: common bushes, 800-1400 ft., one of the commonest bushes in the wooded area around 1000 ft., (nos. 733-734). DUNCAN ISL.: common bushes around 1000 ft. The specimen has short linear leaves and differs considerably in appearance from the specimen collected on this island by *Baur*, (no. 735). INDEFATIGABLE ISL.: northwest side, rare in woodland at 850 ft. (no. 738); southeast side, bushes 6-8 ft. high in woodland, 450-650 ft., (nos. 736-737). JAMES ISL.: James Bay, common bushes on the edges of lava fields around 450 ft. The specimen from this place has the bracts of the involucre slightly tomentose, (no. 739). This species shows a considerable variation in the length and pubescence of the leaves, in some instances on specimens from the same island, but the floral characters are fairly constant throughout. Endemic.

Variety **tomentosus** nov. var.

Foliis anguste acuminatis, marginibus recurvis supra subglaberrimis vel pilosis subtus tomentosis, 2.5-7.5 cm. longis, 1 mm. latis; involucri squamis oblongis vel linearibus exterioribus tomentosis.

JAMES ISL.: James Bay, bushes 4-7 ft. high above 900 ft. One of the commonest bushes in the forests of *Scalesia pedunculata* on the upper parts of the island, (nos. 740-741). Endemic.

**Eupatorium** L.

**E. filicaule** Sch. Bip. in Gray, Proc. Am. Acad. XXI. 384 (1886); Rob. (1), 213.—ALBEMARLE ISL.: Cowley Bay, common bushes at 2000 ft. (no. 630); Iguana Cove, *Snodgrass and Heller*. INDEFATIGABLE ISL.: Academy Bay, abundant in a dense growth of vines and bushes, 450-650 ft., (nos. 626-629). Further distr. Mex., W. S. Am.

**E. ? sp.** Hook. f. (4), 261; Rob. (1), 213.—CHARLES ISL.: *Edmonston*. Endemic.



**E. sp.**—ALBEMARLE ISL.: Iguana Cove, bushes to 400 ft. The specimen is too immature for accurate determination, but it differs from *E. filicaule* in the looser inflorescence, the longer and stiffer panicles, and in the more filiform involucre bracts, (no. 631).

#### Flaveria Juss.

**F. bidentis** (L.) O. Kuntze, Rev. Gen. III. pt. 2, 148 (1893). *Ethulia bidentis* L. Mant. I. 110 (1767). *Milleria Contrayerba* Cav. Ic. Pl. I. t. 4 (1791). *F. Contrayerba* Pers. Syn. II. 489 (1807); Rob. (1), 213.—CHARLES ISL.: *Andersson*. Further distr. S. U. S., Mex., S. Am.

#### Gnaphalium L.

**G. luteo-album** L. Sp. Pl. 851 (1753).—ALBEMARLE ISL.: Villamil, forming large patches on the floor of the crater at 2750 ft. and on the southeast rim of the crater at 3150 ft. The specimens from the floor of the crater have the leaves smaller and more closely arranged and the tomentum more copious than do the specimens from the rim, a fact which may be due to the more xerophytic conditions inside of the crater, (nos. 632-633). Widely distributed in warm countries.

#### Hemizonia DC.

**H. squalida** Hook. f. (3), 208; Rob. (1), 213.—GALAPAGOS ISL.: *Du Petit-Thouars*. Endemic.

#### Jaegeria HBK.

**J. gracilis** Hook. f. (3), 213; Rob. (1), 213.—CHARLES ISL.: *Darwin*. Endemic. Rob. l. c. suggests that this can hardly be a *Jaegeria*.

**J. hirta** (Lag.) Lees. Syn. Gen. Comp. 223 (1832). *Acmella hirta* Lag. Nov. Gen. & Sp. 31 (1815).—ALBEMARLE ISL.: Tagus Cove, abundant at 4000 ft. (no. 635); Villamil, common in grassy country above 1500 ft. (no. 634). CHATHAM ISL.: Wreck Bay, abundant in moist places, 1700-2050 ft., (nos. 636-637). Further distr. Mex., S. Am.

**J. proprepens** Hook. f. (3), 214; Rob. (1), 213.—JAMES ISL.: *Darwin*. Endemic.

### Lecocarpus Decaisne

**L. pinnatifidus** Decaisne, Bot. Voy. Venus, Atlas t. 14 (1846). *L. foliosus* Decaisne, op. c., text, 20 (1864); Rob. (1), 213.—CHARLES ISL.: low bushes, abundant in open places among lava boulders near the shore and up to 700 ft. (nos. 638-639). CHATHAM ISL.: *Darwin*. Endemic.

### Lipochaeta DC.

**L. laricifolia** (Hook. f.) Gray, Proc. Am. Acad. V. 131 (1862). *Macraea laricifolia* Hook. f. (3), 210. *L. laricifolia* Gray, l. c.; Rob. (1), 214.—ABINGDON ISL.: occasional bushes, 700-1000 ft., (no. 640). ALBEMARLE ISL.: Cowley Bay, occasional stunted bushes in the vicinity of the shore, bushes 3-4 ft. high, 300-2000 ft.; Tagus Cove, common bushes on tuffaceous soil near the shore and on the sides of the mountain. Above 2500 ft. it is by far the most predominant species, (no. 642); Villamil, occasional bushes, 75-600 ft., (no. 641). CHARLES ISL.: occasional clumps of bushes near the shore, abundant in scattering bunches, 450-1000 ft., and forming dense thickets of bushes 6-8 ft. high, 1000-1450 ft., except on the windward sides of the craters, where it does not occur above 1200 ft., (no. 643). CHATHAM ISL.: Basso Point, bushes at 800 ft.; Wreck Bay, common bushes at 450 ft. (no. 644). INDEFATIGABLE ISL.: southeast side, common bushes at 600 ft. JAMES ISL.: James Bay, bushes 6-8 ft. high on the edges of recent lava flows at 850 ft. (no. 645); northeast side, abundant above 225 ft. NARBOROUGH ISL.: south side, *Snodgrass and Heller*. Endemic.

### Pectis L.

**P. Anderssonii** Rob. (1), 214. *P. linearis* Rob. & Greenm. (1), 147, not La Llave. *Lorentia linearis* Anderss. (1), 174, (2), 66.—INDEFATIGABLE ISL.: northwest side, abundant in dry open areas below 300 ft. (no. 646). Endemic.

**P. Hookeri** Rob. (1), 214. *Lorentia gracilis* Hook. f. (3), 206.—ALBEMARLE ISL.: Tagus Cove, fairly abundant on the tops of tuffa cliffs (no. 648). BARRINGTON ISL.: *Baur; Snodgrass and Heller*. CHARLES ISL.: in crevices of the lava near the shore (no. 647). HOOD ISL.: *Snodgrass and Heller*.

JAMES ISL.: James Bay, *Snodgrass and Heller*. JERVIS ISL.: *Baur*. NARBOROUGH ISL.: north side, occasional on lava beds (no. 649). SEYMOUR ISL., SOUTH: *Snodgrass and Heller*. Endemic.

**P. linifolia** L. Syst. Nat. ed. 10, 1221 (1760); Rob. (1), 215.—CHATHAM ISL.: north side, *Andersson*. INDEFATIGABLE ISL.: northwest side, *Andersson*. SEYMOUR ISL., SOUTH: *Snodgrass and Heller*. Further distr. Mex., W. Ind., N. S. Am.

**P. subsquarrosa** (Hook. f.) Sch. Bip. in Seem. Bot. Herald, 309 (1852-1857). *Lorentia subsquarrosa* Hook. f. (3), 206. *P. squarrosa* Sch. l. c.; Rob. (1), 215.—GALAPAGOS IDS.: *Habel*. CHATHAM ISL.: north side, *Darwin*. Endemic.

**P. tenuifolia** (DC.) Sch. Bip. in Seem. Bot. Herald, 309 (1852-1857). *Lorentia tenuifolia* DC. Prodr. V. 103 (1836). *P. tenuifolia* Sch. l. c.; Rob. (1), 215.—ALBEMARLE ISL.: Black Bight, *Snodgrass and Heller*; Cowley Bay, common in pumice soil on the lower parts (no. 651); Elizabeth Bay, *Snodgrass and Heller*; Tagus Cove, common on the tufa hills around the cove (no. 650); Villamil, common in lava crevices near the coast (no. 652). CHARLES ISL.: *Andersson*; *Snodgrass and Heller*. CHATHAM ISL.: Basso Point, occasional in lava crevices (no. 653); Wreck Bay, *Snodgrass and Heller*. INDEFATIGABLE ISL.: north side, in lava crevices near the beach (no. 654). NARBOROUGH ISL.: (no. 655). SEYMOUR ISL., NORTH: *Snodgrass and Heller*. Further distr. shores of Peru ? according to Robinson. l. c.

#### Porophyllum Vaill.

**P. ruderalis** (Jacq.) Cass. Dict. XLIII. 56 (1826). *Kleinia ruderalis* Jacq. Enum. 28 (1762). *P. ellipticum* Cass. l. c.; Rob. (1), 215.—ABINGDON ISL.: *Snodgrass and Heller*. ALBEMARLE ISL.: Tagus Cove, abundant in tufaceous soil on the lower parts (no. 656). CHARLES ISL.: rare among rocks near the shore (no. 658). CHATHAM ISL.: Basso Point, occasional on recent lava (no. 659). DUNCAN ISL.: *Snodgrass and Heller*. HOOD ISL.: *Baur*; *Snodgrass and Heller*. INDEFATIGABLE ISL.: northwest side, common on the lower parts

(no. 660); north side, *Snodgrass and Heller*. JAMES ISL.: James Bay, *Snodgrass and Heller*; Orchilla Bay, *Baur*. JERVIS ISL.: *Baur*. Further distr. Mex., W. Ind., S. Am.

### *Scalesia* Arn.

***S. affinis*** Hook. f. (3), 212; Rob. (1), 216.—CHARLES ISL.: bushes 5-6 ft. high at 550 ft. (no. 661). INDEFATIGABLE ISL.: southeast side, bushes 7-10 ft. high around 600 ft. (no. 662). Endemic.

***S. affinis*** Anderss. (1), 180, (2), 70, t. 7, f. 3; Rob. (1), 216.—INDEFATIGABLE ISL.: north side, low bushes 2-3 ft. high in lava crevices near the coast (no. 665); northwest side, low bushes near the shore (no. 664); southeast side, occasional bushes in the vicinity of the shore (no. 663). Endemic.

***S. atractyloides*** Arn. in Lindl. *Introd. Nat. Ord.* ed. 2, 264, 443 (1836); Rob. (1), 216.—JAMES ISL.: James Bay, bushes 5-7 ft. high on the borders of recent lava flows, where it often grows to the exclusion of all other large vegetation, (no. 666); northeast side, bushes 4-8 ft. high on lava beds near the coast and above 700 ft. The leaves of the specimens from this locality are more scabrous and less pubescent on the lower surface than are the specimens taken in the vicinity of James Bay. The specimens agree with the rather brief description of this species, except that the heads are considerably smaller, (no. 667). Endemic.

***S. Baurii*** Rob. & Greenm. (1), 141, 146; Rob. (1), 216.—DUNCAN ISL.: abundant bushes on the upper parts of the island (no. 668). Endemic.

Var. (?) ***glabrata*** Rob. (1), 216.—DUNCAN ISL.: *Snodgrass and Heller*. Endemic.

### ***S. cordata*** nov. sp.

Arborescens circa 9 m. alta; ramulis teretibus griseis puberulis; foliis ovatis subintegerrimis attenuato-acutissimis penninervis basi cordatis supra hispidis subtus puberulis, lamina 8.8 cm. longa, 4.8 cm. lata; petiolis gracilibus puberulis 4.7 cm. longis; capitulis pluribus gummiferis corymbosis; squamis involucri campanulati angustis lanceolatis acutis hispidis; paleis conduplicatis glaberrimis argute 3-dentatis; acheniis compressis oblongis glaberrimis 3 cm. longis, 1. mm. latis, nigris cum maculatis griseis variegatis 2-dentatis, dentibus subequalibus.

Closely related to *S. microcephala* Rob., differing in the size and shape of the leaves, the broader involucre bracts, and in the variegated and glabrous achenes. The specimen is too mature to show good floral characters. *S. n. sp.?* Rob. (1), 220.—ALBEMARLE ISL.: Iguana Cove, *Snodgrass and Heller*; Tagus Cove, *Snodgrass and Heller*; Villamil, occasional trees at 175 ft., abundant at 250-600 ft., smaller and less abundant at 1300 ft. So far as is known this is the only arborescent species of *Scalesia* found on this island, (no. 669). Plate IV, figs. 4-6. Endemic.

**S. Darwinii** Hook. f. (3), 211; Rob. (1), 216.—JAMES ISL.: James Bay, small trees 8-10 ft. high around 1000 ft. Concerning this species Hook. f., l. c., remarks as follows: "Characteristic of the vegetation of James Isl., forming woods of straight trees in the alpine or damp region.—Darwin, Ms." Darwin evidently meant this statement to apply to *S. pedunculata*, as it is the only species of *Scalesia* that forms trees on this island, (no. 670). Endemic.

**S. decurrens** Anderss. (1), 182, (2), 71; Rob. (1), 216.—ALBEMARLE ISL.: *Baur*. CHARLES ISL.: low bushes abundant in barren rocky places in the vicinity of the shore. The low *Scalesia* bushes figured in Agassiz (1), Pl. XX, belong to this species. Endemic.

**S. divisa** Anderss. (1), 179, (2), 70, t. 7, f. 1; Rob. (1), 217.—CHATHAM ISL.: Sappho Cove, bushes 2-4 ft. high on lava beds near the coast (no. 672). Endemic.

**S. gummifera** Hook. f. (3), 212; Rob. (1), 217.—ALBEMARLE ISL.: Cowley Bay, bushes from the vicinity of the shore and to 1200 ft. (no. 673); Elizabeth Bay, *Snodgrass and Heller*; Tagus Cove, *Snodgrass and Heller*; Villamil, bushes 3-6 ft. high in shady places, and on lava beds below 100 ft., (no. 674). INDEFATIGABLE ISL.: Academy Bay, bushes in woodland below 100 ft., species somewhat in doubt. Endemic.

**S. Helleri** Rob. (1), 217.—BARRINGTON ISL.: occasional bushes 6-8 ft. high all over the island (no. 675). Endemic.

**S. Hopkinsii** Rob. (1), 217.—ABINGDON ISL.: common bushes 6-8 ft. high from the vicinity of the shore to 1500 ft.

They are much less abundant on the southwest side and do not extend below 500 ft. Specimens from near the shore have smaller and more closely arranged leaves than do the specimens from above 1000 ft., (nos. 676-677). Endemic.

**S. incisa** Hook. f. (3), 210; Rob. (1), 217.—CHATHAM ISL.: *Darwin*. Endemic.

**S. microcephala** Rob. (1), 218.—ALBEMARLE ISL.: Cowley Bay, bushes and low trees, 1200-1650 ft., (no. 679); Tagus Cove, common bushes above 1200 ft. (no. 678). NARBOROUGH ISL.: south side, *Snodgrass and Heller*. Endemic.

**S. narbonensis** Rob. (1), 218, Pl. 3, figs. 4-7.—NARBOROUGH ISL.: north side, bushes 2-3 ft. high, abundant on lava beds near the coast, (no. 680); south side, *Snodgrass and Heller*. Endemic.

**S. ovata** Anderss. (1), 181, (2), 70; Rob. (1), 219.—CHARLES ISL.: *Andersson; Lee*. Endemic.

**S. pedunculata** Hook. f. (3), 211; Rob. (1), 219.—CHARLES ISL.: trees with umbrella-shaped crowns, on exposures of basaltic lava, 1000-1200 ft. The most common forest tree in the upper regions; (no. 681). CHATHAM ISL.: Wreck Bay, low spreading trees, abundant above 600 ft., (no. 684). INDEFATIGABLE ISL.: Academy Bay, forms dense forests of trees 40-60 ft. high, 400 to probably 1500 ft. This species attains its largest size at this place, (nos. 685-686); northwest side, trees 20-30 ft. high above 700 ft. (no. 678); southeast side, trees 15-20 ft. high above 450 ft. It apparently extends up higher at this place than at Academy Bay, (nos. 689-690). JAMES ISL.: James Bay, trees 25-40 ft. high above 950 ft. (no. 688). This species forms the *Scalesia* forests, on all the islands where such forests occur, except on Albemarle. Endemic.

**S. retroflexa** Hemsl. in Hook. f. Ic. Pl. XXVIII. t. 2715 (1901); Rob. (1), 219.—INDEFATIGABLE ISL.: *Habel*. Endemic.

**S. Snodgrassii** Rob. (1), 219, Pl. 3, fig. 8.—WENMAN ISL.: bushes 2-3 ft. high on sides of cliffs (no. 691). Endemic.

**S. villosa** nov. sp.

Fruticosa circa 2 m. alta; ramulis teretibus bruneis griseo-punctatis ad apices sericeo-villosis; foliis ad apices ramulorum confertis lanceolatis integerrimis longe attenuatis basi cuneatis utrinque sericeo-villosis

sessilibus 9.3 cm. longis, 1.4 cm. latis; capitulis subglobosis multifloris 2.7 cm. latis longe-pedunculatis; pedunculis bruneo-puberulis 6.7 cm. longis; squamis involucri lanceolatis 8 mm. longis sericeo-villosis; paleis conduplicatis carinatis apice puberulis 3-dentatis; acheniis oblongis compressis glaberrimis bruneo-griseis 4 mm. longis, 2 mm. latis; corollis ignotis.

*S. Darwinii* Rob. (1), 216, not Hook. f., Type no. 107 Gray Herbarium.—CHARLES ISL.: common bushes in the vicinity of the shore at Cormorant Bay, and in the interior of the island at 550 ft., (no. 692). Plate IV, figs. 1-3. Endemic.

Var. **championensis** nov. var.

Foliis revolutis utrinque sparse villosis 8.3 cm. longis, 1.8 cm. latis.

