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VOLUME VIII.—No. I

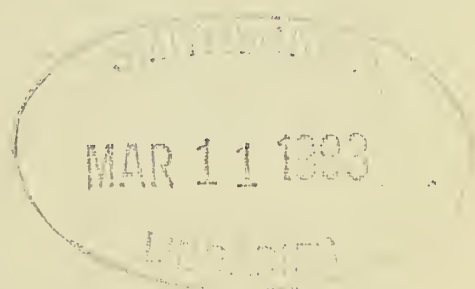
# FLORA ARABICA

BY

**ETHELBERT BLATTER, S.J., F.L.S.,**  
*Professor of Botany at St. Xavier's College, Bombay.*

PART I

RANUNCULACEAE—MORINGACEAE.



PUBLISHED BY  
M/S BISHEN SINGH MAHENDRA PAL SINGH  
23-A; NEW CONNAUGHT PLACE  
DEHRA DUN

1978



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## INTRODUCTION.

WE have tried to embody in the present work all the information available regarding the systematic Botany of Arabia. Through the kindness of the authorities at Kew and the British Museum we were allowed to make unrestricted use of the rich collections stored up in those establishments. As the two Herbaria possess duplicates of the chief foreign collections (Aucher-Eloy, Bové, Deflers, Ehrenberg, Boissier, Post, Schimper, Schweinfurth, etc.) we may safely say that we had all the plant-material ever collected in Arabia at our disposal.

It had been our intention to give a history of the botanical exploration of Arabia and, in addition, a general sketch of its vegetation; but the notes we took during the first year of the war are at present in England. We trust, however, that we shall be able to deal with those questions at the end of this catalogue.

The accompanying map will make it sufficiently clear what area has been dealt with in our Flora. The same map shows the boundaries of the four botanical regions into which we have divided the whole of Arabia:—

- I. The Extra-tropical West.
- II. The Tropical West.
- III. The Tropical East.
- IV. The Extra-tropical East or the Persian Gulf region.

We consider these regions to be natural ones, though the boundaries will be somewhat modified as soon as the botanical survey and more extensive meteorological observations have furnished us with more accurate data for a plant geographical distribution of the species.

An explanation is required regarding the Arabic names of plants. H. G. Carter, who published "Some Plants of the Zor Hills, Koweit, Arabia" collected by Cox, says in the Introduction: "The value of Sir Percy Cox's

collection is greatly enhanced by his accurate record of Arabic and Persian plant names, which he has written in fully pointed naskh. This forms a welcome contrast to the carelessness with which many collectors record vernacular names." We are afraid our record of Arabic names cannot come up to Carter's requirements. We showed the vernacular names to two eminent Arabic scholars and we asked them to transcribe them after a uniform system. As both pronounced the task hopeless we decide to give the names as we found them without any attempt towards a uniform transcription. When using these names it is well to remember whether the name comes from a French, English, German or Italian source.—The letter S stands for Schweinfurth.

It is our duty to thank the Directors and staffs of the London botanical centres for their kind help and the great interest they have shown us throughout. Quite especial thanks are due to Miss M. O'Reilly who, from the beginning, assisted us in our work and went through the whole Mss. in order to verify the references.

## A. DICOTYLEDONEÆ.

### 1. RANUNCULACEÆ.

#### 1. Clematis L.

1. *C. Flammula* L. Sp. Pl. (1753), 544; Boiss. Fl. Or. i, (1867) 4; Musch. Fl. Eg. i, (1912) 364.

HABITAT: I. Arabia Petræa (ex Musch.).

DISTRIB.: Mediterranean region of Europe and North Africa, Arabia, Palestine, Syria.

2. *C. inciso-dentata* Rich. Fl. Abyss. i, (1847) 2, t. I.—*C. grata* Oliv. in Oliv. Fl. Trop. Afr. i, (1868) 7 (non Wall.).—*C. orientalis* L. var. *Wightiana* O. Kuntze in Verh. Bot. Ver. Prov. Brandbg. xxvi (1885), 25.

HABITAT. II. Yaman: Okeber, near Jebel Milhan 900 m. (S. 865!); Wasil 1,400 m. (S. 1318!). Fl. January—February 1889 (S.). DISTRIB.: Arabia, Abyssinia and probably elsewhere in Trop. Africa.

Vern. name: *Qummuda* (S.).

NOTE.—Figure and description of *C. inciso-dentata* in Richards' Tentamen correspond exactly with Schweinfurth's specimens collected in Yaman.

3. *C. simensis* Fresen. in Mus. Senck. ii, (1837) 277; Oliv. Fl. Trop. Afr. (1868) 6; Fiori Bos. e Piante legn. Eritrea (1909-12) 133.—*C. orientalis* L. var. *simensis* O. Kuntze in Verh. Bot. Ver. Prov. Brandbg. xxvi (1885), 126; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 177.

HABITAT: II. Yaman (Botta ex Kuntze); J. Bura, in coffee region above Hille, 1,000-1,500 m. (S. 428!); W. et Tehm near Wasil, 1,200 m. (S. 1226!); Manakhah, 2,200 m. (S. 1483!).

Fr: January—February 1889 (S.).

DISTRIB.: Abyssinia, Eritrea, Trop. Africa.

Vern. name. In Manakhah and Wasil: *qummuda*; at Hille: *hallal* (S.).

NOTE.—O. Kuntze mentions a form 'longifoliola' as occurring in Africa and Arabia. Diagnosis: Foliola ovato-lanceolata.

#### 2. Anemone L.

1. *A. coronaria* L. Sp. Pl. (1753) 539; Boiss. Fl. Or. i, (1867) 11; Musch. Fl. Eg. i, (1912) 365.

HABITAT: I. Arab. Petr. (ex Musch.).

DISTRIB.: Mediterranean region.

#### 3. Adonis L.

1. *A. dentatus* Del Fl. Aeg. Illustr. n. 522 (1813) et Fl. Egypte 53, f. 1; Frag. Fl. Arab. Petr. (1855) 15; Boiss. Fl. Or. i, 18; Huth Revis. Adonis 64, f. 4-5; Durand & Barr. Fl. Libyee Contr. 2 (1910)

DC. VAR. *dentatus* Coss. et Kral. in Bull. Soc. Bot. iv, 55 ; Coss. Comp. ii. 13 ; Batt. et Trab. Fl Alg. i, 5.

HABITAT : I. Arab. Petr. (McDonald ! H. K.) ; Desert of Tih (ex Post).

DISTRIB. : Egypt, Arabia Petræa, Palestine, Syria, Tunisia, Algeria.

VAR. *subinermis* Boiss. Fl. Or. i, (1867), 19.

HABITAT : I. Desert of Arab. Petr. (Boiss. ex Boiss.).

DISTRIB. : Syria, Arabia Petræa.

2. *A. microcarpus* DC. Syst. i, (1818) 223 ; Boiss. Fl. Or. i, (1867) 18 ; Musch. Fl. Eg. i, (1912) 369.—*A. Cupaniana* Guss. Syn. ii, 36.

HABITAT : I. Arab. Petr. (ex Musch.).

DISTRIB. : Mediterranean region.

#### 4. *Ranunculus* L.

1. *R. aquatilis* L. Sp. Pl. (1753) 556 (ex parte).

VAR. *submersus* Gren. et Godr.

HABITAT : II Yaman : near Bauan 2,700 m. (Defl. 448).

DISTRIB. : Temperate regions of the northern hemisphere.

2. *R. asiaticus* L. Sp. Pl. (1753), 552 ; Del. Frag. Fl. Arab. Petr. (1833) 15 ; Boiss. Fl. Or. i, (1867) 31.

HABITAT : I. Arab. Petr. (ex Del.).

DISTRIB. : Mediterranean region and Persia.

3. *R. multifidus* Forsk. Fl. Aeg.-Arab. (1775) 102-103 ; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 178.—*R. Forskahlii* DC. Syst. i, (1824) 303.—*R. membranaceus* Fres. in Mus. Senckenb. ii (1837), 270-271.—*R. pennsylvanicus* Defl. (non L.) Voy. Yemen (1889), 108.

HABITAT : II. Yaman : Attara, 1,700 m. (S. 1358 !); Spring Karonen near Manakhah, 2,000 m. (S. 1526) ; J. Shibam near el-Ejan, 2,700 m. (S. 1653 !); near Kahel, 2,500 m. (Defl. 333) ; near Dhula, 2,300 m. (Defl. 512).

Fl. : Feb. 1889 (S.). Fr. : February 1889 (S.).

DISTRIB. : Eritrea, Yaman.

4. *R. muricatus* L. Sp. Pl. i, (1753) 555 ; Boiss. Fl. Or. i, 56 ; Batt. et Trab. Fl. Alg. i, 13 ; Coss. Comp. ii, 36 ; Rehbch. Ic. iv, f. 4615.

HABITAT : I. Arab. Petr. (Ehrenb !). IV. Masqat (Aucher-Eloy 4008 !).

DISTRIB. : Mediterranean region, Egypt, Arabia, Mesopotamia, Persia, India, N. America.

VAR. *graecus* Heldr. et Sart. ap. Boiss. Fl. Or. i, (1867) 56 ; Dur. & Bar. Fl. Libyc. Prodr. (1910) 3.—*R. graecus* Griseb. Spic. i, (1843) 314.—*R. muricatus* Sibth Fl. Graec. t. 522.

HABITAT: I. Arab. Petr. (ex Dur. & Barr.).

DISTRIB.: Mediterranean region, Egypt, Arabia, Mesopotamia, Persia, India, N. America.

5. *R. sceleratus* L. Sp. Pl. (1753) 551 ; Boiss. Fl. Or. i, (1867) 52 ; Musch. Fl. Eg. i, (1912), 366.

HABITAT: I. Arab. Petr. (ex Musch.).

DISTRIB.: Europe, N. Africa, Arabia, Palestine, Syria, Persia, N India and N. America.

6. *R. trachycarpus* Fisch. & Mey. Ind. Semin. Hort. Petrop. iii, (1838) 46 ; Boiss. Fl. Or. i, (1867) 55 ; Musch. Fl. Eg. i, (1912) 368.

HABITAT.: I. Arab Petr. (ex Musch.): DISTRIB.: Mediterranean region.

### 5. *Nigella* L.

1. *N. arvensis* L. Sp. Pl. (1753), 534 ; Boiss. Fl. Or. i, (1867), 65 ; Brand. Monogr. *Nigella* 31 ; Musch. Fl. Eg. i, (1912), 370.

HABITAT: I. Arab. Petr. (ex Musch.). III. Hadramaut at Ghatan, growing on irrigated ground with the crops, 350 m. (Lunt 155 !). Fl. January 1891 (Lunt).

DISTRIB.: Mediterranean region, Europe, Arabia.

VAR. *divaricata* Boiss. Fl. Or. i, (1867) 66 ; Brand. Monogr. *Nigella*, 33, Musch. Fl. Eg. i, (1912) 370.—*Nigella divaricata* Beaupre ap. DC. Syst. i, (1818), 329.

HABITAT: I. Arab. Petr. (ex Musch.). DISTRIB.: Mediterranean region.

2. *N. deserti* Boiss. Fl. Or. i, (1867) 67 ; Musch. Fl. Eg. i, (1912) 370.

HABITAT: I. Sinai (Auch —El. 54 !); Tih (Post)..

DISTRIB.: Egypt, Arabia Petraea, Mesopotamia.

3. *N. sativa* L. Sp. Pl. (1753), 534 ; Boiss. Fl. Or. i, (1867) 68 ; Brand. Monogr. *Nigella*, 36 ; Musch. Fl. Eg. i, (1912) 370.

HABITAT: I. Arab. Petr. (ex Musch.).

DISTRIB.: Mediterranean region, Persia.

Uses: The black seeds of this species are sprinkled over some kinds of bread in the east. (Post).

### 6. *Delphinium* L.

1. *D. Bovei* Dcne. Ann. Sc. Nat. ser. II, iv, (1834), 356 ; Boiss. Fl. Or. i, (1867) 87.

HABITAT: I. Sinai (ex Dcne.). DISTRIB.: Egypt, Sinai, Syria.

2. *D. deserti* Boiss. Fl. Or. i, (1867), 83 ; Post Fl. Syr. etc. (1896) 46.  
—*D. flavum* Dcne. in Pl. Palest. in Ann. Sc. Nat, ser. II, iv, (1835) 356, non DC.

HABITAT : I. Between Suez and Ghazah (Bové 131 !), Et Tih (ex Post).  
DISTRIB : Arabia Petraea, Palestine.

3. *D. penicillatum* Boiss. Ann. Sc. Nat. (1841) 369 ; Fl. Or. i, (1867) 91.

HABITAT : IV. Near Masqat (Auch. 4034 !).  
DISTRIB : Endemic.

## II. ANONACEÆ.

### 1. Anona L.

1. *A. squamosa* L. Sp. Pl. (1753), 536. — *A. glabra* Forsk. Fl. Aeg. Arab. (1775) 102, t. 75.

HABITAT : II. Yaman : Cultivated at Lahaj (ex Defl.) ; ravine at foot of J. Bura near Hille, run wild and self-sown, 600 m., (S. 249 ! 380) ; Wulej at foot of J. Milhan 600 m. often run wild (S. 621) ; Okeber, 900 m. (S. 849).

DISTRIB. : Trop. America.

Vern. names : *Chermisch, Ambe-beresch, berresch* (S.).

## III. MENISPERMACEÆ.

### 1. Cocculus DC.

1. *C. Cebatha* DC. Syst. i, (1818) 527 ; Prodr. i, (1824), 99 ; Blatt. Fl. Aden (1915) 89.—*C. Leaeba* DC Syst. i, (1818) 529 ; Prodr. i, (1824) 99 ; Oliv. Fl. Trop. Afr. i, (1868) 44 ; Hook. f. Fl. Brit. Ind. i, (1875) 702 ; Volkens Fl. Aeg.-Arab. Wüste (1887) 86. *C. pendulus* Diels Pflanzenf. iv, 94. *Leaeba* Forsk. Fl. Aeg.-Arab. (1775) 172.—*Cebatha* Forsk. l. c. 171. *Cebatha edulis* Forsk. ex Vahl Symb. Bot. i, (1790) 80.

HABITAT : I. Sinai (Ehrenbg. !). II Yaman : Oasis of Lahaj, on sandy ground, in tamarisk groves (Defl. 127 !) ; Sejid Suleman (in the Tihamah) (S. 798 !); on rocks in W Gurra (Schimp. 440 !) W. Mutnah (Schimp. 854 ! Botta !) ; Hadiyah (Forsk.) ; Aden (S. 74 ! Perry ! Balfour !). III. Hadramaut (Hirsch 154) ; Dhufur Mts. over rocks (Bent 180 !).

Fl. : May 1895 (Bent) ; November 1888 (Schweinf.) ; December 1889 (Defl.) ; Dec. (Schimp).

Fr. : January 1889 (Schweinf.) ; Dec. (Schimp.).

DISTRIB : Cape Verde Islands, Senegambia, Egypt, Nubia, Eritrea, Kordofan, Abyssinia, Socotra, Central and South Africa, Afghanistan, Punjab, Sind, Gujarat.

Vern. name : *Turrach* (S.), *Kebath, Laebach el djebbel* (Forsk.).

Uses : See Forsk. Fl. Aeg. Arab. (1775) 172.

2. *C. villosus* DC. Syst. i, (1818) 525; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 780.—*Cocculus hirsutus* Diels in Engler Pflanzenf. iv, (1894) 236.—*Cebatha b. foliis pubescentibus* Forsk. Fl. Aeg.-Arab. (1775) cxxii, n. 586 ?

HABITAT: II. J. Bura above Hille, 500 m. (S. 320 !); in the forest near, Hajailah, W. Modfar 600 m. (S. 925 !); Wulej 600 m. (S. 674); Wasil 1,400 m. (S. 1127 !).

Fl. : January 1889 (S.). Fr. January 1889 (S.).

DISTRIB. : Trop. Africa, Yaman, trop. and subtrop. India.

Vern. names : *Luah, hérrije, schirwai, haddal* (S.).

#### IV. BERBERIDACEÆ.

##### 1. *Berberis* L.

1. *B. aristata* DC. Syst. Veg. ii, (1821) 8; Oliv. Fl. Trop. Afr. i, 51; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 179.—*Berberis tinctoria* Lesch. in Mém. Mus. ix, 306; Rich. Fl. Abyss. i, 10.—*Berberis* Forsk. Fl. Aeg.-Arab (1775) cix, No. 230.

HABITAT: II. Yaman. J. Shibam above Manakhah, 2,600-2,900 m. (S. 1524 !).

DISTRIB.: Abyssinia, Arabia, India, Ceylon.

Vern. names : *Messuk, Itrarakh, Hhodhub* (S.).

2. *B. Forskaliana* C. K. Schneider in Bull. Herb. Boiss. (1905) 456.

HABITAT: II. Yaman : J. Shibam above el Ejan (S. 1682).

DISTRIB. : Endemic.

3. *Berberis spec.* ex Defl. Yemen 109.

HABITAT: II. Yaman : J. Kahil, 2,500 m. (Defl. 361 !).

Deflers's specimen is without fl. and fr. He thinks the plant might belong to *B. aristata* DC.

##### 2. *Leontice* L.

1. *L. Leontopetalum* L. Sp. Pl. i, (1753) 312; Boiss. Fl. Or. i, (1867) 99, Musch. Fl. Eg. i, (1912) 313.

HABITAT: I. Sinai (ex Musch.).

DISTRIB. : Egypt, Sinai, Syria.

#### V. PAPAVERACEÆ.

##### 1. *Papaver* L.

1. *P. Argemone* L. Sp. Pl. (1753) 506; Boiss. Fl. Or. i, (1867) 118.

HABITAT.: I. Arab. Petr. (ex Musch.).

DISTRIB.: Central Europe, Mediterranean region, Persia.

2. *P. Decaisnei* Hochst. & Steud. in Schimp. Plant. Arab. exsicc. (1835) n. 125; Boiss. Fl. Or. i, (1897) 115; Muschler Fl. Eg. i, (1912) 377.—*Papaver turbinatum* Fres. in Mus. Senckeub. i, 173, non DC.—*P. nov. spec.?* Decaisne, Fl. Sin. in Ann. Sc. Nat. ser. 2. iii, (1835) 269. *P. somniferum* VAR. *Decaisnei* O. Ktze. Rev. Gen. i, 156.

HABITAT: I. Arab. Petr. (McDonald !); Sinai (Schimp.); cult. ground of W. Arbain (Rüppel); W. Tarfa (Kneuck.); Central Midian (Burton!).

Fr.: April 1835 (Schimp.); September 1878 (Burton).

DISTRIB.: Egypt, Sinai, Afghanistan, Persia.

3. *P. hybridum* L. Sp. Pl. (1763) 506; Boiss. Fl. Or. i, (1867) 117; Fedde Monogr. Pap. in Engl. Pflanzenr. iv, fasc. 104 (1909), 332; Carter in Rec. Bot. Surv. Ind. vi, (1917) 184.

HABITAT: I. Arab. Petr. (ex Dur. & Bari). IV. Zor Hills (Cox 65).

DISTRIB.: Widely throughout the Mediterranean region, Persia and Central Asia.

Vern. name: *Daidhan* (Cox).

4. *P. Rhoëas* L. Sp. Pl. (1753) 507; Boiss. Fl. Or. i, 113; Hook f. Fl. Brit. Ind. i, (1872) 117; Muschler. Fl. Eg. i, (1912) 376.

HABITAT: I. Arab. Petr. (ex Musch.).

DISTRIB.: Europe, Mediterranean region, Arabia, Mesopotamia, Tibet.

5. *P. somniferum* L. Sp. Pl. (1753) 508; Boiss. Fl. Or. i, (1867) 116; Oliv. Fl. Trop. Afr. i, (1868) 54; Hook. f. Fl. Brit. Ind. i, (1872) 117. *P. opiiferum* Forsk. Fl. Aeg.-Arab. (1775) exiii. No. 336. *P. somniferum* VAR. *glabrum* Boiss. Fl. Or. i, (1867) 116.

HABITAT: II. Yaman, cultivated in the hills. (Forsk.).

DISTRIB.: Generally cultivated in the warm and temperate regions of Europe, Asia and North Africa.

6. *P. sp. probably dubium* L. (1753) in App. 1196.

HABITAT: III. Oman: Semail (Pilgrim in H. K.!).

Specimen too scanty to allow of definite identification.

## 2. Argemone L.

1. *A. mexicana* L. Sp. Pl. (1753) 508; Oliv. Fl. Trop. Afr. i, (1868) 54; Hook f. & Thoms. Fl. Brit. Ind. i, (1872) 117.

HABITAT: II. Yaman: Cult. near Lahaj (Defl. 155!); in fields near Lahaj (Ellenbeck).

Fl. December 1889 (Defl.).

DISTRIB.: America, naturalized in many parts of the Old World.

Vern. name: *Bagel* (Ellenbeck).



3. *Glaucium* Juss.

1. *G. arabicum* Fresen. in Mus. Senckenb. i, (1833) 174, t. 10; Decne. Flor Sin. in Ann. Sc. Nat. ser. 2, iii, (1835) 270, no. 226; Boiss. Fl. Or. i, (1867) 120 — *G. corniculatum* var. *arabicum* O. Ktze. Rev. Gen. Pl. 149.

HABITAT: I. Sinai Peninsula (Auch. 380! Frauenfeld! Delaborde! Kneuck. 65, Grote 15!); rocky ground at foot of Mt. Sinai (Schimp. 154!); in a plain near Mt. Sinai (Bové 132!); Sinai (Sir H. James 118!). W. Arabia (Rüppell)!; Arab. Petr. (McDonald in H. K.).

Fl.: May 1835 (Schimp.); May 1868 (Lord); November 1870 (Sir H. James). Fr.: May 1835 (Schimp.); July 1833 (Bové)

DISTRIB.: Mediterranean region.

Vern. name: *namann* (Bové).

Use: The plant is very abundant after the rain. The flocks are carefully kept away because the plant causes a disease. The camels are allowed to eat of it after complete evaporation of the dew. The Bedouins make an infusion of the leaves which serves them as a collyrium. They eat the fruits and consider them a superior remedy against rheumatism (Grote, in 1898).

VAR. *gracilescens* Fedde in Engl. Pflanzenf. iv, (1894) 225.

HABITAT: I. Sinai, in gardens (Ehrenb. ex Fedde). DISTRIB. Endemic.

2. *G. corniculatum*. Curt. Fl. Lond. vi, (1817) 6, t. 32; Boiss. Fl. Or. i, (1867), 119; Del. Frag. Fl. Arab. Petr. (1833), 15; Musch. Fl. Eg. i, (1912) 379. *Chelidonium corniculatum* L. Sp. Pl. (1753), 506. *Papaver corniculatum* Pall. Reise iii, 591.

HABITAT: I. Arabia Petr. (ex Del., Dur. and Bar.).

DISTRIB: Mediterranean region, Germany, Hungary, S. Russia, Caucasus, Armenia, Arabia Petræa.

4. *Roemeria* D C.

1. *R. dodecandra* Stapf, Ergeb. Polak. Exped. Pers. in Denkschr. Akad. Wiss. Wien, li, (1836) 295; Musch. Fl. Eg. i, (1912) 379.—*Chelidonium dodecandrum* Forsk. Fl. Aeg.-Arab, (1775), 100.—*R. orientalis* Boiss. in Ann. Sc. Nat, ser. 2, xvi, (1841) 374; Fl. Or. i, (1867) 118; Suppl. (1888) 24. *R. hybrida* var. *dodecandra* Durand & Barr. Prodr. Fl. Libyc. 6.—*R. hybrida* var. *orientalis* Coss. Comp, ii, 67.

HABITAT I. Arab. Petr. (McDonald, H. K. !); in horto sinaico (Boiss. !); in shady places at the foot of Mt. Sinai (Schimp. 169!).

Fl.: March 1846 (Boiss.); April 1835 (Schimp.); April 1877 (Schweinf.).

Fr.: March 1846 (Boiss.); April 1835 (Schimp.); April 1877 (Schweinf.).

DISTRIB.: Tripolitania, Egypt, Arabia Petræa, Syria, Mesopotamia, Persia Afghanistan.

Vern. name: *Rig'el-el-Ghorab*, i.e., Crowfoot (Musch.).

2. *R. hybrida* DC. Syst. ii, (1821), 92 ; Boiss. Fl. Or. i, (1867), 118 ; Muschler Fl. Eg. i, (1912), 379. — *Chelidonium hybridum* L. Sp. Pl. (1753) 506. — *Glaucium violaceum* Juss. Gen. (1789), 236.

HABITAT. : I. Arab. Petr. (ex Musch.).

DISTRIB. : Mediterranean region, Arabia Petræa, Transcaucasia, Persia.

VAR. *eriocarpa* DC. Prodr. i, (1824) 122; Schenk Sp. Pl. It. Aeg. Arab. & Syr. (1840) 45. — *R. hybrida* α. *violacea* β. *eriocarpa* O. Ktze. in Act. Hort. Petrop x, 1 (1887), 162.

HABITAT. : I. Mt. Sinai (Schenk !). DISTRIB.: same as type, besides Afghanistan.

VAR. *tenuifolia* Schenk Sp. Pl. It. Aeg.-Arab. & Syr. (1840), 45, "foliorum segmentis tenuioribus".

HABITAT : I. cultivated ground of Mt. Sinai (Schenk).

### 5. *Hypecoum* L.

1. *H. aegyptiacum* Aschers.—Schweinf. Ill. Fl. Eg. i, (1887) 37; Fedde in Engl. Pflanzenr. iv, (1909) 93. — *Musmosilla aegyptiaca* Forsk. Fl. Aeg. Arab. (1775) 122. *M. Forskalii* Ehrenb. in sched. Herb. Berol. *H. imberbe* Sibth. & Smith Fl. Graec. ii, (1813) 47, t. 156; Boiss. Fl. Or. i, (1867) 125.

HABITAT : I. Arabia Petr. (ex Musch.).

DISTRIB : Mediterranean region.

2. *H. pendulum*, L. Sp. Pl. (1753) 124; Schenk Sp. Pl. it. Aeg. Arab. Syr. (1840) 45; Boiss. Fl. Or. i, (1867) 125; Suppl. (1888) 25.

HABITAT : I. Arab. Petr. (S. 135!), Sinai (Auch.-El. 386! Schenk, McDonald !), sandy places at the foot of Mt. Sinai (Schimp. 217!), Sinai, in cultivated ground (Boiss !).

Fl.: March (Boiss.); April 1835 (Schimp.) ; April 1877 (S.).

Fr.: April 1835 (Schimp.).

DISTRIB.: Mediterranean region, Persia, Baluchistan, temperate Asia.

3. *H. procumbens* L. Sp. Pl. (1753) 181; Boiss. Fl. Or. (1867) 124; Hook. f. Fl. Brit. Ind. i, (1872) 120; Durand & Barr. Fl. Libyc. Prodr. 7.— *H. dimidiatum* Del. Frag Fl. Arab. Petr. (1833) 15.

HABITAT : I. Arab. Petr. (ex Del., Post, Dur. & Barr.).

DISTRIB : I. Canaries, Mediterranean region, Mesopotamia, India.

### 6. *Fumaria* L.

1. *F. abyssinica* Hammar in Nov. Act. Soc. Sc. Upsal. ser. III, ii (1856-58) 275; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 181.

HABITAT: II. Yaman: J. Bura above Hille, alt. 900m. (S. 564!); above Manakhah near el-Ejan, alt. 2700 m. (S.), Keranen near Manakhah, alt. 2000 m. (S. 1830!).

Fl. Jan. to March 1889 (Schweinf). Fr.: Jan. to March 1889 (Schweinf).

DISTRIB.: Abyssinia, Yaman.

2. *F. capreolata* L. Sp. Pl. (1753) 701; Boiss. Fl. Or. i, (1867) 136; Coss. comp. ii, 86; Hal. Consp. Fl. Graec. i, 45; Rehbch. Ic. iii, f. 4456; Durand & Barr. Prodr. Fl. Libyc. 9.

HABITAT.: I. Arab. Petr. (ex Dur. & Barr.).

DISTRIB.: Central Europe, Mediterranean region, Arabia Petraea.

3. *F. densiflora* D C. Cat. Hort. Monsp. (1813) 113; Muschler Fl. Eg. i, (1912) 382.—*F. micrantha* Liag. Gen. et Sp. nov. (1816) 21; Boiss. Fl. Or. i, (1867) 136.

HABITAT.: I. Arab. Petr. (ex Musch., Dur & Barr.).

DISTRIB.: Mediterranean region, S. Europe, Arabia Petraea, Persia, India.

4. *F. judaica* Boiss. Diagn. Pl. Or. ser. I, iii, (1849) 15; Fl. Or. I, (1867) 138.—*F. alexandrina* Ehrenb. Hausskn. Monogr. 43, t. v.

HABITAT.: I. Arabia Petr. (ex Musch.).

DISTRIB.: Egypt, Syria, Palestine.

5. *F. officinalis* L. Sp. Pl. (1753) 700; Boiss. Fl. Or. i, (1867) 134.

HABITAT.: I. Arab. Petr. (ex Musch.).

DISTRIB.: Middle and N. Europe, Mediterranean region, Asia, Abyssinia.

6. *F. parviflora* Lam. Encycl. II, (1786) 567; Boiss. Fl. Or. i, (1867) 135; Muschler Fl. Eg. i, (1912) 383.—*F. Vaillantii* Aschers. in Rohlfs Kufra 409 et 508, non Loisel.

HABITAT: I. Cultivated ground of Mt. Sinai, El Araba. (ex Schenk) in shady places of Mt. Sinai (H. K.!), Arab. Petr. (McDonald!), Sinai Peninsula (Schimp. 410!).

II. Yaman: Manakhah, alt. 2200 m (S. 1511!).

Fl.: March 1889 (Schweinf.); April 1835 (Schimp.).

Fr.: March 1889 (Schweinf.); April 1835 (Schimp.).

DISTRIB.: Europe, Mediterranean region, Abyssinia, Western Asia, India.

Vern. names: *Shaharraaj*, *Riz-ud-dejaj* (Post).

## VI. CRUCIFERAE.

1. *Matthiola* R. Br.