CHAMPION ISL.: *J. R. Slevin* collector (no. 1025). Endemic.

*S.* sp.—Culpepper Isl.: bushes, evidently of a species of *Scalesia*, were noticed on the upper and inaccessible parts of the island. The bushes were of about the same size as those of *S. Snodgrassii* on Wenman Isl. Endemic.

#### Sonchus L.

*S. oleraceus* L. Sp. Pl. 794 (1753); Rob. (1), 220.—ALBEMARLE ISL.: Iguana Cove, abundant among rocks near the shore (no. 694); Tagus Cove, common at 4000 ft. (no. 695); Villamil, common at 700 ft., occasional at 1300 ft., (no. 693). CHARLES ISL.: occasional among rocks at 1550 ft. (no. 696). CHATHAM ISL.: Wreck Bay, common, 800-1200 ft., (nos. 697-698). Widely distributed.

#### Spilanthes L.

*S. Acmella* Murr. Syst. ed. 13, 610 (1774); Rob. (1), 220.—CHARLES ISL.: *Edmonston*. NARBOROUGH ISL.: south side, *Snodgrass and Heller*. Widely distributed in tropics.

*S. diffusa* Hook. f. (3), 214; Rob. (1), 220.—CHARLES ISL.: in moist places at 1700 ft. (no. 699). JAMES ISL.: *Darwin*. Endemic.

#### Tagetes L.

*T. erecta* L. Sp. Pl. 887 (1753); Rob. (1), 220.—CHATHAM ISL.: *Chierchia*. Widely distributed.

















TABLE SHOWING THE DISTRIBUTION OF PTERIDOPHYTES AND SPERMATOPHYTES UPON THE GALAPAGOS ISLANDS  
Continued

	Galapagos	Abingdon	Albemarle	Bartington	Bindloe	Brattle	Charles	Chatham	Cutpepper	Duncan	Gardner Ch.	Gardner Hd.	Hood	Indefatigable	James	Jervis	Narborough	Seymour	Tower	Wenman
<i>Eriochloa distachya</i> .....																				
<i>punctata</i> .....																				
<i>Leptochloa albemarlensis</i> .....																				
<i>filiformis</i> .....																				
<i>Lindleyana</i> .....																				
<i>mucronata</i> .....																				
<i>virgata</i> .....																				
<i>Oplismenus setarius</i> .....																				
<i>Panicum colonum</i> .....																				
<i>fasciculatum</i> .....																				
<i>geminatum</i> .....																				
<i>hirticaulum</i> .....																				
<i>var. minus</i> .....																				
<i>molle</i> .....																				
<i>multiculmum</i> .....																				
<i>serotinum</i> .....																				
<i>sp.</i> .....																				

































TABLE SHOWING THE DISTRIBUTION OF PTERIDOPHYTES AND SPERMATOPHYTES UPON THE GALAPAGOS ISLANDS  
Continued

	Galapagos	Abingdon	Albemarle	Barrington	Bindloe	Brattle	Charles	Chatham	Culpepper	Duncan	Gardner Ch.	Gardner Hd.	Hood	Indefatigable	James	Jervis	Narborough	Seymour	Tower	Wenman
<b>ZYGOPHYLLACEAE</b>																				
Kallstroemia adscendens																		+		
Tribulus cistoides		+	+			+	+	+					+	+			+			
var. anacanthus																				
sericeus																				
sp.									+											
<b>RUTACEAE</b>																				
Zanthoxylum Fagara		+	+				+	+		+			+	+						
<b>SIMARUBACEAE</b>																				
Castela galapageia			+																	
forma albemarlensis			+																	
forma bindloensis					+															
forma carolensis																				
forma duncanensis																				
forma jacobensis																				
<b>BURSERACEAE</b>																				
Bursera graveolens																				
		+	+	+	+		+	+	+	+		+	+	+			+	+		+





































TABLE SHOWING THE DISTRIBUTION OF PTERIDOPHYTES AND SPERMATOPHYTES UPON THE GALAPAGOS ISLANDS  
Continued

	Galapagos	Abingdon	Albmarle	Barrington	Bindloe	Brattle	Charles	Chatham	Culpepper	Duncan	Gardner Ch.	Gardner Hd.	Hood	Indefatigable	James	Jervis	Narborough	Seymour	Tower	Wenman
<b>ACANTHACEAE</b>																				
Dicliptera peruviana.....																				
Justicia galapagana.....																				
Ruellia paniculata.....																				
Tetramerium hispidum.....																				
<b>PLANTAGINACEAE</b>																				
Plantago major.....																				
tomentosa var? pumila.....																				
<b>RUBIACEAE</b>																				
Borreria basalis.....																				
Baurii.....																				
dispersa.....																				
divaricata.....																				
ericaefolia.....																				
falcatifolia.....																				
galapageia.....																				













TABLE SHOWING THE DISTRIBUTION OF PTERIDOPHYTES AND SPERMATOPHYTES UPON THE GALAPAGOS ISLANDS  
Continued

	Galapagos	Abingdon	Albemarle	Barrington	Bindloe	Brattle	Charles	Chatham	Culpepper	Duncan	Gardner Ch.	Gardner Hd.	Hood	Indefatigable	James	Jervis	Narborough	Seymour	Tower	Wenman		
Helleri . . . . .		+																				
Hopkinsii . . . . .																						
incisa . . . . .																						
microcephala . . . . .			+																			
narbonensis . . . . .																						
ovata . . . . .																						
pedunculata . . . . .																						
retroflexa . . . . .																						
Snodgrassii . . . . .																						
villosa . . . . .																						
var. championensis <sup>1</sup> . . . . .																						
sp. . . . .																						
Sonchus oleraceus . . . . .																						
Spilanthes Acnella . . . . .																						
diffusa . . . . .																						
Tagetes erecta . . . . .																						

<sup>1</sup> Champlon Island.

## BOTANICAL REGIONS

Those who have written on the phytogeography of the Galapagos Islands in the past, have often mentioned the great difference in the character of the vegetation on the higher and lower parts of many of the islands, a difference that is very marked and can often be readily seen at a mere glance from the shore or a few miles out at sea by the contrast in the color of the vegetation in the several regions. In fact it is often easier to make out the limits of the regions from a distance than close at hand, for they frequently grade imperceptibly into each other, and the variations in color can not be so readily distinguished when one is going through the islands. On certain islands some of the regions are often ill defined or entirely lacking, a fact that is probably due mostly to climatic but sometimes to edaphic factors.

Above the strand vegetation, which forms a narrow belt along the shores in many places, four botanical regions can be recognized, the Dry, Transition, Moist, and Grassy.

*Dry Region*

The lower slopes of the higher islands and the whole slopes of the lower ones are covered with a vegetation which is very xerophytic in character. The most striking plants in this region are the arborescent cacti, which often occur in large numbers and sometimes attain a height of forty or more feet. Except the cacti, the trees in this region are for the most part rather low, deciduous in character, and very much scattered. Between the trees, where they occur, the ground is usually covered with low bushes, which either shed or greatly reduce their leaves during the greater part of the year, and those which retain their leaves usually have them covered with a heavy coating of plant hairs. The landscape accordingly presents a dreary gray aspect, which is greatly accentuated by the color of the trunks of both the *Croton* bushes and *Bursera* trees.

During the spring months this region takes on a green appearance, but is lighter in color than the moist region above. During this season most of the annual plants spring up rapidly, and mature before the dry season sets in again.

While it is difficult to give a list of plants which are strictly characteristic of this region, the following includes those species which are most common. Those which are followed by an asterisk in this and the following lists are, so far as is known, characteristic of the region to which they are referred.

<i>Acacia macracantha</i> *	<i>Desmanthus depressus</i>
<i>Aristida divulsa</i> *	<i>Discaria pauciflora</i> *
<i>subspicata</i> *	<i>Erythrina velutina</i> *
<i>Borreria ericaefolia</i> *	<i>Euphorbia amplexicaulis</i> *
<i>Bursera graveolens</i>	<i>articulata</i> *
<i>Castela galapageia</i>	<i>viminea</i>
<i>Cenchrus platyacanthus</i> *	<i>Gossypium barbadense</i>
<i>Cereus galapagensis</i> *	<i>Lantana peduncularis</i>
<i>nesioticus</i> *	<i>Maytenus obovata</i>
<i>sclerocarpus</i> *	<i>Mentzelia aspera</i>
<i>Clerodendron molle</i>	<i>Opuntia galapageia</i> *
<i>Coldenia Darwini</i> *	<i>myriacantha</i> *
<i>fusca</i> *	<i>Parkinsonia aculeata</i> *
<i>Cordia galapagensis</i>	<i>Piscidia erythrina</i>
<i>Hookeriana</i>	<i>Prosopis dulcis</i>
<i>lutea</i>	<i>Scalesia atractyloides</i> *
<i>Croton Scouleri</i> *	<i>Telanthera echinocephala</i>
var. <i>brevifolius</i>	<i>nudicaulis</i>
var. <i>Macraei</i> *	<i>Waltheria reticulata</i>

### Transition Region

As the name would indicate, the vegetation in this region is transitional in character, being made up of a mixture of xerophytic plants from the dry region below and the more hardy of the mesophytic plants from the moist region above. There is usually a great thickening of the vegetation in this region, and a considerable number of the evergreen species appear, so that the landscape has a mottled appearance when seen from a distance. In fact the deciduous character of the vegetation in the dry regions, the evergreen character in the moist regions, and the mixture of the two in the transition regions, are the principal causes of the well marked appearance of zonation on many of the islands.

The trees in this region are taller, as a rule, and closer together than they are in the dry region, while underneath the trees the bushes and undergrowth are larger and thicker on the ground. A few species of epiphytic plants are found,

among which fruticose lichens are most abundant, often occurring in such large quantities as to give a distinct color to the vegetation. A few of the more xerophytic species of ferns, as well as a number of herbaceous perennial plants, occur. The annual herbaceous forms are rather in the minority as compared with the perennials. The following list includes the plants which are most common in this region.

<i>Adiantum concinnum</i>	<i>Lantana peduncularis</i>
<i>Bursera graveolens</i>	<i>Lipochaeta laricifolia</i>
<i>Castela galapageia</i>	<i>Maytenus obovata</i>
<i>Ceropteris tartarea</i>	<i>Pisonia floribunda</i>
<i>Chiococca alba</i>	<i>Polypodium lepidopteris</i>
<i>Cissampelos Pareira</i>	<i>pectinatum</i>
<i>Clerodendron molle</i>	<i>squamatum</i>
<i>Cordia galapagensis</i>	<i>Psidium galapageium</i>
<i>Hookeriana</i>	<i>Psychotria rufipes</i>
<i>lutea</i>	<i>Scalesia pedunculata</i>
<i>Croton Scouleri</i> var. <i>brevifolius</i>	<i>Telanthera echinocephala</i>
<i>Doryopteris pedata</i>	<i>Tillandsia insularis</i>
<i>Erigeron tenuifolius</i>	<i>Tournefortia rufo-sericea</i>
<i>Euphorbia viminea</i>	<i>Trachypteris pinnata</i>
<i>Gossypium barbadense</i>	<i>Waltheria reticulata</i>
<i>Ionopsis utricularioides</i>	<i>Zanthoxylum Fagara</i>

### Moist Region

The vegetation of the moist region is of a decidedly mesophytic character, all the xerophytic species which persist in the transition region having disappeared, except in a few rare instances. In these cases there may be an occasional straggler from below, or conditions of soil or exposure are such that mesophytic plants will not grow. In general this region is characterized by the presence of large forests, made up for the most part of trees of *Psidium galapageium*, *Pisonia floribunda*, and *Scalesia pedunculata*, which it seems well to call the "Scalesia forests." The undergrowth is often dense in these forests, and is made up mostly of larger species than are found in the two lower regions. Epiphytic ferns and orchids, as well as several species of leafy hepatics, grow abundantly. Lianes also abound, although belonging largely to a single species. The mesophytic species of ferns are very common, and often form brakes of considerable size. In general, the vegetation



of this region presents an appearance very similar to that which is usually found in the moist tropics, the rain-forest type being closely approached in places. While forests predominate, there are a few localities in which they are absent or only represented by an occasional tree. In such places the vegetation is made up mostly of bushes and ferns, over which there are tangled masses of lianes, mostly of the herbaceous type. The following list includes the species of plants which are most noticeable in the moist region.

<i>Acrostichum aureum</i>	<i>Ionopsis utricularioides</i>
<i>Adiantum concinnum</i>	<i>Nephrolepis biserrata</i>
<i>Henslovianum</i>	<i>pectinata*</i>
<i>macrophyllum</i>	<i>Pisonia floribunda</i>
<i>Argyrea tiliaefolia</i>	<i>Polypodium aureum</i>
<i>Asplenium cristatum</i>	<i>lanceolatum</i>
<i>formosum</i>	<i>lepidopteris</i>
<i>praemorsum</i>	<i>pectinatum</i>
<i>Serra</i>	<i>Phyllitides*</i>
<i>sulcatum</i>	<i>squamatum</i>
<i>Blechnum occidentale</i>	<i>Psidium galapageium</i>
<i>Ceropteris tartarea</i>	<i>Psychotria rufipes</i>
<i>Cheilanthes microphylla</i>	<i>Pteris aquilina</i> var. <i>esculenta*</i>
<i>Chiococca alba</i>	<i>incisa*</i>
<i>Cissampelos Pareira</i>	<i>Scalesia pedunculata</i>
<i>Croton Scouleri</i> var. <i>grandifolius</i>	<i>cordata</i>
<i>Doryopteris pedata</i>	<i>Tillandsia insularis</i>
<i>Dryopteris parasitica*</i>	<i>Tournefortia rufo-sericea</i>
<i>Epidendrum spicatum</i>	<i>Trachypteris pinnata</i>
<i>Erigeron linifolius</i>	<i>Urera alceaefolia*</i>
<i>Hemitelia multiflora</i>	<i>Zanthoxylum Fagara</i>

### Grassy Region

This region lies above the moist region, and is characterized by considerable areas covered with perennial grasses, the most common of which is *Paspalum conjugatum*. Trees are almost entirely absent except in protected places, the probable cause of their absence being the greater velocity of the wind at the higher elevations, combined with a somewhat less amount of precipitation. A number of bushy and shrubby plants are found in this region, the most common of which are *Tournefortia rufo-sericea* and *Zanthoxylum Fagara*. There are also a considerable number of species of ferns, but it is seldom that

brakes of any size are formed by them. There are but two islands in the group on which this region is well developed, Albemarle and Chatham. On both of these the belt in question is used for grazing purposes by the inhabitants. The upper part of the highest crater on Charles Island is also covered by this region, but the area here is so small as to be negligible. The following table shows the elevations in feet at which the different regions end at the various places on the islands visited by our party. The islands not mentioned are either too low to possess more than the dry region, or their regions are so ill defined as to render the exact limits impossible of determination. Elevations which are followed by an asterisk are estimated, the estimates often having been made from a few miles out to sea by comparing the elevation of the place in question with that of some other place the elevation of which was known.

## ZONAL ELEVATIONS

Locality	Dry Region	Transition Region	Moist Region	Grassy Region
Abingdon Island, north side . . . . .		1500*		
south side . . . . .	450	1000	1950	
Albemarle Island, Banks Bay . . . . .		1500*		
Cowley Bay . . . . .	1000	3000*		
Iguana Cove . . . . .	0	0		
Villamil . . . . .	150	350	1500	3150
Charles Island, Black Beach Road . . . . .	450	1000		1780
Chatham Island, Wreck Bay . . . . .	650	800		2100
Duncan Island . . . . .	900	1300		
Indefatigable Island, Academy Bay . . . . .	350	500	1500*	
north side . . . . .	1500*	2000*		
northwest side . . . . .	450	700		
southeast side . . . . .	400	800*		
James Island, north side . . . . .	1500*	2000*		
south side . . . . .	900	1600	2850	
James Bay . . . . .	1300	2000*	2850	

From this table it appears that there is often a great difference in the elevations at which a region begins and ends on the same sides of different islands as well as on different sides of

the same islands. In the first instance it seems likely that the size of the island and the degree of slope are involved. On large islands, like Albemarle and Indefatigable, the southern sides slope very gradually, and the transition and moist regions extend down much lower than on Abingdon and James, which are smaller and have steeper sides. A notable exception occurs, however, at Iguana Cove on the southwest side of Albemarle Island, where the conditions are very peculiar indeed. This is the only place on the islands, outside of a few isolated spots near brackish springs, where there is sufficient moisture at sea level to support a mesophytic vegetation. But the extent of the moist region at this place is very limited, for at Christopher Point, only five miles north, and at Essex Point, four miles south, the vegetation at sea level is again very xerophytic. The great difference in elevation of the different regions on the leeward and windward sides of the islands, is due to the fact that the fog in passing over the tops of the mountains rolls down but a short distance on the leeward sides, and leaves the islands at a much higher level than it struck them on the windward sides. The lower limits of the moist regions are usually as well marked, by the difference in the color of the vegetation, on the leeward as on the windward slopes of the islands.

## GENERAL FEATURES OF THE FLORA

### PTERIDOPHYTA

*Filices* are the family that contains the largest number of species, but at the same time the smallest number of endemic forms in proportion to the number of species represented, of any family of vascular plants found on the islands. Ferns occur mostly in the transition and moist regions, where they sometimes grow in great profusion. They are not confined to these regions, however, as there are instances of their occurrence under decidedly xerophytic conditions in the dry region. The species which occur thus are *Ceropteris tartarea*, *Cheilanthes microphylla*, *Notholaena sulphurea*, *Polypodium squamatum*, and *Trachypteris pinnata*. Hydrophytic ferns are few in number, and are confined to a few rather restricted areas, in the moist regions on several islands, where the amount of

moisture present is greater than is ordinarily the case. Those species which are decidedly hydrophytic, or show tendencies in this direction, are some of the species of *Adiantum*, *Asplenium cristatum*, and the species of *Hymenophyllum* and *Trichomanes*. Epiphytic species include *Asplenium praemorsum* and *sulcatum*, *Nephrolepis pectinata*, *Polypodium angustifolium*, *aureum*, *lanccolatum*, *lepidopteris*, *polypodioides*, and *thyssanolepis*. Over one half of the species of *Polypodium* found on the islands are epiphytic in habit, all but one, in fact, being habitually so. Fern brakes of considerable size are formed by *Nephrolepis biserrata*, and *Pteris aquilina* var. *esculenta*, while *Polypodium squamatum* often forms low brakes one to two feet high in moist shady places in the transition region. *Hemitelia multiflora* is the only tree fern, and is confined to the upper parts of three of the higher islands. Ferns have now been found on all of the important islands of the group except Barrington, Culpepper, Seymour, and Tower, the conditions on these islands being too dry to support even the more xerophytic species. The water ferns are of relatively little importance in the archipelago, being represented by a species each of *Azolla* and *Salvinia*.