1. *M. arabica* Boiss. Ann. Sc. Nat. (1842) 49 ; Fl. Or. i, (1867) 152.—  
*M. tristis* Decne. (non R. Br.) Fl. Sin. in Ann. Sc. Nat. ser. 2 iii, (1835)  
270.

HABITAT : I. Wady Arbain (Rueppell ex Decne.), rocky places of Mt. Sinai (Schimp. 314 !), Mt. Sinai (Lord !), near the Monastery of Sinai (Aucher-Eloy 132 !), Sinai desert (Bové 133 !, H. James !) El Tor (Musch.), Arab. Petr. (McDonald ! Boiss !).

IV. Sprinkled all over the plain from Kuwait to Begat in Central Arabia (Pelly !)

Fl.: March 1846 (Boiss. ) ; May 1835 (Schimp.) ; June 1832 (Bové) ; Nov. 1870 (H. James.)

Fr.: March 1846 (Boiss.) ; May 1835 (Schimp.) ; May 1868 (Lord) ; June 1832 (Bové) ; Nov. 1870 (H. James.)

DISTRIB.: Apparently endemic.

Vern. names : *Chomchom* (Schimp.), *Homhom* (ex Decne.).

2. *M. bicornis* DC. Syst. ii, (1821) 177 ; Boiss. Fl. Or. i, (1867) 155.—  
*Cheiranthus bicornis* Sibth. & Sm. Prodr. xi, 26.

HABITAT : I. Arab. Petr. : Mt. Hebran (Schimp. 142 !).

Fl. : June 1835 (Schimp.). Fr. : June 1835 (Schimp.).

DISTRIB. : Mediterranean region.

3. *M. humilis* DC. Syst. ii, (1821) 177 ; Boiss. Fl. Or. i, (1867) 154 ;  
Musch. Fl. Eg. i, (1912) 397.—*M. pumilio* subsp. *hirta* Conti in Mém. Herb.  
Boiss. fasc. xviii, 69. *M. acaulis* DC. Syst. ii, (1821) 168 ; Prodr. i, (1824)  
133.

VAR. *typica* Musch. in Fedde Rep. iii, (1906) 214.

HABITAT : I. Neighbourhood of El Tor (ex Musch.).

DISTRIB. : Egypt, Arabia Petraea.

4. *M. incana* R. Br. in Ait. Hort. Kew. ed. 2, iv, (1812) 119 ; Boiss. Fl. Or. i, (1867) 148 ; Musch. Fl. Eg. i, (1912) 397.—*Cheiranthus incanus* L. Sp. pl. (1753) 662.

HABITAT : I. Arab. Petr. (ex Musch.).

DISTRIB. : Mediterranean region.

5. *M. livida* DC. Syst. ii, (1821) 174 ; Boiss. Fl. Or. i, (1867) 156.—  
*Cheiranthus tristis* Forsk. Fl. Aeg.-Arab. (1775) 116 (non L.).

HABITAT : I. Arab. Petr. (McDonald !), Desert of Suez (H. K. !), Sabelin (Ehrenb.)

Fl. : April (H. K.). Fr. April (H. K.).

DISTRIB. : Mediterranean region.

Vern. names : *Naegeisi*, *Schudjara* (Forsk.), *Schimschim* (Musch.).

6. *M. lunata* DC. Syst. ii, (1821) 176 ; Prodr. i, (1824) 135 ; Musch. in Verh. Bot. Ver. Prov. Brandenb. 49 (1907) 94.

HABITAT : J. Hammam-Sidna-Musa (Musch.).

DISTRIB. : Spain, Tunis, Sinai.

7. *M. oxyceras* DC. Syst. ii, (1821) 173 ; Boiss. Fl. Or. i, (1867) 155 ; Muschler Fl. Eg. i, (1912) 398 ; Carter in Rec. Bot. Surv. Ind. vi, (1917) 187.

HABITAT : I Arabia Petr. (Boiss., Pinard !), Hanara (Schimp. 431 !); Mt. Hebran (Schimp. 142 !), Sinai (Lord ! Aucher-Eloy !), Wady Ghurundel to Useit (Post 214 ! 182 !).

IV. Zor Hills (Cox).

Fl. : March 1835 (Schimp.) ; April 1846 (Boiss.) ; April 1838 (Lord) ; June 1835 (Schimp.).

Fr. : March 1835 (Schimp.) ; April 1846 (Boiss.) ; April 1868 (Lord) ; June 1835 (Schimp.).

DISTRIB. : Cyprus, Egypt, Sinai, Syria, S. Persia to Asiatic Turkey and Trans-Caucasia.

Vern. names. *Rische Abu Aehli* [Aehli means "father of a numerous family"] (Schimp.), *Shigara* (Cox).

Uses. See Carter l. c.

*M. oxyceras* DC. *forma gracilis*.

HABITAT : I. Central Midian (Burton).

Uses : Eaten by animals (Burton).

## 2. *Cheiranthus* L.

1. *C. Cheiri* L. Sp. pl. (1753) 661 ; DC. Syst. ii, (1821) 179 ; DC. Prodr. i, (1824) 139 ; Boiss. Fl. Or. i, (1867) 185 ; Musch. Fl. Eg. i, (1912) 399.—*C. Corinthius* Boiss. Diagn. Pl. Or. ser. 2, i, 18 ; Fl. Or. i, (1867) 186. *C. Lenoneri* Heldr. & Sartor Cat. Hort. Ath. 1862 ; Boiss. Fl. Or. i, (1867) 186.

HABITAT : I. Cultivated in Arabian gardens (Musch.).

DISTRIB. : Europe, Mediterranean region,

3. *Nasturtium* R. Br.

1. *N. coronopifolium* DC. Syst. ii, (1821) 194 ; Prodr. i, (1824) 138. — *Sisymbrium coronopifolium* Desf. Fl. Atl. ii, 82, t. 154. *Nasturtiopsis coronopifolia* Musch. Fl. Eg. i, (1912) 402 (partim).

HABITAT : I. South end of Dead Sea (Post).

DISTRIB. : Mediterranean region.

2. *N. officinale* R. Br. in Ait. Hort. Kew. (1812) 110.—*Sisymbrium Nasturtium* L. Sp. pl. (1753) 657. *N. fontanum* Aschers. in Fl. Prov. Brandbg. (1864) 32.

HABITAT : I. Arabia Petr. (ex Musch.).

DISTRIB. : Mediterranean region, temperate regions of the Northern hemisphere.

3. *N. palustre* DC. Syst. ii, (1821) 191 ; Boiss. Fl. Or. i, (1867) 179 ; Hook. f. Fl. Brit. Ind. i, (1872) 133.—*N. terrestre* R. Br. in Ait. Hort. Kew. ed. 2, IV, 110. *Sisymbrium barbareaefolium* Del. Fl. d'Eg. 19.

HABITAT : I. Arabia Petr. (ex Musch.).

DISTRIB. : Temperate region of Northern hemisphere. S. America, New Zealand.

4. *Nasturtiopsis* Boiss.

1. *Nasturtiopsis arabica* Boiss. Fl. Or. i, (1867) 237 ; Post Fl. Syr. etc. (1896) 64.—*N. coronopifolia* Musch. Fl. Eg. i, (1912) 402 (partim).

HABITAT : I. Arab. Petr. (Pinard ! Boiss !), "in valle Atal" (Schimp. 192 !), S. W. of Dead Sea (Lowne 203 !), Et Tih and southward (ex Post).

Fl. : March 1835 (Schimp.) ; March 1846 (Boiss.).

Fr. : March 1835 (Schimp.) ; March 1846 (Boiss.).

DISTRIB. : Arabia Petræa, Palestine.

Vern. name : *Cred Abu-Rei* (Schimp.)

[Abu-Rei nomen avis cujusdam nigrae.]

5. *Arabis* L.

1. *A. auriculata* Lam. Dict. 1, 219.

VAR. *sinaica* Boiss. Fl. Or. I (1867) 169.—*A. sinaica* Boiss. Diagn. pl. or ser. 1, viii, (1849) 21.

HABITAT : I. Sinai (Boiss !).

DISTRIB. : Of the type : Middle Europe, Mediterranean region.

Of the variety : Spain, Arabia Petræa.

2. *A. engleriana* Musch. in Verh. Bot. Ver. Prov. Brandenb. 49 (1907) 91.

HABITAT : I. Sinai (Musch.).

DISTRIB. : Endemic.

3. *A. schweinfurthiana* Musch. in Fedde Rep. iii, (1906) 213 ; in Verh. Bot. Ver. Prov. Brandenb. 49 (1907) 91.

HABITAT : I. Jebel Hammam-Sidna-Musa (Musch.).

DISTRIB. : Endemic.

#### 6. *Morettia* DC.

1. *M. canescens* Boiss. Diagn. Pl. Or. ser. 1, viii, (1849) 17 ; Fl. Or. i, (1867) 145.

HABITAT : I. Deserts of Tor and Sinai (Bové 141 !), between Tor and Mt. Sinai (Bové 232 !), Sinai (Drake ! Auch.-Eloy 136 ! Hart !), Arab. Petr. : Nukket, prostrate on sand and rocks (Schimp. 341 !), El Drabah and Et Tih (Post).

Fl. : April 1835 (Schimp.) ; June 1832 (Bové).

Fr. : April 1835 (Schimp.) ; June 1832 (Bové).

DISTRIB. : Endemic.

Vern. name : *Gherera* (Bové).

VAR. *ovalifolia* nov. var. [folia ovalia, margine nullomodo crenata, integra.]

HABITAT : II. Jiddah (Zohrab 86 ! 176 ! 199 !).

DISTRIB. : Endemic.

2. *M. parviflora* Boiss. in Ann. Sc. Nat. ser. 2, xvii, (1848) 60 ; Fl. Or. i, (1867) 146 ; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 184.

HABITAT : I. Central Midian (Burton !).

II. Shuqrah, E. of Aden (S. 109 !).

IV. Masqat in rocky places (Bornmüller 49 ! Auch.-Eloy 4076 !)

Fl. : Jan. 1893 (Bornmüller) ; March 1881 (Schimp.) ; April 1878 (Burton).

Fr. : Jan. 1893 (Bornmüller) ; March 1881 (Schweinf.) ; April 1878 (Burton).

DISTRIB. : Endemic.

Uses : Eaten by cattle (Burton).

3. *M. philaeana* DC. Syst. ii, (1821) 427 ; Dene. Fl. Sin. in Ann. Sc. Nat. ser. 2. iii (1835) 271 ; Boiss. Fl. Or. i, (1867) 145 ; Oliv. Fl. Trop. Afr. i, (1868) 61 ; Musch. Fl. Eg. i, (1912) 403. — *Sinapis philaeana* Del. Fl.

d'Eg. 99, t. 33. *M. asperrima* Boiss. Ann. Sc. Nat. (1842) 60; Diagn. Pl. Or. ser. 1. fasc. viii, 17.

HABITAT: I. Desert of Ka'a (Musch.), Deserts of Sinai and Tor (Rüppell ex Dene.).

IV. Masqat (Auch.—Eloy 4102!).

Fl.: August 1869 (Lord). Fr.: August 1869 (Lord).

DISTRIB.: Nubia, Egypt, Arabia, Palestine.

Vern. names: *Ghererna* (ex Dene.); *sagyer rabesche* (Musch.).

#### 7. *Notoceras* R. Br.

1. *N. bicornis* Caruel Fl. Tosc. (1860) 536.—*N. canariense* R. Br. in Ait. Hort. Kew. ed. 2, iv, (1821) 117; Boiss. Fl. Or. i, (1867) 314. *Erysimum bicornis* Ait. Hort. Kew. ed. I, ii, 394. *Diceratium prostratum* Lag. Gen. et Spec. 20.

HABITAT.: I. Sinai (Auch.—Eloy 118!), Valley Baruk (Bové 136!).

IV. Masqat (Auch.—Eloy 4169!).

Fr. June 1832 (Bové).

DISTRIB.: Mediterranean region, Baluchistan, Afghanistan, Punjab.

#### 8. *Anastatica* L.

1. *A. hierochuntica* L. Sp. Pl. i, (1753) 895; Forsk. Fl. Aeg.-Arab. (1775) 117; Dene. Fl. Sin. in Ann. Sc. Nat. ser. 2. iii (1835) 271; Schenk Sp. Pl. It. Aeg. Arab. & Syr. (1840) 44; Del. Ill. Fl. d'Eg. 574; Boiss. Fl. Or. i, (1867) 316; DC. Syst. ii, 425; Muschler Fl. Eg. i, (1912) 404.

HABITAT.: I. Foot of J. Nakus (Musch.), Wady Hamme (Schimp. 207!), Arabia Petr. (McDonald!), Desert between Suez and Tor (Bové 201!), N. Midian (Burton!).

II. Jiddah (Schimp. 819!).

Fl.: March (Schimp.); Dec. 1835 (Schimp.). Fr.: March (Schimp.); June 1832 (Bové).

DISTRIB.: Northern Africa, Arabia, Syria.

Vern. names: *Kaf marjam* i.e. hand of Mary (Forsk.); *gebid*, *keff-marjam*, *kammusch* (Klunz); *Kerschud* (Musch.).

Uses: The seeds are used in a superstitious way by women in labour (Forsk.).

#### 9. *Farsetia* Desv.

1. *F. aegyptiaca* Turra Farset. i, (1765) t. 1; Dene. Fl. Sin. in Ann. Sc. Nat. ser. 2, iii, (1835) 270; Schenk Sp. Pl. it. Aeg. Arab. & Syr. (1846) n. 284; Boiss. Fl. Or. i, (1867) 158; Muschler Fl. Eg. i, (1912) 419.—*F. Edgeworthii*, Hook. f. & Thoms. in Journ. Linn. Soc. v, (1861) 147. *Cheiranthus Farsetia* L. Mant. 94; *C. linearis* Forsk. Fl. Aeg. Arab. (1775) 120. *Lunaria scabra* Forsk. l. c. 117, t. 16. (*F. clypeata*, Bové n. 137).



**HABITAT.** : I. Between Wady Werdan and W. Ghurundel (Kneuck.), between rocks at foot of Mt. Sinai (Schimp 353 !), Arab. Petr. (McDonald! Boiss !), Sinai (Drake!). S. W. of Dead Sea (Lowne !), between Suez and Tor (Schenk !), Desert of Sinai (ex Dcne.), S. of Dead Sea (Post), Jebel Nakus Hammam-Sidna-Musa (Musch.).

Fl. : May 1835 (Schimp.). Fr. May 1835 (Schimp.).

• **DISTRIB.** : Morocco, Algeria, Tunisia, Tripolitania, Egypt, Arabia Petræa, Syria, India.

Vern. names : *Garbun* (ex Dcne.); *Djarba* (Forsk.); *Garba, haifal* (Musch.); *Turra* (Palmer); *Gjerba* (Schimp.).

Uses : Good camel fodder (Kneuck.).

**VAR. angustisiliquosa**, var. nov. (siliculae angustiores quam in planta typica).

**HABITAT.** : I. Sinai desert (Bové 137 !).

Fr. : June 1832 (Bové).

Vern. name : *Garbun* (Bové).

2. **F. Boivénii** Fourn. in Bull. Soc. Bot. France. xi, (1864) 56; Oliv. Fl. Trop. Afr. i, (1868) 62.

**HABITAT.** : Arabia (ex Ind. Kew.).

**DISTRIB.** : Tropical Africa, Arabia, India?

3. **F. Burtoni** Oliv. in Hook Ic. Pl. 1310.

**HABITAT.** : I. N. and Central Midian (Burton!).

**DISTRIB.** : Endemic.

4. **F. clypeata** R. Br. in Ait. Hort. Kew. ed. 2, iv, 96.—*Fibigia clypeata* Med. Pflanzengatt. 90, t. II. f. 23; Boiss. Fl. Or. i, (1867) 257; Muschler Fl. Eg. i, (1912) 420. *Alyssum clypeatum* L. Sp. Pl. (1753) 651. *Parsetia cheiranthifolia* Desv. Journ. Bot. iii, 173. *Alyssum cheiranthifolium* Willd. Enum. Pl. 218.

**HABITAT.** : I. Sinai (ex Musch.).

**DISTRIB.** : Egypt, Sinai, Syria, Palestine.

5. **F. depressa** Kotschy in Sitzb. kais. Akad. Wiss. lii, (1866) 261.

**HABITAT.** : II. Between Jiddah and the mountains of El Arysh (ex Kotschy).

**DISTRIB.** : Endemic.

6. **F. Hamiltonii** Royle Ill. Bot. Himal. (1839) 71; Hook. f. Fl. Brit. Ind. i, (1872) 140; Cooke Fl. Bomb. i, (1903) 31. *F. linearis* Dcne. in Ann. Sc. Nat. (1842), 150; Boiss. Fl. Or. i, (1867) 158. *Mathiola prostrata* Hochst. ex Steud. un. it exsicc. (1837) no. 862.

HABITAT: II. Jiddah (Zohrab 150 !), Arabia Felix (Bové !), near Taifa (Schimp. 862 !). IV. Masqat (Auch.-Eloy 4069 !), Central Arabia on stony places (Pelly !).

Fl.: March 1865 (Pelly) ; Dec. 1835 (Schimp.).

Fr.: Dec. 1835 (Schimp.).

DISTRIB.: N. Africa, Arabia, Persia, Afghanistan, Baluchistan, Sind.

7. *F. longisiliqua* Dcne. Pl. l'Arab. Heur. in Ann. Sc. Nat. ser. 2, iv (1835) 69 ; Boiss. Fl. Or. i, (1867) 159 ; Defl. Yemen (1889) 109 ; Schweinf. in Bull. Herb. Boiss. (1896) app. II, 185 ; Blatt. Fl. Aden (1914) 92. *F. stylosa* Anders. Fl. Aden (1860) 1. *Mathiola stylosa* Hochst. & Steud. in Schimp. Pl. Arab. Fel. n. 860.

HABITAT: I. Wady Hebran (Ehrenb. ! Musch.). II. Yaman : Oasis of Lahaj (Defl. 131 !), Yaman, (Bové !), Jiddah (Schimp. 860 ! Fischer 4 !), Shuqrah (S. 84 !), Aden (S. ! Defl. ! Hook. f. ! Birdwood ! Hildebr. !), rocky valleys between Ydiz and Mefhak, 1600 m. (Defl. 611 !).

Fl.: Feb. 1836 (Schimp.) ; March 1881 (Schweinf.) ; Oct.-Jun. (Fischer).  
Fr.: March 1881 (Schweinf.) ; Dec. (Schweinf.).

DISTRIB.: Central and Southern Arabia, Socotra, Eritrea, Nubia, Upper Egypt.

Vern. name: *Humma* (Musch.).

8. *F. ovalis*. Boiss. Diagn. Pl. Or. ser. I. viii, (1849) 32. *F. aegyptiaca* VAR. *ovalis* Post. Fl. Syr. etc. (1896) 80.

HABITAT: I. S. of Dead Sea (Post) ; Arab. Petr. (Boiss.). II. Masqat (Auch.-Eloy 4083 !).

DISTRIB.: Egypt, Arabia.

9. *F. ramosissima* Hochst. in Flora xxiv, (1841) I. Intell. 42 ; Musch. Fl. Eg. (1912) 419.

HABITAT: II. Ghattagah (S. 2 !). — Arabia (ex Musch.).

DISTRIB.: Egypt, Nubia, Arabia.

10. *F. rostrata* Schenk Sp. Pl. it. Aeg. Arab. & Syr. (1840) 42.—  
*Fibigia clypeata* Boiss. VAR *rostrata* Fourn. Rech. anat. Fam. Crucif. (1865) 13 ; Musch. Fl. Eg. (1912) 420 — *Fibigia rostrata* Boiss Fl. Or. i, (1867) 257.

HABITAT: I. Sinai (ex Musch.).

DISTRIB.: Egypt, Sinai, Palestine.

11. *F. sp. near longisiliqua*.

HABITAT: III. Hadramaut : Dhofar Mts. (Lunt 200 !).

**12. *Farsetia* sp.**

HABITAT: IV. Masqat (Bent 12!).

**10. *Aubrietia* Adans.**

1. *A. schweinfurthiana*. Musch. in Fedde Rep. iii, (1906) 212; in Verh. Bot. Ver. Prov. Brandenb. 49. (1907) 90.

HABITAT: I. Jebel Hammam—Musa (Musch.). II. Wady Mor (Ehrenb.!).

DISTRIB.: Endemic.

**11. *Alyssum* L.**

1. *A. arabicum* Dur. & Schinz Conspect. Fl. Afr. i, II, 86 — *Koniga arabica* Boiss. Diagn. Pl. Or. ser. 1, viii, 26; Fl. Or. i, (1867) 290. *Lobularia arabica* Muschler Fl. Eg. i, (1912) 421.

HABITAT: I. Desert Tih (Post!), Arab. Petr. (Boiss.).

Fl.: March 1882 (Post). Fr.: March 1882 (Post).

DISTRIB.: Egypt, Arabia, Palestine.

2. *A. homalocarpum* Boiss. Fl. Or. i, (1867) 285; Muschler Fl. Eg. i (1912) 422.—*Psilonema homalocarpa* Fisch. & Mey. Ind. Hort. Petrop. vi, 21. *A. korebicum* Boiss. Ann. Sc. Nat. (1842) 156.

HABITAT: I. Arab. Petr.: Mt. Horeb (Auch.-Eloy 257! Schimp.!).

DISTRIB.: Egypt, Arabia Petraea.

3. *A. libycum* Coss. in Bull. Soc. Bot. France iv, (1857) 467.—*Lobularia libyca* Webb. Phytogr. Can. i, (1836) 90; Muschler Fl. Eg. i, (1912) 421. *Koniga libyca* R. Br. Observ. Pl. coll. Oudney 8; Boiss. Fl. Or. i, (1867) 289. *Lunaria libyca* Viv. Fl. Libyc. 34, t. 16, f. 1.

HABITAT: I. Et Tih. (Post), Arab. Petr. (Ehrenb.!).

DISTRIB.: S. Spain, Morocco, Algeria, Tunisia, Tripolitania, Arabia Petraea, Persia.

4. *A. marginatum* Steud. in Schimp. pl. exs.; Boiss. Ann. Sc. Nat. (1842) 157; Fl. Or. I (1867) 282.

HABITAT: I. Mt. Sinai (Schimp. 126! Auch.-Eloy 258! Kneuck.), Plain of Raha (Kneuck.).

DISTRIB.: Arabia, Persia, Baluchistan.

5. *A. maritimum* Lam. Dict. i, 98.—*Lobularia maritima* Desv. Journ. Bot. iii, (1813) 162; Musch. Fl. Eg. i, (1912) 421.—*Koniga maritima* R. Br. in Observ. Pl. coll. Oudney 9; Boiss. Fl. Or. i, (1867) 289. *Clypeola maritima* L. Mant. 426.

HABITAT: I. Arab. Petr. (ex Musch.).

DISTRIB.: Mediterranean region.

12. *Malcolmia* R. Br.

1. *M. aculeolata* Boiss. Fl. Or. i, (1867) 226.—*Sisymbrium aculeolatum* Boiss. Ann. Sc. Nat. (1842) 75. *S. asperum* Schimp. Pl. Arab. exs. (non L.)

HABITAT : I. Arab. Petr. : Media altitud. montis S. Catharinae (Schimp. 124 !).

Fl. : April (Schimp.). Fr. : April (Schimp.).

DISTRIB. : Arabia, Persia, Baluchistan.

2. *M. aegyptiaca* Spreng. Syst. ii, (1825) 898 ; Muschler Fl. Eg. i, (1912) 404.—*Eremobium lineare* Boiss. Fl. Or. i, (1867) 157.—*Hesperis ramosissima* Del. Ill. Fl. d' Eg. 595, non Desf.—*H. diffusa* Decne. Fl. Sin. in Ann. Sc. Nat. ser. 2. iii, (1835) 271.

VAR. *linearis* Coss. Ill. Fl. Atl. i, (1883) 22, t. 15, f. 1—15 ; Muschler Fl. Eg. i, (1912) 405.—*Matthiola linearis*, Del. Fragm. Arab. Petr. 16, n. 56, f. 3.

HABITAT : I. Desert of Tor (Bové 184 !), Ras Hamam (Schimp 239 !) Sinai (Auch.-Eloy 124 !), Arab. Petr. (Boiss. ! McDonald ! Pinard !), Et Tih and southward (Post) ; Sinai : Wady Sewook and neighbourhood (Lord !), North Midian (Burton). II. Jiddah (Fischer 117 !). IV. Central Arabia (Pelly !).

Fl. : March 1846 (Boiss.), March (Schimp.), April 1868 (Lord), June 1832 (Bové), Dec. (Fischer). Fr. : March 1846 (Boiss.), March (Schimp.), April 1868 (Lord), June 1832 (Bové).

DISTRIB. : Northern Africa, Arabia, Palestine.

Vern. name : *Tarbeh*.

Uses : Eaten by animals (Burton). A very variable plant.

3. *M. africana* R. Br. in Ait. Hort. Kew. ed. 2, iv, 121 ; Boiss. Fl. Or. i, (1867) 223.—*Hesperis africana* L. Sp. Pl. (1758) 663.

HABITAT : I. At foot of Sinai and J. Catherine (Schimp. 233 !), Et Tih (Post), Oasis of Feiran 600 m, J. Catherine 2450 m, Plain of Raha 1500 m, Wady es Shaikh ca 800 m (Kneuck.).

Fl. : April (Schimp.).

DISTRIB. : Mediterranean region, S. Russia, India, Tibet.

4. *M. pulchella* Boiss. Fl. Or. i, (1867) 222.—*Hesperis pulchella* DC. Syst. ii, (1821) 455.

HABITAT : I. Arab. Petr. : Palaestinam versus (Boiss.), between Akaba and Suez (Milne !), Et Tih (Post).

Fl. : Jan. 1874 (Milne), March 1846 (Boiss.).

Fr. : Jan. 1874 (Milne), March 1846 (Boiss.).

DISTRIB. : Mediterranean region.

VAR. *pygmaea* Post. Fl. Syr. etc. (1896) 68.—*Hesperis pygmaea* Del. Ill. Flor. d'Eg. 19.

HABITAT. : I. Et Tih and southward (Post).

DISTRIB. : Mediterranean region, Persia.

5. *M. torulosa* Boiss. Fl. Or. i, (1867) 225 ; Hook. f. Fl. Brit. Ind. i, (1872) 146.—Carter in Rec. Bot. Surv. Ind. vi, (1917) 187. *Hesperis angustifolia* DC. Syst. ii, (1821) 459.—*Sisymbrium torulosum* Desf. Fl. Atlant. ii, 48, t. 159.

HABITAT : I. Arab. Petr. (Boiss.), Et Tih (Post).

IV. Zor Hills (Cox 60).

Fl. : April 1846 (Boiss.). Fr. : April 1846 (Boiss.).

DISTRIB. : Mediterranean region, Persia, Punjab.

Vern. name : *Haraf* (Cox).

VAR. *contortuplicata* Boiss. Fl. Or. i, (1867) 225.

HABITAT. : I. Et Tih (Post).

DISTRIB. : Same as type.

### 13. *Sisymbrium* L.

1. *S. erysimoides* Desf. Fl. Atl. ii, (1798) 84, t. 158 ; Boiss. Fl. Or. i, (1867) 217 ; Muschler Fl. Eg. i, (1912) 408.—*S. rigidulum* Lag. Nov. Gen. 20; (non Dene.). *Tachypodium erysimoides* Webb. Phytogr. Can. i, 75. *S. nitidum* Zea in Desf. Cat. Hort. Paris n. 153. *S. Zeae* Spr. Syst. ii, 904 ; Fourn. Monogr. 92.

HABITAT : I. Oasis Feiran and Wady Alevat, 600—750 m (Kneuck.), N. and Central Midian (Burton!).

II. Yaman (Defl. 424 !), below Manakhah, alt. 1800 m (S. 1151 !), Begma near Hodjeila, alt. 800 m (S. 963), J. Bura near Hille, alt. 1000 m (S. 412), in coffee plantations as a weed (S.).

Fl. : Feb. 1889 (S.). Fr. : Feb. 1889 (S.).

DISTRIB. : Tunisia, Algeria, Morocco, S. Spain, Egypt, Syria, Arabia, Persia, Abyssinia.

Uses : Eaten by camels and sheep (Burton).

2. *S. Irio* L. Sp. Pl. (1753) 659 ; Dene. Fl. Sin. in Ann. Sc. Nat. ser. 2. n, (1834) 271 ; Schenk Sp. Pl. it. Aeg. Arab. & Syr. (1840) n. 293 ; Boiss. Fl. Or. i, (1867) 217 ; Defl. Yemen (1889) 109 ; Muschler Fl. Eg. i, (1912) 407.—*Descrænia Irio* Webb. Phytogr. Can. i, 73. *S. ramulosum* Poir. Suppl. et DC. Syst. ii, (1821) 482.

HABITAT : I. In cultivated ground near Sinai (Bové 138 ! 139 ! Shenk !), Arab. Petr. (ex Dur. & Barr.), Wady Taifa and Plain of Raha (Kneuck.).

II Near Manakhah, borders of fields, 2300 m (Defl. 272).

Fl. : Junc 1832 (Bové). Fr. : June 1832 (Bové).

DISTRIB. : From Central and Southern Europe to the Caucasus, Egypt, Arabia, Persia, Baluchistan, India.

Vern. name . *Siligh* (ex Dene.).

3. *S. Kneuckeri* Bornm. in Allg. Bot. Zeitg. (1903) 45, 127.

HABITAT : I. Shady places at foot of Mt. Catherine, ca 1800—1850 m (Kneuck.), foot of Mt. Serbal, 1,100—1,400 m. (Kneuck.).

DISTRIB : Endemic.

Kneucker makes of the specimen found at the foot of Mt. Serbal the forma *Aprica* (l. c.).

4. *S. pumilum* Steph. in Willd. iii, 507 ; Boiss. Fl. Or. i, (1867) 213.—*S. Schimperi* Gay in Pl. Schimp. (non Boiss.). *S. cabulicum* Hook. et Thom. in Journ. Linn. Soc. v, (1861) 161.

HABITAT : I. Mt. Catherine (Schimp. 171 !).

Fl. : April (Schimp.). Fr. : April (Schimp.).

DISTRIB. : Mediterranean region, Persia, Afghanistan, Baluchistan, Turkistan.

Vern. name . *Um el grenat* (Schimp.).

5. *S. rigidulum* Dene. Fl. Sin. in Ann. Sc. Nat. ser. 2. iii, (1835) 272 —*S. pannonicum* Jacq. Coll. i, 70, Ic. rar. t. 123 ; VAR. *rigidulum* Boiss. Fl. Or. i, (1867) 217.

HABITAT : I. Mt. Sinai (Schimp. 122 !), top of Mt. Sinai (Bové 138 !), Sinai (Auch.—Eloy 138 !), Arab. Petr. (McDonald !), W. es Sleh, Wady Taifa and plain of Raha, 400—1,500 m. (Kneuck.)

Fl. : April (Schimp.), June 1832 (Bové). Fr. : April (Schimp.), June 1832 (Bové).

DISTRIB. : Arabia, Persia.

Vern. name : *Siligh* (Bové).

6. *S. runcinatum* Lag. in DC. Syst. ii, (1821) 478 ; Boiss. Fl. Or. i, (1867) 220.—*S. confertum* Stev. Verz. Taur. 71.

HABITAT : Arab. Petr. (Boiss.).

DISTRIB. : Mediterranean region, Caucasus, Mesopotamia.

7. *S. Schimperi* Boiss. Ann. Sc. Nat. (1842) 76 ; Fl. Or. i, (1867) 215.—*S. Sophia* VAR. *Schimperi* Hook. f. et Th. in Journ. Linn. Soc. v, (1861) 158.—*Robeschia sinaica* Hochst in Schimp. pl. exs. *S. Robesetti* Steud. Nym. Bot. ed. 2. ii, 594.

HABITAT. : I. Templum Eliae] Mt. Sinai inter glareas graniticas (Schimp. 170 !), J. Musa, ca 2,100 m. towards top of J. Catherine, ca 2450 m. (Kneuck.).

Fl. : April (Schimp.). Fr. : April (Schimp.).

DISTRIB. : Arabia, Persia, Afghanistan, Baluchistan.

Vern. name : *Robesetti* (Schimp.).

8. *S. stigmatosum* Steud. Nom. Bot. ed. 2. ii, 595.

HABITAT : I. Arab. Petr. (Schimp. 192 ex Steud. l. c.)

DISTRIB. : Endemic.

#### 14. *Leptaleum* DC.

1. *L. filifolium* DC. Syst. i, (1818) 511 ; Boiss. Fl. Or. i, (1867) 213 ; Deless. Ic. ii, t. 68 ; Muschler Fl. Eg. i, (1912) 423.—*L. pygmaeum* DC. Syst. ii, (1821) 511.

HABITAT : I. J. Hammam-Sidna-Musa (Musch.).

DISTRIB. : Egypt, Arabia Petraea, Turkestan, Persia, Afghanistan, Baluchistan.

Vern. name : *Resesah* (Musch.).

#### 15. *Camelina* Crantz.

1. *C. hispida* Boiss. in Ann. Sc. Nat. (1842) 176 ; Fl. Or. i, (1867) 302 ; Muschler Fl. Eg. i, (1912) 423.

HABITAT : I. Arab. Petr. (ex Musch.).

DISTRIB : Egypt, Arabia Petraea, Syria, Mesopotamia, Persia, Armenia.

#### 16. *Brassica* L.

1. *B. bracteolata* Fisch. & Mey. in Linnaea xii, (1838) 153 ; Boiss. Fl. Or. i, (1867) 391 ; Muschler Fl. Eg. i, (1912) 410.

HABITAT : I. Sinai (ex Musch.).

DISTRIB : Egypt, Sinai, Syria.

2. *B. campestris* L. ; DC. Syst. Veg. ii, 588 ; Oliv. Fl. Trop. Afr. i, (1868) 66. — *B. amplexicaulis* Hochst., Rich. Fl. Abyss. i, 23. *Erysimum amplexicaule* Rich l. c.

HABITAT : II. Yaman : Above Manakhah, near el-Ejan alt. 2700 m (S. 1645) ; run wild in barley fields.

Uses : This plant was formerly cultivated a good deal as an oil-plant until the oil was replaced by the much cheaper petroleum.

Fr. : Feb. 1889 (S.).

DISTRIB. : Throughout Europe and greater part of Asia, Abyssinia, Arabia.

Vern. name ; *Chardal* (S.)

3. *B. juncea* Hook. f. & Th. in Journ. Linn. Soc. v, 170; Hook f. & T. Anders. Fl. Brit. Ind. i, pt. I (1872) 157.—*B. Willdenowii* Boiss. in Ann. Sc. Nat. (1842) 88. *Sinapis juncea* L. Sp. pl. (1753) 668.

HABITAT. : IV. Near Masqat (Aucher-Eloy!).

DISTRIB. : Cultivated from Egypt to China.

4. *B. napus* L. Sp. pl. (1753) 666; Boiss. Fl. Or. i, (1867) 392.

HABITAT. : II. Cultivated in Yaman.

5. *B. nigra* Koch Deutsch. Fl. iv, (1833) 713; Boiss. Fl. Or. i, (1867) 390.—*Sinapis nigra* L. Sp. pl. (1753) 668.

HABITAT. : I. Arab. Petr. (Post).

DISTRIB. : Mediterranean region, Central Europe.

6. *B. oleracea* L. Sp. pl. (1753) 667 and *B. oleracea* L. var. *botrytis* DC.

HABITAT. : II. Cultivated in Yaman. (Defl.).

DISTRIB. : Cosmopolitan. Cultivated.

7. *B. Schimperii* Boiss. in Ann. Sc. Nat ser. 2, xvii, 86; Oliv. Fl. Trop. Afr. i, (1868) 66.—*Erucastrum arabicum* F. & M. in Linnaea xiii, Lit. Bl. 109 (ex Boiss.); Boiss. Fl. Or. i, (1867) 389.

HABITAT : II. Yaman: Wady Aggara near Hodjela, alt. 600 m (S. 913); J. Bura above Hille, alt. 1,000 m (S. 412, 540), in maize fields and in coffee plantations; Jiddah (Zohrab 238!); Fatimah in cult. ground (Fischer!); near Tayfa in cult. ground (Schimp. 941!).

III. Hadramaut (Hirsch 159!).

IV. Masqat (Auch.-Eloy 4160!).

Fl. : Jan. 1889 (S.); Dec. 1835 (Schimp.). Fr. : Jan. 1889 (S.); Dec. 1835 (Schimp.).

DISTRIB : Abyssinia, Eritrea, Arabia.

Vern. name : *Asb-el-biss* (?).

8. *B. Tournefortii* Gouan. Ill. (1773) 44, F. 20, F. a; Boiss. Fl. Or. i, (1867) 393; DC. Syst. ii, 602; Muschler Fl. Eg. i, (1912) 411.

HABITAT : I. Arab. Petr. (Dur. & Barr.); Sinai (H. K.!) Auch.-Eloy 322!; cultivated ground of Oasis Feiran ca 600 m. (Kneuck.).

DISTRIB. : S. Spain, Italy, Asia Minor, Tunisia, Algeria, Egypt, Arabia, Petraea, Palestine, Upper Gangetic Plain & Western Tibet.

### 17. *Sinapis* L.

7. *S. arvensis* L. Sp. Pl. I (1753) 668; Boiss. Fl. Or. i, (1867) 394; Dur. & Barr. Fl. Libyc. Prodr. (1910) n. 58; Muschler Fl. Eg. i, (1912) 412.—*S. aurica* DC. Syst. ii, 617 (non M. B.).



HABITAT: I. Arabia Petr. (ex Dur. & Barr.).

DISTRIB: Northern and Central Europe, Mediterranean region, Egypt, Arabia Petraea, Mesopotamia, Turkestan.

### 18. *Diplotaxis* DC.

1. *D. acris* Boiss. Fl. Or. i, (1867) 389 — *Hesperis acris* Forsk. Fl. Aeg. Arab. (1775) 118. *Brassica fragilis* Sieber, ex Spreng. Syst. ii, 912. *D. Sieberi* Presl in Bot. Bemerk. 10.

HABITAT: I. Et Tih and southward (Post); Arab. Petr. (McDonald! Pinard!); Wady Gurra (Schimp. 444!); Desert of Tih (Boiss.!); between Akaba and Suez (Milne!); Wady Gennah (Lord!); North Midian (Burton!).

II. Jiddah (Zohrab 139!).

Fl.: March 1846 (Boiss.), April & May (Lord), June (Schimp.).

Fr.: March 1846 (Boiss.), April & May (Lord), June (Schimp.).

DISTRIB.: Egypt, Arabia, Palestine.

Vern. name: *Sphaeri* (Forsk), *Shuqaiyar* (Post), *Jehag, meddad, safirg* (Musch.).

2. *D. erucoides* DC. Syst. ii, (1821) 631; Boiss. Fl. Or. i, (1867) 388. — *Sinapis erucoides* L. Amoen. iv, 322.

HABITAT: I. Arab. Petr. (Post). II. Fatimah in cultivated fields (Fischer 189!).

Fl.: Feb. 1837 (Fischer). Fr.: Feb. 1837 (Fischer).

DISTRIB.: Mediterranean region.

3. *D. Harra* Boiss. Fl. Or. i, (1867) 388; Muschler Fl. Eg. i, (1912) 413. — *Sinapis Harra* Forsk. Fl. Aeg.-Arab. (1775) 118. *Sisymbrium pendulum* Desf. Fl. atl. ii, 82, t. 156. *D. pendula* DC. Syst. ii, (1821) 630. Schenk Sp. Pl. it. Aeg. Arab. & Syr. (1840) n. 295; Anders. Fl. Aden. (1860) 2; Blatt. Fl. Aden 93.

HABITAT: I. Sinai (Holland!), Sinai in cultivated ground (Bové 140!); Arab. Petr. (McDonald! Boiss.); near Hanara (Schimp. 191!); Wady Feiran, W. Gennah (Lord!); Et Tih (Post); Central Midian (Burton!).

II. Aden. (Defl.! Busse! Hook. f.! Birdwood!); near Taifa in cultivated ground (Schimp. 941!).

III. Dhofar Mts.: Wady Gerzu alt. 500 ft. (Bent 193!).

Fl.: April 1846 (Boiss.), May 1868 (Lord), Dec. 1835 (Schimp.). Fr.: April 1846 (Boiss.), May 1868 (Lord), June 1832 (Bové), Dec. 1835 (Schimp.).

DISTRIB.: Spain, Sicily, Morocco, Algeria, Tunisia, Tripolitania, Egypt, Syria, Palestine, S. Persia, Arabia.

Vern. name: *Harah* (Schimp.).

4. *D.* sp. Carter in Rec. Bot. Surv. Ind. vi (1917) 186.

HABITAT : IV. Zor Hills (Cox 29).

### 10. *Eruca* Tourn.

7. *E. sativa*. Lam. Fl. Franc. ii, (1778) 496 ; Boiss. Fl. Or. i, 396 ; Baker in Kew Bull. (1894) 328 ; Muschler Fl. Eg. i, (1912) 416.—*E. stenocarpum* Boiss. & Reut. Pug. 3. *Brassica eruca* L. Sp. Pl. (1753) 667 ; DC. Syst. ii, 637.

HABITAT : I. Between Suez and Akaba (Milne ! ) III. Hadramaut : Cultivated at Katan (Lunt ! ).

DISTRIB. : Central Europe, Mediterranean region, Egypt, Mesopotamia, India.

Vern. name : *Buckl* (Lunt). Uses : The roots are used as a salad (Lunt).

### 20. *Savignya* DC.

1. *S. aegyptiaca* DC. Syst. ii, (1821) 283, non Coss. ; Dcne. Fl. Sic. in Ann. Sc. Nat. ser. 2 iii, (1835) 270 ; Schenk Sp. pl. it. Aeg. Arab. & Syr. (1840) n. 283 ; Boiss. Fl. Or. i, (1867) 397 ; Carter in Rec. Bot. Surv. Ind. vi, (1917) 185.—*Lunaria parviflora* Del. Fl. Aeg. Ill. n. 584. *S. parviflora* Webb. Fragm. Aeg. (1854) 47 ; Musch. Fl. Eg. I, (1912) 417.

HABITAT : I. Et Tih and southward (Post) ; Wady es Sle, Wady Ghurundel (Kneuck) ; near el Araba (Schenk) ; neighbourhood of Tor (Bové) ; near Hanara (Schimp. 242 ! ) ; Wady Ghurundel (Post 213 ! ) ; Arabia Petr. (Pinard ! McDonald ! ).

IV. Central Arabia, found sparingly during the march of the 18th, 19th & 20th February 1865 (Pelly ! ) ; Arabia (Wellsted ! ) ; Zor Hills (Cox 13).

Fl. : March 1865 (Pelly), March (Schimp.).

Fr. : March 1865 (Pelly), March (Schimp.).

DISTRIB. : Tripolitania, Arabia, Mesopotamia.

Vern. name : Hbalâwah (Post), Guigulan, gulajalan (Cox), reshad gobely (Musch.).

*Var. oblonga* Boiss. Diagn. pl. or. viii, (1849) 31 ; Fl. Or. i, (1867) 397.

HABITAT : I. Arab. Petr. : Wady Mokatteb (Boiss. ! ).

Fl. : March 1846 (Boiss.). Fr. : March 1846 (Boiss.).

DISTRIB. : Endemic.

### 21. *Mericandia* DC.

1. *M. arvensis* DC. Syst. ii, (1818) 626 ; Boiss. Fl. Or. i, (1867) 386 ; Hook. f. & T. Anders in Fl. Brit. Ind. i, pt. I (1872) 158 ; Hook f. Plants of the Peninsula (of Sinai) in Palmer's Desert of the Exodus (1871), in extract p. 1.—*Brassica arvensis* L. Mant. 95.

HABITAT : I. Sinai Peninsula (Palmer !); neighbourhood of El Tor (Musch.)

DISTRIB. : Mediterranean region, N. W. India.

Vern. name : Rorub (Musch.)

*Var. suffruticosa* Coss. Comp. Fl. Atl. ii, (1883) 157; Musch. in Verh. Bot. Ver. Prov. Brandenb. 49, (1907) 94.—*M. suffruticosa* Coss. & Dur. Ann. Sc. Nat. ser. 2, iv, 282.

HABITAT : I. Coast of Sinai Peninsula (Musch.).

2. *M. clavata* Boiss. & Reut. ap. Boiss. Diagn. Pl. Or. Ser. 2, v, (1856) 25; Fl. Or. 387; Muschler Fl. Eg. i, (1912) 416.

HABITAT : I. Arab. Petr. (McDonald !), Desert Tih (Boiss. !), in a dried-up salt river in the Wady Atal (Schimp. 205 !).

Fl. : March (Schimp.). Fr. : March (Schimp.).

DISTRIB. : Tripolitania, Arabia Petræa.

3. *M. nitens* Durand & Barr. in Fl. Libyc. Prodr. (1910) 15; Muschler Fl. Eg. i, (1912) 415.—*M. dumosa* Boiss. Diagn. Pl. Or. viii, (1849) 25; Fl. Or. i, (1867) 386.—*M. divaricata* Coss. ap. Kral Pl. Alger. exsicc.; Coss. in Ill. Fl. Atl. i, 35, t. 25; Coss. Comp. ii, 158. *M. spinosa* Pomel Nouv. mat. 365. *M. suffruticosa* var. *nitens* Aschers. & Schweinf. Ill. Fl. d'Eg. 41; Sickenb. Contr. Fl. d'Eg. 177; Aschers.—Schweinf. Primit. Fl. Marm. 593, n. 18; Aschers. Fl. Rhinocol. 790, n. 28.—*Hesperis nitens* Viv. Fl. Libyc. 1824, 38, t. 5, f. 3.

HABITAT : I. Desert Tih (Boiss. ! Picaard ! Post); Wady el Ain (Hart !).

Fl. : March 1846 (Boiss.).

DISTRIB. : Algeria, Tripolitania, Cyrenaica, Egypt, Arabia Petræa.

Vern. name : *Hhamimah* (Post).

4. *M. papillosa* Steud. Nom. Bot. ed. 2, ii, 161.—*M. arvensis* Heb. Arab. un. it. n. 286 (ex Steud.).

HABITAT : I. Arab. Petr. (Schimp. !).

DISTRIB. : Endemic.

5. *M. sinaica* Boiss. in Boiss. Fl. Or. i, (1867) 386; Muschler Fl. Eg. i, (1912) 415.—*Brassica sinaica* Boiss. in Ann. Sc. nat. (1842) 85.

HABITAT : I. Wady Atal (Schimp. !), Et Tih and southward (Post); Wady el Ain (Hart !); Wady Feiran (Lord ! Post !); Arab. Petr. (McDonald !); Sinai (Aucher-Eloy 167 !); Desert of Tor and Sinai (Bové 143 !); Wady es Sle, 200—500 m. (Kneuck.).

Fl. : May 1868 (Lord). Fr. : May 1868 (Lord), June 1832 (Bové).

DISTRIB. : Egypt, Sinai, Persia, Baluchistan.

Vern. name: *Archsay-el-ghemel* (Bové), *Khusain-el-Jemal*, *Yahaq* (Post).

## 22. *Carrichtera* Adans.

*C. annua* Aschers. Ind. Sem. Hort. Berol. (1866) 13. *C. Vellae* DC. Syst. ii, (1821) 642; Boiss. Fl. Or. i, (1867) 397; Carter in Rec. Bot. Surv. Ind. vi, (1917) 185. *Vella annua* L. Sp. pl. (1753) 641.

HABITAT: I. Sinai Peninsula (Fox!); Et Tih and southward and eastward (Post). IV. Zor Hills (Cox 301), grows everywhere except in swamps.

Fl.: January 1867 (Fox), March-May (Post). Fr. Jan. 1867 (Fox).

DISTRIB. : Mediterranean region, Persia.

Vern. name: *Khishshain* (Cox); *ginebra aelenqela* (Musch). Uses: Camels and other animals graze freely on this plant (Cox).

## 23. *Capsella* Moench.

1. *C. bursa-pastoris* Moench Meth. (1794) 271; Boiss. Fl. Or. i, (1867) 340; Muschler Fl. Eg. i, (1912) 424. *Thlaspi bursa-pastoris* L. Sp. pl. (1753) 647.

HABITAT: I. Arab. Pet. (ex Dur. & Barr.). II. Yaman: Above Manakhah, near Kahil and el-Ejan, alt. 2,500-2,700 m. (S. 1448), a weed in Lucerne and Barley fields.

Fl.: Feb. 1889 (S.). Fr.: Feb. 1889 (S.).

DISTRIB. : All temperate regions.

## 24. *Coronopus* Gaertn.

1. *C. squamatus* Aschers. in Flor. Provinz. Brandbg. (1860) 62. *Lepidium squamatum* Forsk. Fl. Aeg. Arab. (1775) 117. *C. verrucarius* Muschler & Thellung in Mttlg. Bot. Mus. Zuerich xxviii, (1906) 318. *Cochlearia coronopus* L. Sp. pl. (1753) 648. *Senebiera coronopus* Poir. Dict. vii, 76; Boiss. Fl. Or. i, (1867) 363.

HABITAT: I. Arab. Petr. (Post).

DISTRIB. : Europe, Mediterranean region, Transcaucasus.

Vern. name: *Reshad barri* (Post), *Hab raschat* (Forsk).

## 25. *Lepidium* L.

1. *L. armoracium* Fisch. & Mey. Ind. Sem. Hort. Petrop. ix, 77; Oliv. Fl. trop. Afr. i, (1868) 69; Schweinf. in Bull. Herb. Boiss. (1896) app. II, 181; Thell. in Vierteljahrschr. Nat. Ges. Zurich li, (1906) 170.

Subsp. *abyssinicum* Thell. l. c. 172. *L. abyssinicum* Hochst. in Pl. Schimp, Abyss. sect. II: n. 741; Rich. Fl. Abyss. I, (1847) 21. *L. armoracia* Fisch. & Mey. l. c. sens. strict.

HABITAT: II. Yaman : Manakhah, near the well not far from the hospital, alt. 2,200 m. (S. 1392, partim),

Fl. : Febr. 1889 (S.). Fr. : Febr. 1889 (S.).

DISTRIB. : Abyssinia, Yaman.

Subsp. *intermedium* Thell. l. c. 172. *L. intermedium* A. Rich. Tent. Fl. Abyss. i, (1847) 21 (sens. ampl.). *L. ruderale* Oliv. Fl. trop. afr. i, (1868-69) (partim).

VAR. *alpigenum* Thell. l. c. 172. *L. alpigenum* A. Rich. Tent. Fl. Abyss. i; (1847) 22. *L. ruderale* VAR. *alpigenum* Oliv. Fl. trop. Afr. i, (1868) 69. ?*L. alpinum* Forsk Fl. Aeg. Arab. (1775) CXVI (non L.). *L. ruderale* Dell. Yemen (1889) 109 (non L.).

HABITAT: II. Yaman : On the borders of fields near Manakhah, 2,900 m. (Dell. 386); Manakhah, well near hospital 2,200 m. (S. 1392, partim).

DISTRIB. : Abyssinia, Eritrea, Yaman.

2. *L. Aucheri* Boiss. in Ann. Sc. Nat. ser. 2. xvii, (1842) 195 ; Fl. Or. i, (1867) 354 ; O. Ktze. in Act. Hort. Petrop. x, 1(1887) 166; Post Fl. Syr. etc. (1896) 89 ; Muschler Fl. Eg. i, (1912) 425. *Nasturtium Aucheri* O. Ktze. Rev. Gen. Pl. i, (1891) 973. *L. babylonicum* Auch. ined. in Herb. ex Thellung Monogr. Gattg. Lepid. 120. *L. Kaji* Post. ined. in Herb. Barb. Boiss.

HABITAT: I. Arab. Petr. (ex Musch.).

DISTRIB: Egypt, Arabia, Palestine, Syria, Mesopotamia, Persia, Afghanistan, Baluchistan and Turkistan.

3. *L. chalepense* L. Cent. plant., ii, (1756) 23 ; DC. Syst. ii, (1821) 530 ; Boiss. Fl. Or. i, (1867) 357 ; Post Fl. Syr. etc. (1896) 90. Thell. in Vierteljahrsschr Nat. Ges. Zurich li, (1906) 88. *L. Draba* β. L. Sp. pl. (1753) 645. *Cochlearia Draba* Del. Frag. Fl. Arab. Petr. (1833) 16 (non L.) *L. Draba* Decne. Fl. Sin. in Ann. Sc. Nat. ser 2. iii, (1835) 272, (non L.)

Var. *typicum* Thell l. c.; f. *glabratum*, *pubescens*, *canescens*, DC. Syst. ii, (1821) 530.

HABITAT: I. Wady Arbain in Arab. Petr. (Schimp. 400!); Sinai, cultivated ground (Bové 135!); Sinai (Botta !); Et-Tor (Musch.); El Bostan (F. Grotan 54 !).

Fl. : April 1835 (Schimp.).

DISTRIB. : Kordofan, Mediterranean region, Arabia, Mesopotamia, Persia, Baluchistan.

Vern. name : *Nefele* (Schimp.).

4. *L. Draba* L. Sp. pl. (1753) 645 (excl. var. β. DC. Syst. ii, (1821) 529) ; Schenk Sp. pl. it. Aeg. Arab. et Syr. (1840) n. 294 ; Boiss. Fl. Or. ,

(1867) 356; Thell. in Viertelj. Nat. Ges. Zurich. li, (1906) 86. — *Cochlearia Draba* L. Sp. pl. ed. 2 (1763) 904; Del. Fl. Aeg. Ill. (1813) n. 579. *Nasturtium Draba* Crantz Crucif. (1769) 91. *L. arvense* Mill. Gard. Dict. ed. 8 (1768) n. 2. *L. chalepense* Ledeb. herb. et Fl. Ross. I (1842) 203 (non L.).

HABITAT: I. Sinai, cultivated ground (Drake 28!); near the Well Marah (Schenk); Wady Arbair, 5,000 ft., Wady Shaikh, 4,000 ft. (Ruppell).

II. Yaman (Defl. ex Thell.).

Fr. : June 1832 (Bové).

DISTRIB.: Europe, Mediterranean region, Persia, Punjab, temperate Asia.

Vern. name : *Neffélé* (Bové).

5. *L. latifolium* L. Sp. Pl. i, (1753) 644; Thellung Monogr. Lepid. 158; DC. Syst. ii, (1821) 548; Boiss. Fl. Or. i, (1867) 359; Hook. f. Fl. Brit. Ind. i, pt. I (1872) 160; Post Fl. Syr. etc. (1896) 90.—*Cardaria latifolia* Jaub. and Sp. Hist. Veg. Phan. vi, (1838) 546. *Nasturtium latifolium* Gillet & Mag. Nouv. Fl. Franc. ed. 3. (1873) 48. *L. heliopolitanum* Ehrbg. ined. in Herb. Berol. (ex Thellung).

HABITAT: II. Yaman: In the upper plain round Sanah, alt. 2,300 m. along ditches near Raudah (Defl. 495); near the wells of Sinan Pasha (Defl. 562).

DISTRIB.: Europe, N. Africa, through Arabia to Himalaya and Altai.

*Var. linearifolium* Trautvetter Enum. pl. Songar. in Bull. Soc. Nat. Mosc. xxxiii, 1 (1860) 129.

HABITAT: Arabia (ex Thellung).

DISTRIB.: Asia Minor, Arabia.

6. *L. sativum* L. Sp. pl. (1753) 644; DC. Syst. ii, (1821) 533; Boiss. Fl. Or. i, (1867) 354; Thell. in Vierteljahrsschr. Nat. Ges. Zurich li, (1906) 123.—*L. hortense* Forsk. Fl. Aeg. Arab. (1775) lxxix, n. 311; Del. Fl. Aeg. Ill. 19.

HABITAT: I. Sinai (Botta!), Arabia Petr. (ex Musch.) II Taifa (Botta!), Jiddah (Zohrab 170!); Yaman, cultivated in the plains (Forsk.). III. Hadramaut: Ghatan, growing with crops on irrigated grounds, alt. 1,100 ft. (Lunt 157!).

Fl. : Jan. 1894. (Lunt). Fr. Jan. (Lunt).

DISTRIB.: Cultivated everywhere, origin unknown.

Vern. name : *Habrasjat* (Forsk.). According to Thellung l. c. Botta's and Zohrab's specimens belong to *var. silvestre* Thell.

7. *L. Schweinfurthii* Thell. in Vierteljahrsschr. Nat. Ges. Zurich li, 182 (1906).—*L. Armoracia* Schweinf. in Bull. Herb. Boiss. (1896) App. II, 483 (partim quoad loc. arab.), (non Fisch. & Mey.).

HABITAT : II. Manakhab, well near hospital, 2,200 m. (S. 1,392, partim.)  
 DISTRIB. : Endemic.

### 26. *Schouwia* DC.

1. *S. purpurea* Schweinf. in Bull. Herb. Boiss. (1396) app. II, 183.—*S. arabica* DC. var. *Schimperi* Aschers. & Schweinf. in Aschers. & Schweinf. Ill. Fl. d' Eg. 42, n. 92. *Subularia purpurea* Forsk. Fl. Aeg. Arab. 117. *Thlaspi arabica* Vahl Symb. ii, 76. *Skouwia arabica* DC. Syst. ii, 644. *Showwia brassicaefolia* Jaub. & Spach Ill. pl. Or. t. 296. *S. Schimperi* Jaub. & Spach Ill. Pl. Or. iii, 145. *S. thebaica* Webb. in Giorn. Bot. It. ii, 219 *S. purpurea* (Forsk.) Muschler var. *Schimperi* Muschler in Fl. Eg. i, (1912) 418.

HABITAT : I. Sinai (Holland !); Arab. Petr. : on sand near Dahabb and in Wady Gurra (Schimp. 380).

II. Yaman : Plains of Tehama, near Marrana (S. 176), as a weed in fields in great quantities (S.); near Mor (Forsk.), Fatimah (Fischer 180 ! Schimp. 1004 !).

Fl. : Jan. 1890 (Defl.) ; Feb. (Fischer, Schimp.) ; June (Schimp.). Fr. Dec. 1888 (Schweinf.) ; Jan. 1890 (Defl.) ; Feb. (Schimp.) ; June (Schimp.).

DISTRIB. : —Abyssinia, Egypt, Arabia.

Vern. name : *Bockel* (Forsk.)

### 27. *Biscutella* L.

1. *B. didyma* L. Sp. Pl. (1753) 653 var. *apula* Coss. Comp. ii, 287. *B. apula* L. Mant. 254. *B. columnae* Ten. Prodr. Nap. iv, t. 162 ; Boiss. Fl. Or. i, (1867) 351.

HABITAT : Arab. Petr. (Post).

DISTRIB. : Mediterranean region, Arabia, Persia.

VAR. *minor* nov. var. (Planta parva, folia minora, fructus minores quam in typo).

HABITAT : I. Central Midian (Burton !).

DISTRIB. : Endemic.

### 28. *Clypeola* L.

1. *C. microcarpa* Moris Diar. Scienz. Ital. n. 13, 7 ; Boiss Fl. Or. i, (1867) 308.—*C. glabra* Boiss. Ann. Sc. Nat. (1842) 173. *C. gracilis* Planch. Bull. Soc. Bot. France v, 494.

HABITAT : I. Mt. Sinai : Plain of Raha, ca. 1,500 m., J. Musa, ca. 1,850-2,000 m. (Kneuck.) ; foot of Mt. Sinai (Schimp. 415 !); Sinai (Post) ; Wady Tarfa, ca. 1,110-1,200 m., Wady Sebaiye (Kneuck.).

DISTRIB. : Mediterranean region, Persia.

29. *Isatis* L.

1. *I. microcarpa* J. Gay in Schimp. Pl. Arab exsicc. ; Boiss. in Ann. Sc. nat. (1842) 201 ; Fl. Or. i, (1867) 382 ; Muschler Fl. Eg. i, (1912) 428.