The *Lycopodiaceae* are represented by five species of *Lycopodium*, all of which occur in the moist and grassy regions of the islands. Two of the species are epiphytic and the remaining three terrestrial. The *Equisetaceae* are represented by a single species, *Equisetum bogotense*, which occurs in a very small area on the top of one of the mountains on Albemarle Island.

#### SPERMATOPHYTA

##### *Monocotyledoneae*

The *Gramineae* are the fourth largest family, in number of species, found on the islands. By far the largest number of the species are confined to the dry and transition regions, the moist region being too shady, in most places, to support an abundant growth of grass. The only grass of any importance which occurs above the transition region is *Paspalum conjugatum*, which often covers extensive areas in the grassy region and forms an important forage grass for the cattle and other domesticated animals on the islands. Grasses which occur

under halophytic conditions are a species of *Ammophila*, probably *A. arenaria*, and *Sporobolus virginicus*, the last of which covers some of the sand beaches with heavy tangled mats. Great numbers of land birds were often found feeding in the grassy areas in the dry and transition regions, a fact which suggests the possible origin of this rather important element of the flora.

The second largest family of the Monocotyledons is the *Cyperaceae*, which are the seventh largest family, in number of species, found on the islands. The best represented genus is *Cyperus*, of which there are more than sixteen species and varieties, one or more of which occur on all of the islands except Brattle. They form a noticeable but not important element of the flora in the dry and transition regions, but with the exception of *C. grandifolius* are not conspicuous in either the moist or grassy regions. In the Voyage of the Beagle, Darwin speaks of beds of *Cyperus* on the upper parts of James Island, in which he found a species of water rail. We were able to secure several specimens of this rather rare bird, but without exception they were found in beds of *Paspalum conjugatum*, which grows abundantly in open places throughout the moist region on this island. Of the remaining genera of sedges *Dichronema* is represented by one species, *Eleocharis* by three, *Fimbristylis* by two, and *Hemicarpha*, *Kyllinga*, and *Scleria* by one each, none of which are widely distributed over the islands or form an important element of the flora in the regions where they occur.

Outside of the grasses and sedges the remaining monocotyledonous families are of little importance. The *Orchidaceae* are represented by four genera of one species each, all of which are found above the dry region. The *Bromeliaceae* are represented by *Tillandsia*, of which there is a single endemic species that in places forms a noticeable element of the flora. Other monocotyledonous plants are for the most part small and rather rare of occurrence.

#### *Dicotyledoneae*

The *Piperaceae* and *Urticaceae* are both small families, the first being represented by eight species of *Peperomia*, all but one of which are endemic. These include both epiphytic and

terrestrial forms and are all confined to the transition and moist regions of the islands. The *Urticaceae* are represented by six species, one of which is endemic. They are all herbaceous forms except *Urera alceaefolia*, which forms large sized bushes and is rather an important element of the flora in the moist regions of both Albemarle and Indefatigable Islands.

The *Amarantaceae* are the sixth largest family of vascular plants found on the islands, being represented by thirty-three species, varieties, and forms. The two most important genera are *Amaranthus* and *Telanthera*. The species of the first of these are herbaceous in character and furnish some of the most noticeable of the spring weeds in the dry and transition regions. The species of *Telanthera* are woody in character and the genus is represented in all the regions by species which are shrubby or bushy in form. Of the thirteen species and varieties of this genus all are endemic but two.

The *Nyctaginaceae* are represented by four genera, three of which form rather important elements of the flora. *Cryptocarpus pyriformis* is usually found in the neighborhood of the coast, where it often forms rather conspicuous thickets of light green bushes which stand out in strong contrast with the gray colored vegetation farther inland. *Boerhaavia* is represented by four species in the dry and transition regions, and *Pisonia* by one that forms one of the important forest trees in the transition and moist regions.

The family of *Aizoaceae* is noteworthy in that it contains two of the important elements of the halophytic flora, namely *Sesuvium Edmonstonei* and *S. Portulacastrum*. The first of these species is endemic, while the second has a wide distribution on tropical shores.

The *Menispermaceae* contain but two species: *Cissampelos galapagensis* and *C. Pereira*. The latter is one of the most noticeable plants in certain parts of the transition and moist regions, where it often covers the branches of the trees in great profusion, while the large number of absorbing roots which are put down from above may form tangled masses and render traveling very difficult. It is the only plant on the islands that approaches the woody liane type.

The *Leguminosae* are the fifth largest family in number of species on the islands, being represented by forty-five species,

six of which are endemic. This family contains some of the largest forest trees, as well as many herbaceous and shrubby forms. All of these are most abundant in the dry and transition regions, and many of the species are armed with spines. Several of the smaller Lianes being to this family. In the moist and grassy regions the woody species are almost entirely absent, but there remain a considerable number of herbaceous forms, among which *Desmodium* is most conspicuous.

The *Rutaceae* are represented by a single species, *Zanthoxylum Fagara*, which occurs in all of the regions on many of the islands. This species varies greatly in size, often occurring as small bushes in the dry region, while in the moist zone it assumes the height of a tree, the increase in size being gradual with the increase in elevation. In many places in the dry and transition regions this plant forms dense low thickets of bushes which, owing to the strongly recurved spines that cover the branches, are very hard to penetrate. It is one of the favorite host plants for *Phoradendron Henslovii* on the parts of the islands where this parasite occurs.

The *Simarubaceae* have but one representative, *Castela galapageia*, which occurs as bushes in both the dry and transition regions. This species varies greatly in the size of the leaves and in the arming of the stem, so that several forms have been based on these characters.

*Bursera graveolens* and *B. malacophylla* are the only representatives of the *Burseraceae* found on the islands. The first of these is one of the most abundant forest trees in the dry region, and is found on all of the more important islands of the group but Duncan. It never occurs above the transition region except as an occasional straggler. The second species is endemic, and so far as known occurs only on the Seymour Islands.

In number of species, varieties, and forms, the *Euphorbiaceae* are the third largest family of vascular plants found on the islands, and are of prime importance in that they furnish many of the characteristic species of all of the regions. The various forms of *Croton Scouleri* constitute conspicuous elements in all of the regions where this species occurs, and in the dry region dense thickets of *Croton* bushes often cover considerable areas almost to the exclusion of all other perennial vege-

tation. The forms of this species which occur in the dry region are usually rather low and covered with small leaves of a decidedly gray color, due to the heavy covering of trichomes. Those forms which occur higher up in the transition and moist region are larger, sometimes attaining the size of small trees. On these the leaves are larger and with a much lighter covering of plant hairs. Species of *Euphorbia* occur to some extent in all of the regions, but are most abundant in the dry and lower transition, the species which occur here being for the most part bushy in character with small and inconspicuous leaves. The species which occur above the transition region are mostly procumbent herbaceous forms. Of the remaining genera *Acalypha* and *Hippomane* are the most important. *Acalypha* is represented by fourteen species and varieties, all of which are endemic. They are found for the most part in the transition and moist regions. *Hippomane Mancinella* occurs in various habitats, halophytic, xerophytic, and mesophytic, with apparently no decided change in form in any of them.

The *Celastraceae* have but a single representative, *Maytenus obovata*, bushes of which form a very important element of the flora of the dry regions, especially in the neighborhood of the coast. It occurs more or less abundantly throughout the dry and transition regions, in the first of which it is about the only green bush of any size during a great part of the year.

The *Sapindaceae* are one of the smaller families in number of species, but are important from the fact that *Cardiospermum* furnishes a rather important herbaceous liane and *Sapindus Saponari* the largest forest tree found on the islands. The *Rhamnaceae* are represented by *Discaria pauciflora*, bushes of which occur abundantly in the lower parts of the dry regions.

Outside of a few herbaceous forms, *Gossypium barbadense* is the most important member of the *Malvaceae*. Bushes of this species occur in greater or less abundance in the dry and transition regions.

The *Cactaceae* are represented by several species of *Cereus* and *Opuntia*, most of which form rather striking elements of the flora. Both genera have both bushy and arborescent species, and are found for the most part in the dry and transition regions.



The *Rhizophoraceae* and *Combretaceae* include some of the most important elements of the littoral vegetation. *Rhizophora Mangle* of the first of these families forms dense low forests below high tide mark, while *Conocarpus erectus* and *Laguncularia racemosa* of the second occur farther back as bushes and small trees.

The various species of *Ipomoea* are the most significant members of the *Convolvulaceae* in that some of the most important of the herbaceous lianes of the islands are members of the genus. This genus also furnishes species which occur under all conditions, halophytic, xerophytic, and mesophytic.

The *Boraginaceae* furnish some noteworthy elements of the flora in all of the regions. The various species of *Cordia* constitute important factors of the flora in the dry and transition regions, while the species of *Tournefortia* provide some of the most common bushes in all of the regions, especially in the moist and grassy.

*Avicennia*, *Clerodendron*, and *Lantana* are the three genera of the *Verbenaceae* which are of prime importance. *Avicennia officinalis* forms an important element of the littoral vegetation in the form of low forest trees, while the two remaining genera furnish some of the most characteristic bushes of the dry and transition regions.

The *Solanaceae* are the eighth largest family in number of species on the islands, but are of rather secondary importance, as the species for the most part are herbaceous and not especially abundant in any of the regions except during the spring season. At that time they furnish several of the common weeds.

The *Rubiaceae* stand next in importance to the *Solanaceae* in number of species, but most of these are relatively small in size. This is one of the most important families represented in the archipelago in that it contains common species in all of the regions. The various species of *Borreria* are very frequent in the dry regions, some of them inhabiting the most desert situations, even to the exclusion of almost all other species of plants. Bushes of *Chiococca alba* often form an important element of the flora in the transition regions, and *Psychotria rufipes* is of prime importance in the *Scalesia* forests in the moist regions, where it is one of the most abundant bushes.

The *Compositae* stand second in number of species of all of the families of vascular plants occurring on the islands. Many of the common herbaceous annuals of the dry and transition regions, as well as some of the most important bushes, belong to this family. The *Compositae* are however most strikingly represented in the moist regions, where extensive forests of *Scalesia*, made up for the most part of *S. pedunculata*, occur. This genus is also well represented in both the dry and transition regions by shrubby species, which sometimes occur in large numbers over considerable areas. Other noteworthy members of the family are the species of *Erigeron* and *Lipochaeta*, both of which are important where they occur.

The remaining families of vascular plants represented on the islands contain but few species and for the most part are of relatively little importance.

The plants which occur under halophytic or semihalophytic conditions are included in the following genera: *Ammophila*, *Atriplex*, *Avicennia*, *Batis*, *Cacabus*, *Conocarpus*, *Coldenia*, *Cryptocarpus*, *Eleocharis*, *Heliotropium*, *Hibiscus*, *Hippomane*, *Ipomoea*, *Laguncularia*, *Lycium*, *Maytenus*, *Najas*, *Rhizophora*, *Ruppia*, *Salicornia*, *Scaevola*, *Sesuvium*, and *Sporobolus*.

Hydrophytes are comprised in *Azolla*, *Callitriche*, *Eleocharis*, *Lemna*, *Myriophyllum*, *Jussiaea*, and *Salvinia*, all of which are of little importance in the composition of the flora, as they mostly occur periodically when there is a supply of fresh water in the ponds and brooks.

Outside of a few species of ferns, the only vascular epiphytes are three species of orchids, two or three species of *Peperomia*, and a *Tillandsia*, the last of which is the most common and largest of the epiphytic plants. All of the above are practically confined to the transition and moist regions, occurring above the last in only a few instances. Phanerogamic parasites are represented by four species of *Phorodendron*, only one of which is sufficiently abundant to be of importance in this respect, and two species of *Cuscuta*. The first of these parasites is found in all of the regions, but is most abundant in the moist, while the second is confined to the dry and transition zones and so far as was observed only appears for a short time during the spring months.

Lianes occur in the following genera: *Argyreia*, *Asclepias*, *Boussingaultia*, *Canavalia*, *Cardiospermum*, *Cissampelos*, *Cissus*, *Elaterium*, *Galactea*, *Ipomoea*, *Momordica*, *Mucuna*, *Passiflora*, *Phaseolus*, *Rhynchosia*, and *Sicyos*. Most of these are herbaceous.

Those plants which attain the size of trees are included in the following genera: *Acacia*, *Acnistus*, *Avicennia*, *Bursera*, *Cereus*, *Conocarpus*, *Erythrina*, *Hibiscus*, *Hippomane*, *Opuntia*, *Piscidia*, *Pisonia*, *Psidium*, *Prosopis*, *Rhizophora*, *Sapindus*, *Scalesia*, *Solanum*, and *Zanthoxylum*. More than one half of these are confined to the regions below the moist, contrary to the general belief that the lower parts of the islands support only a low and bushy vegetation outside of the arborescent cacti. A few of the above attain sufficient size to be of economic importance for lumber, among which the species of *Erythrina*, *Psidium*, and *Sapindus* are the most important.

The greater number of species of plants have small and rather inconspicuous flowers, a fact that has been mentioned by other travelers who have visited the islands. There are a few plants, however, that possess rather showy flowers. Such are comprised in the genera *Argyreia*, *Cacabus*, *Cereus*, *Cordia*, *Datura*, *Erythrina*, *Gossypium*, *Hibiscus*, *Ipomoea*, *Kallstroemia*, *Miconia*, *Mucuna*, *Nicotiana*, *Opuntia*, *Parkinsonia*, *Passiflora*, and *Tribulus*. Most of these genera include species of wide distribution. By far the largest number of endemic species have very small flowers, a fact that may be due to the relatively small number of species of insects on the islands.

## ECOLOGICAL FACTORS

### *Water*

Great differences in the amount of precipitation are often found within short distances on the Galapagos Islands, sometimes within a change of elevation of two or three hundred feet. The lower parts of the islands adjacent to the shore are as a rule very dry and only receive moisture in any considerable quantities during about three months of the year, while the middle and upper parts are quite moist most of the time. Between the two extremes of moisture there are all sorts of gradations.

During the year our party remained on the islands there were nineteen rainy days at sea level, eleven of which were during the months of January, February, and March, and it was only during these months that the rains were heavy enough to make the ground muddy. During the remaining months of the year the days on which there was rain at sea level were distributed as follows: April one, June one, July three, September two, and December one. None of these rains were heavy, being more in the nature of light showers of short duration. These observations were taken at different places on the islands, but they probably represent approximately the conditions at sea level on any one island during this time. They do not include days on which there were but slight sprinkles of rain or mist.

There were no very heavy rains at sea level during the entire year, but heavy rains must occur here at times, for many of the valleys show considerable erosion. The dry beds of streams are often covered with water-worn boulders, showing that at some time the streams have carried a considerable amount of water. Furthermore the sides of many of the tufa craters are deeply furrowed with gullies, and have much the general appearance of steep hillsides in a country of frequent heavy rains. The people who live on Chatham Island told us that 1906 was an exceptionally dry year. There was no rain on this island from March until July, in consequence of which much of the vegetation was dried up even on the highest parts of the island around 2100 ft. elevation. Similar parched conditions were noticed on the upper part of Charles Island during the months of May and June.

Heavy dews, as well as a considerable amount of mist, often occur at sea level during the spring months. We were anchored at Tagus Cove, on the west side of Albemarle Island, during the greater part of the month of April, and during this time the late nights and early mornings were so misty that any article left exposed over night would usually be quite wet in the morning. The mist would clear away soon after sun-rise, and the remainder of the day would be clear.

The places where precipitation is great enough to support a mesophytic vegetation, are mostly confined to the middle and upper parts of the islands. The moisture here is derived from

the fog banks which strike the windward sides of the mountains at various elevations, whereupon the fog is thrown down as fine mist and sometimes rain. These fog banks, however, do not always extend to the tops of the mountains, as these are often clear while the region a few hundred feet below may be entirely enveloped in fog. The soil at the tops of the mountains is sometimes dusty, while a little below the top it may be very moist or even muddy. From February until June inclusive there is much less fog in the upper regions than during the remainder of the year. During these four or five months the tops of the mountains may be entirely clear for several days at a time; but during the remainder of the year they are enveloped in fog, with only occasional clear days. It sometimes happens that the fog will clear away in the early evening to reappear again the following morning.

The direct effect of the fog on the growth of vegetation is well shown on some of the islands, especially so on Duncan above 1000 ft. elevation. The south sides of many of the large lava boulders here are covered with a heavy growth of *Polypodium squamatum*, while the other sides are entirely bare. This condition is due to the fact that the southern exposures are more directly bathed by the fog-laden wind than are the others. Such instances as this are rather common; the windward sides of trees and bushes often have a heavier growth of epiphytic lichens and mosses than the leeward sides.