HABITAT : I. Arab. Petr. (Schimp. 235 ! Aucher-Eloy 209 ! Boiss. !).

DISTRIB. : Egypt, Arabia, Syria.

2. *I. aleppica* Scop. Del. Insubr. ii, 31, t. 16 ; Boiss. Fl. Or. i, (1867) 282 ; Del. Frag. Fl. Arab. Petr. (1833) n. 55. — *I. orientalis* Willd. Enum. ii, 663. *I. Lusitanica* L. Sp. pl. (1753) 670. *Pteroloma arabicum* Hochst. & Steud. in Schimp. Pl. Arab. Fel. n. 851.

HABITAT : I. Arabia Petr. (De Laborde ! ) ; Sinai (ex Post).

DISTRIB. : Mediterranean region.

30. *Dipterygium* Dene.

1. *D. glaucum* Dene. in Ann. Sc. Nat. ser. 2, iv, (1835) 67, tab. 3 ; Anders. Journ. Linn. Soc. v, Suppl. p. 1 ; Boiss. Fl. Or. i, (1867) 417 ; Hook. et Thoms. in Journ. Linn. Soc. v, 179 ; Oliv. Fl. Trop. Afr. i, (1868) 70 ; Defl. Yemen (1889) 109 ; Schweinf. in Bull. Herb. Boiss. (1896) app. II, 190 ; Blatt. Fl. Aden (1915) 101.

HABITAT : II. Yaman : Shaikh Othman (Defl. ! ) ; near Merawa (Defl. 39 ! ) ; Yaman (Bové ! ) ; Oasis of Lahaj, (Defl. 134 ! ) ; Aden (S. 107 ! Perry ! Beevor ! Oliver & Cl. ! Thomson ! Anderson ! Birdwood ! Hildebr. ! Lunt ! ) ; Jiddah (Ehrenb. 198 ! Fischer 15 ! Schimp. 851 ! ). III. Hadramaut : Dhofar Mts. (Bent ! ), Sehut (Hirsch 71 ! ).

Fl. : Jan. 1863 (Ol. & Cl.) ; May 1859 (Anders.) ; Oct.-Feb. (Fischer) ; Dec. 1847 (Hook.), 1888 (S.), 1889 (Defl.).

Fr. : Dec. 1889 (Defl.) ; Dec.- March (S.).

DISTRIB. : Nubia, Abyssinia, Kordofan, Central and S. Arabia, N.-W. India.

Vern. name : *Elqat*, *Elqam* (Hirsch).

VAR. *macrocarpa* var. nov. (Fructus multo maiores).

HABITAT : II. Jiddah (Zohrab 95 ! 206 ! ).

DISTRIB. : Endemic.

31. *Neslia* Desv.

1. *N. paniculata* Desv. Journ. Bot. iii, (1814) 162 ; Boiss. Fl. Or. i, (1867) 371 ; Muschler Fl. Eg. i, (1912) 429. — *Myagrurn paniculatum* L. Sp. pl. (1753) 641.

HABITAT : I. Arab Petr. : In grassy places at foot of Mt. Sinai (Schimp. 158 ! ).

Fl. : May (Schimp.). Fr. : May (Schimp.).

DISTRIB. : Europe, Mediterranean region, Persia, Afghanistan, Baluchistan, N.-W. India, temperate Asia.



32. *Schimpera* Hochst.

1. *S. arabica* Hochst. & Steud. in Schimp. Pl. Arab exsicc.; Boiss. Fl. Or. i, (1867) 384; Muschler Fl. Eg. i, (1912) 430.

HABITAT: I. Arab. Petr. in the plain of Marcha (Schimp. 244!), Arab. Petr. (McDonald! Pinard!); Et Tih and southward (ex Post); Sinai Aucher-Eloy 348! Boiss.!); N. Midian (Burton!).

Fl. : Mar. 1835 (Schimp.); Mar. & April (Post).

Fr. : March 1835 (Schimp.).

DISTRIB. : Egypt, Arabia Petræa, Mesopotamia.

Vern. name: *Es-Sufeira* (Post).

VAR. *lasiocarpa* Boiss. Fl. Or. i, (1867) 384; Muschler Fl. Eg. i, (1912) 430.

HABITAT: I. Arab. Petr. : Between J. el-Nokhel and Ghazah (Boiss.).

DISTRIB. Egypt, Arabia Petræa.

33. *Zilla* Forsk.

1. *Z. spinosa* Prantl in Engl. Nat. Pflanzenfam. iii, 2 (1894) 174; Muschler Fl. Eg. i, (1912) 430.—*Z. myagroides* Forsk. Fl. Aeg. Arab. 121, Ic. xvii; DC. Syst. ii, (1821) 646; Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2 iii, (1835) 273; Boiss. Fl. Or. i, (1867) 408; Oliv. Fl. trop Afr. i, (1868) 72; Aschers. & Schweinf. Ill. Fl. d'Eg. 42, n. 100; Sickenb. Contrib. Fl. d'Eg. 180 (var. *macrocarpa* et *microcarpa*!). *Bunias spinosa* L. Mant. 96.

HABITAT: I. Sinai Peninsula: Wady Ghurundel and Ramley (Lord!); Sinai on dry sand (Post 217!), Wady Feiran (H. James!), Sinai desert (Bové 142!); S. W. of Dead Sea (Lowne 275!), Arab. Petr. (McDonald! Pinard!) W. of Gulf of Akaba (J. Milne!) N. Midian (Burton!).

Fl. : March & April (Boiss.), June 1832 (Bové). Fr. : June 1832 (Bové).

DISTRIB. : North Africa, Arabia, Asia Minor.

Vern. Name: *Bisylla* (Bové); *Zillae* (Forsk.); *Ummo* (Del.); *schegeret-el-humu* (Musch.).

34. *Rapistrum* Desv.

1. *R. aegypticum* Baill. Hist. Pl. iii, 197.—*Didesmus aegypticus* Desv. Journ. Bot. iii, (1814) 160, t. 25; Boiss. Fl. Or. I (1867) 404.—*D. aegyptius* DC. Syst. ii, (1821) 658.—*Myagrimum aegyptium* L. Sp. Pl. (1753) 641.

HABITAT: I. Arab. Petr. (ex Musch.).

DISTRIB. : Mediterranean region.

2. *R. rugosum* All. Ped. i, (1785) 275, t. 78; Boiss. Fl. Or. i, (1867) 404.—*Myagrimum rugosum* L. Sp. Pl. (1753) 640.

HABITAT: I. Arab. Petr. (Post).

DISTRIB. : Central Europe, Mediterranean region.

35. *Cakile* Gaertn.

1. *C. arabica* Velen. et Bornm. in Rep. Spec. Nov. Reg. ix, (1910-11) 114.

HABITAT: I. Shih in Nefud (A. Musil!).

DISTRIB.: Endemic.

2. *C. maritima* Scop. Flor. Carniol. ed. 2, ii, (1771) 35; DC. Syst. ii, (1821) 428; Boiss. Fl. Or. i, (1867) 365. *Bunias cakile* L. Sp. Pl. (1753) 670.

HABITAT: I. Coast in neighbourhood of El Tor (Musch.).

DISTRIB.: Europe, Mediterranean region.

VAR. *aegyptiaca* Coss. Comp. Flor. Atlant. ii, (1883-1887) 305.—*C. maritima* VAR. *sinuatifolia* DC. Syst. ii, (1821) 429. *C. maritima* Scop. VAR.  $\beta$ . *integrifolia* Boiss. Fl. Or. I, (1867) 365. *Isatis aegyptiaca* L. Sp. Pl. (1753) 671; Forsk. Fl. Aeg. Arab. (1775) 12. *I. pinnata* Forsk. l. c. 121. *C. aegyptiaca* Gaertner Fruct. ii, t. 141.

HABITAT: I. Arab. Petr. (ex Musch.).

DISTRIB.: Mediterranean region.

Vern. name.: *Fidjl el djemal* (Forsk.).

36. *Enarthrocarpus* Labill.

1. *E. lyratus* DC. Syst. ii, (1821) 661; Boiss. Fl. Or. i, (1867) 399. — *Raphanus lyratus* Forsk. Fl. Aeg.-Arab. (1775) 119; Jaub. & Spach. Ill. pl. or. v, t. 435. *R. recurvatus* Pers. Ench. ii, n. 209.

HABITAT: I. Southward of Ghazah (ex Post); North Midian (Burton!). II. Jiddah (Zobrab 204!)

DISTRIB.: Mediterranean region.

Vern. name.: *Rschad el barr* (Forsk.).

2. *E. strangulatus* Boiss. Diagn. Pl. Or. ser. 1, vii, (1849) 44; Fl. Or. i, (1867) 399; Muschler Fl. Eg. i, (1912) 434.

HABITAT: I. Arab. Petr. (Boiss. !); borders of Et-Tih, and southward to Egypt and Sinai (ex Post).

Fl.: April 1846 (Boiss.). Fr.: April 1846 (Boiss.).

DISTRIB.: Tripolitania, Egypt, Arabia Petræa.

Vern. name.: *Shilwat*, *Yasanid* (Post).

3. *E. uncatum* nov. comb. — *Erucaria aegiceras* J. Gay in Steud. Nom. Bot. (1840) 311 (nomen tantum). *Erucaria uncata* Boiss. in Pinard pl. exsicc.; Diagn. pl. or. ser. 1, viii, (1849) 47. *Hussonia uncata* Boiss. Diagn. pl. or. ser. 1, viii, (1849) 47; Fl. Or. i, (1867) 367. *H. aegiceras* Coss. & Dur. in Bull. Soc. Bot. France. iv, (1857) 58, 469. *Erucaria Tourneuxii* Coss. Comp. Fl. altant. ii, (1887) 48. *Hussonia Sonisii* Pomel. ex Coss. l. c. 216.

HABITAT : I. Arab. Petr. (Boiss. !); Wady Feiran (Schimp. 453 !); between Nokhel and Ghazah (Pinard !) IV. Zor Hills (Cox 16).

Fl. : April 1846 (Boiss.). Fr. : April 1846 (Boiss.).

DISTRIB. : Egypt, Arabia Petraea.

Uses : Good camel fodder (Cox).

### 37. *Erucaria* Gaertn.

1. *E. aleppica* Gaertn. Fruct ii, (1791) 293 ; Dene. Fl. Sin. in Ann. Sc. Nat. ser. 2, iii, (1835) 273 ; Boiss. Fl. Or. i, (1867) 365. *Sinapis Graccum* Tourn. Voy. i, 257. *Cordylocarpus laevigatus* Willd. Sp. iii, 563.

HABITAT : I. Arab. Petr. (Boiss. !); Wady Barak (Bové 136 !).

Fl. : June 1832 (Bové). Fr. : June 1832 (Bové).

DISTRIB. : Mediterranean region, Arabia, Mesopotamia.

VAR. *latifolia* Boiss. Fl. Or. i, (1867) 366. — *E. latifolia* DC. Syst. ii, (1821) 675.

HABITAT : I. Arab. Petr. (ex Musch.).

DISTRIB. : Egypt, Arabia, Syria.

2. *E. crassifolia* Del. Ill. Fl. d'Eg. (1813) 20, t. 34, f. 1 ; Boiss. Fl. Or. i, (1867) 366 ; Muschler Fl. Eg. i, (1912) 435.

HABITAT : I. Arab. Petr. (ex Post).

DISTRIB. : Egypt, Arabia Petraea.

3. *E. grandiflora* Boiss. Diagn. pl. or. ser. I, vi, (1845) 13 ; Fl. Or. i, (1867) 366.

HABITAT : I. Wady Ghurundel (Post 216 !).

DISTRIB. : Arabia, Persia.

4. *E. microcarpa* Boiss. Diagn. Pl. Or. ser. 7, viii, 49 ; Fl. Or. i, (1867) 366 ; Jaub. & Sp. Ill. Pl. Or. t. 434. — *Raphanus pinnatus* Viv. Fl. Libye. (1824) 37, t. 16, f. 4. *Reboudia microcarpa* Coss. Comp. Fl. atlant. ii, (1883-1887) 213 ; Muschler Fl. Eg. i, (1912) 434.

HABITAT : I. Arab. Petr. (Boiss. !); Et Tih and southward to Egypt (ex Post).

Fl. : March 1846 (Boiss.). Fr. : March 1846 (Boiss.).

DISTRIB. : Tripolitania, Egypt, Arabia Petraea, Palestine.

Vern. name : *Selich* (Musch.).

VAR. *major* Post Fl. Syr. etc. (1896) 105.

HABITAT : I. Wady-el-Abiadh in Et-Tih (ex Post).

DISTRIB. : Endemic.

38. *Raphanus* L.

1. *R. Aucheri* Boiss. Diagn. pl. or. ser. 1, viii, (1849) 45 ; Fl. Or. i, (1867) 401.—*Brassica Aucheri* Boiss. Ann. Sc. Nat. (1842) 88.

HABITAT : I. Arab. Petr. : Wady Feiran (Post 215 !), S. of Dead Sea (ex Post).

DISTRIB. : Mediterranean region, Persia.

2. *R. Raphanistrum* L. Sp. pl. (1753) 669 ; Boiss. Fl. Or. i, (1867) 401.

HABITAT : I. Arab. Petr. (ex Musch.).

DISTRIB. : Europe, Mediterranean region.

Vern. name : *Fijjaileh* (Post).

3. *R. sativus* L. sp. pl. (1753) 669 ; Boiss. Fl. Or. i, (1867) 400.

HABITAT : I. Arabia Petr. (ex Post). II. Jiddah (Zohrab 281 !); El Gelil in gardens (Defl. 275 !).

Fl. : Jan. 1890 (Defl.). Fr. : Jan. 1890 (Defl.).

DISTRIB. : Temperate region of Old World, also cultivated in tropical regions.

Vern. name : *Baglah* ? *Fijl* (Post).

39. *Chorispora* DC.

1. *C. syriaca* Boiss. Ann. Sc. Nat. (1842) 384 ; Fl. Or. i, 143 ; Carter in Rec. Bot. Surv. Ind. vi, (1917) 188.

HABITAT : IV. Zor Hills (Cox. 59).

DISTRIB. : Asia Minor.

Vern. name : *Yahak* (Cox). Uses : Camels graze on it (Cox).

## VII. CAPPARIDACEÆ.

1. *Cleome* L.

1. *C. arabica* L. Cent. Pl. i, 20 ; Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, iii, (1835) 274 ; Pl. l'Arab. Heur. in Ann. Sc. Nat. ser. 2, iv, (1835) 70 ; Schenk Sp. pl. it. Aeg. Arab. Syr. (1840) n. 280 ; Boiss. Fl. Or. i, (1867) 411 ; Defl. Yemen (1889) 110 ; Baker Kew Bull. (1894) 328.—*C. siliquaria* R. Br. in Salt Abyss. app. 65. *Siliquaria glandulosa* Forsk. Fl. Aeg. Arab. (1775) 78.

HABITAT : I. Sinai Peninsula (Fox ! Bové 145 ! Drake ! Holland ! Hart !) ; Arabia Petr. (Boiss ! Pinard !) ; between Suez and Tor (ex Schenk) ; between Wady Ghurundel and W. Werdan (Kneuck.) ; N. Midian (Burton !).

II. Yaman : Wady Fatimah in cultivated ground (Fischer 189 !); Jiddah (Fischer 188 ! Schimp. 911 ! Zohrab 106 !); near Manakhah, 2300 m (Defl. 258, 427); Mt. Nugum near Sanah, 2500 m (Defl. 466); Birhet-el-Hajeilah (Ehrenb.!).

III. Hadramaut (Lunt 117!).

Fl. : Jan. 1867 (Fox); Feb. (Fischer, Ehrenberg), March 1846 (Boiss.), March—April 1878 (Burton), June 1832 (Bové), Nov. 1835 (Schimp.).

Fr. : Jan. 1867 (Fox), Feb. (Fischer, Ehrenberg), March 1846 (Boiss.), March—April 1878 (Burton), June 1832 (Bové), Nov. 1835 (Schimp.).

DISTRIB. : Algeria, Arabia, Abyssinia, Nubia.

Vern. name : *Um-Rumail*, *Zifrah*, *Shajarat wahhsh* (Post).

Uses : Eaten by animals (Burton).

2. *C. areysiana* Defl. in Bull. Soc. Pot. France xlii, (1895) 297.

HABITAT : II. Mt.-el-Nakhai and el-Areys, 300-400 m (Defl. 389, 472).

Fl. : April (Defl.).

DISTRIB. : Endemic.

3. *C. brachycarpa* Vahl in DC. Prodr. i, 240; Dene. Pl. Arab. Heur. in Ann. Sc. Nat. ser. 2. iv, (1835) 70; Anders. Fl. Aden. (1860) 4; Boiss Fl. Or. i, (1867) 412; Hook. Fl. Brit. Ind. i, (1872) 169; Oliv. Fl. Trop. Afr. i, 77; Franch. Sert. Somal. in Miss. Revoil. p. 11; Terrac. in Ann. Inst. Bot. Rom. v, 113; Defl. Yemen (1889) 110; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 186; Blatt. Fl. Aden (1915) 96.—*C. vahliana* Fresen. Mus. Senckenb. ii, 110; Ait. Cat. Pb. and Sind Pl. p. 9. *C. ruta* Cambess. in Jacq. Voy. Bot. p. 19, t. 19. *C. diversifolia*. Hochst. et Steud. in Schimp. Fl. Arab. Fel. n. 762. *C. parviflora* R. Br. in Salt Voy. Abyss. p. 65

HABITAT : I. Arab. Petr.: Coast of Red Sea (Bové 247!).

II. Jiddah (Schimp. 762! Zohrab 307! Fischer 168!); near Hodeidah and Mantar (Defl. 28); J. Bura near Hille (S. 1809); Perim Island (H. K.); Aden (Hook. f. ! S. 28 ! Defl. 43 ! Ol. & Cl. ! Madden 10 ! Thomson ! Perry ! Hildebr. ! Ellenbeck) ; Shuqrah (S. 101).

III: Dhofar Mts. (Bent 155!) ; Kishin (Hirsch 89).

Fl. : March 1850 (Madden), April 1861 (Thomson), Oct. 1898 (H. K.), Nov. 1835 (Schimp.), Nov. 1888 (Schweinf.), Nov. (Fischer), Dec. 1847 (Hooker), Dec. 1889 (Defl.).

Fr. : Oct. 1898 (H. K.), Nov. 1835 (Schimp.), Nov. 1888 (Schweinf.), Dec. 1889 (Defl.).

DISTRIB. : Koraofan, Abyssinia, Nubia, Somaliland, Socotra, Central and S. Arabia, Punjab.

Vern. name : *Chosam*, *Daf* (Hirsch), *Berberem* (Musch.).

4. *C. brachystyla* Defl. in Morot, Journ. de Bot. i, (1887) 39 ; et in Bull. Soc. Bot. France xxxiv, (1887) 65 ; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 189 ; Blatt. Fl. Aden (1915) 99.—*C. hispida* Ehrbg. Herb. Arab. ined., ex schedula herb. Parisiensis.

HABITAT : II. Aden (S. 2 ! 41 ! Defl. ! Birdw. ! Balansa !); Kutanbal Isl. (H. K. !).

Fl. : Nov.—March 1888 (S.). Fr. : Nov.—March 1888 (S.).

DISTRIB. : Arabia, Somaliland.

5. *C. brevisiliqua* Schult. f. Syst. vii, 40 ; Schweinf. Arab Pflanzennamen 135 ; Forsk. Fl. Aeg. Arab. (1775) n. 402.

HABITAT : II, Yaman (Forsk.).

DISTRIB. : Endemic.

Vern. name : *Sokaejka* (Forsk.)

NOTE : Fragrant but causing headache (Forsk.).

6. *C. chrysantha* Decne. Fl. Sin. in Ann. Sc. Nat. ser. 2, iii, (1835) 274 ; Boiss. Fl. Or. i, (1867) 416 ; Oliv. Fl. trop. Afr. i, (1868) 77.

HABITAT : I. Arab. Petr. (McDonald !); Desert between Tor and Sinai (Bové 527 !); Wady Gurra (Schimp. 377 !); Sinai (Aucher-Eloy 413 ! Holland !); Midian (Burton !).

Fl. : June (Schimp.). Fr. : June (Schimp.), June 1832 (Bové).

DISTRIB. : Nubia, Egypt, Arabia.

Vern. name : *Sufeir atan* (Post).

7. *C. digitata* Forsk. Fl. Aeg. Arab. (1775) n. 403 and p. 120 ; Schweinf. Arab. Pflanzennamen 135.

HABITAT : Yaman (Forsk.).

DISTRIB. : Endemic.

Vern. name : *Biss* (Forsk.).

8. *C. droserifolia* DeK. Fl. d' Eg. 250, t. 36. fig. 2 ; Frag. Fl. Arab.. Petr. (1833) n. 57 ; Decne. Fl. Sin. in Ann. Sc. Nat. ser. 2. iii, (1835) 274 ; Boiss. Fl. Or. i, (1867) 415 ; Oliv. Fl. trop. Afr. i, (1868) 77 ; Blatt. Fl. Aden (1915) 100.—*Roridula* Forsk. Fl. Aeg. Arab. (1775) 35.—*C. roridula* R. Br. in Salt Voy. Abyss. i, 77.

HABITAT : I. Arab. Petr.: Wady Hebran (Schimp. 355 !); Sinai Peninsula : Wady Feiran (Lord ! Drake !); Desert of Suez and Sinai (Bové 144 !); from Red Sea to Sinai (ex Post) ; Midian (Burton !).

II. Aden (Marchesetti).

IV. Masqat (Bornmüller 31 !).

Fl. : Jan. 1893 (Bornmüller). Fr. : Jan. 1893 (Bornmüller), June (Schimp.), June 1832 (Bové).

**DISTRIB** : Nubia, Abyssinia, Egypt, Arabia, Central and Southern Arabia.

Vern. Name : *Seffare* (Bové), *Afen* (Musch.), *Rihh-el-bard* (Post).

9. *C. macradenia* Schweinf. in Bull. Herb. Boiss. (1896), App. II, 188.—  
*C.?* in Bull. Kew (1894) 328.

**HABITAT** : II. Aden (Defl. 5 !); near Gisan (Ehrenb. !). III. Hadramaut. Between Tokham and Ghafit, 2000 ft. (Lunt 70 !); near Sehut on the Mahra coast (Hirsch).

Fl. : Dec. 1889 (Defl.). Fr. Dec. 1889 (Defl.)

**DISTRIB.** : Endemic.

10. *C. oxypetala* Boiss. Diagn. Pl. Or. ser. 1, vi, (1845) 20; Fl. Or. i, (1867) 414.

**HABITAT** : IV. Masqat (Aucher-Eloy 4181 !)

**DISTRIB.** : Persia, Arabia.

11. *C. pallida* Kotschy in Sitzb. kais. akad. Wiss. lii, (1866) 12, t. 6 B.

**HABITAT** : II. Mountainous region of Aysa (ex Kotschy).

**DISTRIB.** : Endemic.

12. *C. papillosa* Steud. Nom. Bot. ed. 2, i, 382; Anders. Fl. Aden. (1860) 3; Boiss. Fl. Or. i, 413; Hook. f. Fl. Brit. Ind. i, 168; Oliv. Fl. Trop. Afr. i, (1868) 76; Defl. Yemen (1889) 110. — *C. gracilis* Edgew. in Journ. Asiat. Soc. Beng. xvi, 1212. *C. scaposa* DC. Prodr. i, (1824) 239; Schweinf. in Bull. Herb. Boiss. (1896), App. II, 188. *C. Ehrenbergiana* Schweinf. Fl. Aethiop. 68. *C. radula* Fenzl. in Flora (1844) 312. *C. cordata* Ehrenbg. ined. in herb. arab. *Cylindrocarpus cordata* Kl. ined. ibidem.

**HABITAT** : II. Wady Djane (Ehrenb. !); Mt. Sidr in rocky places (Fischer 180 ! Schimp. 991 !); sandy maritime places near Mantar (Defl. 19); Hille (S. 201); Bajil (S. 1791); Aden (Hook. f. 44 ! S. 136 ! Perry ! Defl. ! Edgew. ! Anders. ! Birdw. ! Hildebr. ! Marchesetti, Wichura); Shuqra (S. 121).

Fl. : Feb. (Fischer), March (Perry), July 1837 (Schimp.), Dec. 1847 (Hooker), Dec.-Jan. (S.).

Fr. March (Perry), July 1837 (Schimp.), Dec. 1847 (Hooker), Dec.—Jan. (S.).

**DISTRIB.** : Kordofan, Nubia, Abyssinia, Somaliland, Eritrea, extending through Arabia to N.-W. India, Sind, Socotra.

13. *C. paradoxa* R. Br. in Salt Voy. Abyss. App. p. 65; DC. Prodr. i, (1824) 241; Anders. Fl. Aden. (1860) 2; Oliv. Fl. Trop. Afr. i, (1868) 78; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 188; Blatt. Fl. Aden (1915)

97. — *C. venusta* Fenzl in Flora (1844) 312. *C. muricata* Edgew. Journ. Asiat. Soc. Beng. xvi, 1212. *Dianthera grandiflora* Kl. in Peter's Reise nach Mozamb., Bot. i, 161. *C. grandiflora* Ehrbg. ined. in herb. arab. et abyss.

HABITAT: II. Aden (Defl. 38 ! S. 5 ! Thomson ! Hildebr. 774a ! Perry ! Madden 8 ! Edgew. ! Hook. f. ! Anders. ! ) ; Shuqra (S. 92 !).

Fl. : March (Madden), March 1881 (S.), April 1878 (Perry), April 1867 (Thomson), May 1873 (Hildebrandt), Nov. 1889 (S.), Dec. 1889 (Defl.).

Fr. : March (Madden), March 1881 (S.), April 1867 (Thomson), April 1878 (Perry), May 1873 (Hildebrandt), Nov. 1889 (S.), Dec. 1889 (Defl.).

DISTRIB. : S. Arabia, Nubia, Abyssinia, Kordofan.

14. *C. polytricha* Franch. in Morot Journ. de Bot. i, 41 ; Schweinf. Bull. Herb. Boiss. (1896), App. II, 189 ; Blatt. Fl. Aden (1915) 100. — *C. hispida* Defl. Bull. Soc. Bot. Fr. xxxii, 346 et xxxiv, 64 (non Ehrbg. in Herb. Mus. Paris.).

HABITAT: II. Aden (S. 81 ! 25, 40, Defl. ! Birdw. ! Courbon, Beaudoin).

III. Sehut on the Mahra Coast (Hirsch).

Fl. : Nov. — Dec. 1888 (S.). Fr. Aug. (H. K.), Nov. — Dec. 1888 (S.).

DISTRIB. : Endemic.

15. *C. pruinosa* Anders. Fl. Aden, (1860) 3 ; Defl. Bull. Soc. Bot. Fr. xxxii, 346 ; Schweinf. Herb. Boiss. (1896) App. II, 189 ; Franchet Journ. de Bot. i, (1887) 40 ; Blatt. Fl. Aden (1915) 98.

HABITAT: II. Aden (Ol. & Cl. ! Perry ! S. 68 ! 80, 143, Hildebr. 777, Thomson ! Hook. f. 85 ! Defl. ! Anders. ! Birdw. ! Lunt ! Marchesetti, Krause, Perrotet, Remy, Courbon).

Fl. : Jan. (Ol. & Cl.), April 1861 (Thomson), June 1872 (Hildebr.), Dec. 1847 (Hook.), Dec. 1888 (S.).

Fr. : April 1861 (Thomson), June 1872 (Hildebr.), June 1878 (Perry), Nov. and Dec. 1888 (S.), Dec. 1847 (Hook.).

DISTRIB. : Endemic.

16. *C. Deflersii* spec. nov.<sup>1</sup> — *C. pulchella* Defl. in Herb.

HABITAT: II. Wady Adiab, 8 miles N. W. of Shuqra, alt. 100—200 m (Defl. 472 !).

Fl. : March 1890 (Defl.). Fr. : March 1890 (Defl.).

DISTRIB. : Endemic.

The specific name 'pulchella' has already been given to a Brazilian plant. This is the reason why we had to change Deflers' name.

17. *C. quinquenervia* DC. Prodr. i, (1824) 239 ; Anders. Fl. Aden. (1860) 3 ; Boiss. Fl. Or. i, (1867) 415 ; Cooke Fl. Bomb. Pres. i, (1903) 37 ; Blatt. Fl. Aden (1915) 95. — *C. pentanervia* Ait. Cat. Pb. and Sind Ph 9.

<sup>1</sup> The material for the diagnosis of this species is not at hand. We hope to be able to give the description in an appendix. E. B.



HABITAT: II. Hanish Island, Red Sea (H. K.!); Aden (Thomson! Perry! Madden! Birdw.! Balfour!) III. Hadramaut: Dhofar Mts. (Bent!).

Fr.: Feb. 1857 (Thomson).

DISTRIB.: S. Arabia, S. Persia, Afghanistan, Sind.

18. *C. Schweinfurthii* Gilg Notizbl. Bot. Gart. Berlin (1895) 62.

HABITAT: II. Wasil, 1400 m (S. 1117!); below Manakhah, 1900 m (S. 1534).

Fl.: Feb. 1889 (S.). Fr. Feb. 1889 (S.).

DISTRIB.: Eritrea, Arabia.

Vern. name: *Enneme* (S.).

19. *C. trinervia* Fres. in Mus. Senck. i, 177, t. XI; Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2. iii, (1835) 275; Schenk Sp. pl. it. Aeg. Arab. & Syr. (1840) n. 278; Boiss. Fl. Or. i, (1867) 414; Oliv. Fl. Trop. Afr. i, (1868) 76.

HABITAT: I. Wady es Shaikh (Rüppell); W. es Sle (Kneuck.); southward of Dead Sea to Sinai (ex Post); Arab. Petr. (Lowne 259! McDonald!); Sinai among the rocks (Bové 146! Holland! ex Schenk); W. Feiran (Lord!); W. Hebran (Schimp. 185!).

IV. Masqat (Aucher-Eloy 4181!); Central Arabia in hollows of the mounds in the neighbourhood of Regab (Pelly!).

Fl.: April (Schimp.). Fr. April (Schimp.), June 1832 (Bové).

DISTRIB.: Egypt, Arabia, Palestine.

Vern. name: *Ghenine* (Bové).

20. *C. viscosa* L. Sp. Pl. 938; Oliv. Fl. Trop. Afr. i, (1868) 80; Defl. Yemen (1889) 110.—*Polanisia viscosa* DC. Prodr. i, (1824) 242. *P. orthocarpa* Hochst. in Flora xxiv (1841) I. Intell. 43. *F. viscosa* var. *icosandra* in Herb. Schweinf. (ex Defl.).

HABITAT: II. Oasis of Lahaj (Defl. 194!); in meadows near Lahaj (Defl.); Shuqra (S. 73!).

Fl.: Jan.—March (S.); Dec. 1889 (Defl.).

Fr.: Jan.—March (S.); Dec. 1889 (Defl.).

DISTRIB.: Tropics of the Old World.

Vern. name: *Oddar* (S.)

21. *C. sp.* [glanduloso-plicatoserrata. May be *C. quinquenerviae* var. or *drosenifolia*.]

HABITAT: II. El-Hami (S.!).

Vern. name: *Dharab* (S.).

2. *Gynandropsis* DC.

1. *G. pentaphylla* DC. Prodr. i, (1824) 238; Boiss. Fl. Or. i, (1867) 410; Baker in Kew Bull. (1894) 329.—*Cleome gynandra* Forsk. Fl. Aeg. Arab. (1775) CXVI, n. 401. *C. pentaphylla* L. Sp. pl. ed. 2, 938. *Pedicellaria pentaphylla* Schrank in Roem. & Usteri Mag. Bot. iii, St. VIII (1790) 10; Schweinf. in Bull. Herb. Boiss. (1896), App. II, 185.

HABITAT: I. Border of the desert of Ka'a (Musch.).

II. Yaman: Wady Fatimah and near Jiddah (Fischer 154!); near Unsert along the edges of fields (Schimp. 832!).

III. Hadramaut: In cultivated fields at Kaṭan, 1100 ft. (Lunt.!).

IV. In fields near Masqat (Bornmüller 27!).

Fl.: Jan. 1893 (Bornmüller); Feb. 1836 (Schimp.); Feb. 1837 (Fischer).

Fr.: Jan. 1893 (Bornmüller); Feb. 1836 (Schimp.).

DISTRIB.: Cosmopolitan, common weed.

Vern. name: *Gheifakan* (Forsk.).

3. *Maerua* Forsk.

1. *M. crassifolia* Forsk. Fl. Aeg. Arab. (1775) CXIII, p. 104; Schweinf. Fl. d'Eg., p. 43; in Bull. Herb. Boiss. (1896), App. II, 119; Blatt. Fl. Aden (1915) 103.—*M. uniflora* Vahl Symb. i, 36; DC. Prodr. i, 254; Oliv. Fl. Trop. Afr. i, (1868) 86; Baker in Kew Bull. (1894) 329. *M. rigida* R. Br. in Denh. & Clapp. App. 21; Oliv. Fl. Trop. Afr. i, (1868) 86.

HABITAT: I. Arabia Petr.: Bahara (Schimp. 898!); Sinai and southward (ex Post).

II. Between Hodeidah and Massana (S. 178); foot of J. Bura, 1300 m. (S. 191); near Jiddah (Fischer!); Yaman (Forsk.); Aden (S. 70! Birdwood!); Little Aden on J. Ishan (Defl.!).

III. Hadramaut (Lunt 161!).

IV. Masqat (Auch.-Eloy 4186!).

Fl.: Jan. 1835 (Schimp.); Jan. 1894 (Lunt); Dec. 1888 (S.).

Fr.: Jan. 1894 (Lunt); Dec. 1888 (S.).

DISTRIB.: Arabia, Palestine, Egypt, Nubia, Libya, Kordofan, Senegambia, Angola.

Vern. name: *Meru* (Forsk.); *Morgam* (Musch.); *Sserk* (S.).

2. *M. nervosa* Oliv. Fl. Trop. Afr. i, (1838) 84; Defl. Yemen (1889) 110.—*Niebuhrria nervosa* Hochst. in Flora (1844) 289. *Streblocarpus pubescens* and *S. scandens* Klotzsch in Peter's Mossamb. Bot. 165.

HABITAT: II. Neighbourhood of Taez, alt. 1300 m (Defl. 683).

DISTRIB.: Zambesi, Cape, Arabia.

3. *M. oblongifolia* Rich. Fl. Abyss. 132 ; Oliv. Fl. Trop. Afr. i, (1868) 85; Defl. Yemen (1889) 110 ; Schweinf. in Bull. Herb. Boiss. (1896), App. II, 194.—*Capparis oblongifolia* Forsk. Fl. Aeg. Arab. (1775) 99. *C. mithridatica* Forsk., l. c. 99. *Niebuhrnia oblongifolia* DC. Prodr. i, (1824) 244.

HABITAT : II. Wulej, 600 m (S. 2005); Hojela, Wady Madfar, 600 m (S. 926); foot of J. Bura (S. 202); Mt. Sidr (Fischer 205!); neighbourhood of El-Hagar (Defl. 227 !); Wasil, 1400 m (S. 1315); Mor (Forsk.); Wady Fatimah (Schimp. 1034 !).

Fl. : Jan. 1890 (Defl.) ; Jan. (S.) ; Feb. 1835 (Schimp.); Feb. and March 1837 (Fischer).

Fr. : January 1890 (Defl.).

DISTRIB. : Senegambia, Abyssinia, Egypt, Arabia.

Vern. name : *Redif*, *Schaegar*, *Oud essymm* (Forsk.), *Qossef* (S.).

Uses : The plant is used against snake-bite. The tender branches when fresh are eaten raw, when dry they are powdered and taken without water (Forsk.).

4. *M. ovalifolia* Cambess. in Jacq. Voy. Bot. 1844, p. 23, t. 24 ; Blatt. Fl. Aden (1915) 103.—*M. arenaria* Hook. f. et Thoms. in Fl. Brit. Ind. i, 171 ; Trim. Fl. Cey. i, 58.—*Niebuhrnia oblongifolia*. Royle Ill. Him. Bot., p. 73. *Capparis heteroclita* Roxb. Fl. Ind. ii, 570.

HABITAT : II. Aden (Birdw.!).

DISTRIB. : India, Yaman.

5. *M. racemosa* Vahl Symb. Bot. i, (1790) 36 ; Dcne. Pl. l'Arab. Heur. in Ann. Sc. nat ser. 2 iv, (1835) 70 ; Fiori Bos. e Piante legn. Eritrea (1900) 139.

HABITAT : II. Yaman (Forsk. and ex Dcne.) ; S. Arabia (ex Fiori).

DISTRIB. : Eritrea, Arabia.

6. *M. Thomsoni* Anders. Fl. Aden. (1860) 5 ; Blatt. Fl. Aden (1915) 102.

HABITAT : II. Aden (Thomson ! Balfour ! Perry ! Kuntze).

Fl. : Feb. 1851 (Hook., Thomson).

DISTRIB. : Endemic.

7. *M. triphylla* Rich. Fl. Abyss. i, 32, Ic. 7 ; Oliv. Fl. Trop. Afr. i, (1868) 84 ; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 194.

HABITAT : II. J. Bura above Hille, 1,000 m (S. 505).

DISTRIB. : White Nile, Yaman.

Vern. name : *Fillak-el-baram* (S.).

8. *M. sp.*

HABITAT : III. Hadramaut (Hirsch 166).

4. *Cadaba* Forsk.

1. *C. farinosa* Forsk. Fl. Aeg. Arab. (1775) 68; DC. Prodr. i, (1824) 244; Dcne. Pl. l'Arab. Heur. in Ann. Sc. Nat. ser. 2 iv, (1835) 70; Boiss. Fl. Or. i, (1867) 418; Oliv. Fl. Trop. Afr. i, (1868) 89; Defl. Yemen (1889) 110; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 193; Blatt. Fl. Aden (1915) 106.

HABITAT: II. Jiddah (Schimp. 746! Fischer 170! Zohrab 133!); Wulej, J. Melhan (S. 616!); Hills in the neighbourhood of El-Gebel (Defl. 248!); Wady Bakara (Fischer 193!); near Hojela 500 m (Defl. 137); Kalife, 300 m (S. 219); near Mefhak, 1,700 m (Defl. 600); Wady Mor and W. Surdud (Forsk.); Aden (Hildebr.!).

III: Hadramaut: Dhofar Mts. (Bent 201!).

Fl.: Jan. 1889 (S.); Jan. 1890 (Defl.); Feb. 1837 (Fischer); Nov.—Feb. (Fischer); Dec.—Jan. (S.). Fr.: Dec.—Jan. (S.).

DISTRIB.: Central and S. Arabia, Nubia, Abyssinia, Kordofan, highlands of Somaliland, Usambara, Kilimandjaro, Senegambia.

Vern. names: *Asal, korrah, saerah* (Forsk.), *el-bejadd*.

VAR. *microphylla* Rich. Fl. Abyss. iv, 30; Mart. Fl. Bog. 3.

HABITAT: Arabia (ex Martelli).

DISTRIB.: Abyssinia, Arabia.

2. *C. glandulosa* Forsk. Fl. Aeg. Arab. (1775) 68; DC. Prodr. i, (1824) 224; Anders. Fl. Aden. (1860) 4; Boiss. Fl. Or. i, (1867) 418; Oliv. Fl. Trop. Afr. i, (1868) 89; Schweinf. in Bull. Herb. Boiss. (1896), App. II, 193; Blatt. Fl. Aden (1915) 105.—*Stroemia glandulosa* Vahl Symb. i, (1790) 20.—*C. monopetala* Edgew. Journ. As. Soc. Beng. xvi, 1212.

HABITAT: II. Tihamah: Kalife, 300 m (S. 220!); Jiddah (Schimp. 747!); near Jiddah (Fischer 169!); J. Horeib (Lunz 36!); Aden (Thomson! Ol. & Cl. ! Defl. 30! S. 56! Hooker 40! Birdw. Edgew.!).

III. Hadramaut (Hirsch 147).

Fl.: Jan. 1863 (Ol. & Cl.), Feb. 1857 (Thomson), Dec. and Jan. (Fischer), Dec. 1835 (Schimp.), Dec. 1888 (S.); Dec. 1889 (Defl.).

Fr.: Dec. 1888 (S.).

DISTRIB.: Central and Southern Arabia, highlands of Somaliland, Abyssinia, Nubia, Kordofan

Vern. name: *Taennaim* (Forsk.).

3. *C. heterotricha* Stocks in Hook. Ic. ix, t. 839; Boiss. Fl. Or. i, (1867) 418; Hook f. Fl. Brit. Ind. i, pt. 1 (1872); Schweinf. in Bull. Herb. Boiss. (1896) App. II, 192; Baker in Kew Bull. (1894) 329.

HABITAT: II. Hojela, alt. 600 m (S. 995!); Wady Moaden (Defl.).

III. Hadramaut : Between Tokham and Ghafyt, alt. 2,000 ft. (Lunt 74 !)

Fl. : Jan. 1889 (S.); Dec. 1893 (Lunt!).

DISTRIB. : Arabia, Sind.

4. *C. longifolia* DC. Prodr. i, (1824) 244 ; A. Rich. Tent. Fl. Abyss. i, 26, tab. 5 ; Anders. Fl. Aden. (1860) 4 ; Oliv. Fl. Trop. Afr. i, (1868) 90 ; Schweinf. in Bull. Herb. Boiss. (1896) 193 ; Blatt. Fl. Aden (1915) 105.—*Stroemia longifolia* R. Br. in Salt Abyss. n. 64.—*C. scandens* Pax. in Engl. Bot. Jahrb. xiv, 301.

HABITAT : II. J. Horeib (Lunz 15 !); Bajil (S. 883); Aden (Defl. 61 ! 33, 54 ! Perry ! Ol. & Cl. ! Thomson ! Hook. f. 43 !).

III. Hadramaut : Dhofar Mts. (Bent 136 !).

Fl. : Jan. 1863 (Ol. & Cl.), Feb. 1851 (Hook.), April 1861 (Thomson), June 1878 (Perry), Nov. 1888 (S.), Dec. 1889 (Defl.).

DISTRIB. : S. Arabia, Somaliland, Socotra, Eritrea, Sennaar, Abyssinia.

5. *C. rotundifolia* Forsk. Fl. Aeg. Arab. (1775) 68 ; DC. Prodr. i, (1824) 224 ; Dene. pl. l'Arab. Heur. in Ann. Sc. Nat. ser. 2, IV (1835) 70 ; Boiss. Fl. Or. i, (1867) 418 ; Oliv. Fl. Trop. Afr. i, (1868) 89 ; Defl. Yemen. (1889) 770 ; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 192 ; Blatt. Fl. Aden (1915), 104.

HABITAT : II. Tihamah : Near Kalite, 300 m. (S. 272) ; Lahaj, common (Forsk.) ; oasis of Lahaj (Defl. 145 !); Yaman (Bové 228 ! Fontanier !); Wady-el-Kebir, near Bir Ahmed, near Hes (Defl.) ; Aden (S. 55 ! Balfour ! Birdw. !).

Fl. : March 1831 (Bové), Nov. 1888 (S.), Dec. 1889 (Defl.). Fr. : Nov. 1888 (S.).

DISTRIB. : S. Arabia, Socotra, Eritrea, Nubia, Abyssinia, Somaliland, Kordofan.

Vern. name: *Cadab*, *Kadhab* (Forsk.).

### 5. *Boscia* Lam.

1. *B. angustifolia* Rich. in Fl. Seneg. 26, t. VI (non Harvey) ; Oliv. Fl. Trop. Afr. i, (1868) 92 ; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 192.—*B. reticulata* Hochst. in Schimp. Pl. Abyss. *B. intermedia* Hochst. in Regensb. Fl. xxvii, (1844) 100 (non Lamk.). *B. mossambicensis* Klotzsch in Peters' Mossamb. Bot. 164.

HABITAT : II. Hojela, 600 m (S. 927) ; Wulej, 600 m (S. 689).

DISTRIB. : Tropical Africa, Arabia.

Vern. name : *Thoh* (S.).

2. *B. arabica* Pestalozzi in Mitt. Bot. Mus. Zurich vii, (1898) 127 ; Bull. Herb. Boiss (1898) App. III, 127.

HABITAT : II. Bilad el Fodhli, Wady Adab, 8 miles N. W. of Shuqra (Defl. 474).

Fl. March 1890 (Defl.).

DISTRIB. : Endemic.

3. *B. salicifolia* Oliv. Fl. Trop. Afr. i, (1868, 93 ; Pest. in Bull. Herb. Boiss. (1898) App. III, 101.—*B. pubens* Rich. in Oliv. l. c. 94.

HABITAT : II. S. Arabia (S. ex. Pest.).

DISTRIB. : Tropical Africa, Arabia.

### 6. *Capparis* L.

1. *C. decidua* Edgew. in Journ. Linn. Soc. vi, (1862) 184 : Blatt. Fl. Aden (1915) 109.—*Sodada decidua* Forsk. Fl. Aeg. Arab. (1775) 81 ; Schweinf. Beitr. Fl. Aethiop. 74. *C. aphylla* Roth Nov. Pl. sp. 238 ; DC. Prodr. i, (1824) 246 ; Oliv. Fl. Trop. Afr. i, (1868) 95 ; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 191. *C. sodada* R. Br. in Denb. Trav. p. 255 ; Dcne. Pl. l'Arab. Heur. in Ann. Sc. Nat. ser. 2. iv (1835) 70 ; Boiss. Fl. Or. i, (1867) 419 ; Defl. Yemen (1889) 111.

HABITAT : I. J. Hammam-Sidna-Musa (Musch.) ; Central Midian (Burton !).

II. Jiddah (Fischer 164 ! Bové 252 ! ) ; Bajil (S. 597 ! ) ; W. Fatimah (Schimp. 905 ; ) ; near Zebid and Beyt-el Fakih (Defl. 717) ; Kurma, Mor, Beyt-el-Fakih (Forsk.) ; Aden (Hildebr.).

Fl. : Jan. 1889 (S.), March (Schimp.), March—April (Burton), Nov.—March (Fischer).

DISTRIB. : Upper Egypt, Nubia, Abyssinia, Darfur, Somaliland, Socotra, Central and Southern Arabia, Punjab, Sind, Deccan, Gujarat to Tuticorin.

Vern. name : *Sodad* (S.), *Margh* (Bové), *Hanbag*, *tundub* (Musch.)

2. *C. galeata* Fres. in Mus. Senck. ii, (1837) 111 ; Boiss. Fl. Or. i, (1867) 421 ; Defl. Yemen (1889) 110 ; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 190 ; Blatt. Fl. Aden (1915) 107.—*C. uncinata* Edgew. Journ. As. Soc. Beng. xvi, 1213. *C. cartilaginea* Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2. iii, (1835) 273. *C. spinosa* L. VAR. *galeata* Hook f. et Thoms. in Fl. Brit. Ind. i, pt. 1 (1872) 173.

HABITAT : I. Desert of Sinai (Bové 148 ! ) ; Sinai Peninsula : W. Feiran and neighbourhood (Lord-!) ; foot of Mt. Sinai (Schimp. 375 ! ) ; Sinai (Drake ! ) ; W. el-Ain (Hart ! ) ; Arab. Petr. (McDonald ! ).

II. Hanish Island in the Red Sea (Slade ! ) ; Attara, 1900 m (Defl. 410) ; near Taiz, 1300 m (Defl.) ; Aden (S. 1 ! 34 ! Thomson ! Balfour ! Hook f. ! ) ; neighbourhood of Aden (Hunter 153 ! 101 ! ).

Fl. : June 1832 (Bové); Sept. 1880 (Hunter), Nov. 1888 (S.).

Fr. : June 1832 (Bové), Nov. 1888 (S.), Dec. 1847 (Hook.).

DISTRIB. : Egypt, Nubia, Abyssinia, Somaliland; Socotra, Sind, Sansibar, Arabia.

Vern. names : *Assef*, *Kaber* (Ibn-el-Beithar); *Latssaf* (*ubique*), *nutssaf* (in Hodjela according to Schweinf.), *Lassaf* (Bové); English name, Caper.

VAR. *montana* Schweinf. in Bull. Herb. Boiss. (1896) App. II, 191. — *C. inermis* Forsk. Fl. Aeg. Arab. (1775) 100.

HABITAT : II. Manakhah, 2300 m (S. 1920).

DISTRIB. : Yaman.

3. *C. spinosa* L. Sp. pl. (1753) 503 ; Dene. Fl. Sin. in Ann. Sc. nat. ser. 2, iii, (1835) 273 ; Boiss. Fl. Or. i, (1867) 420; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 190.

HABITAT : II. Border of desert near Lahaj (Busse).

DISTRIB. : Mediterranean region, Asia, Australia.

VAR. *aegyptia* Boiss. Fl. Or. i, (1867) 420. *C. aegyptia* Lam. Dict. i, 605; Del. Frag. Fl. Arab. Petr. (1833) n. 58.

HABITAT : I. Sinai (Bové 147! Lord! Boiss.); S. of Dead Sea (ex Post).

Fl. : June 1832 (Bové).

DISTRIB. : Egypt, Arabia, Palestine.

Vern. name : *Kabar* (Del.), *Lassaf* (S.), *Schok-el-homar* (Aschers), *Leysouf*, *Uard-el-gebel* (Musch.), "*Amdryan*" of Ibn Beithar. (See note in Muschler, Verh. Bot. Ver. Prov. Brandenb. 49 (1907) 87).

VAR. *parviflora* Boiss. Fl. Or. i, (1867) 420 — *C. parviflora* Boiss. Diagn. Pl. Or. ser. 1, i, (1842) 4. *C. mucronifolia* Boiss. Diagn. l. c. 3.

HABITAT : IV. Masqat (Aucher-Eloy 4192 ! 4189, 4190).

DISTRIB. : Syria, Arabia, Persia, Turkistan, Afghanistan.

VAR. *rupestris* Boiss. Fl. Or. i, (1867) 421 ; Musch. Fl. Eg (1912) 391.

HABITAT : I. Arab. Petr. (ex Musch.).

DISTRIB. : S. Europe, Mediterranean region.

## VIII. RESEDACEAE.

### 1. *Caylusea* St. Hil.

1. *C. abyssinica* Fisch. & Mey. Ind. Sem. vii, (1840) 43 ; A. Rich. Fl. Abyss. 14 ; Oliv. Fl. Trop. Afr. i, (1868) 103. — *C. canescens* St. Hil.

VAR. *abyssinica* Schweinf. in Bull. Herb. Boiss. (1896) App. II, 195. *Reseda abyssinica* Fres. in Beitr. Fl. Abyss. 107. *R. pedunculata* R. Br. in Verm. Schrift. (ex Muell. Arg.).

HABITAT : II. Yaman : below Manakkah, 2,000 m (S. 1517).

Fl. : Feb. 1889 (S.).

DISTRIB. : Abyssinia, Eritrea, Arabia.

2. *C. canescens* St. Hil. Mém. Résédac. (1838) 30 ; Boiss. Fl. Or. i, (1867) 436 ; Müll. Arg. Monogr. Resed. 226, t. x, f. 132.—*Reseda canescens* L. Syst. 368 ; Vahl. Symb. Bot. ii, (1791) 52 ; Dene. Fl. Sin. in Ann. Sc. Nat. ser. 2. iii, (1835) 275 ; Schenk Sp. Pl. it. Aeg. Arab. & Syr. (1840) n. 274. *R. hexagyna* Forsk. Fl. Aeg.—Arab. (1775) 92. *Hexastylis arabica* Rafin. Fl. Tellur. iii, (1836) 73. *Syntrophe canescens* G. Ehrenbg. mss. in hb. Reg. Berol. (ex Muell. Arg. l. c.).

HABITAT : I. Arab. Petr. (Pinard ! Boiss. ! McDonald !); W. es-Sle, W. Tarfa, Plain of Raha (Kneuck.); Sinai (Holland 75 ! Ehrenb. !); Desert of Sinai (Bové 150 !); Sinai Peninsula : W. Gennah and neighbourhood (Lord !); N. and Central Midian (Burton).

II. Hijaz (Schimp. 1037 !); Jiddah (Zohrab 83 !).

Fl.: Feb. 1836 (Schimp.); March 1846 (Boiss.); May 1868 (Lord); June 1832 (Bové).

Fr. May 1868 (Lord); June 1852 (Bové).

DISTRIB. : Cape de Verd Islands, N. Africa, Arabia, N. W. India.

Vern. names : *Dénaba* (Bové), *Zamaban* (Burton).—Muell. Arg. makes of some of the above specimens the varieties *rigida* and *foliosa*.

VAR. *prostrata* Post Fl. Syr. etc. (1896) 114.

HABITAT : I. Sinai (ex Post).

DISTRIB. : Endemic.

## 2. *Reseda* L.

1. *R. alba* L. Sp. Pl. (1753) 449 ; Schenk Sp. Pl. it. Aeg. Arab. & Syr. (1840) n. 271 ; Boiss. Fl. Or. i, (1867) 425 ; Muell. Arg. Monogr. Resed. 100, t. VI, f. 86.

HABITAT : I. Near Tor (ex Schenk).

DISTRIB. : Mediterranean region, Arabia, Persia.

2. *R. amblyocarpa* Fres. in Mus. Senek. II, (1837) 109 ; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 195 ; Blatt. Fl. Aden (1915) 110.—*R. pruinosa* Del. Ill. Fl. d'Eg. (1813) 15 ; Dene. Fl. Sin. in Ann. Sc. Nat. ser. 2. iii, (1835) 275 ; Schenk Sp. Pl. it. Aeg. Arab. & Syr. (1840) n. 272 ; Boiss. Fl. Or. i, (1867) 433. *R. Quartiniana* A. Rich. Fl. Abyss. i, (1847) 13. *R. lurida* Müll. Arg. Mem. Resed. 152.

HABITAT : I. Arab. Petr. (Boiss. ! McDonald !); desert at south end of Dead Sea, Et Tih, Sinai and southward (ex Post); desert between Sinai and Tor (Bové 151 !); Wady Tarfa and W. es-Shaikh (Kneuck.); foot of Mt. Sinai (ex Schenk); Sinai Peninsula : W. Feiran (Lord !); Sinai (Drake !); W. el-Arbain (Botta !); W. es-Sle, W. Hebran (Musch.).

II. Aden (Desf. 524, Thomson ! Perry ! Ol. & Cl. ! S. 4 ! 30, 35, Mad-den ! Hook. f. ! Schomb. 2 !).

III. Palace gardens at Alrail; 2,000 ft. (Lunt !); near Sebut (Hirsch 22).



Fl. Jan. 1863 (Ol. & Cl.); March 1846 (Boiss.); April 1877 (S.); April 1861 (Thomson); April 1850 (Defl.); June 1832 (Bové); Dec. 1847 (Hook.); Dec. 1888 (S.).

Fr.: Jan. 1863 (Ol. & Cl.); April 1861 (Thomson); April 1877 (S.); June 1832 (Bové); Dec. 1847 (Hook.), Dec. 1888 (S.).

DISTRIB.: Tropical Africa, Arabia, N. W. India.

Vern. name: *Denaba* (Bové); *Amlir* (Hirsch); *chuzameh* (Musch.).

3. *R. arabica* Boiss. Diagn. Pl. Or. ser. 1, (1846) 6; Fl. Or. i, (1867) 426; Müll. Arg. Monogr. Resed. 124, t. 6, f. 93; Coss. Ill. Fl. Atl. i, 105, 67.—*R. tetragyna* Forsk. Fl. Aeg. Arab. (1775) LXVII and 92? *R. affinis* Kotschy Pl. exs. Aegypt. (1838) (ex Müll.-Arg.).

HABITAT: I. Arab. Petr. (McDonald!); desert of Sinai (Aucher-Eloy 2619! Boiss.!) ; borders of Et Tih (ex Post); W. Ghurundel and W. Werdan (Kneuck.).

IV. Central Arabia and Kuwait (Pelly!).

DISTRIB.: Morocco, Algeria, Tunisia, Tripolitania, Marmarica, Egypt, Arabia, Persia.

Vern. name: *Romæjhh* (Forsk.).

4. *R. decursiva* Forsk. Fl. Aeg. Arab. (1775) 89:—*R. cremophila* Boiss. Diagn. Pl. Or. ser. 1, viii (1849) 83. *R. propinqua* R. Br. Obs. Oudn. (1826) 22; Müll.-Arg. Monogr. Resed. 114, t. 6, f. 90. *R. mediterranea* Ehrenb. and *R. undata* Ehrenb. in Herb. Berol. (ex Müll.-Arg.).

HABITAT: I. Arab. Petr. (Boiss!); Et Tih and southwards (ex Post), W. Aleyat, 650-750 m (Kneuck.); J. Nakus (Musch.).

IV. Kuwait (Pelly!).

Fl.: Feb. 1865 (Pelly); March 1846 (Boiss.), Fr.: March 1846 (Boiss.).

DISTRIB.: Spain, Morocco, Algeria, Tunisia, Egypt, Arabia, Palestine, Syria.

5. *R. lutea* L. Sp. pl. (1753) 449; Muell-Arg. Monogr. Resed. 183; Boiss. Fl. Or. i, (1867) 429.

HABITAT: I. Arab. Petr. (ex Post).

DISTRIB.: Mediterranean region, Central Europe, Caucasus, Persia.

6. *R. luteola* L. Sp. pl. (1753) 448; Muell-Arg. Monogr. Resed. 202, t. IX, f. 124; Boiss. Fl. Or. i, (1867) 434.

HABITAT: I. S.-W. of Dead Sea (ex Post).

DISTRIB.: Central Europe, Mediterranean region.

Vern. name: English: *Dyers' Weed* or *Weld* (Post). Arabic: *Blyhah* (ex Del.).

7. *R. muricata* Presl Bot. Bemerkg. (1844) 8; Müll-Arg. Monogr. Resed. 159, t. VIII, f. 110; Boiss Fl. Or. i, (1867) 431.

HABITAT: I. Foot of Mt. Sinai (Schimp. 103; Boiss. !); from Dead Sea to Sinai (ex Post).

DISTRIB.: Egypt, Arabia Petræa, Syria.

Vern. name: *Chesamet* (Schimp.).

8. *R. odorata* L. Sp. pl. ed. 2 (1762) 646; Del. Frag. Fl. Arab. Petr. (1833) n. 59.

HABITAT: I. Arabia Petr. (De Laborde); W. Zewerah (ex Post).

DISTRIB.: Mediterranean region.

Vern. name: *Khuzam* (Post).

9. *R. sphenocleoides* Defl. in Bull. Soc. Bot. France xlii (1895) 298.

HABITAT: II. W. Moaden (Defl.), near Massuna (Defl. 113!); Bilad Awari, W. Dhabab (Defl. 530!); 20 miles E. N. E. of Shuqra (Defl. 433! 484, 838, 892); El. Gelil, 1500 m (Defl. 290).

III. Hadramaut (Lunt 126!).

Fl.: Mar. & Apr. 1890 (Defl.).

DISTRIB.: Endemic.

Vern. name: *Kharawa* (Defl.).

10. *R. stenostachya* Boiss. Diagn. pl. or. ser. 1, i, (1842) 5; Müll-Arg. Monogr. Resed. 156, t. VIII, f. 108.—*R. pruinosa* Bové pl. exsicc. Sinit. n. 151.

HABITAT: I. Arab. Petr. (Boiss.); desert between Sinai and Tor (Bové 151!), foot of Mt. Sinai (Schimp. 103!); Sinai Peninsula (Lord!); valleys of Mt. Sinai (Ehrenb.!); N. Midian (Burton!).

Fl.: May (Schimp.); June 1832 (Bové). Fr.: May (Schimp.); June 1832 (Bové).

DISTRIB.: Asia Minor, Arabia.

Vern. name: *Khi Zam* (Burton).

Uses: Eaten by animals (Burton).

11. *R. Aucheri* Boiss Diagn. ser. I, i, 5; Fl. Or. i, (1867) 434; Carter in Rec. Bot. Surv. Ind. vi, (1917) 188.

HABITAT: IV. Zor Hills (Cox 5).