Streams and springs of water are very scarce on the islands, in fact entirely absent on most of them. There are several springs on Chatham Island above 1000 ft. elevation, one of them large enough to supply a sugar mill as well as all the various needs of a population of some three hundred. There is also on this island a crater lake of considerable size and depth. Furthermore a few small streams occur in the upper regions of this island, but as they are mostly fed by surface water they quickly dry up as soon as the rainy season is over. Charles Island has two springs of fair size, and several seepages of water around the base of a tufa crater at 1000 ft.; but none of these affords sufficient water to form more than a small brook that sinks from sight a short distance away from its source. There are also several small basins in the plateau region of this island around 1000 ft. elevation, but they were

all dry at the times this island was visited by our party. With the exception of two small springs at Tagus Cove on Albemarle Island, there are no springs of fresh water on any of the other islands, so far as was observed. On the southeast side of the mountain at Villamil on Albemarle Island, a short distance below the top, there are indeed one or two small lakes, but the inhabitants of the settlement about half way up the side of the mountain, depend entirely on the rain for their water supply. Captain Thomas Levick, an Englishman who has lived on the islands for some thirty-five years, told us that there were small streams in the upper interior region of Indefatigable Island, as well as a crater lake of considerable size, but we were not fortunate enough to get far enough into the interior of this island to find them. Both Duncan and Hood Islands have broad flat basins in their interiors which appear to have been recently filled with water.

There is evidently enough precipitation on all of the higher islands to form springs if there were enough soil to hold it. But as the soil usually forms only a comparatively thin layer over the surface, practically all of the water that falls sinks very shortly into the cracks in the lava and comes out at various places along the shore. Some of these springs are large, and their water, as a rule, is quite brackish, owing to the fact that it consists partly of sea water that has percolated through the lava for a considerable distance inland.

### *Seasons*

The rainy season, and with it the usual spring vegetation, usually come between January and June, and in 1906 were confined to the first three of these months on most of the islands. There is however no absolute certainty when spring will come, and it sometimes misses a year entirely. The time at which the rainy season arrives in a given year varies considerably on different islands. It sometimes commences at different times on adjacent islands, and even two sides of the same island may show a considerable amount of variation in this respect. In 1906 the spring season was at its height at Wreck Bay, on the south side of Chatham Island, in the month of January, while at Sappho Cove, on the north side of this island, it evidently began three weeks to a month later. Some-

what similar conditions were noticed on both Hood and Charles Islands. On the first of these the spring season was just beginning in February, and on the second it appeared to be about as far advanced in March as it had been on Chatham in January. The greatest difference in the time at which this season occurs on two adjacent islands, was noticed on Abingdon and Bindloe Islands, which are separated from each other by a distance of only about thirteen miles. The vegetation on the lower parts of Bindloe was very dry and parched indeed in the month of September, as it is on the lower parts of most the other islands at this time of year; while on Abingdon most of the deciduous vegetation was coming into leaf and the common spring weeds were springing up all over the lower parts of the south side of the island. Whether this condition of affairs occurs yearly or not, is impossible to state, but it is evident that the seasons were very much reversed on these two islands in 1906.

#### *Heat*

Considering the fact that these islands lie directly on the equator, the average temperature is quite low, ranging from 70°-80° F. throughout the greater part of the year. It never becomes extremely hot, and at times is really too cool for comfort. We arrived at Hood Island, the most southern member of the group, on Sunday morning, September 24, 1905. After coming to anchor and getting the vessel generally ship-shape, we hoisted an awning over the forward deck and the members of the party collected under it to read or otherwise pass the day. It was not long, however, until we began to move out from under the awning into the sun, as it was really too cool for comfort in the shade, somewhat lightly clad as we were. The sun was not hot, but just comfortably warm, and felt as it does on an early day in spring in temperate latitudes. The rather remarkable thing about the incident was that we were but eighty-two miles south of the equator, with the sun almost directly overhead at this time of year.

It was the intention at first to get daily maximum and minimum temperatures throughout the year, but as the only maximum temperature thermometer we had, was broken soon after we arrived at the islands, this plan had to be abandoned and air and water temperatures were taken instead at intervals

of a few days apart. The temperatures were taken at 6 A. M., 6 P. M., and, when it was possible to do so, at 12 M., water temperatures being taken at the surface with a standard Fahrenheit thermometer. The results of these observations are given in the following table.

TABLE OF GALAPAGOS TEMPERATURES, 1905-1906

Station	Date	Morning		Noon		Evening	
		Water	Air	Water	Air	Water	Air
Hood Isl.	Sept. 25	71.5	71.5			73	73
	Sept. 26	71.5	73			73	73
	Sept. 27	73	73			73	73.5
	Sept. 28	73	73.5			73	73
	Sept. 29	73	73.5			73	73
Charles Isl.	Oct. 6	69	69			68	70
	Oct. 7	68	67			68	70
	Oct. 8	67	70	69	73	68	70
	Oct. 9	67	69			68	70
	Oct. 10	70	70			71.5	74
	Oct. 12	69.5	70			70	71
Chatham Isl., Wreck Bay	Oct. 16	67	70	69	73	67.5	70
	Oct. 17	66	71	67.5	72.5	67.5	70
Barrington Isl.	Oct. 20			67.5	69	70.5	71.5
	Oct. 21	70	70	71	72.5	70	72
	Oct. 22			71	74	71	72
	Oct. 23	70	70			70.5	71.5
Indefatigable Isl., Academy Bay	Nov. 10	73	73	75	78	74	74
	Nov. 13	71.5	72	74	77.5	74	75.5
	Nov. 15	72	70			73.5	74
	Nov. 16	72	71	74.5	76.5	74	75
Seymour Isl.	Nov. 22	72.5	72			75.5	76
Indefatigable Isl., north side	Nov. 24	73	73.5			75.5	76
	Nov. 26	75.5	76	76.5	78	76.5	77.5
	Nov. 29	74	71.5	75.5	78	75	77
	Nov. 30	72.5	69.5	75	77	73.5	76.5



TABLE OF GALAPAGOS TEMPERATURES, 1905-1906—Continued

Station	Date	Morning		Noon		Evening	
		Water	Air	Water	Air	Water	Air
Duncan Isl.	Dec. 3	69	73	72	74	70	73
	Dec. 4	70	70			70	72.5
	Dec. 6	71.5	71			74	74
	Dec. 13	72	73			73	74
	Dec. 14	72	72	73	75	72	72
James Isl., James Bay	Dec. 22	73	71	73.5	71	73	72
	Dec. 23	72.5	72	73	78.5	73	75
	Dec. 28	70	71	71.5	77	71	75
Indefatigable Isl., Academy Bay	Jan. 15	76	75.5	79	80	77	78.5
Hood Isl.	Feb. 2	75.5	76	78	79	78	78
Chatham Isl., Sappho Cove	Feb. 14	76	77	80	84	79	79
Charles Isl.	Feb. 26	77	76	78	82		
	Feb. 28	76	75			79	81
Albemarle Isl., Villamil	Mar. 6	78	75			79	80
Albemarle Isl., Cape Rose	Mar. 15	72	71			71	79.5
Albemarle Isl., Ig-uana Cove	Mar. 18	73	74			75	80
	Mar. 20	77.5	75			81	81
Albemarle Isl., Tagus Cove	Mar. 23	79	78	79	88	80	83
	Mar. 24	78	78			71	79
	Mar. 26	78.5	72				
	Mar. 28	74	75	78	88	74.5	78
	Apr. 1	71	72	74	84	74	78
	Apr. 2	70.5	72	74	81	74	79
	Apr. 3	73	74	75	80	73.5	77.5
	Apr. 8	69	70.5	66	75	70	78
	Apr. 9	69	71	65	75	64	77.5
	Apr. 10	63	67	66	76	64	70
	Apr. 11	65	67	67	77	65.5	77
Apr. 13	65	70	69	79	66	74	

TABLE OF GALAPAGOS TEMPERATURES, 1905-1906—*Continued*

Station	Date	Morning		Noon		Evening	
		Water	Air	Water	Air	Water	Air
	Apr. 14	65	69	69	80	66	74
	Apr. 16	65	71	68	79	68	74
	Apr. 17	68	69	71	76		
Albemarle Isl., Cape Rose	Apr. 26	71.5	71.5			74	77
Albemarle Isl., Vil- lamil	May 1	69.5	71			71	72.5
	May 2	70	71			72	74
Charles Isl.	May 16	69	73			69	75
	May 24	70	71	65	72	66	73
Hood Isl.	June 24	68	69	69	72	69	70
	June 25	68	69	69	72	69	70
	June 26	68	68			69	70
	June 27	69	71	70	72	69.5	70.5
	June 29	69	70	70	72	69	70.5
Chatham Isl.	July 7	66	68			64	68.5
	July 8	63	66	64	69	63	68
Indefatigable Isl., Academy Bay	July 12	68	67.5			69	68
	July 13	67	66	68	68	67	68
James Isl., James Bay	Aug. 7	66	65			67	68
	Aug. 8	66	66			68	68
Albemarle Isl., Cow- ley Bay	Aug. 10	66	66			68	68
	Aug. 11	67	66	67	73	68.5	68
	Aug. 12	67	66	69	71	68	68
Duncan Isl.	Aug. 15	66	65			67	67
Albemarle Isl., Vil- lamil	Aug. 25	64	64	68	68		
	Aug. 26	65	64	68	69	69	68
	Aug. 31	67	65	69	69	69	68
	Sept. 1	67	65	69	70	69	68
Chatham Isl., Wreck Bay	Sept. 7	63	65			63	67
	Sept. 8	63	65	63	69	64	66

TABLE OF GALAPAGOS TEMPERATURES, 1905-1906—*Continued*

Station	Date	Morning		Noon		Evening	
		Water	Air	Water	Air	Water	Air
Tower Isl.	Sept. 14					73	71
	Sept. 15	71	68	73	74	73	70.5
Bindloe Isl.	Sept. 16					72.5	71
	Sept. 17	72	69			72.5	72
	Sept. 18	71	69				
Abingdon Isl.	Sept. 18					73	72
	Sept. 19	71	70			73	72
	Sept. 20	72	68			72	70
	Sept. 21	70	69			72	70
	Sept. 22	70	70			72	69
Wenman Isl.	Sept. 24			76	74		
Twelve miles west of Wenman Isl.	Sept. 24					76	73
Culpepper Isl.	Sept. 25			76	74.5		

From this table it is seen that the warmest weather of the year occurs in the months of February and March, and the coldest during the months of July, August, and September. There is no great amount of difference in the temperature of the air morning and noon, 5° F. being about the average, while the difference in the temperature of the water is even less than this. The air is usually 1° to 3° warmer than the water in the morning, except during the spring months, when the opposite is the case.

The uniformly low temperature for an equatorial region is due to the coolness of the water which surrounds all but the northernmost islands of the group. The Humboldt current, which sweeps up from the antarctic regions along the west coast of South America, turns outward at about the latitude of these islands and bathes their shores with unusually cool water for several months of the year. The water remains cool until the sun reaches well south of the equator, in the autumn and winter months, when it begins to become warmer until it reaches its highest temperature in February and March. After the sun passes the equator on its way north, the water rapidly becomes cooler, the colder water seeming about to keep

pace with the sun on its way north. When we were anchored at Tagus Cove on the west side of Albemarle Island during portions of the months of March and April, a decrease of  $14^{\circ}$  in the temperature of the water was noticed in nineteen days.

The northern islands of the group were visited but once, and that for a period of eleven days. During this time the water was on the average  $6.5^{\circ}$  warmer than at the southern islands for the corresponding period just preceding. The difference was due to the fact that the northern islands lie in the lower limits of the Panama current. The following table shows the continued rise in the temperature of the water for some distance north of this part of the Galapagos. These observations were taken on the homeward voyage at 12 M. on the dates mentioned in the table, this being the only time during the day when we knew our position with any degree of accuracy. Of course many of these observations have no bearing on the climatic conditions in the Galapagos Islands, but they may nevertheless be of interest.

SURFACE TEMPERATURES, 1906

Lat. N.	Long. W.	Date	Water	Air
2° 29'	93° 6'	Sept. 26	78	76
5° 34'	95° 27'	Sept. 27	80	79
7° 23'	97° 48'	Sept. 28	80	76
9° 22'	98° 25'	Sept. 29	81	79
9° 59'	100° 25'	Sept. 30	82	80
11° 53'	102° 9'	Oct. 1	81	81.5
12° 19'	104° 3'	Oct. 2	81	81
14° 24'	106° 42'	Oct. 3	82	81
14° 24'	107° 5'	Oct. 4	82	83
14° 49'	107° 2'	Oct. 5	83	83
14° 45'	108° 30'	Oct. 6	77.5	81
14° 38'	109° 12'	Oct. 7	75	81
14° 40'	109° 26'	Oct. 8	79	81
14° 11'	109° 38'	Oct. 9	78	81
14° 26'	109° 26'	Oct. 10	79	82
14° 36'	109° 42'	Oct. 11	79	82
15° 16'	110° 1'	Oct. 12	81.5	82.5
15° 36'	110° 12'	Oct. 13	83	83
15° 31'	110° 43'	Oct. 14	82	82.5

SURFACE TEMPERATURES, 1906—*Continued*

Lat. N.	Long. W.	Date	Water	Air
15° 54'	112° 8'	Oct. 15	82	82
16° 25'	113° 40'	Oct. 16	80	81
16° 43'	113° 9'	Oct. 17	79.5	81
16° 55'	112° 55'	Oct. 18	81	81
17° 10'	113° 27'	Oct. 19	81	80
17° 30'	114° 6'	Oct. 20	80	79
17° 44'	114° 58'	Oct. 21	80	79
17° 53'	114° 45'	Oct. 22	79.5	79
18° 16'	115° 46'	Oct. 23	79	80
19°	116° 41'	Oct. 24	78	78
19° 53'	118° 1'	Oct. 25	77	75
20° 20'	118° 44'	Oct. 26	75.5	76
20° 37'	119° 17'	Oct. 27	75.5	76
21° 45'	120° 32'	Oct. 28	73	74.5
23° 2'	121° 45'	Oct. 29	73	73
24° 31'	122° 52'	Oct. 30	71	71
25° 25'	124° 20'	Oct. 31	71	71.5
26° 24'	126° 23'	Nov. 1	67	67
26° 50'	126° 30'	Nov. 2	68	69
26° 51'	126° 52'	Nov. 3	67	70
26° 50'	126° 47'	Nov. 4	68	68
28° 20'	127° 58'	Nov. 6	66	67
29° 38'	129° 2'	Nov. 7	67	65
30° 23'	129°+	Nov. 8	66.5	66
30° 33'	130° 58'	Nov. 9	67	67.5
30° 48'	131° 9'	Nov. 10	67.5	66
31° 54'	132° 11'	Nov. 12	67.5	68
33° 7'	134° 6'	Nov. 14	66	66
33° 47'	132° 21'	Nov. 15	67	66
34° 30'	130° 42'	Nov. 17	64.5	64
35° 40'	133° 14'	Nov. 19	64.5	64.5
36° 49'	133° 41'	Nov. 21	60.5	61
38° 10'	134° 35'	Nov. 23	60	57.5

*Light*

While we were unprovided with instruments for measuring the intensity of light, it could readily be seen by general observation that the light is normally much stronger on the

lower parts of the islands than in the middle and upper regions. The weather is often practically clear at sea level, while a few hundred feet up it may be dark and gloomy, the clouds being arrested as they strike the mountains and thus hanging as fog-banks around the sides. Owing to the generally more open arrangement of the vegetation, there is not the same intense struggle among plants to get to the light that was noted in the rain-forests of Cocos Island, some three hundred and fifty miles northeast of the Galapagos.

The most marked effect of light on vegetation is seen among some of the species of the *Cactaceae*, which seldom grow in shaded places, and, when they do so, are much stunted in growth. Specimens of *Plumbago scandens* usually have a deep red color when they grow in direct sunlight, a character that is usually not developed on specimens in the shade.

#### *Winds .*

The prevailing winds blow from the southeast, east-south-east, and south-southeast, and are the regular trade winds of this part of the Pacific Ocean. They blow quite regularly from June until January, but during the remainder of the year are very uncertain, and the waters surrounding the islands are subject to long periods of calm. Our vessel had to depend entirely on sail, and at one time it required from May 3rd until June 23rd to go from Villamil, on the south side of Albemarle Island, to Hood Island, a distance of about eighty-five miles. We spent two weeks of this time anchored at Charles Island waiting for wind, so that we were actually under way thirty-six days. The calm was so complete at one time during this trip that a flour tin, which was thrown overboard and which happened to light right side up, was still in sight forty-eight hours afterward. There are often light winds during the day in the calm season, but they usually go down in the evening, and unfortunately do not always come up again on the following morning. It is very seldom that the winds come from a northerly direction, and when they do they are usually of short duration. Storms are very rare, but short squalls sometimes occurred several times a day at Tagus Cove on Albemarle Island during the months of March and April. Wolf, in his paper on the Galapagos Islands, mentions similar

squalls on Charles Island during the months of August and October, but none occurred on this island at the various occasions we visited it, one of which was in the early part of October. A thunder storm occurred around the top of Narborough Island on March 21st, being the only one seen during the entire year we spent among the islands.

The effect of wind on the growth of vegetation is well shown on the upper parts of Charles Island, where there are several old tufa craters that rise from 500 to 800 ft. above the surrounding table land in the interior of the island. The northern sides of most of these are covered with a heavy growth of lime and lemon trees, on the branches of which there are mosses and other epiphytic plants. The southern and southeastern sides of these craters, on the other hand, have only low perennial herbs and bushes on them above 1350 ft., and only scattered trees for two or three hundred feet below this elevation. The change in the character of the vegetation is so abrupt in these places that the two extremes often occur within a few feet of each other. A somewhat similar but less pronounced condition of affairs is found on the upper part of Chatham Island, where the highest peak is covered on the leeward side with a thick growth of *Lycopodium clavatum* and ferns. Many of these are absent on the windward side, and those species that do persist are only a few inches in height when exposed directly to the action of the wind. Many species of lichens are found growing on the rocks and twigs on this side which are absent on the other. The trees of *Bursera graveolens* lean in a northwesterly direction when they are exposed to the wind, and their branches are often so bent and twisted as to give the trees much flattened crowns.