DISTRIB.: Asia Minor to Sind.

Vern. name: *Thiniban* (Cox).

### 3. *Oligomeris* Camb.

1. *O. subulata* Boiss. Fl. Or. i, (1867) 435; Müll-Arg. in DC. Prodr. xvi, sect. II (1868) 587.—*Reseda subulata* Del. Ill. Fl. d'Eg. n. 464. *R.*

*tridens* Viv. Pl. Aeg. dec. 7, p. 6, t. 2, f. 2. *R. Schimperii* Presl Bot. Bemerk. 8. *O. glaucescens* Camb. in Jacq. Voy. Ind. iv, 24, t. 25. *Resedella subulata* Webb Phyt. Can. iii, 107, t. 11.

HABITAT: I. Arab. Petr. (McDonald !); Hanara (Schimp. 241 !); Et Tih and southward (ex Post); Sinai Peninsula (Lord !).

IV. Masqat (Auch.—Eloy 4176 !).

Fl. : Apr.—May 1868 (Lord). Fr. Apr.—May 1868 (Lord).

DISTRIB. : Morocco, Tunisia, Algeria, Tripolitania Arabia, Persia, Afghanistan, Baluchistan, India, Western North America.

#### 4. *Ochradenus* Del.

1. *O. baccatus* Del. Ill. Fl. d'Eg. 15, t. 31; Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2. iii, (1835) 275; Schenk Sp. pl. it. Aeg. Arab. & Syr. (1840) n. 270; Boiss. Fl. Or. i, (1867) 422; Oliv. Fl. Trop. Afr. i, (1868) 104; Hook. f. Fl. Brit. Ind. i, (1872) 182; Defl. Yemen (1889) 111; Baker in Kew Bull. (1894) 320; Blatt. Fl. Aden (1915) 114.—*Reseda spartioides* Sieb. Herb. Aegypt. (ex Müll.-Arg.).

HABITAT: I. Desert of Sinai and Suez (Bové 149 !); between Suez and Tor (ex Schenk); Arab. Petr. : W. Gurra (Schimp. 305 !); W. Ghurundel (Hart !); J. Nakus (Musch.); W. Tarfa, W. es-Shaikh, Oasis of Feiran (Kneuck.); Sinai Peninsula (Lord !); North and S. Midian (Burton !).

II. Jiddah (Zohrab 226 ! Fischer 49 !); between Yaiz and Mefhak, 1700 m (Defl. 612); W. Dhabab near el Hagar (Defl. 231 !); Aden (Hildebr.).

III. Hadramaut : Hajrain, alt. 2600 ft. (Lunt 141 !).

IV. Central Arabia (Pelly !).

Fl. Jan. 1890 (Defl.), Jan.—Feb. (Fischer).

Fr. : Jan. 1890 (Defl.); Mar.—Apr. (Burton).

DISTRIB. : Egypt, Nubia, Abyssinia, Arabia, Syria, Persia, Baluchistan, Sind.

Vern. names: *Gord* (Bové); *Gurzi* (Burton); *Wuebeh*, *Bliha*, *Gurdy* (Musch.); *Qurdhah* (Post); *Gurrsi* (Schimp.).

Uses : Eaten by cattle (Burton).

VAR. *monstruosa* Müll.-Arg. Monogr. Resed. 95. *O. rostratus* Ehrenb. in Sched. herb. Berol. (ex Müll.-Arg. l. c.).

HABITAT: II. Farasan Island (Ehrenb. !).

DISTRIB. : Arabia.

VAR. *scandens* Hochst. & Steud. in Schimp. pl. exsicc. Aegypt; Müll.-Arg. Monogr. Resed. 95; Boiss. Fl. Or. i, (1867) 422.

HABITAT: II. Jiddah (Schimp. 415 !).

DISTRIB. : Yaman, Baluchistan.

## 5 Homalodiscus Bye.

1. *H. Aucheri* Boiss. Fl. Or. i. (1867) 422.—*Ochradenus Aucheri* Boiss. Diagn. ser. 2. i, (1854) 50; Müll.-Arg. Monogr. Resed. 96, t. vi, f. 85.

HABITAT: IV. Masqat (Auch.-Eloy 4178!).

DISTRIB.: Endemic.

## IX. CISTACEAE.

## 1. Helianthemum Pers.

1. *H. ellipticum* Pers. Synops. ii, (1807) 78; Del. Frag. Fl. Arab. Petr. (1833) 64.—*Cistus ellipticus* Desf. Fl. Atlant. i, (1800) 418, t. 107. *C. stipulatus* Forsk. Fl. Aeg. Arab. (1775) 100. *H. Lippii*. Del. Fl. d'Eg. (1813) 93. *H. Lippii* var. *ellipticum* et var. *Ehrenbergii* Boiss. Fl. Or. i, (1867) 443. *H. argyraeum* Baker in Kew Bull. (1894) 329; Hook. Icon. plant. xxiv, (1895) t. 2360 (forma aestivalis). *H. Lippii* Ehrenb. pl. Aegypt. exs.

HABITAT: I. Desert of Sinai (Boiss.).

III. Hadramaut: Dobaibah, 4000 ft. (Lunt 213!).

Fl.: Feb. 1894 (Lunt). Fr.: Feb. 1894 (Lunt).

DISTRIB.: Mediterranean region.

2. *H. kahiricum* Del. Ill. Fl. d'Eg. (1813) 93, t. 31, f. 2; Frag. Fl. Arab. Petr. (1833) 65; Boiss. Fl. Or. i, (1867) 442; Grosser in Engl. Pflanzenr. iv, 193 (1903) 95.—*H. Kahiricum* var. *angustifolium* Boiss. Suppl. Fl. Or. (1882) 70. *H. libycum* Pomel. Nouv. fl. Atlant. (1875) 352. *H. acutiflorum* Ehrenb. in herb. Berol. *Cistus stipulatus* β. Forsk. Fl. Aeg. Arab. (1775) 100.

HABITAT: I. Desert Tib (Boiss.); Et Tih and southward (ex Post); Sinai (Drake 94!); between W. Ghuruudel and Wady Werdan (Kneuck.).

Fr.: Mar. 1846 (Boiss.).

DISTRIB.: Mediterranean region.

Vern. name: *Chosjoein* (Forsk.).

VAR. *depauperata* Post Fl. Syr. etc. (1896) 116.

HABITAT: I Callirrhoe to Sinai (ex Post).

DISTRIB.: Sinai, Palestine.

3. *H. ledifolium* Mill. Gard. Dict. ed. 8 (1768) n. 20; DC. Prodr. i, (1824) 272; Grosser in Engl. Pflanzenr. iv, 193 (1903) 101.—*Cistus ledifolius* L. Sp. pl. (1753) 527. *C. niloticus* L. Mant. pl. (1771) 246. *H. niloticum* Pers. Synops. ii, (1807) 78; DC. Prodr. i, (1824) 272; Boiss. Fl. Or. i, (1867) 441. *H. annuum* Fisch in Steud. Nom. ed. 2 (1840) 733.

HABITAT: I. Arabia Petr. (DeLaborde)

DISTRIB.: Mediterranean region:

4. *H. Lippii* Pers. Synops. ii, (1807) 78; DC. Prodr. i, (1824) 273; Carter in Rec. Bot. Surv. Ind. vi, (1918) 197.—*Cistus Lippii* L. Mant. ii. (1771) 245. *H. ellipticum* var. *micranthum* Boiss. Fl. Or. i, (1867) 443 (expte.) *H. albicans* Ehrenb. Pl. Aeg. exs. *H. Lippii* var. *arabicum* Schweinf. in sched.

HABITAT: I. Mt. Sinai, between granite rocks (Bové 155! 156!) desert of Sinai (Bové 157!); Sinai (Hart!); Arab. Petr. (Boiss.! McDonald!); plain of Raha, W. es-Shaikh, foot of Serbal, W. Aleyatt (Kneuck.); Central Midian (Burton!).

IV. Central Arabia (Pelly!); Masqat, in the desert (Auch.-Eloy 4197! 1995!); Zor Hills, growing in mud plots between sand hills (Cox 35).

Fl.: March 1846 (Boiss. Pelly).

Fr.: March 1846 (Boiss. Pelly); Nov. 1833 (Bové).

DISTRIB.: Sicily, Morocco, Algeria, Tunisia, Egypt, Arabia, Palestine, Mesopotamia, Persia, Baluchistan.

Vern. name: *Ka'hr* (Musch.); *Kazim* (Burton); *Rahl, Haratt* (Bové); *Raluh* (Wilkins); *Ragrog* (Cox).

Uses: "All kinds of grazing animals feed on it. It is believed that the land where it grows is sure to produce large quantities of the edible fungi called 'fukaiah' which the English at Basrah eat as truffles" (ex Carter l. c.).

5. *H. salicifolium* Mill. Gard. Dict. ed. 8 (1768) 21; Boiss. Fl. Or. i, (1867) 441; Grosser in Engl. Pflanzenr. iv, 193 (1903) 104; Carter in Rec. Bot. Surv. Ind. vi, (1917) 197.—*Cistus salicifolius* L. Sp. pl. (1753) 527. *C. micranthus* Viv. Fl. Libyc. spec. (1824) 28, t. 14, l. 4. *H. denticulatum* Thib. in Pers. Synops. ii, (1807) 78, DC. Prodr. i, (1824) 272.

HABITAT: I. Arab. Petr. (ex Post). IV. Zor Hills (Cox 64).

DISTRIB.: Mediterranean region, Central Europe, Asia Minor to Persia.

Vern. name: *Jarraid* (Cox).

6. *H. Sancti Antonii* Schweinf. in Aschers. et Schweinf. Ill. Fl. d'Egypte in Mem. Inst. Egypt. ii, (1887) 45; Boiss. Fl. Or. Suppl. (1888) 70; Grosser in Engl. Pflanzenr. iv, 193 (1903) 96; Kneuck. in Allg. Bot. Zeits. ix, (1903) 128.

HABITAT: I. Foot of J. Serbal ca 1100-1400 m (Kneuck.).

DISTRIB.: Egypt, Sinai, Palestine.

7. *H. ventosum* Boiss. Diagn. Pl. Or. ser. 1, viii, (1849) 50; Grosser in Engl. Pflanzenr. iv, 193 (1903) 96.

HABITAT: I. Top of the Tih chain and southward (ex Post); between W. Ghurundel and W. Werdan (Kneuck.).

DISTRIB. : Mediterranean region.

Vern. name : *Rar* (Post).

8. *H. vesicarium* Boiss. Diagn. Pl. Or. ser. 1, fasc. viii, (1849) 80 ; Fl. Or. i, 445 ; Stapt. Addit. Fl. Marmar. 366 ; Grosser in Engl. Pflanzenr. iv, fasc. 193, p. 76.—*H. roseum* Ehrenbg. in Herb. Berol. (ex Grosser). *H. virgatum*. Pers. VAR. *vesicarium* Dur. and Barr. Prodr. Fl. Libyc. n. 106.

HABITAT : I. Arab. Petr. (ex Grosser, Dur. & Barr.); Sinai (Figari !); borders of Et Tih and southward (ex Post).

Fr. : May 1849 (Figari).

DISTRIB. : North African deserts, Arabia Petraea, Syria.

9. *H. virgatum* Pers. Syn. ii, (1807) 79 ; DC. Prodr. i, (1824) 282 ; Boiss. Fl. Or. i, (1867) 441 ; Grosser in Engl. Pflanzenr. iv, 193 (1903) 74.—*Cistus virgatus* Desf. Fl. Atl. ii, (1800) 422.

HABITAT : I. Arab. Petr. (ex Dur. & Barr.).

DISTRIB. : Mediterranean region.

10. *H. Schweinfurthii* Gross. in Engl. Pflanzenr. Cistac. 95.

HABITAT : Arabia (ex Ind. Kew.).

## 2. *Fumana* Spach.

1. *F. arabica* Spach. Hist. nat. veg. Phanér. vi, (1838) 10 ; Boiss. Fl. Or. i, (1867) 449.—*Cistus arabicus* L. Sp. Pl. ed. 2, (1762) 745. *Helianthemum arabicum* Pers. Synops. ii, (1807) 80 ; DC. Prodr. i, (1824) 275. *H. arabicum*. VAR. *canescens* et *viridifolium* Fenzl in Friedr. Reise (1838) 270.

HABITAT : I. Arab. Petr. (ex Post).

DISTRIB. : Mediterranean region.

2. *F. thymifolia* Halassy Consp. fl. gracc. i, (1901) 136 ; Grosser in Engl. Pflanzenr. iv, 193 (1903) 129 ; Musch. Fl. Eg. (1912) 657.—*Cistus thymifolius* L. Sp. pl. (1753) 528. *Helianthemum thymifolium* Pers. Synops. ii, (1807) 79 ; DC. Prodr. i, (1824) 276. *F. glutinosa* Boiss. Fl. Or. i, (1867) 449.

HABITAT : I. Jebel Nakus (Musch.).

DISTRIB. : Mediterranean region.

Vern. name : *Choschech* (Musch.).

## X. VIOLACEAE.

### 1. *Viola* L.

1. *V. cinerea* Boiss. Diagn. Pl. Or. ser. 1, i, (1842) 7 ; Fl. Or. i, (1867) 454 ; Hook. f. Fl. Brit. Ind. i, pt. 1, (1872) 185 ; Balf. Bot. Soc. 16.

HABITAT : IV : Masqat : J. Akdar (Auch.-Eloy 4199 !).

DISTRIB. : Arabia, Persia, Afghanistan, Sind, Punjab.

2. *V. odorata* L. Sp. pl. (1753) 934.

HABITAT : II. Yaman, cultivated (Defl.).

DISTRIB. : Europe, Africa, N. Asia.

## 2. *Ionidium* Vent.

1. *I. durum* Baker in Kew Bull. (1895) 180.

HABITAT : III. Hadramaut : Dhofar Mts. (Bent 132 !)

DISTRIB. : Endemic.

2. *I. suffruticosum* Ging. ex DC. Prodr. i, (1824) 311 ; Hook. f. & Thoms. in Hook. Fl. Brit. Ind. i, pt., I (1872) 185 ; Balf. Bot. Soc. 17 ; Defl. Yemen (1889) 111.—*I. enneaspernum* Vent. Hort. Malm. 27 ; DC. Prodr. i, (1824) 308 ; Oliv. Fl. Trop. Afr. i, (1868) 105.

HABITAT : II. J. Bura (S. 256 ! ) ; Mt. Haraž near Wasil, 1500 m (Defl. 264) ; Manaekha, 2400 m. (Defl. 264, 285) ; Attara, 1800 m. (Defl. 409) ; Mt. Sabor near Taz (Botta ! ) ; neighbourhood of Aden (Hunter 18 !).

Fl. : Jan. 1889 (S.). Fr. : Jan. 1889 (S.).

DISTRIB. : Tropics of the Old World, Australia.

Vern. name : *Ssibbah* (S.).

## XI. BIXINEAE.

### 1. *Oncoba* Forsk.

1. *O. spinosa* Forsk. Aeg. Arab. (1775) CXIII, n. 337 and p. 103 ; Oliv. Fl. Trop. Afr. i, (1868) 115 ; Defl. Yemen (1889) 111.—*Lundia monacantha* Schum. et Thonn. Guin. Pl. 231. *O. monacantha* Steud. Nom. Bot. ii, 212.

HABITAT : II. Wady Hawayat near Hojela, 900 m (Defl. 174) ; lower mountainous regions of Yaman : Near Hadie and Wady Surduđ (Forsk.).

DISTRIB. : Abyssinia, Zambesia, Natal, Arabia.

Vern. name : *Onkob* (Forsk.).

## XII. PITTOSPORACEAE.

### 1. *Pittosporum* Banks.

1. *P. abyssinicum* Del. in Ann. Sc. Nat. ser. 2, xx, 89 ; Rich. Fl. Abyss. Atlas t. XI ; Oliv. Fl. Trop. Afr. i, (1868) 124 ; Defl. Yemen (1889) 111 ; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 203.

HABITAT : II. Yaman : J. Shibam el Hausan, alt. 2000 m (S. 1715 ! ) ; Mts. Masar and Shibam near Hajara, 2400 m (Defl. 408).

Fr. : March 1889 (S.).

DISTRIB. : Abyssinia, Eritrea, Angola, Arabia.

Vern. name : *Shobbeh*. (S.).

### XIII. POLYGALACEAE.

#### 1. *Polygala* L.

1. *P. abyssinica* R. Br. ex Fres. Mus. Senck. ii, (1837) 273 ; Rich. Fl. Abyss. i, (1847) 37 ; Defl. Yemen (1889) 112 ; Chod. Monogr. Polygal. 388, t. XXX, f. 1—4.—*P. adoenis* Hochst. in Schimp. Pl. Abyss.

HABITAT : II. Near Wasil, 1500 m (Defl. 249) ; Wasil, 1400 m (S. 1124 !); near Mefhak, 1800 m (Defl. 602) ; near Sanah, 2600 m (Defl. 470) ; Mt. Maamarā (Botta!).

Fl. : Feb. 1889 (S.). Fr. : Feb. 1889 (S.).

DISTRIB. : Abyssinia, Yaman.

2. *P. chinensis* L. Sp. pl. (1753) 704 ; Hook. Fl. Brit. Ind. i, pt. 1 (1872) 204 ; Chodat Monogr. Polygal. part 2, 385, t. 29, fig. 45-46 ; Blatt. Fl. Aden (1915) 115.—*P. arvensis* Willd. Sp. pl. iii, 876. *P. Rothiana* W. & A. Prodr. 37. *P. triflora* Linn. Sp. pl. 705.

HABITAT : II. Aden (Lunt ! Kuntze).

IV. Masqat (Auch.-Eloy 4204!).

DISTRIB. : Tropical Asia, Australia.

3. *P. dhofarica* Baker in Kew Bull. (1895) 181.

HABITAT : III. Hadramaut ; Dhofar Mts., alt. 300 ft. (Bent 168!).

DISTRIB. : Endemic.

4. *P. erioptera* DC. Prodr. i, (1824) 326 ; Chodat Monogr. Polygal. 342 ; Blatt. Fl. Aden (1915) 114.—*P. triflora* Anders. Fl. Aden. (1860) 6 ; Oliv. Fl. Trop. Afr. i, (1868) 128, non L. *P. oligantha* A. Rich. Fl. Abyss. i, (1847) 38. *P. arabica* Edgew. Journ. As. Soc. Beng. xvi, 1213 (non Boiss.). *P. irregularis* Defl. Bull. Soc. Bot. France xxxii, 346 (non Boiss.).

HABITAT : II. Hanish Island in Red Sea (Slade 19!) ; on rocks near Ferihe (Schimp. 782!) ; sandy plains and hills near Jiddah (Fischer 44!) ; Aden (Perry ! Hook. f. ! Thomson ! Madden!).

Fl. : Jan.-Feb. (Fischer), Feb. 1836 (Schimp.), Mar. 1850 (Madden), 1878 (Perry), Dec. 1847 (Hook.).

Fr. : Feb. 1836 (Schimp.), 1857 (Thomson), Mar. 1850 (Madden), 1878 (Perry), Dec. 1847 (Hook.).



DISTRIB.: Bengal, Punjab, Central and Southern Arabia, Upper Egypt, Nubia, Eritrea, Abyssinia, Kilimandjaro, Darfur, Kordofan, Senegambia, Cape Verd Islands.

Vern. name: *Bisserre* (S.).

VAR. *foliosa* Schweinf. in Bull. Herb. Boiss. (1899) App. II. 297.

HABITAT: II. Wulej, 600 m (S. 765); Wasil, 1400 m. (S. 1126); J. Bura, 700 m (S. 432).

Fl.: Jan. and Feb. 1889 (S.). Fr.: Jan. and Feb. 1889 (S.).

DISTRIB.: Yaman, Eritrea.

VAR. *perennis* Schweinf. in Bull. Herb. Boiss. (1899) App. II, 297.

HABITAT: II. Aden (S.).

Fl.: Mar. 1881 (S.); Nov. 1888 (S.). Fr.: Mar. 1881 (S.); Nov. 1888 (S.).

DISTRIB.: Endemic.

VAR. *virgata* Ehrenb. in herb.; Schweinf. in Bull. Herb. Boiss. (1899) App. II, 297.

VAR. *exigua* Chod.

HABITAT: II. Near Bajil (S. 875!); Shuqra (S. 812).

Fl.: Jan. 1889 (S.); Mar. 1881 (S.). Fr.: Jan. 1889 (S.); Mar. 1881 (S.).

DISTRIB.: Eritrea, Yaman.

5. *P. exilis* DC. Cat. Monsp. 35; Prodr. i, (1824) 325; Chodat. Monogr. Polygal. 311.—*P. parviflora* Lois. Not. 104 (non Poir). *P. paniculata* Forsk. Aeg. Arab. (1775) CXVII, n. 429.

HABITAT: II. Boka (Forsk.).

DISTRIB.: Mediterranean region.

6. *P. irregularis* Boiss. Diagn. Pl. Or. ser. 1 (1842) 8; Fl. Or. i, (1867) 469; Oliv. Fl. Trop. Afr. i, (1838) 131; Defl. Yemen (1889) 112; Chod. Monogr. Polygal. 392.—*P. arabica* Boiss. Diagn. l. c. 9. *P. dictyocarpa* Boiss. Diagn. Pl. Or. ser. 2. i, 59.

HABITAT: II. Borders of fields near Lahaj (Defl.); Jiddah (Schimp. 8611 sub. nom. *P. rosea*, Zohrab 198! Fischer 43!).

Fl.: Nov.—Feb. (Fischer); Dec. 1835 (Schimp.).

Fr.: Dec. 1835 (Schimp.).

DISTRIB.: Egypt, Arabia, Kordofan, Senegambia, Baluchistan.

7. *P. mascatensis* Boiss. Fl. Or. i, (1867) 470; Chodat Monogr. Polygal. 325.

HABITAT: Masqat (Auch.-Eloy 4201!).

DISTRIB.: Endemic.

8. *P. obtusissima* Hochst. in Fl. Schimp. exsicc. Abyss; Chodat Monogr. Polygal. 322. *P. senensis* Oliv. in Oliv. Fl. Trop. Afr. i, (1868) 129, haud Peters.

HABITAT: II. Regma near Hojela, 800 m (S. 958!); above Hille, 700 m, and in coffee plantations, 1000 m (S. 389, 437); Hojela, 600 m (S. 1000); Yaman (Botta! Defl.).

III. Foot of Dhofar Mts. (Bent 114!).

Fl.: Jan. 1889 (S.). Fr.: Jan. 1889 (S.).

DISTRIB.: Abyssinia, Somaliland, Arabia.

Vern. name: *Ssohram* (S.).

9. *P. Quartiniana* A. Rich. in Ann. Sc. Nat. ser. 2. xiv, 263; Fl. Abyss. i, 36; Chodat Monogr. Polygal. 328.—*P. sphenoptera* Fres. in Mus. Senck. ii, (1837) 274. *P. Persicariaefolia* Oliv. in Oliv. Fl. Trop. Afr. i, (1868) 129 (excl. syn. *P. Wallichiana* Wt., *P. granulata* Hochst., *P. punctulata* Hochst.) non DC.

HABITAT: II. Neighbourhood of Aden (Hunter 12!).

DISTRIB.: Abyssinia, Eritrea, Yaman.

Vern. name: *Kalait* (Hunter).

Uses: Eaten by sheep and goats (Hunter).

10. *P. spinescens* Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2. iii, (1835) 275; Boiss. Fl. Or. i, (1867) 470; Chod. Monogr. Polygal. 391, t. xxx, f. 8-11.

HABITAT: I. Mt. Sinai (Schimp. 448! Bové 186!).

Fl.: May (Schimp.); June 1832 (Bové).

DISTRIB.: Endemic.

Vern. name: *Melouen* (Bové).

11. *P. Thurmanniana* Chod. Monogr. Polygal. 346; Blatt. Fl. Aden (1915) 115.

HABITAT: II Wasil, alt. 1400 m. (S. 1126!); Aden (S. 47! Defl. 58! Hildebr. 782).

Fl.: Feb. 1889 (S.); Nov. 1888 (S.); Dec. 1889 (Defl.).

Fr.: Feb. 1889 (S.); Nov. 1888 (S.); Dec. 1889 (Defl.).

DISTRIB.: Endemic.

Vern. name: *Bissere* (S.).

12. *P. tinetoria* Vahl Symb. Bot. i, (1790) 50; Chodat Monogr. Polygal. 326.—*P. bracteolata* Forsk. Fl. Aeg. Arab. (1775) cxvii, n. 430 and p. 213.

HABITAT: II. W. Shaba near Hojela, 500 m (Defl. 129); W. Ayiah near Attara 1800 m (Defl. 417).

DISTRIB. : Endemic.

Vern. name : *Schadjaret el hover* (Forsk.).

Uses : They say that from the plant indigo may be prepared (Forsk.).

VAR. *canescens* nov. var. (Folia canescentia virentia, saepius lanceolata, velutina ; racemi longi).

HABITAT : II. Wasil, 1400 m (S. 1123 !).

DISTRIB. : Endemic.

Vern. name : *Ssohram* (S.).

13. *P. Yemenica* Chodat Monogr. Polygal. 327, t. xxvii, f. 17-18.

HABITAT : Jennah in Yaman (Botta.).

DISTRIB. : Endemic.

#### XIV. FRANKENIACEAE.

##### 1. Frankenia L.

1. *F. hispida* DC. Prodr. i, (1824) 349. — *F. hirsuta* Sibth. Fl. Graec. t. 343. *F. hirsuta* L. var. *hispida* Boiss. Fl. Or. i, (1867) 780.

HABITAT : I. On salt ground near Tor (Bové 213!).

Fl. : June 1832 (Bové).

DISTRIB. : Mediterranean region, Caucasus.

2. *F. pulverulenta* L. Sp. pl. (1753) 332; DC. Prodr. i, (1824) 349; Boiss. Fl. Or. i, (1867) 779; Oliv. Fl. Trop. Afr. i, (1868) 136; Hook. f. Fl. Brit. Ind. i, pt. 2 (1874) 212.

HABITAT : I. Arab Petr.: W. Rarba (Schimp. 223!); W. Feiran and neighbourhood (Lord!).

II. Hadramaut : Dhofar Mts. (Bent 5!).

IV. Masqat (Bent!), Auch.-Eloy 4205!).

Fl. : April (Schimp.).

DISTRIB. : Mediterranean region, Senegal, Cape, Arabia, Sind, Punjab.

Vern. name : *Garmal* (Schimp.).

#### XV. CARYOPHYLLACEAE.

##### 1. Dianthus L.

1. *D. caryophyllus* L. Sp. pl. (1753) 410; Williams Journ. Linn. Soc. xxix, 432; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 174.

HABITAT : II. J. Bura, cultivated (S.).

DISTRIB. : Europe, Mediterranean region to India.

Vern. name : *Sahr-es-sirr* (S.).

2. *D. Cyri* F. et M. Ind. Sem. Hort. Petrop. iv, 34; Boiss. Fl. Or. i, (1867) 482; Williams in Journ. Linn. Soc. xxix, 463.—*D. macrolepis* Boiss. Diagn. Pl. Or. ser. 1. i; (1842) 18.

HABITAT: IV. Masqat (Auch.-Eloy 4230!).

DISTRIB.: Egypt, Arabia, Anatolia, Transcaucasia, Afghanistan.

3. *D. deserti* Kotschy in Sitzb. Kais. Akad. Wiss. lii, (1866) 12, t. VII A.

HABITAT: II. Hijaz, towards Asyr (ex Kotschy).

DISTRIB.: Endemic.

4. *D. judaicus* Boiss. Diagn. Pl. Or. ser. 1, viii (1849) 66; Fl. Or. i, (1867) 485; Post Fl. Syr. etc. (1896) 124.

HABITAT: I. Et-Tih (ex Post).

DISTRIB.: Arabia Petraea, Palestine.

5. *D. Libanotis* Labill. Dec. Pl. Syr. i, 14, t. 4; Boiss. Fl. Or. i, (1867) 492; Williams Journ. Linn. Soc. xxix, 410.

VAR. *sinaicus* Williams l. c.

HABITAT: I. Sinai: Mt. Catherine (Schimp. 274!).

Fl.: July (Schimp.).

DISTRIB.: Sinai, Syria, Persia.

6. *D. multipunctatus* Ser. in DC. Prodr. i, (1824) 362; Boiss. Fl. Or. i, (1867) 482; Williams Journ. Linn. Soc. xxix, 417.

HABITAT: Sinai Peninsula (Hart!).

DISTRIB.: Mediterranean region.

7. *D. sinaicus* Boiss. Diagn. Pl. Or. ser. 1, i, (1842) 23; Fl. Or. i, (1867) 497; Williams Journ. Linn. Soc. xxix, 399.

HABITAT: I. In rocky places at the foot of Mt. Sinai (Schimp. 260!).

Fl.: Aug. (Schimp.).

DISTRIB.: Endemic.

Vern. name: *Samar* (Schimp.).

8. *D. uniflorus* Forsk. Fl. Aeg. Arab. (1775) CXI, n. 284; Schweinf. in Bull. Herb Boiss. (1896) App. II, 174.—*D. pumilus* Vahl Symb. Bot. i (1790) 32; Defl. Yemen (1889) 112.

HABITAT: II. J. Shibam: Manakhah, 2700-2800 m (S. 1660!); top of J. Shibam, 2800 m (Defl. 351); Kurma (Forsk.).

Fl.: Mar. 1889 (S.). Fr.: Mar. 1889 (S.).

DISTRIB.: Endemic.

Vern. name: *Zahr es zirr* (Forsk.).

2. *Tunica* Scop.

1. *T. arabica* Boiss. Diagn. Pl. Or. ser. I, viii, (1849) 62 ; Fl. Or. i, (1867) 523.—*T. pachyona* F. & M. var. *scabrida* Post Fl. Syr. etc. (1896) 127.

HABITAT : I. Arabia Petr. (ex Boiss.) ; Arab. Petr. to el Ghor (ex Post) ; Wady Aleyat, 650-750 m (Kneuck.).

Fl. : May (Boiss.).

DISTRIB. : Arabia Petraea, Syria.

3. *Gypsophila* L.

1. *G. bellidifolia* Boiss. Diagn. Pl. Or. ser. I, i, (1842) 11 ; Fl. Or. i, (1867) 553.

HABITAT : IV. Masqat (Auch.-Eloy 4263 !).

DISTRIB. : Arabia, Baluchistan.

2. *G. elegans* M. B. Taur. Cauc. i, 319 ; Boiss. Fl. Or. i, (1867) 551 ; Kneuck. in Allg. Bot. Zeitsch. ix, (1903) 128.

HABITAT : I. Damp places of Sinai desert (Schimp. 332 !).

DISTRIB. : Mediterranean region, Persia, Caucasus.

3. *G. hirsuta* Spreng. Syst. ii, (1825) 373 ; Boiss. Fl. Or. i, (1867) 556.—*Saponaria hirsuta* Labill. Dec. Syr. iv, 9.

var. *alpina* Boiss. Fl. Or. i, (1867) 557.

HABITAT : I. On top of Mt. Catherine (Schimp. 276).

Fl. : July (Schimp.).

DISTRIB. : Mediterranean region.

4. *G. montana* Balf. f. in Proc. Roy. Soc. Edin. xi, (1882) 501 ; Bot. Soc. 19 ; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 174 ; Blatt. Fl. Aden (1915) 119.—*G. somalensis* Franch. Sert. Somal. in Miss. Révoil 14.

var. *diffusa* Balf. Bot. Soc. 20.

HABITAT : II. Aden (Defl. 48 ! S. 15 ! 18 ! Balfour ! Thomson ! Perry ! Birdwood !).

Fl. : March 1878 (Perry), 1881 (S.) ; Nov. 1888 (S.) ; Dec. 1889 (Defl.).

DISTRIB. : Var. endemic, Species found in Yaman, Socotra, Somaliland.

5. *G. Rokejeka* Del. Ill. Fl. d'Eg. (1813) 282, t. 29, f. 1 ; Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, iii, (1835) 276 ; Schenk Sp. Pl. it. Aeg. Arab. & Syr. (1840) n. 265 ; Boiss. Fl. Or. i, (1867) 543.—*Rokejeka* Forsk. Fl. Aeg. Arab. (1775) 90.

HABITAT : I. Arab. Petr. (McDonald ! Boiss !) ; Sinai (Schimp. 435 ! Drake 77 !); between Suez and Tor (ex Schenk) ; desert of Sinai (Bové 502 !); between Wady Ghurundel and Wady Werdan (Kneuck.) ; Central Midian (Burton !).

Fl.: July (Schimp.).

DISTRIB.: Egypt, Sinai, Syria, Palestine, Mesopotamia.

Vern. name: *Roufaya* (Bové), *Rokajeka* (Forsk.), *Kuzamah*, *barabihh*, *sirr* (Post).

#### 4. *Anchyropetalum* Fenzl.

1. *A. gypsophiloides* Fenzl. Bot. Zeitg. (1843) 393; Boiss. Fl. Or. i., (1867) 533.

HABITAT: I. Sinai. (Auch.-Eloy 54 1!).

DISTRIB.: Sinai, Syria, Mesopotamia, Kurdistan.

#### 5. *Saponaria* L.

1. *S. vaccaria* L. Sp. pl. (1753) 409; Dene. Fl. Sin. in Ann. Sc. Nat. ser. 2. iii, (1835) 276; Boiss. Fl. Or. i, (1867) 525.—*Gypsophila vaccaria* Sibth. Fl. Graec. t. 380. *Vaccaria segetalis* Garcke in Aschers. Fl. Prov. Brandenb. i, (1864) 84.

HABITAT: I. Sinai, cultivated places (Bové 210!); Mt. Sinai: Bestan (Schimp. 331!).

Fl.: May (Schimp.). Fr.: May (Schimp.); June 1833 (Bové).

DISTRIB.: Central Europe, Mediterranean region, Persia, India, Siberia, Tibet.

Vern. name: *Gleylé* (Bové).

#### 6. *Silene* L.

1. *S. affinis* Boiss. Diagn. Pl. Or. ser. 2. i, (1856) 72; Rohrb. Monogr. Silene 104.—*S. arabica* Boiss. Fl. Or. i, (1867) 593.—*S. villosa* Del. ap. Schimper un. it. 1835, n. 411 (non Forsk. neque Rohrb.).

HABITAT: I. Sinai in sandy places (Schimp. 411! 76!).

Fl.: April (Schimp.). Fr.: April (Schimp.).

DISTRIB.: Endemic.

2. *S. apetala* Willd. Sp. pl. ii, 703; Rohrb. Monogr. Silene 118:—*S. apetala* var. *grandiflora* Boiss. Fl. Or. i, (1867) 597. *S. Lagascae* Boiss. in Welw. it. lusit. 490.

HABITAT: I. Oasis Feiran (Kneuck.).

DISTRIB.: Mediterranean region, Persia, Afghanistan.

3. *S. Behen* L. Sp. pl. i, (1753) 418; Rohrb. Monogr. Silene 169; Musch. Fl. Eg. (1912) 333.—*S. Pseudo-Behen* Boiss. Diagn. Pl. Or. ser. 1, i, (1842) 36. *S. Behen* var. *minor* Boiss. Fl. Or. i, (1867) 584.

HABITAT: I. Arab. Petr. (ex Musch.).

DISTRIB.: Mediterranean region.

4. *S. Burchellii*. Otth. in DC. Prodr. i, (1824) 374 ; Ol. Fl. Trop. Afr. i, (1868) 139 ; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 172.

HABITAT : II. J. Shibam above Manakhah, 2500 m (S. 1394).

DISTRIB. : Abyssinia, Eritrea, Cape, Arabia, Syria.

VAR. *macropetala* Schweinf. in Bull. Herb. Boiss. (1896) App. II, 173.—*S. chirensis* A. Rich. Fl. Abyss. i, (1847) 44. VAR. *macropetalum* Schweinf. l. c.

HABITAT. : II. J. Shibam, above Manakha, 2500 m (S. 2002 ! 2004).

Fl. : March 1889 (S.). Fr. : March 1889 (S.).

DISTRIB. : Eritrea, Yaman.

5. *S. colorata* Poir. Voy. ii, (1789) 163 ; var. *vulgaris* Willk. Ic. et descr. I, 45.—*S. bipartita* Desf. Fl. Atlant. i, 352, t. 100. var. *stenophylla* Boiss. ; Post Fl. Syr. etc. (1896).

HABITAT : I. Palestine to Sinai (ex Post).

DISTRIB. : Tripolitania, Cyrenaica, Egypt, Arabia Petraea, Syria.

6. *S. conica* L. Sp. Pl. i, (1753) 418 ; Boiss. Fl. Or. i, (1867) 578 ; Del. Frag. Fl. Arab. Petr. (1833) n. 72 ; Carter in Rec. Bot. Surv. Ind. vi, (1917) 184.

HABITAT : I. Arab. Petr. (Delaborde).

IV Zor Hills (Cox 81), it likes the sand hills and is especially common round Thum Niga.

DISTRIB.: Europe, Mediterranean region, Transcaucasia.

Vern. name : *Turbah* (Cox).

7. *S. conoidea* L. Sp. pl. i, (1753) 418 ; Boiss. Fl. Or. i, (1867) 508 ; Rohrb. Monogr. Silene (1868) 92.—*S. conica* Hochst. in sched. anni 1835. *S. cylindristora* Otth. in DC. Prodr. i, (1824) 371.

HABITAT : I. Sinai : In rocky places at Bestan (Schimp. 131 !).

Fr. : May (Schimp.).

DISTRIB.: Mediterranean region to Tibet.

8. *S. flammulaefolia* Steud. in Schimp. it. Abyss. ii, n. 676 ; et Rich. Fl. Abyss. i, (1847) 43 ; Rohrb. Monogr. Silene 146 ; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 174.

HABITAT : II. Jebel Shibam near Manakhah, 2500 m (S. 1394 !).

Fl. : Mar. 1889 (S.). Fr. : Mar. 1889 (S.).

DISTRIB.: Abyssinia, Eritrea, Yaman.

9. *S. gallica* L. Sp. Pl. (1753) 417 ; Boiss. Fl. Or. i, (1867) 590.—*S. villosa* Forsk. Fl. Aeg. Arab. (1775) 210 (non ead. ac. p. 88 !); Musch, Fl. Eg. (1912) 333.

HABITAT : I. Arab. Petr. (ex Musch.).

DISTRIB. : Europe, Mediterranean region, introduced almost all over the world.

10. *S. Hussoni* Boiss. Diagn. Pl. Or. ser. 1, viii, (1849) 76 ; Fl. Or. i, (1867) 604 ; Rohrb. Monogr. Silene 158.

HABITAT : I. Borders of Et Tih and southwards (ex Post).

DISTRIB. : Egypt, Arabia Petraea.

11. *S. juncea* Sibth. Fl. Graec. v, 15, t. 421 ; Boiss. Fl. Or. i, (1867) 605.—*S. picta* DC. Pl. Rar. Hort. Genev. 21, t. 6 (non Pers.). *S. syriaca* Reut. in Cat. Hort. Genev. (ex Boiss.).

HABITAT : I. Midian (Burton !).

DISTRIB. : Midian, Palestine, Syria, Asia Minor, Greece.

12. *S. leucophylla* Boiss. Diagn. Pl. Or. ser. 1, i, (1842) 29 ; Fl. Or. i, (1867) 634 ; Rohrb. Monogr. Silene 214.

HABITAT : I. Mt. Catherine (Schimp. 297 !).

DISTRIB. : Endemic.

13. *S. linearis* Deene. Fl. Sin. in Ann. Se. Nat. ser. 2, iii, (1835) 276, (non Sweet) ; Boiss. Fl. Or. i, (1867) 602 ; Rohrb. Monogr. Silene 162.—*S. microsperma* Fenzl in Russegg, Reise ii, 916. *S. adhaerens* Ehrenb. herb.

HABITAT : I. Desert of Sinai (Bové 178 !); Wady Hebran (Schimp. 222 !).

Fl. : April (Schimp.) ; June 1832 (Bové).

Fr. : April (Schimp.) ; June 1832 (Bové).

DISTRIB. : Egypt, Arabia Petraea, Palestine, Syria.

14. *S. nocturna* L. Sp. Pl. (1753) 416 ; Boiss. Fl. Or. i, (1867) 595 ; Rohrb. Monogr. Silene 100 ; Muschler Fl. Eg. i, (1912) 336.—*S. mutabilis* L. Cent. Pl. ii, 16.

HABITAT : I. Arabia Petr. (ex Musch.).

DISTRIB. : Morocco, Algeria, Tunisia, Tripolitania, Cyrenaica, Egypt, Arabia, Syria.

15. *S. odontopetala* Fenzl. pug. n. 28.

VAR. *sinaica* Boiss. ex Rohrb. Monogr. Silene 79.—*S. Sinaica* Boiss. Diagn. Pl. Or. ser. 1, i, (1842) 25. *S. odontopetala* & *congesta* Boiss. Fl. Or. i, (1867) 626.

HABITAT : I. Mt. Catherine (Schimp. 296 ! 352 !).

Fl. : May and July (Schimp.).

DISTRIB. : var. : Endemic.



16. *S. Oliveriana* Otth. in D C. Prodr. i, (1824) 373; Rohrb. Monogr. Silene 116. — *S. puberula* Bertol. Miscell. Bot. ii, (non Jord. nec Boiss.). *S. setacea* VAR. *viscida* Boiss. Fl. Or. i, (1867) 594, (non Viv.). *S. eremophila* Bienert in Bunge Pl. Pers. exs. *S. bipartita* Desf. VAR. *Oliveriana* Post Fl. Syr. etc. (1896) 139.

HABITAT : I. Arab. Petr. (Boiss. !); Wady Tarfa, plain of Raha, W. es Shaikh (Kneuck).

Fl. : March 1846 (Boiss.). Fr. : March 1846 (Boiss.).

DISTRIB. : Arabia Petræa, Palestine, Syria, Mesopotamia, Persia.

17. *S. Palaestinae* Boiss. Diagn. Pl. Or. ser. 1, i, (1842) 80; Fl. Or. i, (1867) 595; Post Fl. Syr. etc. (1896) 138.

HABITAT : I. Ramleh (ex Post).

DISTRIB. : Arabia Petræa, Palestine.

18. *S. Schimperiana* Boiss. Diagn. Pl. Or. ser. 1, i, (1842) 31; Fl. Or. i, (1867) 641 (non Hochst.) — *S. chloraefolia* Sm. VAR. *Schimperiana* Boiss. ex Rohrb. Monogr. Silene 178. *S. dianthoides* Schimp. in exs. 422, 283 (non Pers.) *S. divaricata* Ehrenb. herb., partim.

HABITAT : I Arab. Petr. : Bestan (Schimp. 422 !); Raphidim (Schimp. 283 !); top of Mt. Sinai (Ehrenb. !).

Fl. : July (Schimp.). Fr. : July (Schimp.).

DISTRIB. : Endemic.

Vern. name : *Uesbih* (Schimp.).

19. *S. Schweinfurthii* Rohrb. in Bot. Zeitg. (1867) 82. — *S. chirensis* A. Rich. VAR. *Schweinfurthii* Rohrb. in Bot. Zeitg. (1867) 82.

HABITAT : II. El Hausan and W. Nahemi above Attara, 1800 m (S. 1750); above Manakhah, 2400-2600 m (S. 2003, 1553).

Fl. : March 1889 (S.). Fr. : March 1889 (S.).

DISTRIB. : Eritrea, Yaman.

20. *S. setacea* Viv. Fl. Libyc. Prodr. (1824) 23, t. XII, f. 2 (non Otth.); Boiss. Fl. Or. i, (1867) 594 excl. syn. Bertol. et excl. var. *β.*; Rohrb. Monogr. Silene 105. — *S. Vivianii* Steudel Nomencl. ii, 588. *S. spicata* Ehrenbg. herb. (non DC.). *S. asphaltica* Ky. mst. in it. Syr. 1855 n. 1336.

HABITAT : I. From Dead Sea southwards (ex Post).

DISTRIB. : Tripolitania, Morocco, Algeria, Tunisia, Egypt, Arabia, Palestine.

21. *S. villosa* Forsk. Descript. Centur. iii, (1775) 88 (non Forsk. l. c. 210); Boiss. Fl. Or. i, (1867) 592; Rohrb. Monogr. Silene 110. — *S.*

*canopica* Del. Ill. Fl. Aegypt. n. 442, non Boiss. Fl. Or. i, (1867) 596 ; Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, iii, (1835) 276 ; Schenk Sp. Pl. it. Aeg. Arab. & Syr. (1840) n. 267.

HABITAT : I. Desert at Suez (Bové 175 ! ) ; Arab. Petr. (McDonald ! ) ; W Sewook (Lord ! ) ; N. Midian (Burton !).

IV. Central Arabia : Hollows amongst sand hills (Pelly 65 !).

Fl. : Mar. 1865 (Pelly), Apr.-May 1868 (Lord), June 1852 (Bové). Fr. : Apr.-May 1868 (Lord), June 1852 (Bové).

DISTRIB. : Tripolitania, Tunisia, Algeria, Egypt, Arabia, Syria.

Vern. name : *Nimwar, A'tani, Dhunabah* (Post).

USES : Bad food for animals (Burton).

22. *S. yemensis* Deff. Yemen (1889) 112.

HABITAT : II. Near Manakhah, 2300 m (Deff. 304) ; near Suq el Khamiss, 2400 m (Deff. 587 !).

DISTRIB. : Endemic.

23. *S. tenuis* Willd. Enum. Hort. Berol. 474 ; Carter in Rec. Bot. Surv. Ind. vi, 184—*S. repens* Boiss. Fl. Or. iii, 614.

HABITAT : IV. Zor Hills (Cox 40).

DISTRIB. : Armenia to Trans-Caucasia, N. and Arctic Asia, N. W. Himalayas.

Vern. name : *Jaraisah* (Cox).

24. *S. arabica* F. N. Williams in Journ. Linn. Soc. xxxii, 66.

HABITAT : — II. J. Shibam, near Manakhah.

DISTRIB. : Endemic.

## 7. *Holosteum* L.

1. *H. liniflorum* Stev. ex F. et. M. Ind. Petrop. iv, 10 ; Boiss. Fl. Or. i, (1867) 710.—*H. polygamum* C. Koch Linn. xv, 708. *H. glandulosum* Bertol. Miscell. i, 11. *H. imberbe* J. Gay Mon. Hol. 37.

HABITAT : I. Arab. Petr. : Arbain (Schimp. 132 ! ) ; Sinai (Boiss. ! ) ; W. Rahabe, Wady Rutig, foot of J. Catherine, ca 1850 m, towards top of J. Catherine, ca 2450 m (Kneuck.).

Fl. : March 1846 (Boiss.). Fr. : May (Schimp.).

DISTRIB. : Mediterranean region, Arabia, Mesopotamia, Persia, Afghanistan, Baluchistan.

## 8. *Cerastium* L.

1. *C. dichotomum* L. Sp. Pl. (1753) 438 ; Boiss. Fl. Or. i, (1867) 721.—*Absine corniculata* Clus. Hist. ii, 184 Ic.

HABITAT : Sinai (Figari in Herb. Kew.!).

DISTRIB. : Mediterranean region, Mesopotamia, Persia.

2. *C. inflatum* Link in Desf. Cat. Hort. Par. 462 ; Boiss. Fl. Or. i, (1867) 721.

HABITAT : Arab. Petr. (Boiss.) ; Sinai (ex Post).

DISTRIB. : Mediterranean region, Persia, Baluchistan.

3. *C. viscosum* L. Sp. Pl. (1753) 437 ; Boiss. Fl. Or. i, (1867) 722 ; Kneuck. in Allg. Bot. Zeitsch. ix, (1908) 128.—*C. glomeratum* Thuill. Par. 225. *C. vulgatum* Sm. Fl. Brit. (non L.).

HABITAT : I. Oasis Feiran (Kneuck.).

DISTRIB. : Nearly cosmopolitan.

### 9. *Stellaria* L.

1. *S. apetala* Ueria ap. Roem. Arch. i, (1796) 68 ; Murbeck Fl. Nord-Ouest Afr. i, 37 ; Durand & Barr. Fl. Libye. Prodr. 40, n. 138.

HABITAT : I. Arab. Petr. (ex Dur. & Barr.).

DISTRIB. : Europe, Morocco, Algeria, Tunisia, Egypt, Abyssinia, Arabia, Cyprus.

2. *S. media* Cyrill. Char. Comm. (1784) 36 ; Boiss. Fl. Or. i, (1867) 707 ; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 174.—*Alsine media* L. Sp. Pl. (1753) 272.

HABITAT : I. Foot of Mt. Sinai (Schimp. 340!).

II. J. Bura, coffee region, 900 m (S. 1857); Kahil above Manakhah as a weed in lucerne fields, 2400 m (S. 1450).

Fl. : Jan.—Feb. (S.), May (Schimp.). Fr. : Jan.—Feb. (S.), May (Schimp.).

DISTRIB. : Cosmopolitan.

### 10. *Arenaria* L.

1. *A. graveolens* Schreb. Nov. Act. Nat. Cur. iii, 478 ; Boiss. Fl. Or. i, (1867) 700.—*A. deflexa* Dene. Fl. Sin. in Anu. Sc. Nat. ser. 2, iii, (1835) 277. *A. papillosa* Steud. Nom. ed. 2.

HABITAT : I. Sinai Peninsula : W. Feiran (Lord!); Mt. Catherine (Schimp. 348! McDonald!); Sinai (Bové 176! 177! Drake 16 a!).

Fl. : May 1868 (Lord), June 1832 (Bové).

Fr. : May 1868 (Lord), May (Schimp.), June 1832 (Bové).

DISTRIB. : Mediterranean region.

Vern. name : *Médéghiné* (Bové).

2. *A. serpyllifolia* L. Sp. Pl. (1753) 423.

VAR. *glutinosa* Koch in Syn. Fl. v. Deutschl. (1838) 115; Boiss. Fl. Or. i, (1867) 701; Muschler Fl. Eg. i, (1912) 342.

HABITAT: II. Near Manakhah in lucerne fields, 2500 m (S. 1449!).

Fl.: Feb. 1889 (S.). Fr.: Feb. 1889 (S.).

DISTRIB.: Of species: N. Africa, Egypt, Nubia, Arabia, Europe, Asia Minor, Armenia, Persia, Turkestan, India, Siberia.

#### II. *Alsine* Scop.

1. *A. brevis* Boiss. Diagn. Pl. Or. ser. I, viii (1849) 96; Fl. Or. i, (1867) 683.

HABITAT: I. Foot of Mt. Sinai (Schimp. 416!); plain of Raha (Kneuck.).

Fr.: April (Schimp.).

DISTRIB.: Arabia, Persia.

2. *A. filifolia* Schweinf. in Bull. Herb. Boiss. (1896) App. II, 175.—*Arenaria filifolia* Forsk. Fl. Aeg. Arab. (1775) 211; Vahl Symb. Bot. i, (1790) 33, t. xii. *Alsine Schimperii* Hochst. in A. Rich. Fl. Abyss. i, (1847) 47.

HABITAT: II. Near Manakhah, 2200—2800 m (S. 1680!).

Fl.: March 1889 (S.). Fr.: March 1889 (S.).

DISTRIB.: Abyssinia, Eritrea, Yaman.

3. *A. Meyeri* Boiss. Diagn. Pl. Or. ser. I, viii (1849) 96; Fl. Or. i, (1867) 682. VAR. *major* Boiss. l. c. 683.—*A. Billardieri* Boiss. Diagn. ser. I, viii (1849) 95.

HABITAT: I. Foot of Mt. Sinai in garden of monastery (Boiss.).

DISTRIB.: Mediterranean region, Persia, Turkestan, Afghanistan.

4. *A. picta* Fenzl. Flora (1843) 403; Boiss. Fl. Or. i, (1867) 687.—*Arenaria pharnaceoides* Ser. in DC. Prodr. i, (1824) 408.

HABITAT: I. Sinai (Auch.-Eloy 603!).

DISTRIB.: Mediterranean region, Mesopotamia.

VAR. *sinaica* Boiss. Fl. Or. i, (1867) 688.—*A. sinaica* Boiss. Diagn. Pl. Or. ser. I, viii (1849) 100.

HABITAT: I. Arab. Petr. (McDonald!); valleys of Sinai (Boiss.); foot of Mt. Sinai (Schimp. 220!); in rocky and gravelly places of the Wadys leading to Mt. Sinai: W. Tarfa, W. Rahabe, plain of Raha (Kneuck.).

Fl.: Mar. 1846 (Boiss.). Fr.: Mar. 1846 (Boiss.); April (Schimp.)

DISTRIB.: Of var.: Egypt, Sinai, Persia.

Vern. name: *Quleiqalah* (Post).

5. *A. procumbens* Fenzl. Verbreit. Alsin. in tab. ad p. 57 ; Boiss. Fl. Or. i, (1867) 671.—*Arenaria procumbens* Vahl Symb. Bot. i, (1790) 50, t. 33. *Arenaria geniculata* Poir. Dict. vi, 365. *Arenaria herniariaefolia* Desf. Fl. Atlant. i, 358.

HABITAT : I. Desert south of Ghazah and southward to Egypt (ex Post).

DISTRIB. : Mediterranean region.

6. *A. tenuifolia* Crantz. Inst. ii, 407.—*A. arabica* Fisch. & Mey. in Ind. Sem. Hort. Bot. Petrop. xi, 49. *Arenaria arabica* Hort. Berol. 1841.

HABITAT : Arabia (ex Fisch. & Mey. l. c.). "E. seminibus a Schimpero ex Arabia missis enata."

DISTRIB. : Endemic.

## 12. *Buffonia* L.

1. *B. multiceps* Decne Fl. Sin. in Ann. Sc. Nat. ser. 2, iii, (1835) 278 ; Boiss. Fl. Or. i, (1868) 666.

HABITAT : I. Arab. Petr. : Arbain (Schimp. 328 !); Sinai desert (Bové 209 !); foot of J. Catherine, behind the monastery el Arbain, ca. 1800 m. (Kneuck.).

Fl. : June (Boiss.). Fr. : June 1832 (Bové).

DISTRIB. : Endemic.

Vern. name : *Om-el-Lezat* (Bové).

## 13. *Spergula* L.

1. *S. diandra* Murbeck Fl. Nord Ouest Afr. i, (1897) 44 ; Dur. & Barr. Fl. Libyc. Prodr. 41, n. 142. — *Spergularia diandra* Heldr. & Sart. ap. Heldr. Herb. Graec. norm. (1855) n. 492 ; Boiss. Fl. Or. i, 733 ; Hal. Consp. Fl. Graec. i, 251. *Arenaria salsuginea* Bunge ap. Ledeb. Fl. Atl. ii, (1830) 163.

HABITAT : I. Arab. Petr. : Haura at Ras Haman (Schimp. 193 !); Arab. Petr. (Boiss. !); Oasis Feiran (Kneuck.).

Fl. : March 1846 (Boiss.), March (Schimp.). Fr. : March 1846 (Boiss.), March (Schimp.).

DISTRIB. : Italy, France, Spain, Greece, Morocco, Algeria, Tunisia, Cyrenaica, Egypt, Abyssinia, Arabia Petraea, Palestine, Syria, Mesopotamia, Persia, Asia Minor, Siberia.

Vern. name : *Etheni* (Schimp.).

VAR. *leiosperma* Aschers. & Schweinf. in Ill. Fl. d'Eg. (1887) 47. n. 157. — *Spergularia microsperma* Aschers. in Beitr. Fl. Aethiop. 267 and 305.

HABITAT : I. Arabia Petr. (ex Muscl.).

DISTRIB. : Mediterranean region.

2. *S. flaccida* Aschers. in Verhandlg. Bot. Ver. Prov. Brandbg. xxx, (1889) p. XXXIV—XLIX; Murbeck Fl. Nord. Oest-Afr. i, 42; Muschler Fl. Eg. i, (1912) 343. — *Arenaria flaccida* Roxb. Fl. Ind. ii, 447. *Spergularia pentandra* VAR. *intermedia* Boiss. Diagn. Pl. Or. ser. 2, fasc. i, 93; Fl. Or. i, (1867) 731. *Spergularia fallax* Lowe ap. Hook. Journ. Bot. and Kew Misc. viii, 289. *Lepigonum eximium* Kindb. Monogr. Lepig. 32, t. II, f. 19; Aschers.-Schweinf. Ill. Fl. d'Eg. 47, n. 156; Sickenb. Contrib. Fl. d'Eg. 186.

HABITAT: I. Arab. Petr. (ex Dur. and Barr.).

II. Kahil above Manakhah, 2400 m (S. 1451).

Fl. : Feb. 1889 (S.). Fr. : Feb. 1889 (S.).

DISTRIB. : Madeira, Canary Islands, North Africa, Nubia, Egypt, Palestine, Arabia.

#### 14. *Spergularia* Pers.

1. *S. salina* Presl. Fl. Cach. 95; Musch. Fl. Eg. (1912) 344. *Arenaria heterosperma* Guss. Syn. i, 501. *Arenaria halophila* Bunge in Ledeb. Fl. Atlant. ii, 162. *S. media* Boiss. Fl. Or. i, (1867) 733.

HABITAT: I. Arab. Petr. (ex Musch.).

DISTRIB. : Mediterranean region, Persia, Caucasus.

VAR. *leiosperma* Aschers. ex Aschers. Schweinf. Ill. Fl. d'Eg. (1887) 48, n. 160. *Lepigonum leiospermum* Kindb. Monogr. Lepig. 23, t. II, f. 10.

HABITAT: I. Arab. Petr. (ex Musch.).

DISTRIB. : Mediterranean region.

#### 15. *Polycarpon* L.

1. *P. alsinefolium* DC. Prodr. iii, 376; Boiss. Fl. Or. i, (1867) 736; Musch. Fl. Eg. (1912) 348. *P. tetraphyllum* VAR. *alsinoides* Gr. et Godr. Fl. Fr. i, 606. *Hagea alsinefolium* Biv. Manip. iii, 7.

HABITAT: I. Arab. Petr. (ex Musch.).

DISTRIB. : Mediterranean region.

2. *P. arabicum* Boiss. in Diagn. Pl. Or. ser. 1, x (1849) 13; Fl. Or. i, (1867) 736; Muschler Fl. Eg. i, (1912) 348.

HABITAT: I. Et Tih and Sinai (ex Post).

DISTRIB. : Egypt, Arabia Petraea, Palestine.

3. *P. succulentum* J. Gay in Duch. Rev. Bot. ii, (1847) 372 (non Boiss.); Muschler Fl. Eg. i, (1912) 348. *Alsine succulenta* Del. Ill. Fl. d'Eg. 211, t. 24, f. 11. *Arenaria succulenta* Ser. in DC. Prodr. i, 400. *Mollia rosca* Hochst. & Steud. in Schimp. pl. exs.

HABITAT : I. Arab. Petr., Sinai (ex Post); W. Arbain (Bové!).

DISTRIB. : Egypt, Arabia Petræa, Sinai.

4. *P. tetraphyllum* L. f. Suppl. i, 16 ; Boiss. Fl. Or. i, (1867) 735 ; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 176.—*Mollugo tetraphylla* L. Sp. Pl. (1753) 89.

HABITAT : II. Above Manakhah, 2500 m (S. 1478!).

Fl. : Feb. 1889 (S). Fr. : Feb. 1889 (S.).

DISTRIB. : Mediterranean region, Arabia ; introduced nearly all over the world.

### 16. Polycarpæa Lam.

1. *P. corymbosa* Lam. Tab. Encyc. et Méthod. ii, (1800) 129 ; Blatt. Fl. Aden (1914) 114.—*Achyranthes corymbosa* L. Sp. Pl. (1753) 205. *Lahaya corymbosa* Schult. Syst. v, 404 *P. indica* Lam. Journ. Hist. Nat. ii, 8. *P. eriantha* Hochst., Rich. Fl. Abyss. i, 303. *P. fallax* J. Gay, Mss. Herb. Kew. *P. humifusa* J. Gay ibid.

HABITAT : II. Aden (Birdw.!).

DISTRIB. : Tropical Asia, Africa, America, Australia.