### Soil

The substratum for the most part consists of basaltic lava, lava cinders, tufa, ashes, pumice, products derived from the disintegration of these, sand, or vegetable mold. There are many places in the dry regions where the lava flows are comparatively recent and there is practically no soil at all. Such vegetation as is found there grows entirely from the crevices in the lava. Basaltic lava or lava approaching basalt in character seems to form the best substratum for plants, as the

densest vegetation in the dry regions, and the largest forest trees in the transition and moist regions, are usually found on lava of this kind or on soil which has been derived from it. On the other hand pumice forms the poorest substratum, and supports only low scattering bushes in places where the moisture is sufficient to support plants of a much larger size. Tufa makes a fairly good soil for the growth of bushes and other shrubby vegetation, but when forest trees occur on soil of this nature they are usually rather scattered and small in size. Where the soil is composed of ashes there usually are grassy areas with scattering clumps of bushes. On beds of cinders there is often very little vegetation of any kind, while beds of basaltic lava adjoining and apparently of about the same age may be covered with a considerable growth of plants.

Vegetable mold only occurs in quantity in the transition and moist regions, the reason being that there is much more vegetation in these regions to form mold, and that this vegetation decays very quickly owing to the larger number of fungi and other low organisms present. This more rapid decay of plants has a corresponding effect upon the disintegration of the lava, which takes place more rapidly than in the dry region. In his paper on the Galapagos Islands, Wolf mentions the great difference in the condition of a single lava flow on the lower and upper parts of Charles Island. Similar conditions can be found on several of the other islands, notably Abingdon, Albemarle, and James, on which there are lava flows the lower parts of which are very barren, while the upper portions are heavily covered with vegetation.

Outside of the lower cryptogamic plants, certain species of the *Cactaceae* seem to be about the first plants to invade the recent lava in the dry regions, while some of the more xerophytic species of ferns are the first in the transition and moist regions. *Cercus nesioticus* was usually found growing on lava, either recent or comparatively recent in origin, on which there were seldom any other higher plants of any size. There are often abrupt changes in the character of the vegetation on the line of contact between two different lava flows, even when the flows are old and both more or less heavily covered with vegetation. A condition of this kind is well marked on the sides of the mountain at Iguana Cove on Albemarle Island,



where each flow of lava can be traced for a distance of several miles by the difference in the color of the vegetation. Similar conditions were noticed at Villamil on the south side of this island.

### Growth

Owing to the short vegetative period on the lower and drier parts of the Galapagos, growth is very slow among the perennial forms, but correspondingly rapid among the annuals. This fact was observed especially on Chatham Island in January and February. While the greater portion of the spring weeds were well advanced in growth at this place, in the later part of January, some of them were just coming through the ground; while upon a return to the same place, three weeks later, it was found that most of the latter had matured and dried up. In fact most of the vegetation had gone into the resting condition during this time, so that the change in the appearance of the vegetation was very striking.

Some insight was gained into the rate of growth of the *Opuntias* at Academy Bay on Indefatigable Island. In making a trail into the interior in the early part of November, many of the smaller specimens were cut off three or four feet above the ground. It was found in July that many of the cut ends had put forth branches, some of which were as much as sixteen inches long. Many of the absorbing roots of *Cissampelos Pareira* were cut at the same time, and many of these had put forth several rootlets from the cut ends, about one sixth of an inch in diameter and from four to seven feet long. These rootlets do not seem to increase in diameter very rapidly after they are once formed, for the same condition was noticed on an old trail, on the northwest side of this island, that had not been touched for several years.

### ORIGIN OF THE GALAPAGOS ISLANDS

Two different theories have been advanced to explain the origin of these islands. Until the appearance of Dr. Baur's paper: "On the Origin of the Galapagos Islands,"<sup>1</sup> it was generally conceded among naturalists that they were of oceanic origin, each island having been built up separately from all of the rest by volcanic activity. In this paper Dr. Baur expressed an entirely different view concerning their origin, basing his

<sup>1</sup>Am. Nat. v. 25, 1891, pp. 217-229, 307-326.

theory principally on the harmonic biological relations which exist between the different islands of the group. In brief Dr. Baur's theory was that the islands had all been connected with each other at some not remote geological period, and at a still earlier period had been attached to the North American continent, possibly in the region of Central America. This view has been supported by some naturalists and vigorously opposed by others. During the year our party remained on the islands excellent opportunities were offered to study the situation from an impartial stand-point, and after having made a careful study of the collections of plants formed on the different islands, the author is led to a view concerning their origin which is slightly at variance with both of the above theories.

If these islands are continental in origin, as was maintained by Dr. Baur, one would naturally expect to find a close faunal relationship between them and the mainland, a condition, however, that does not exist. There are neither large mammals nor batrachians, both of which should be present in greater or less quantity if the islands had been connected with the mainland within even comparatively recent geological times. Furthermore, with the exception of the large land tortoises, which are found on most of the larger islands of the group, the fauna is about what one would expect to find on almost any group of oceanic islands.

It might be maintained that during the great volcanic disturbances that have taken place since the islands were separated from the mainland, both the mammals and batrachians were exterminated. While this might be true as far as the mammals are concerned, it would hardly be true for the batrachians, as they would very likely be able to withstand as adverse conditions as the reptiles, and it is hardly probable that a combination of circumstances would come about which would obliterate one of these groups and leave the other in a more or less flourishing condition.

One of the strong arguments in favor of a former land connection is the presence on the islands of the well-known land tortoises, which are rather closely related to certain fossil tortoises from some of the later geological formations of North America. The presence of land tortoises on the islands is not so difficult to explain as it appears to be at first sight. While

these animals are large and unable to swim, they are able to keep afloat for a considerable time, long enough to float them from the mainland to the islands if we assume that the ocean currents were as strong and had the same general trend in past geological times as they have now. The ability that these animals have of living without food for a considerable time greatly strengthens this view. During our homeward voyage from the islands, in the autumn of 1906, our live specimens of tortoises went for over a month without food, a time sufficiently long, under favorable conditions, to float an individual from the mainland of North America to the islands, if one should happen to get adrift. It would not be absolutely necessary that both male and female tortoises should be introduced on the islands to start the race, for this could be accomplished if a single female specimen containing fertilized eggs should be cast upon the shores of the islands.

Turning to the botanical side of the question, we would naturally expect that of the eighty families of vascular plants found on the islands some few at least would have approximately the same number of genera and species as are found in these same families on the mainland. The following table shows all of the families of vascular plants which contain ten or more species, varieties, forms, and indeterminate species.

FAMILIES OF GALAPAGOS PLANTS WITH TEN OR MORE SPECIES,  
VARIETIES, OR FORMS

Rank	Family	No. of Species, Varieties, and Forms	Indeterminate	Total
1	Filices . . . . .	77		77
2	Compositae . . . . .	65	4	69
3	Euphorbiaceae . . . . .	50	10	60
4	Gramineae . . . . .	49	6	55
5	Leguminosae . . . . .	45	8	53
6	Amarantaceae . . . . .	33		33
7	Cyperaceae . . . . .	25	3	28
8	Solanaceae . . . . .	19	7	26
9	Rubiaceae . . . . .	22	1	23
10	Malvaceae . . . . .	19	3	22
11	Boraginaceae . . . . .	20	1	21
12	Convolvulaceae . . . . .	15		15
13	Verbenaceae . . . . .	13	2	15

Of the above thirteen families of vascular plants, the *Filices* contain the largest number of species; and these, owing to the small size of their spores, would obviously possess greater opportunity of being disseminated over considerable stretches of water than the plants of any other family in the list. Furthermore the small number of endemic species of ferns leads naturally to the supposition that there is a more or less constant introduction of spores from the mainland, thus checking any strong tendency for the species of ferns on the islands to vary greatly from those on the mainland. This supposition is supported by the fact that each collecting expedition brings to light more continental species that were not previously known to occur on the islands.

While it is no doubt true that great changes in the biological conditions must have taken place on the islands if there had been sufficient subsidence to separate them from the mainland by the depth of water that now exists, it is nevertheless not likely that the changes thus brought about would have been great enough to exterminate many families completely and to reduce all others so greatly in number of genera and species as is the case. Some genera and species would have probably become extinct if there had been a great disturbance in the biological conditions; but at the present time most families are represented by more genera on the mainland than species on the islands.

From the above facts there appears to be little evidence to show that there has ever been a land connection between the islands and the mainland, yet there is no very strong evidence opposed to the view that the islands may have been connected with each other, at some not distant geological period, either as one large island or as two or three smaller ones. The rather remarkable harmonic zoological relationships existing between the different islands, as shown by Dr. Baur, are more easily explained by supposing such a condition, than if each island had been formed separately. The following table, which shows the Pteridophytes and Spermatophytes common to the different islands, lends support to this theory.



Another fact which agrees with the theory that there has been a former land connection between at least many of the islands, is the shallowness of the water between most of them. An elevation of one hundred fathoms would connect all the southern islands, and a rise of seventy-one fathoms would bridge all of these except Chatham, Hood, and James, so far as the soundings that have been taken show. The only deep soundings known are between Abingdon and Wenman, 1189 fathoms, between Bindloe and James, 684 fathoms, and between James and Tower Islands, 885 fathoms, depths of water which are not difficult to account for if one does not maintain too strongly that all of the islands were formerly connected into a *single* large one.

Considering the volcanic nature of the islands, the general shallowness of the intervening water lends support to the subsidence theory, for it is hardly likely, if all of the bed of the ocean between the islands had been formed by marine volcanic activity, that the lava would have been so evenly distributed over this bed without leaving at least a few abysses. The gradual deepening of the water away from the shores of many of the islands also supports the subsidence theory, especially when we consider the fact that the slope of the submerged portions of some of the islands approximates the slope of the lower parts above water.

While all of the above facts seem to point to a general subsidence of the islands, there are a few evidences of elevation. On both Indefatigable and Seymour Islands there are deposits containing a considerable number of marine fossils which have been elevated a few feet above the level of the sea. The greatest amount of elevation seems to have taken place on Albemarle Island. Snodgrass and Heller, of the Hopkins-Stanford Expedition to the Galapagos Islands, thought that they detected signs of elevation at Tagus Cove on the west side of this island. There is evidence of some elevation at the south end of Albemarle, concerning which Mr. W. H. Ochsner, the geologist of the Academy's expedition, has been kind enough to furnish the following information:

"About one and one half miles inland from the settlement near Turtle Cove on the south shore of Albemarle Island, there is exposed a rather large remnant of an old sea beach. The deposit exists as white sands several feet thick and composed entirely of the fragments of coral, molluscan and echinoid, and other calcareous marine forms.

The deposit rests on a nearly level and extensive lava flow with a greatest observed elevation of about 60 ft. above the present sea-level. Where the sands have been hardened into crusts in thin layers, they carry abundant and nicely preserved specimens of marine molluscan and echinoid forms.

"Toward the interior and higher levels of the island the deposit exists only as little island-like exposures which have escaped the great recent flow of lava that has poured down over this old beach to conceal its exact and higher levels of distribution. This deposit should be placed as late Pliocene or early Quarternary."

Outside of the few localities mentioned above, there is no evidence of a general elevation, so far as has been observed, and it is not improbable that during the period of general subsidence there might have been times in which it ceased and during which local elevation took place. Mr. Ochsner states further: "I am much in favor of the theory of subsidence. With additional thought and study given the matter I feel that the testimony of my collected facts and observations will go to prove this theory nearly a fact."

In conclusion it might be said that however true Dr. Baur's theory may be in regard to the union of the islands into one large one, there is no strong evidence to show that they were ever connected with the mainland. The biological conditions at the present time are more against this theory than for it. The botanical conditions do not offer absolute proof that the islands have ever been connected with each other, but the weight of the evidence is more in favor of this theory than against it.

#### ORIGIN OF THE FLORA

If it be assumed that the Galapagos Islands are of oceanic origin, there are but three means by which seeds and spores could have been brought to the islands, outside of the agency of man. These are: winds, oceanic currents, and migratory birds.

#### *Winds*

If winds were an important agent in bringing seeds and spores to these islands, those families of plants which have the smallest seeds and spores would be the most apt to be distributed in this way. Of all the families of vascular plants none are better adapted for wind distribution than are the ferns. Such being the case, there should be a larger number of species of ferns on the islands common to the region from which the prevailing winds blow than from any other. As the winds

around these islands are almost constantly from the southeast, the fern flora should be most closely related to that of the central and southern part of South America. Such is not the case, however, for outside of fifteen species which are of wide distribution, the fern flora shows nearly as strong affinities with that of Mexico as it does with that of South America. There are on the islands fifty-four species common to Mexico and fifty-six to South America. Moreover, the majority of the latter belong only to the northern part of the continent.

Devices for wind dissemination are not common on the seeds of Galapagos plants, the *Compositae* being the only one of the larger families which has this character pronounced to any extent.

### *Oceanic Currents*

The northern islands of the group, viz. Abingdon, Bindloe, Culpepper, Tower, and Wenman, lie in the direct path of the Panama current, and the water surrounding them is several degrees warmer than that around the southern islands, which are bathed by the Humboldt current. If oceanic currents were an important factor in the transport of seeds to the Galapagos, those islands which are washed by the Panama current should be more closely related botanically to the Mexican and Central American regions than the islands lying in the Humboldt current; and the latter islands, on the other hand, should have a flora more closely related to that of the western coast of South America. Furthermore, the several islands of each group should have a larger floral element common among themselves than with any of the islands of the other group. The following table shows the percentages of floral relationships between the islands of the northern group, as well as their relationships with some of the more important islands of the southern group.

FLORAL RELATIONSHIPS OF NORTHERN ISLANDS

	Abingdon	Albemarle	Barrington	Bindloe	Brattle	Charles	Chatham	Tower
Abingdon.....	..	83.1	..	..	..	66.3	67.2	..
Bindloe.....	55.3	76.5	..	..	..	68.5	61	..
Tower.....	72.7	68.1	48.4	48.4	..	72.7	81.8	..
Wenman.....	38.5	50	..	35.7	35.7	38.6	50	38.5



From the above table it is seen that in the majority of instances the islands of the northern group have a larger percentage of their floras common with the islands of the southern group than with each other, a condition hardly to be expected if oceanic currents were an important factor in transporting seeds to them. Robinson (1), p. 258, has already mentioned the small chance that many seeds would have of surviving even if they were washed up on the shores of the islands, a fact that can not be too strongly emphasized. While it is entirely possible that the seeds of xerophytic plants might be able to grow if they were cast up in this way, it is hardly likely that mesophytic plants would be able to survive, because there are but two places on the islands—at the present time—where conditions at sea level are such as to offer them a suitable habitat. One of these places is Iguana Cove, Albemarle Island, and the other is Villamil on the same island, at neither of which places are there plants which do not have a wide distribution over the islands. While it is possible that the Humboldt current may be responsible for much of the xerophytic flora, it is hardly likely that the Panama stream could have played much of a role in this respect, as it flows from a region in which the flora is any-thing but xerophytic in character.

### *Birds*

I am indebted to Mr. Edward W. Gifford, joint ornithologist to the expedition, for the following list of birds occurring as migrants and stragglers on the Galapagos Islands.

<i>Arenaria interpres</i>	Turnstone	Common
<i>Heteractitis incanus</i>	Wandering Tattler	Common
<i>Phalaropus hyperboreus</i>	Northern Phalarope	Great numbers of phalaropes, probably this species, were seen passing through the archipelago.
<i>Ægialeus semipalmatus</i>	Semipalmated Plover	Fairly common
<i>Numenius hudsonicus</i>	Hudsonian Curlew	Fairly common
<i>Calidris arenaria</i>	Sanderling	Fairly common
<i>Limonites minutilla</i>	Least Sandpiper	Fairly common
<i>Querquedula discors</i>	Blue-winged Teal	Fairly common

<i>Squatarola helvetica</i>	Black-bellied Plover	Not common
<i>Tringoides macularius</i>	Spotted Sandpiper	Not common
<i>Dolichonyx oryzivorus</i>	Bobolink	Not common
<i>Hirundo erythrogaster</i>	Barn Swallow	Not common
<i>Larus franklini</i>	Franklin's Gull	A chance visitor
<i>Stercorarius pomatorhinus</i>	Pomarine Jaeger	A chance visitor
<i>Symphemia semipalmata</i>	Willet	A chance visitor
<i>Helodromas solitarius</i>	Solitary Sandpiper	A chance visitor
<i>Pandion haliaëtus</i>	Osprey	A chance visitor
<i>Heteropygia bairdi</i>	Baird's Sandpiper	Rare; one taken by Harris Expedition
<i>Steganopus tricolor</i>	Wilson's Phalarope	Rare; three taken
<i>Querquedula versicolor</i>	Brilliant Teal	Rare; one said to have been taken by Kinberg

Mr. Gifford states further: "With the exception of *Querquedula versicolor*, all of these species occur in the United States. *Q. versicolor* is a straggler from South America. The others probably occur each year in about the numbers indicated. The Galapagos Islands seem to be out of the general route of migratory birds, being too far out to sea."

• Of the twenty birds of Mr. Gifford's list, three are common, five are fairly common, nine are not common, and three are rare. While this list of birds is not large, the number of species of plants that are found on the islands is correspondingly small, and when one considers the fact that almost any kind of plant, whether halophytic, xerophytic, or mesophytic, which should happen to be introduced, would find a suitable habitat on some part of many of the islands, it is not unreasonable to suppose that if the islands have been visited pretty constantly by a small number of birds for a long time, quite a large number of plants might have been introduced by them. While migratory birds must not be considered as the only factor in distribution, they seem in this instance to be the most important cause, as the presence of many of the plants found on the islands, especially those of a mesophytic character, can be explained in no other way.

The following table, which has been compiled from various sources, shows the number of species, varieties, and forms in each family that are endemic, and also those which are common to the regions indicated at the heads of the different columns.

The next to the last column shows the total number of species, varieties, and forms in each family of vascular plants found on the islands, while the final column gives the number of species that are indeterminate.

## AFFINITIES OF THE GALAPAGOS FLORA

	Endemic	U. S.	Mexico	W. Indies	S. Amer.	Old World	General	Species, Varieties, and Forms	Indeterm.
Filices . . . . .	2	4	54	47	57	21	15	77	
Salvinaceae . . . . .		1	1		1			1	1
Equisetaceae . . . . .			1	1	1			1	
Lycopodiaceae . . . . .		2	3	3	3	1	2	5	
Potamogetonaceae . . . . .							2	2	
Najadaceae . . . . .					1			1	
Gramineae . . . . .	16	9	11	14	15	7	11	49	6
Cyperaceae . . . . .	6	6	8	8	9	1	8	25	3
Lemnaceae . . . . .							1	1	1
Bromeliaceae . . . . .	1							1	
Cannaceae . . . . .									1
Commelinaceae . . . . .							1	1	1
Iridaceae . . . . .									1
Amaryllidaceae . . . . .			1	1	1		1	2	1
Orchidaceae . . . . .	1		1	1				3	1
Piperaceae . . . . .	7		1	1	1			8	2
Urticaceae . . . . .	1		2	2	3		2	6	
Loranthaceae . . . . .	4							4	
Polygonaceae . . . . .	1	1	2	2	2			3	
Chenopodiaceae . . . . .									3
Amarantaceae . . . . .	26		1		5		2	33	
Batidaceae . . . . .							1	1	
Basellaceae . . . . .			1	1	1			1	
Phytolaccaceae . . . . .		1	2	2	2			2	
Nyctaginaceae . . . . .	1	4	4	4	5			7	
Aizoaceae . . . . .	5						2	7	1
Portulacaceae . . . . .							1	1	2
Caryophyllaceae . . . . .							1	1	
Anonaceae . . . . .		1	1	2	1			2	
Menispermaceae . . . . .	1						1	2	
Cruciferae . . . . .							5	5	

AFFINITIES OF THE GALAPAGOS FLORA—*Continued*

	Endemic	U. S.	Mexico	W. Indies	S. Amer.	Old World	General	Species, Varieties, and Forms	Indeterm.
Crassulaceae . . . . .		1	1	1	1			1	
Leguminosae . . . . .	6	3	22	17	27	4	10	45	8
Oxalidaceae . . . . .	1				1		1	3	
Linaceae . . . . .					1			1	
Zygophyllaceae . . . . .	3						1	4	1
Rutaceae . . . . .		1	1	1	1			1	
Simarubaceae . . . . .	6							6	
Burseraceae . . . . .	1		1	1	1			2	
Polygalaceae . . . . .	3							3	
Euphorbiaceae . . . . .	43	2	2	2	2		5	50	10
Callitrichaceae . . . . .									1
Celastraceae . . . . .	1							1	
Sapindaceae . . . . .	1	2	2	2	2		2	5	
Rhamnaceae . . . . .	1							1	
Vitaceae . . . . .			1	1	2	1		2	
Tiliaceae . . . . .			1	1	1		1	2	
Malvaceae . . . . .	2	2	6	4	4	3	10	19	3
Hypericaceae . . . . .			1		1			1	
Sterculiaceae . . . . .	3							3	
Turneraceae . . . . .							1	1	
Passifloraceae . . . . .	1	2	2	2	2			3	
Caricaceae . . . . .							1	1	
Loasaceae . . . . .		1	2	1	2			2	
Lythraceae . . . . .					1		1	2	1
Cactaceae . . . . .	7							7	3
Rhizophoraceae . . . . .							1	1	
Myrtaceae . . . . .	1						2	2	
Combretaceae . . . . .							2	2	
Melastomaceae . . . . .	1							1	
Onagraceae . . . . .							1	1	
Halorrhagidaceae . . . . .									1
Umbelliferae . . . . .	1				1	1	2	5	
Plumbaginaceae . . . . .							1	1	
Apocynaceae . . . . .	1	1	1	1	1			2	
Asclepiadaceae . . . . .	1	1	1	1	1			2	

AFFINITIES OF THE GALAPAGOS FLORA—*Continued*

	Endemic	U. S.	Mexico	W. Indies	S. Amer.	Old World	General	Species, Varieties, and Forms	Indeterm.
Convolvulaceae.....	6	1	1	3	2	2	5	15	
Hydrophyllaceae.....			1		1			1	
Boraginaceae.....	13		2	2	4		3	20	1
Verbenaceae.....	4	4	5	3	7		2	13	2
Labiatae.....	2	2	5	5	5	1		7	
Solanaceae.....	5	1	2	1	6	7		19	7
Scrophulariaceae.....		3	3	3	5			5	
Bignoniaceae.....									1
Acanthaceae.....	1	1	2	1	3			4	
Plantaginaceae.....	1						1	2	
Rubiaceae.....	17	2	3	3	4		1	22	1
Cucurbitaceae.....	2						3	5	
Campanulaceae.....		1	1	1	1			1	
Goodeniaceae.....							1	1	
Compositae.....	44	2	8	3	9		9	65	4
Total.....	252	62	171	149	207	49	123	615	67
Percentage.....	40.9	10.08	27.8	24.22	33.65	7.96	20		

Total number of species, varieties, forms and indeterminate species 682.

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BY M. A. DAY.

*With Additions by Alban Stewart.*

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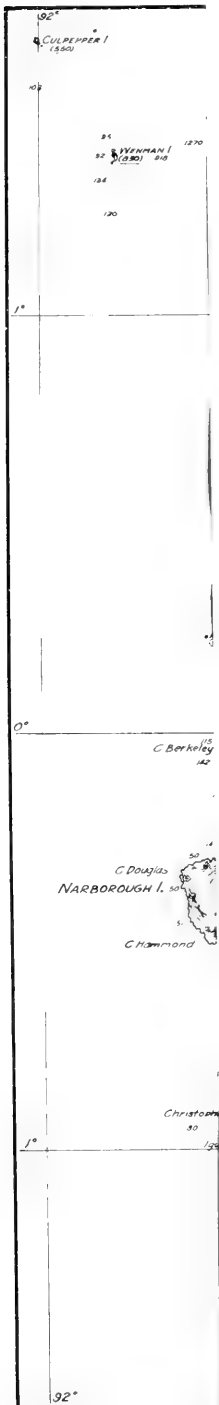
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## NEW SPECIES, FORMS, AND VARIETIES DESCRIBED

- Amaranthus sclerantoides *forma* abingdonensis, 54.  
 Amaranthus sclerantoides *forma* albemarlensis, 55.  
 Brachistum pubescens, 137.  
 Cissampelos galapagensis, 66.  
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 Erigeron tenuifolius *var.* tomentosus, 152.  
 Euphorbia articulata *var.* bindloensis, 91.  
 Euphorbia equisetiformis, 91.  
 Euphorbia Stevensii, 92.  
 Opuntia insularis, 113.  
 Peperomia obtusilimba C. DC., 49.  
 Peperomia Stewartii C. DC., 49.  
 Scalesia cordata, 156.  
 Scalesia villosa, 158.  
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 Telanthera galapagensis, 57.

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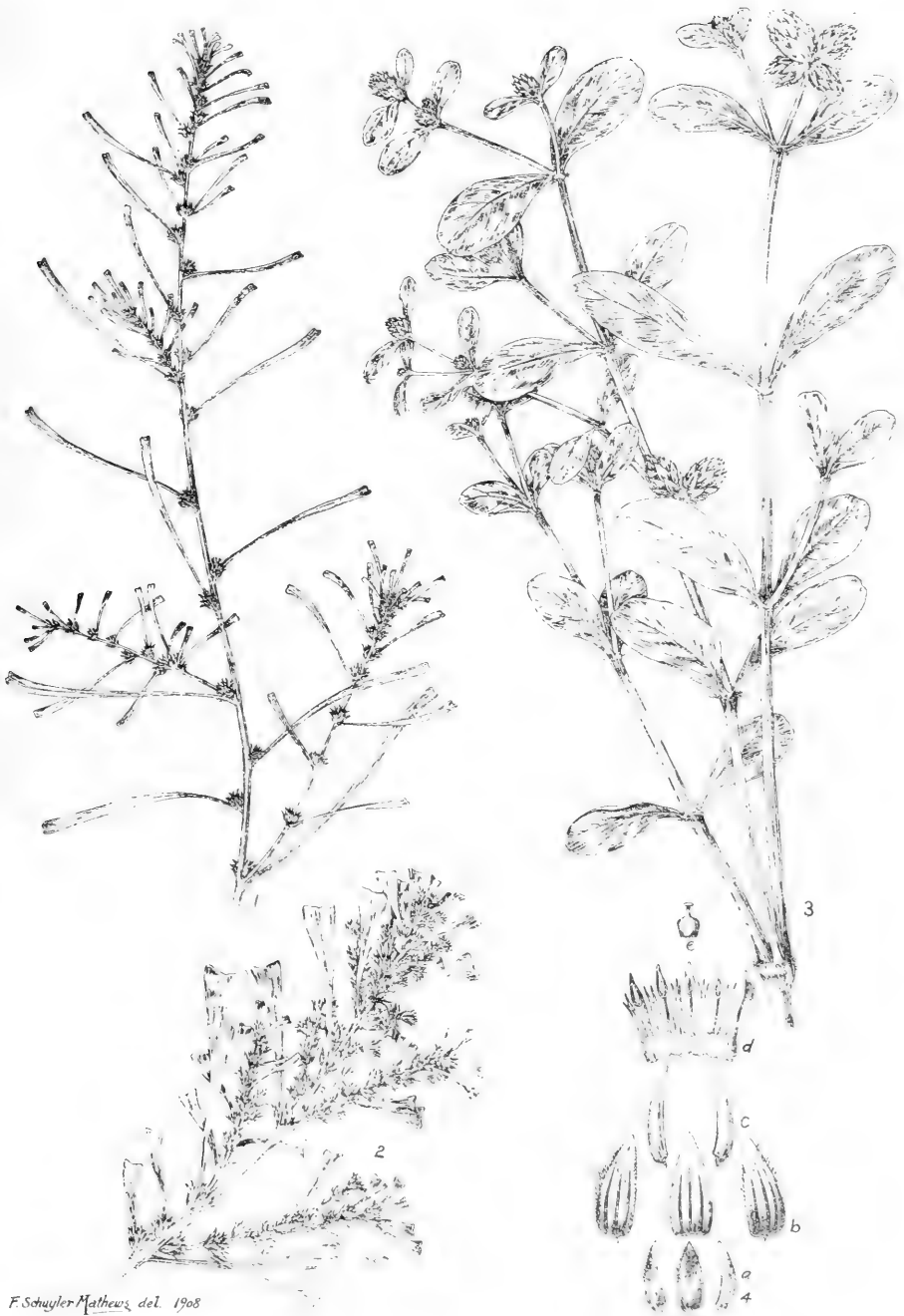


## EXPLANATION OF PLATE II

Drawn by F. S. Mathews

- Fig. 1. *Amaranthus sclerantoides* ANDERSS. forma *abdingdonensis* STEWART n. forma.  $\times 1$ .
- Fig. 2. *Amaranthus sclerantoides* ANDERSS. forma *albemarlensis* STEWART n. forma.  $\times 1$ .
- Fig. 3. *Telanthera galapagensis* STEWART n. sp.  $\times 1$ .
- Fig. 4. *Telanthera galapagensis* STEWART, dissected flower.  $\times 4$ .
- a bracts.
  - b external sepals.
  - c internal sepals.
  - d stamens.
  - e pistil.





F. Schuyler Mathews del. 1908

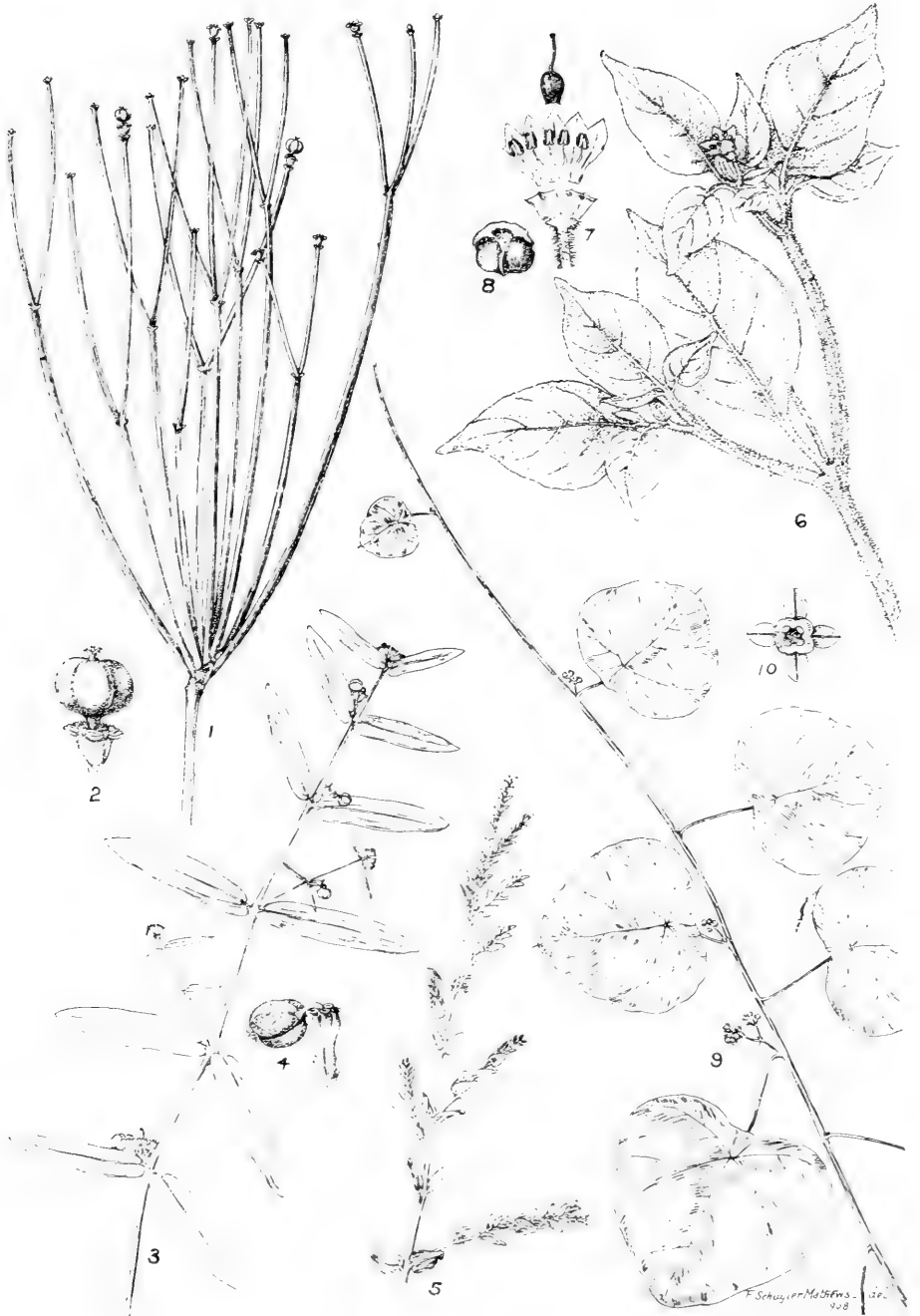




## EXPLANATION OF PLATE III

Drawn by F. S. Mathews

- Fig. 1. *Euphorbia equisetiformis* STEWART n. sp.  $\times$  .5.  
Fig. 2. *Euphorbia equisetiformis* STEWART, flower.  $\times$  2.  
Fig. 3. *Euphorbia Stevensii* STEWART n. sp.  $\times$  1.  
Fig. 4. *Euphorbia Stevensii* STEWART, flower.  $\times$  4.  
Fig. 5. *Euphorbia articulata* ANDERSS. variety *bindlocnsis* STEWART n. var.  
 $\times$  1.  
Fig. 6. *Brachistus pubescens* STEWART n. sp.  $\times$  1.  
Fig. 7. *Brachistus pubescens* STEWART, dissected flower.  $\times$  2.  
Fig. 8. *Brachistus pubescens* STEWART, fruit.  $\times$  2.  
Fig. 9. *Cissampelos galapagensis* STEWART n. sp.  $\times$  .5.  
Fig. 10. *Cissampelos galapagensis* STEWART, flower.  $\times$  4.





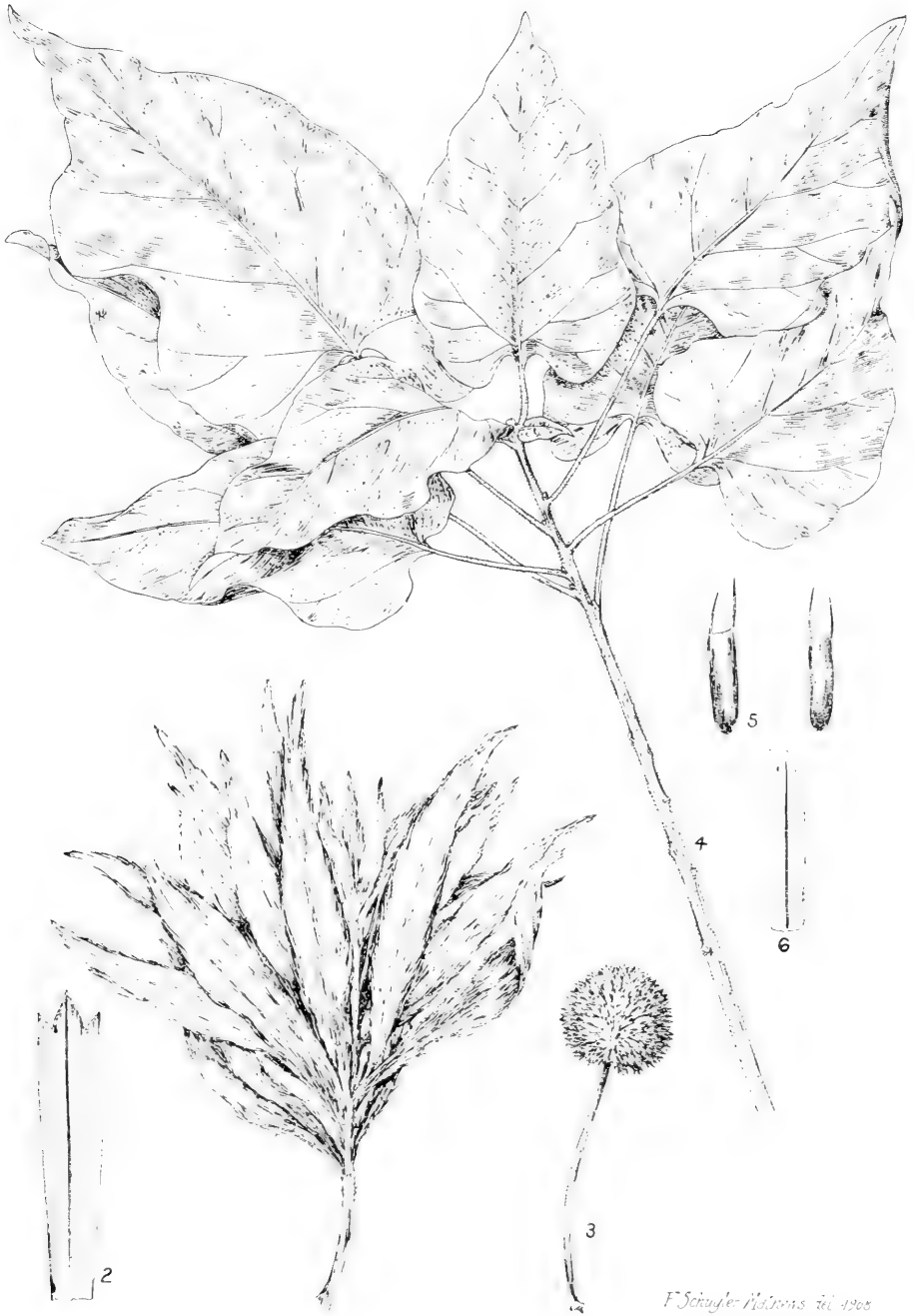


## EXPLANATION OF PLATE IV

Drawn by F. S. Mathews

- Fig. 1. *Scalesia villosa* STEWART n. sp.  $\times .5$ .  
Fig. 2. *Scalesia villosa* STEWART, squame.  $\times 4$ .  
Fig. 3. *Scalesia villosa* STEWART, flower head.  $\times .5$ .  
Fig. 4. *Scalesia cordata* STEWART n. sp.  $\times .5$ .  
Fig. 5. *Scalesia cordata* STEWART, squame.  $\times 4$ .  
Fig. 6. *Scalesia cordata* STEWART, fruit.  $\times 4$ .





*F. Schlegel-Holstons fil 1908*

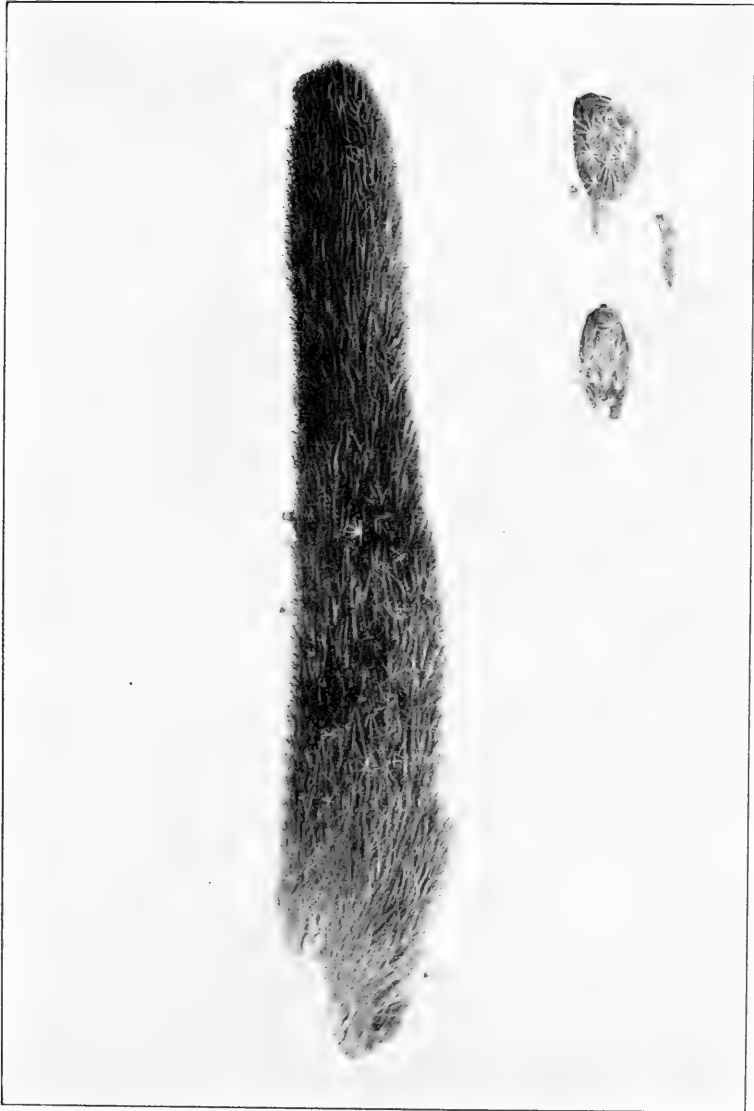




## EXPLANATION OF PLATE V

Photographed by R. E. Shuey

*Cereus nesioticus* K. SCH., branch and fruit.  $\times .38$ .







## EXPLANATION OF PLATE VI

Photographed by R. H. Beck

*Cereus sclerocarpus* K. SCH., covering the side of a cliff at Academy Bay,  
Indefatigable Island.





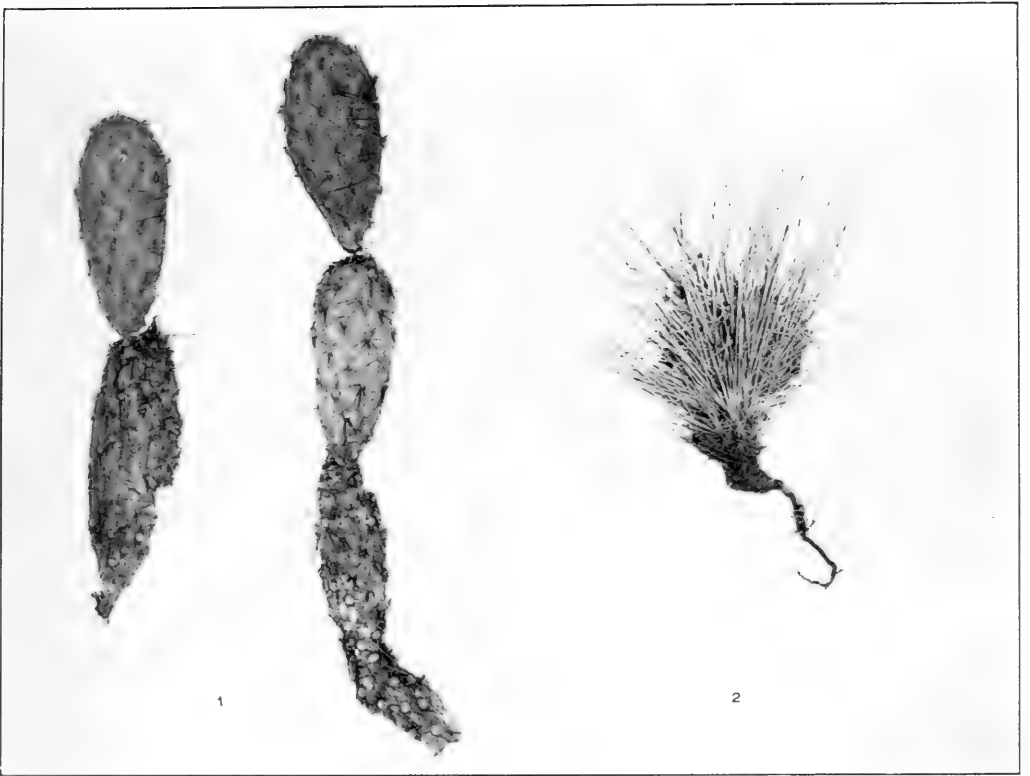


January 17, 1911.

## EXPLANATION OF PLATE VII

Photographed by R. E. Shuey

- Fig. 1. *Opuntia myriacantha* WEBER, young specimen from Indefatigable Island.  $\times$  436.
- Fig. 2. *Opuntia galapagcia* HENSL., young specimen from Hood Island.  $\times$  42.





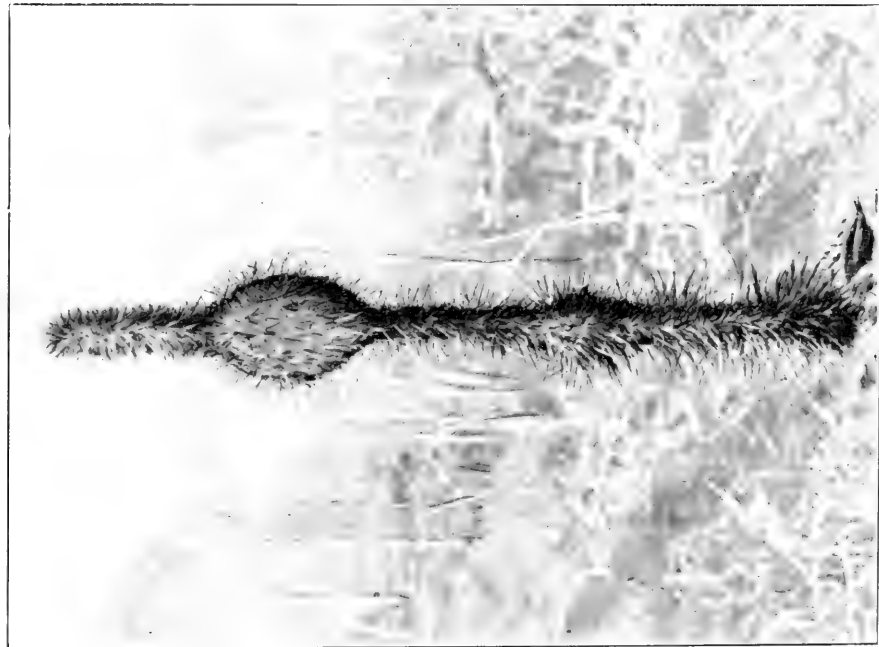


## EXPLANATION OF PLATE VIII

Photographed by E. W. Gifford

- Fig. 1. *Opuntia galapageia* HENSL., young specimen from Hood Island.  $\times$  ca. .105.
- Fig. 2. *Opuntia galapageia* HENSL., partly grown specimen from Hood Island.  $\times$  ca. .033.









## EXPLANATION OF PLATE IX

Photographed by E. W. Gifford

- Fig. 1. *Opuntia insularis* STEWART, specimen from Tagus Cove, Albemarle Island.
- Fig. 2. *Opuntia galapageia* HENSL., mature specimen from Hood Island with closely arranged branches.





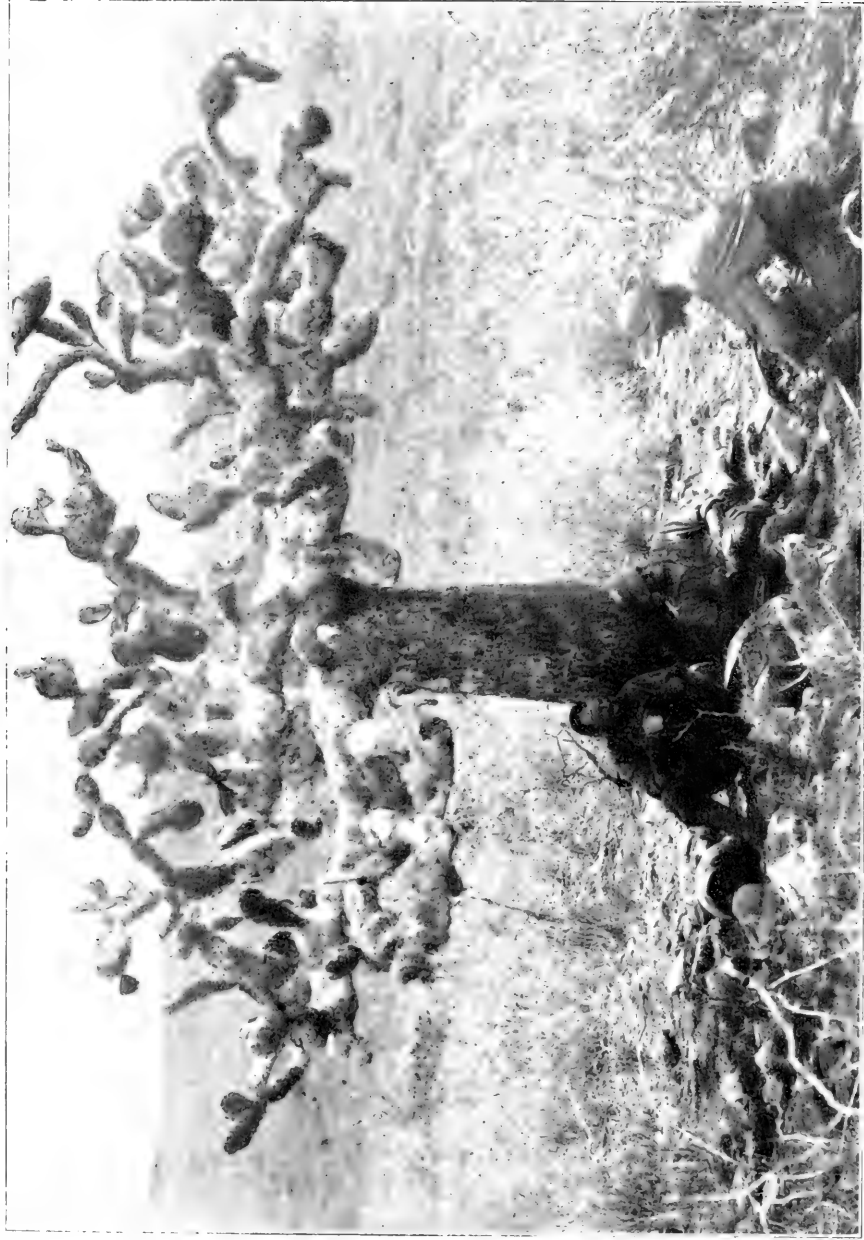


## EXPLANATION OF PLATE X

Photographed by R. H. Beck

*Opuntia galapageia* HENSL., mature specimen from Duncan Island with open branching.





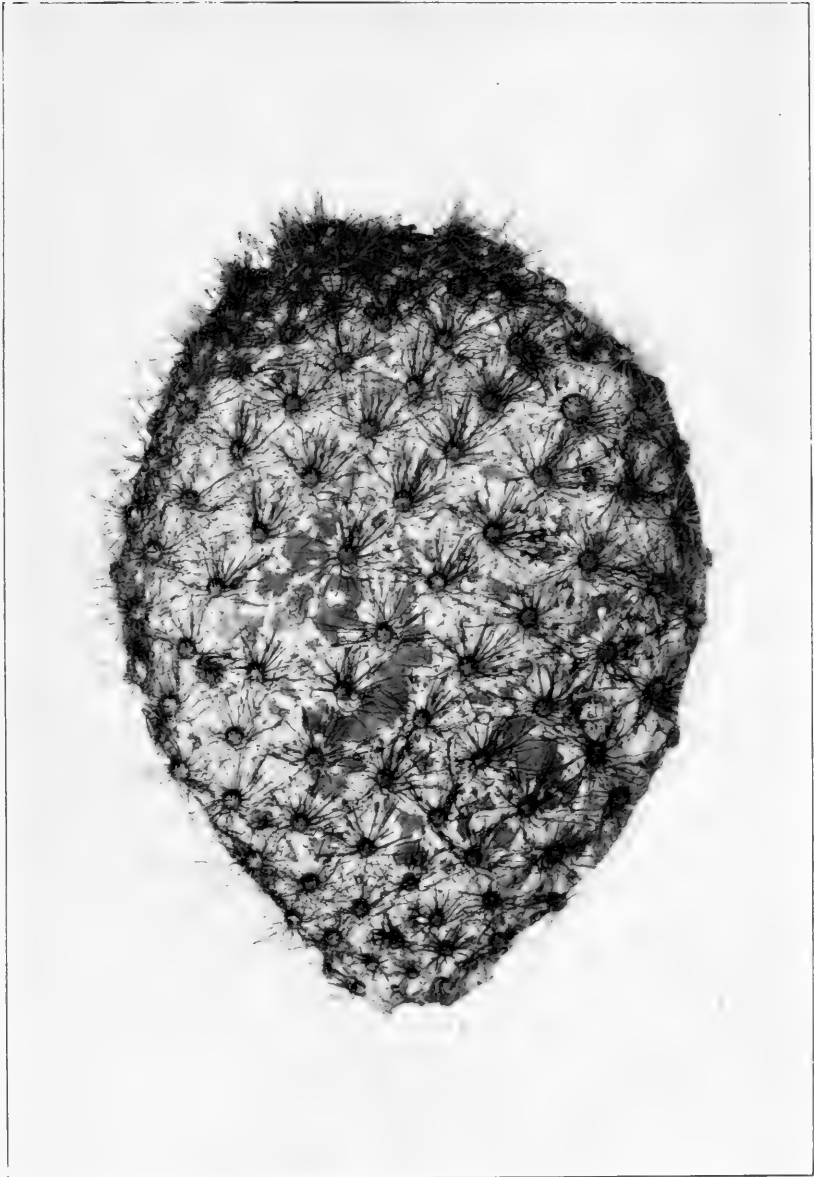


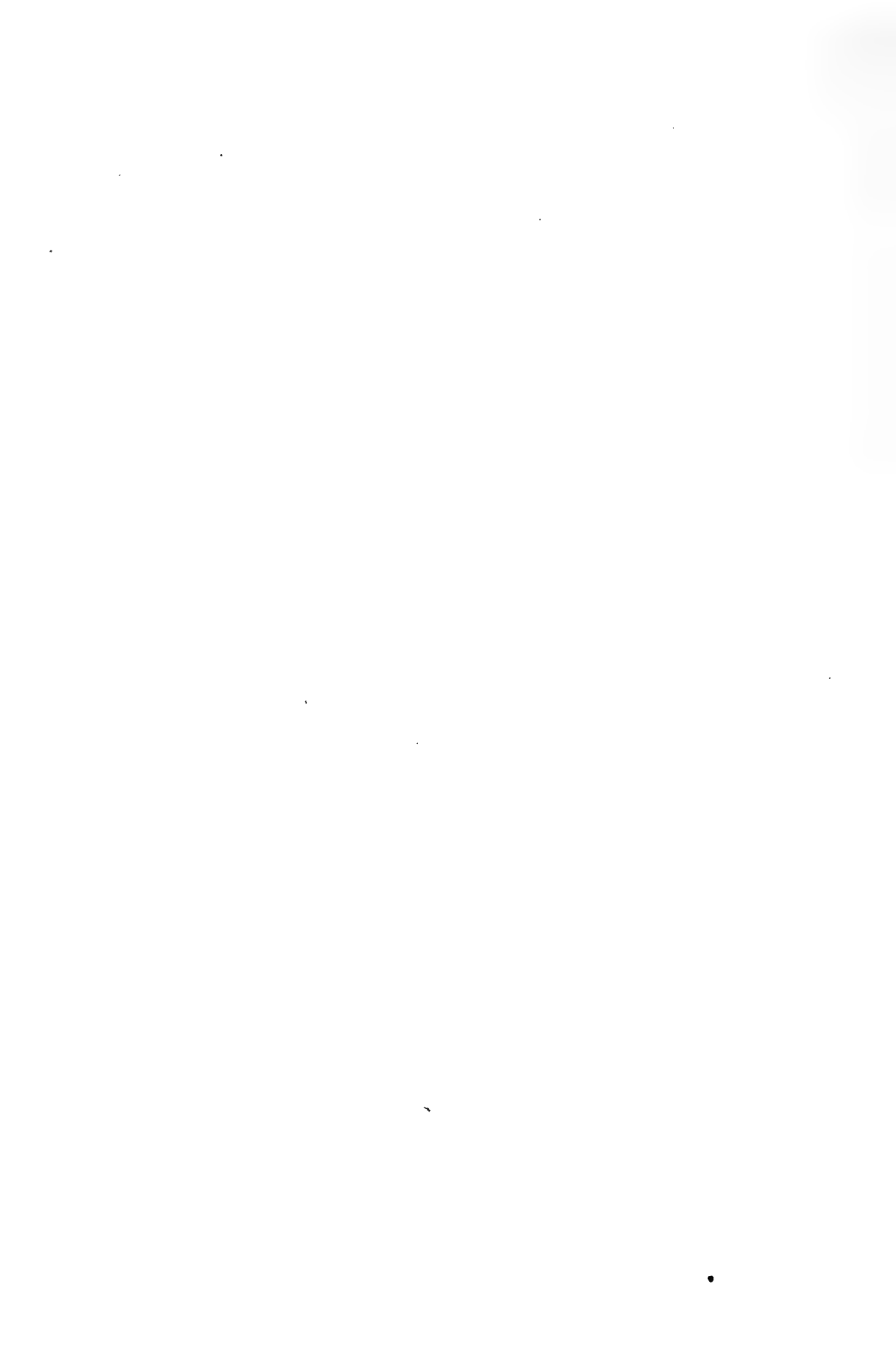


## EXPLANATION OF PLATE XI

Photographed by R. E. Shuey

*Opuntia galapageia* HENSL., specimen of a branch from Abingdon Island.  
× .393.





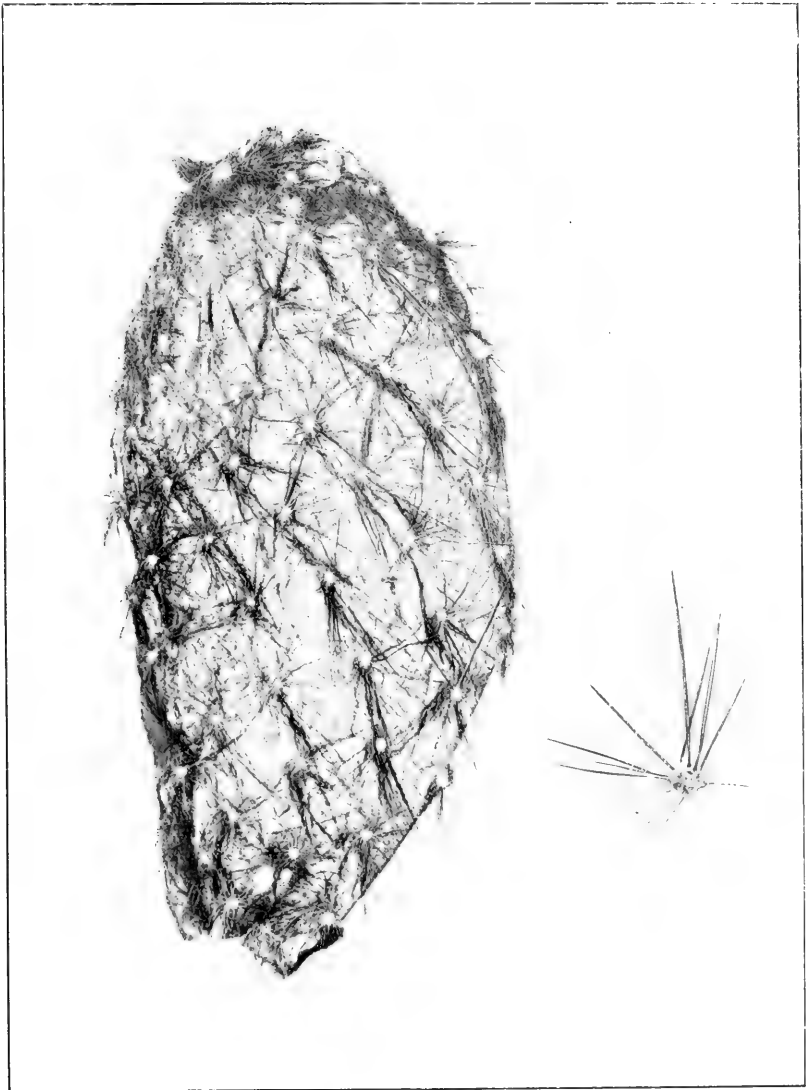


## EXPLANATION OF PLATE XII

Photographed by R. E. Shuey

*Opuntia galapageia* HENSL., specimen of a branch from Charles Island.  
× .38. This specimen contains both stiff and capillary spines in the fascicles, in which respect it is intermediate between *O. galapageia* and *O. myriacantha*.









## EXPLANATION OF PLATE XIII

- Fig. 1. *Opuntia Helleri* K. SCH., thicket on Tower Island. Photographed by E. W. Gifford.
- Fig. 2. *Opuntia myriacantha* WEBER, specimens from Academy Bay, Indefatigable Island, showing the pendant branches. Photographed by R. H. Beck.







## EXPLANATION OF PLATE XIV

Photographed by R. E. Shuey

*Opuntia Helleri* K. SCH., branch of a specimen from Wenman Island.  
× .444.





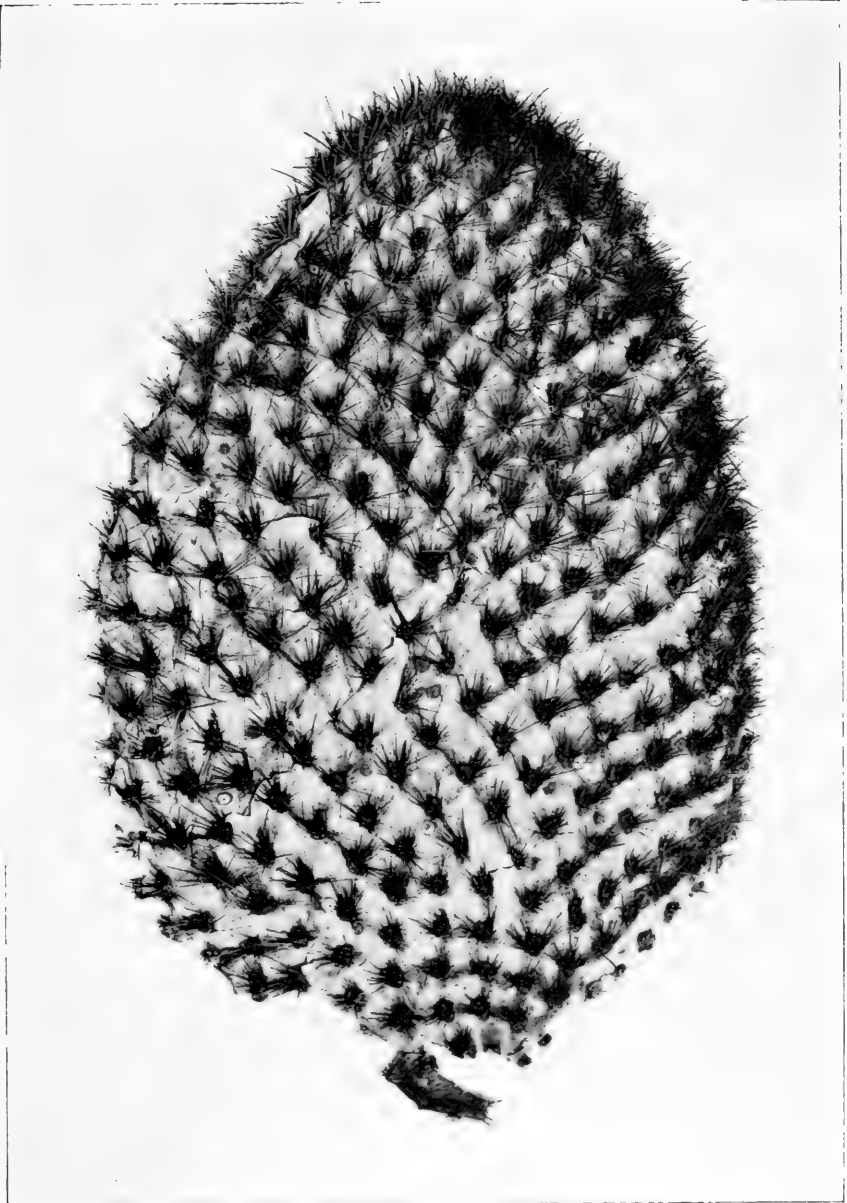


January 17, 1911.

## EXPLANATION OF PLATE XV

Photographed by R. E. Shuey

*Opuntia insularis* STEWART, n. sp., specimen of a branch from Tagus Cove,  
Albemarle Island. × .437.





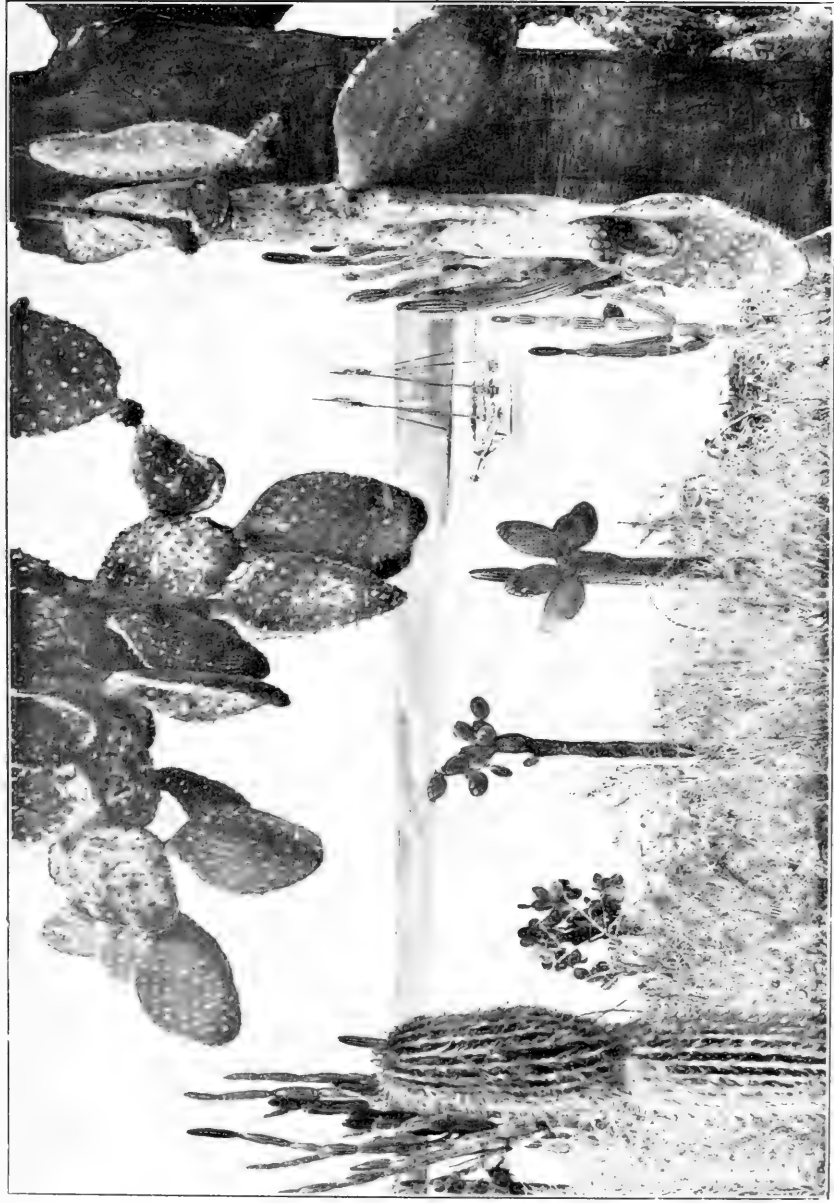


## EXPLANATION OF PLATE XVI

Photographed by R. H. Beck

*Opuntia myriacantha* WEBER, specimen from Academy Bay, Indefatigable Island, showing the character of the trunk and pendant branches.









## EXPLANATION OF PLATE XVII

Photographed by R. E. Shuey

*Opuntia myriacantha* WEBER, bark from a specimen on Barrington Island.







## EXPLANATION OF PLATE XVIII

Photographed by R. E. Shuey

*Opuntia myriacantha* WEBER, specimen of a branch from Barrington  
Island.  $\times$  .365.









## EXPLANATION OF PLATE XIX

Photographed by R. E. Shuey

*Opuntia* species, specimen of a branch from South Seymour Island.  
× .444.



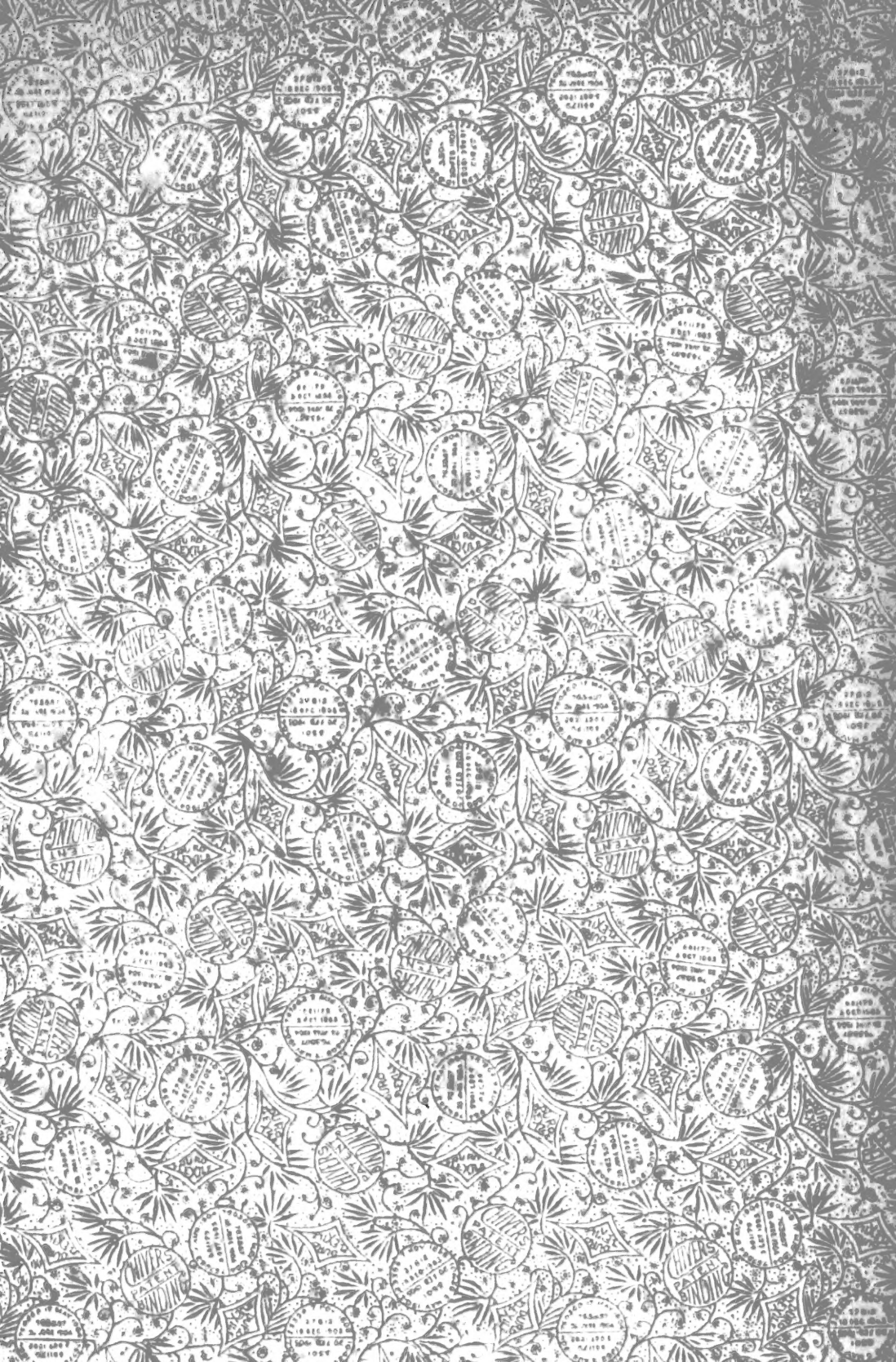












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