2. *P. repens* Asehers.-Schweinf. in Oesterr. Bot. Zeitschr. xxxix, (1889) 126 ; Muschler Fl. Eg. i, (1912) 350.—*Corrigiola repens* Forsk. Fl. Aeg. Arab. 207. *P. fragilis* Del. Fl. d' Eg. p. 24, t. 24, f. 1 ; Dene. Fl. Sin. in Ann. Sc. Nat. ser. 2. iii, 262 ; DC. Prodr. iii, 374 ; Batt. et Trab. Fl. d' Alg. ii, 164 ; Boiss. Fl. Or. i, (1867) 737 ; Oliv. Fl. Trop. Afr. i, (1868) 146 ; Blatt. Fl. Aden (1915) 118.

HABITAT : I. Arab. Petr. (Pinard! McDonald!) ; W. Ghurundel (Lord!) ; Sinai desert (Bové 174!) ; Naman Island in Red Sea (Burton!) ; desert Kaha, W. es-Sle, foot of J. Serbal, ca. 1000-1400 m. (Kneuck.).

II. Jiddah (Zohrab 96! 112!) ; Hijaz (Botta!) ; Aden (Beevor 53! S. ! Defl.!) ; Shuqra near el Hami (S.).

IV. Masqat (Auch.-Eloy 4515!) ; Central Arabia (Pelly!).

Fl. : April 1863 (Lord) ; June 1832 (Bové).

DISTRIB. : Central and S. Arabia, Nubia, Egypt, Tripolis, Algeria.

3. *P. spicata* Wight Ann. Sc. Nat. Hist. iii, (1839) 51 ; Boiss. Fl. Or. i, (1867) 738 ; Hook. f. Fl. Brit. Ind. i, pt. II (1874) 243 ; Blatt. Fl. Aden (1915) 118.—*P. staticiformis* Hochst. in Schimp. Pl. Arab. exsicc.

HABITAT : II. Jiddah (Zohrab 53! 148!) ; Ketumbal (Ehrenb.!) ; Aden Beevor 105! Balfour! Defl. ! Birdw.!) III. Dhofar Mts. (Bent 208!).

Fr. : Jan. 1880 (Balfour).

DISTRIB. : Gujarat, Sind, Central and Southern Arabia, Socotra, Abyssinia, Nubia, Upper Egypt.

### 17. *Robbairia* Boiss.

1. *R. prostrata* Boiss. Fl. Or. i, (1867) 735 ; Muschler Fl. Eg. i, (1912) 346.—*Alsine prostrata* Del. Fl. d'Eg. 212, t. XXIV, f. 4 (non Forsk. Fl. Aeg.-Arab. 207). *Arenaria prostrata* Ser. in DC. Prodr. i, 400. *Polycarpæa prostrata* Dene. Fl. Sin. in Ann. Sc. Nat. ser. 2, iii, (1835) 262 ; Pl. l'Arab. Heur. in Ann. Sc. Nat. ser. 2, iv, (1835) 74 ; Oliv. Fl. Trop. Afr. i, (1868) 147.

HABITAT : I. Arab. Petr. (Boiss. ! Bové ! ) ; W. Ghurundel and Ramleh, —W. Gennah (Lord ! ) ; W. Nasb (Drake 64 ! ) ; W. Zewerah (Hayne ! ) ; Akaba, 1000 ft. (Milne ! ) ; W. es Sle, W. es Shaikh, W. Aleyat, W. Feiran (Kneuck.) ; W. Arbain (Ruppell ! ).

II. Jiddah (Botta ! Schimp. 767 ! Zohrab 97 ! 4 ! 160 ! ) ; Kaias near Yemba (Bové ! ).

Fl. : Jan. (Schimp.) ; April 1868 (Lord). Fr. : April 1868 (Lord).

DISTRIB. : N. Africa, Egypt, Nubia, Arabia, Palestine, Mesopotamia.

Vern. name : *Ghubeirah, Simsum, Hharahh, Hharhhar, Hhar, Quleqaleh* (Post).

VAR. *major* Aschers. & Schweinf. in Suppl. III. Fl. d'Eg. (1889) 750 ; Muschler Fl. Eg. i, (1912) 347.

HABITAT : I. Sinai (ex Musch).

DISTRIB. : Egypt, Sinai.

VAR. *minor* Aschers. & Schweinf. in Suppl. III. Fl. d'Eg. (1889) 750 ; Muschler Fl. Eg. i, (1912) 347.—*Polycarpon succulentum* Boiss. Fl. Or. i, (1867) 736, (non J. Gay).

HABITAT : I. Sinai (ex Musch).

DISTRIB. : Egypt, Sinai.

### 18. *Sphaerocoma* T. Anders.

1. *S. Hookeri* Anders. Fl. Aden. (1860) 7, t. 3 ; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 176 ; Blatt. Fl. Aden (1915) 119.—*Psyllothamnus Beevori* Oliv. in Hook. Ic. Pl. ser. III, v, 77, t. 1499.

HABITAT : II. Aden (Hook. f. 36 ! Defl. ! Beevor ! S. 103 ! Perry ! Thomson ! Birdw. ! ).

Fl. : Feb. 1851 (Thomson) ; Dec. 1888 (S.).

Fr. : April 1890 (Defl.) ; Dec. 1847 (Hook.).

DISTRIB. : Soturba, Aden.



## XVI. PORTULACACEÆ.

1. *Portulaca* L.

1. *P. foliosa* Kern. Bot. Reg. t. 793 ; DC. Prodr. iii, 353 ; Oliv. Fl. Trop. Afr. i, (1868) 148 ; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 171.

HABITAT : II. J. Bura, 700 m (S. 371 !).

Fl. : Jan. (S.).

DISTRIB. : Niger, Congo, Senegal, Lower Guinea Zambesi, Eritrea, Arabia.

2. *P. oleracea* L. Sp. Pl. (1753) 445 ; Boiss. Fl. Or. i, (1867) 757 ; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 170.

HABITAT : I. Arab. Petr. (Schimp. !).

II. Hille, 600 m (S. 372) ; Regma and Ayara, 900 m (S. 942, 1033) ; Okeber, 900 m (S. 720).

Fl. : Jan (S.).

DISTRIB. : Cosmopolitan.

Vern. name : *Dheneb el farras, rigl* (S.) ; *Boql* (Post).

3. *P. quadrifida* L. Mant. 78 ; DC. Prodr. iii, 354 ; Boiss. Fl. Or. i, (1867) 757 ; Oliv. Fl. Trop. Afr. i, (1868) 149 ; Defl. Yemen (1889) 113 ; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 171 ; Blatt. Fl. Aden (1915) 121.—*P. linifolia* Forsk. Fl. Aeg. Arab. (1775) 92. *P. imbricata* Forsk. l. c. 92 ; DC. Prodr. iii, 355.

HABITAT : II. Jiddah (Zohrab 246 ! ) ; near Wasil, 900 m (Defl. 243) ; W. Fatimah (Schimp. 1006 ! ) ; Wulej, J. Melhan (S. 714 ! 716) ; near Sanah, 2300 m (Defl. 545) ; near Kuba, 500 m (Defl. 712) ; J. Bura, 400—1000 m (S. 415, 482 ! ) ; Regma near Hojela, 900 m (S. 943) ; Aden (Birdwood 161 ! ).

IV. Masqat (Aucher-Eloy !).

Fl. : Jan. 1889 (S.), Aug. 1898 (Birdwood).

DISTRIB. : Tropical Asia and Africa.

Vern. name : *Sebib ed-dhan* (S.) ; *Rozzi* (Forsk.).

There is a variety noted by Schweinfurth under the name of 'flore flavo.' The specimen (No. 1853 ! ) was collected near Hojela in Feb. 1889.

2. *Talinum* Adans.

1. *T. crassifolium* Willd. Sp. Pl. ii, 862 ; DC. Prodr. iii, 357 ; Oliv. Fl. Trop. Afr. i, pt. I, 150.

HABITAT : II. N. E. of J. Nakhai, 800 m (Defl. 502 ! ).

Fl. : March 1890 (Defl.).

DISTRIB. : Tropical Africa, Arabia, S. America, West Indies.

2. *T. portulacifolium* Asehers. ex Schweinf. in Bull. Herb. Boiss. (1896) App. II, 172.—*Orygia portulacifolia* Forsk. Fl. Aeg. Arab. (1775) CXIV, n. 842 and p. 103; Defl. Yemen (1889) 140. *T. cuneifolium* Willd. Sp. Pl. ii, 864; Oliv. Fl. Trop. Afr. i, (1868) 150.

HABITAT : II. Surdud, Hadie (Forsk.); Manakha, 2200 m (S. 2001); Wulej, 600 m (S. 691); J. Bura, Hille (S. 357 !); Ayara, 600 m (S. 1032); Wasil, 1400 m (S. 2000); near Hojela, 600 m (Defl. 90 !).

Fl. : Jan.-March (S.). Fr. : Jan.-March 1891 (S.).

DISTRIB. : Senegal, Abyssinia, Angola, Zambesi, Eritrea, Yaman.

Vern. name : *Helegleg* (S.); *Horudj, horudjrudj* (Forsk.).

Leaves edible (Forsk.).

## XVII. TAMARICACEÆ.

### 1. *Tamarix* L.

1. *T. africana* Desf. Fl. Atlant. i, 269; DC. Prodr. iii, 95; Schenk Sp. Pl. it. Aeg. Arab. & Syr. (1840) n. 203; Bunge Tent. Tamaric. (1852) n. 19.—*T. gallica* var. *africana* Willd. Sp. Pl. i, 1498.

HABITAT : I. Between Suez and Tor (ex Schenk).

DISTRIB. : Mediterranean region.

2. *T. aphylla* Lanza in Boll. Orto Bot. Palermo viii (1909) 82.—*T. articulata* Vahl Symb. Bot. ii, (1791) 48, t. 32; DC. Prodr. iii, 96; Schenk. Sp. Pl. it. Aeg. Arab. & Syr. (1840) n. 202; Bunge Tent. Tamaric. (1852) n. 44; Boiss. Fl. Or. i, (1867) 777; Defl. Yemen (1889) 113; Carter in Rec. Bot. Surv. Ind. vi, (1917) 196. *S. orientalis* Forsk. Fl. Aeg. Arab. (1775) 206. *Thuya aphylla* L. Cent. Pl. i, 32.

HABITAT : I. Wady Musa (ex Schenk); Sinai (Holland !); Arab. Petr. (Roth !); W. Ghurundel (Hart !).

II. Near Hojela, 500 m (Defl. 132); Mt. Cara (Schimp !); near Lahaj (Busse).

DISTRIB. : Mediterranean region, Arabia, Mesopotamia, Persia, Baluchistan, Sind.

Vern. name : *Atl* (Forsk.); *Öthel* (Busse).

3. *T. arabica* Bunge Tent. Tamaric. (1852) n. 30.

HABITAT : II. Tihama (Botta !); W. El Kebir, neighbourhood of Zeyda (Defl. 221 !).

Fl. : Jan. 1889 (Defl.). Fr. : Jan. 1889 (Defl.).

DISTRIB. : Endemic.

4. *T. gallica* L. Sp. Pl. (1753) 279 ; DC. Prodr. iii, 96 ; Schenk Sp. Pl. it. Aeg. Arab. & Syr. (1840) n. 201 ; Oliv. Fl. Trop. Afr. i, (1868) 151 ; Hook. f. Fl. Brit. Ind. i, pt. 2 (1874) 248.

VAR. *effusa* Schenk l. c.

HABITAT : I. Between Suez and Tor, desert of Mt. Sinai (ex Schenk).

DISTRIB. : Of species : West and South shores of Europe, North and tropical Africa and S. Asia.

5. *T. macrocarpa* Bunge Tent. Tamaric. (1852) n. 50 ; Boiss. Fl. Or. i, (1867) 779 ; Carter in Rec. Bot. Surv. Ind. vi (1918) 196.—*T. passerinoides* VAR. *macrocarpa* Ehrenb. ex Bunge l. c. *Trichaurus aucherianus* Boiss. (non Dcne.) in Kotschy pl. exs. Pers. austr. n. 158.

HABITAT : I. Arab. Petr. (Post 183 !) ; western border of Et-Tih and westward (ex Post).

IV. Kuwait (Cox).

DISTRIB. : Egypt, Arabia Petraea, Palestine to Persia.

Vern. name : *Ithl* (Cox).

6. *T. mannifera* Ehrenb. in sched. Herb. Berol. ap. Bunge Tent. Tamaric. (1852) n. 37 ; Boiss. Fl. Or. i, (1867) 775 ; Baker in Kew Bull. (1894) 329 —*T. gallica* VAR. *mannifera* Ehrenb. in Linnæa ii, (1827) 270 ; Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, iii, 1835) 260.

HABITAT : I. Wady Zewerah (Post !) ; Sinai (Holland ! Ehrenb. ! Lord !) ; Arab. Petr. : Nafeh (Schimp. 329 !) ; desert of Tor (Bové !) ; W. es Sle (Ehrenb. ! Musch.) ; J. Hammam-Sidna-Musa (Musch.).

II. Jiddah (Zohrab 42 !).

III. Hadramaut : Dhofar Mts. (Bent 201 !) ; Shahr, sea level (Lunt 298 !).

DISTRIB. : Egypt, Arabia, Palestine, Syria, Persia, Afghanistan.

Vern. name : *Tarfe*, *Tarfa*, *Hatab achmar* (Ehrenb.) ; *Trpha* (Schimp.).

Bunge makes the following varieties of the specimens collected in the Sinai Peninsula ; var. *divaricata* Ehrenb., *leptostachys* Bunge, *leucanthera* Bunge, *purpurascens* Bunge l. c.

7. *T. mascatensis* Bunge Tent. Tamaric. (1852) n. 35.

HABITAT : I. Wady el Ain (Hart !) ; W. Feiran (Fox !).

II. Masqat, along rivers (Auch.-Eloy 4512 !).

DISTRIB. : Endemic.

8. *T. nilotica* Bunge Tent. Tamaric. (1852) n. 29 ; Boiss. Fl. Or. i, (1867) 775 ; Defl. Yemen (1889) 113.—*T. gallica* VAR. *nilotica* et VAR. *heterophylla* Ehrenb. ex Bunge l. c, sub n. 29. *T. Ehrenbergii* Presl in sched. herb. reg. Berol. (ex Bunge l. c.).

HABITAT: I. Arab. Petr. (ex Musch.).

II. Upper mountainous region of Yaman (Botta!); near Sanah and Randha 2300 m (Defl. 502).

III. Hadramaut: Coast and interior (Hirsch 39).

DISTRIB.: Egypt, Arabia, Syria, Palestine, Nubia, Abyssinia.

Vern. name: *Ithl*, *Kidir* (Hirsch).

9. *T. passerinoides* Del. Fl. Aegypt, (1813) 58; DC. Prodr. iii, 97; Bunge Tent. Tamaric. (1852) n. 48; Boiss Fl. Or. i, (1867) 778.—*T. pycnocarpa* DC. Prodr. iii, 97. *Trichaurus brachycarpus* Dene. ex spec. herb. Mus. Vindob. *Trichaurus aucherianus* Dene. in Jacquem. Voy. iv, 59 (non Boiss.).

HABITAT: Arabia (ex Fiori and DC.).

DISTRIB.: Egypt, Arabia, Mesopotamia, Persia, Transcaucasus, Afghanistan.

10. *T. tetragyna* Ehrenb. in Linnæa ii, (1827) 247, 257, 258; Bunge Tent. Tamaric. (1852) n. 5; Boiss. Fl. Or. i, (1868) 768; Muschler Fl. Eg. i, (1912) 647.—*T. deserti* Boiss. Diagn. Pl. Or. ser. 1, x, 10. *T. Noöana* Boiss. Diagn. Pl. Or. ser. 2, ii, 56.

HABITAT: I. Et-Tih (Boiss.); desert of Et-Tih and southward (ex Post).

DISTRIB.: Egypt, Arabia, Babylon

## 2. *Reaumurta* L.

1. *R. hirtella* Jaub. & Sp. Ill. Pl. Or. iii, (1847-50) 54, t. 244; Boiss. Fl. Or. i, (1867) 760.—*R. vermiculata* L. Sp. 754 (partim). *R. vermiculata* Dene. Fl. Sin. in Ann. Sc. Nat. ser. 2, iii (1835) 261.

HABITAT: I. Nakeb (Schimp. 272! 420!); neighbourhood of Tor (Bove 207!); Arab. Petr. (McDonald!); W. Ghurundel (Kneuck.).

Fl.: July (Schimp.).

DISTRIB.: Egypt, Arabia Petræa, Palestine.

Vern. name: *Melleh* (Schimp.); *Mellah* (Bové).

2. *R. Palaestinae* Boiss. Diagn. Pl. Or. ser. 1, x, 10; Fl. Or. i, (1867) 760; Post Fl. Syr. etc. (1896) 168.

HABITAT: I. W. Ghurundel (Hart!); from the Dead Sea southwards to Sinai (ex Post).

DISTRIB.: Arabia Petræa, Palestine.

Vern. name: *Mellâhh* (Post).

## XVIII. ELATINACEÆ.

1. *Elatine* L.

1. *E. campylosperma* Seub. Monogr. Elat. 14; Boiss. Fl. Or. i, (1867) 781; Post Fl. Syr. etc. (1896) 169.—*E. hydropiper* var. *pedunculata* Mor. Fl. Sard. i, 287, t. 20, f. 2.

HABITAT: I. Arab. Petr. (ex Post).

DISTRIB.: Mediterranean region.

## XIX. HYPERICACEÆ.

1. *Hypericum* L.

1. *H. tomentosum* L. Sp. Pl. (1753) 786; DC. Prodr. i, (1824) 551; Dene. Fl. Sin. in Ann. Sc. Nat. ser. 2. iii, (1835) 287.

HABITAT: I. Damp rocks of Mt. Sinai (Bové 152!).

DISTRIB.: Mediterranean region.

2. *H. sinaicum* Hochst. in Schimp. Pl. Arab. exs.; Boiss. Fl. Or. (1867) 808.

HABITAT: I. Bostan, on damp rocks (Schimp. 42!).

DISTRIB.: Endemic.

## XX. MALVACEÆ.

1. *Althea* L.

1. *A. acaulis* Cavan. Dissert. ii, (1793) f. 27, f. 3; DC. Prodr. i, (1824) 473; Musch. Fl. Eg. i, (1912) 628.—*Alcea acaulis* Boiss. Fl. Or. i, (1867) 827.

HABITAT: I. Arab. Petr. (ex Musch.).

DISTRIB.: Egypt, Arabia, Syria, Palestine.

2. *A. apterocarpa* Fenzl Cat. Hort. Vindob. 1858.—*Alcea apterocarpa* Boiss. Fl. Or. i, (1867) 830.

HABITAT: I. Sinai (Drake 23!).

DISTRIB.: Mediterranean region, Armenia.

3. *A. kurdica* Schlech. Linn. xvii, 127.—*Alcea Kurdica* Boiss. Fl. Or. i, (1867) 834.

HABITAT: I. Arab. Petr. (Schimp. 372!).

DISTRIB.: Mesopotamia, Persia, Kurdistan, Arabia.

4. *A. Ludwigii* L. Mant. (1764) 98 ; Boiss. Fl. Or. i, (1867) 824 ; Musch. Fl. Eg. i, (1912) 627. — *Malva malwensis* Edgew. in Hook. Journ. Bot. ii, 284. *A. gariopensis* E. Mey. in herb. Drège.

HABITAT: I. Arab. Petr. (McDonald !); Sinai in rocky places (Schimp. 318!).

Fr. : May (Schimp.).

DISTRIB. : Mediterranean region, Cape, Persia, Baluchistan, Punjab.

Vern. name : *Khutmi* (Post).

5. *A. rosea* Cav. diss. 2, t. 29, f. 3 ; DC. Prodr. i, (1824) 437 ; Dene. Fl. Sin. in Ann. Sc. Nat. ser. 2, iii, (1835) 284 ; Boiss. Fl. Or. i, (1867) 831. — *A. cretica* Weinm. Syll. Ratisb. ii, 171. *Alcea rosea* L. Sp. Pl. (1753) 687.

HABITAT: I. In cultivated ground of Mt. Sinai (Bové!).

DISTRIB. : Mediterranean region.

6. *A. striata* DC. Prodr. i, (1824) 437 ; Musch. Fl. Eg. i, (1912) 628. — *Alcea striata* Alef. Oest. Bot. Woch. (1862) 247 ; Boiss. Fl. Or. i, (1867) 829 ; Post Fl. Syr. etc. (1896) 177.

HABITAT: I. Arab. Petr. (McDonald !); W. Arbain (Schimp. 372 !); W. Raphidim (Ehrenb. !); in gardens of Mt. Sinai, wild (Ehrenb.).

DISTRIB. : Egypt, Arabia Petraea.

Vern. name : *Chodme* (ex Schumann).

## 2. *Lavatera* L.

1. *L. cretica* L. Sp. Pl. (1753) 691 ; DC. Prodr. i, (1824) 439 ; Boiss. Fl. Or. i, (1867) 822.

HABITAT: I. Arab. Petr. (ex Musch.).

DISTRIB. : Mediterranean region.

## 3. *Malva* L.

1. *M. ægyptiaca* L. Sp. Pl. (1753) 690 ; DC. Prodr. i, (1824) 431 ; Boiss. Fl. Or. i, (1867) 818.

HABITAT: I. Et-Tih, southward and westward (ex Post) ; Arab. Petr. (Boiss. !); W. es Sle (Musch.).

Fr. : April 1846 (Boiss.).

DISTRIB. : Mediterranean region to the Caspian Sea.

Vern. name : *Khubbaza*, *Khubbaizi* (Post).

2. *M. nicæensis* All. Pedem. ii, 40 ; DC. Prodr. i, (1824) 433 ; Boiss. Fl. Or. i, (1867) 819.

HABITAT: I. Arab. Petr. (ex Musch.).

DISTRIB. : Mediterranean region to Persia.

Vern. name : *Raqmeh* (Post).

3. *M. parviflora* L. Amoen. Acad. iii, 416 ; DC. Prodr. i, (1824) 433 ; Boiss. Fl. Or. i, (1867) 820.—*M. mareotica* Del. in DC. Prodr. i, (1824) 433. *M. simpliciuscula* Steud. in Flora (1856) 426.

HABITAT: I. Arab. Petr. (McDonald !); W. Ghurundel (Post 256 !); near monastery of St. Catherine, W. es Shaikh, Oasis Feiran (Kneuck.).

II. Jiddah (Zohrab 174 !).

IV. Kuwait (Pelly !):

DISTRIB.: Mediterranean region, Nubia, Arabia, Persia, Afghanistan, N.-W. India.

4. *M. rotundifolia* L. Sp. Pl. (1753) 688 (partim); DC. Prodr. i, (1824) 432 ; Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, iii, (1835) 284 ; Schenk. Sp. Pl. it. Aeg. Arab. & Syr. (1840) n. 262 ; Boiss. Fl. Or. i, (1867) 820.—*M. vulgaris* Fries, Nov. 219.

HABITAT: I. Sinai, near the convent (Bové 159 !); cultivated ground of Mt. Sinai (ex Schenk) ; W. Arbain (Rüppell).

Fr. : June 1832 (Bové).

DISTRIB.: Europe, N. Africa, N. and W. Asia to India.

Vern. name : *Honbezey* (Bové), *Khubbaizi* (Post).

5. *M. sylvestris* L. Sp. Pl. (1753) 689 ; DC. Prodr. i, (1824) 432 ; Boiss. Fl. Or. i, (1867) 819.—*M. vulgaris* Ten. Syll. 336. *M. circinnata* Viv. Fl. Cors. Prod. App. p. 6.

HABITAT: I. Arab. Petr. (ex Musch.).

DISTRIB.: Europe, Siberia, North Africa to India.

VAR. *ambigua* Aschers. & Schweinf. in Primit. Flor. Marmaric. (1893) 599, n. 55.—*M. ambigua* Guss. Prodr. ii, 331.

HABITAT: I. Arab. Petr. (ex Musch.).

DISTRIB.: Mediterranean region.

6. *M. verticillata* L. Sp. Pl. (1753) 689 ; DC. Prodr. i, (1824) 433 ; Hook. f. Fl. Brit. Ind. i, pt. II (1874) 320 ; Defl. Yemen (1889) 113.

HABITAT: II. Mt. Kahil near Manakhah, 2500 m (Defl. 334); mountainous region of Yaman (Botta !).

DISTRIB.: Europe, Abyssinia, Egypt, India, Amoor Land, China.

#### 4. *Sida* L.

1. *S. grewioides* Guill. et Perr. Fl. Seneg. i, 71 ; Boiss. Fl. Or. i, (1867) 835 ; Mast. in Oliv. Fl. Trop. Afr. i, (1868) 182.—*S. subrotunda* Hochst. Pl. Schimp. Abyss.

HABITAT: II. Mor (Ehrenb. !); Ayara, near Hojela, alt. 600 m (S. 892 !); El Gelil (Defl. 267 !).

Fl. : Jan. 1889 (S.) ; Jan. 1890 (Defl.) ; Feb. (Ehrenb.).

Fr. : Jan. 1889 (S.) ; Jan. 1890 (Defl.).

DISTRIB. : Senegal, Mozambique, Nubia, Abyssinia, Arabia, Socotra, Baluchistan.

2. *S. rhombifolia* L. Sp. Pl. (1753) 684 ; DC. Prodr. i, (1824) 462 ; Boiss. Fl. Or. i, (1867) 835. (For syn. see Baker Syn. Gen. & Sp. Malveæ).

HABITAT : I. Sinai (ex Post).

II. Jiddah (Zohrab!).

DISTRIB. : Tropical and sub-tropical regions.

3. *S. spinosa* L. Sp. Pl. (1753) 683 ; DC. Prodr. i, 460.—*S. alnifolia* L. Sp. Pl. (1753) 960 ; Defl. Yemen (1889) 114. *Stewartia corchoroides* Forsk. Fl. Aeg.-Arab. 126. *Sida alba* L. l. c. 960. *Sida scabra* Schum. & Thonn. Pl. Guin. 305.

HABITAT : II. W. Fatimah (Fischer 59 ! Schimp. 811!).

IV. Masqat (Auch.-Eloy 4280!).

Fl. : Feb. 1837 (Fischer). Fr. : Feb. 1836 (Schimp.).

DISTRIB. : Cape Coast, Upper Guinea, Nubia, White Nile, Abyssinia, Unyoro, Congo, Sennar, Asia (Tropics generally).

4. *S. urens* L. Syst. ed. x, 1145 ; DC. Prodr. i, (1824) 465.—*S. densiflora* Rich. Fl. Abyss. i, (1847) 66. *S. breviflora* Steud. ex Triana & Planch. in Ann. Sc. Nat. ser. 4, xvii, (1862) 177.

HABITAT : II. Wulej, J. Melhan (S. 653!).

Fr. : Jan. 1889 (S.).

DISTRIB. : Tropical and sub-tropical regions.

#### 5. *Abutilon* Gaertn.

1. *A. asiaticum* Don. Gen. Syst. i, 503.—*Sida asiatica* L. ; DC. Prodr. i, (1824) 470.

HABITAT : III. Hadramaut : Found on the sides of the irrigation channel at Furuth, 2100 ft. (Lunt 151!).

DISTRIB. : Tropics.

2. *A. bidentatum* Hochst. in Rich. Fl. Abyss. i, (1847) 68 ; Oliv. Fl. Trop. Afr. i, (1868) 186 ; Defl. Yemen (1889) 114 ; Musch. Fl. Eg. i, (1912) 631. *Sida bidentata* Hochst. in Rich. l. c.

HABITAT : II. Mor (Ehrenb.!) ; W. Heggah near Hojela, 600 m (Defl. 82) ; near Attara, 1800 m (Defl. 419) ; near Manakhah, 2000 m (Defl. 438).



Fr.: April 1877 (S.).

DISTRIB.: Tropical Africa, Arabia, Afghanistan, India.

3. *A. fruticosum* Guill. et Perr. Fl. Seneg. i, 73; Franch. Sert. Somal. in Miss. Révoil. p. 15; Boiss. Fl. Or. i, (1867) 836; Hook. f. Fl. Brit. Ind. i, 328; Oliv. Fl. Trop. Afr. i, (1868) 187; Blatt. Fl. Aden (1915) 123.—*A. denticulatum* Planch. in Herb. Hook.; Anders. Fl. Aden. (1860) 8. *A. microphyllum* A. Rich. Tent. Fl. Abyss. i, (1847) 70. *Sida Kotschyi* Hochst. MSS. *S. gracilis* R. Br. in Salt Abyss. App. 65. *S. denticulata* Fres. in Mus. Senckenb. i, 182; Dene. Fl. Sin. in Ann. Sc. Nat. ser. 2, iii, (1835) 284.

HABITAT: I. Arab. Petr. (McDonald!); J. Hammam-Sidna-Musa (Musch.); Sinai (Auch.-Eloy 865!); W. Feiran (Bové 158!); W. Gurra (Schimp. 302!); W. Hebran (Rüppell); Central Midian (Burton!).

II. W. Fatimah (Schimp. 972!); W. Mawad near Hojela, 600 m (Defl. 111); lower mountainous region of Yaman (Botta!); Mt. Sidr and Kessr (Fischer 157!); W. Adab, 8 miles N.-W. of Shuqra, 100-200 m (Defl. 452!); sandy places near Lahaj (Defl.); Aden (Hook. f. ! Perry ! Defl. S. ! Birdw.!).

III. Hadramaut: Dhofar Mts., W. Geizir, 2000-ft. (Bent 127!); W. Sigem (Hirsch 65 and 182).

Fl.: March (Fischer); March 1878 (Perry).

DISTRIB.: Canaries, Tropical Africa, Palestine, Arabia, India, Ceylon.

Vern. name: *Rabezege* (Bové); *kerkedan* (Musch.).

4. *A. glaucum* Sweet Hort. Brit. ed. 1 (1827) 54 — *A. muticum* Webb. Frag. Fl. Aethiop. (1835) 51. *Sida mutica* Del. Ill. Fl. d'Eg. 60, n. 45. *A. glaucum* Webb. in Hook. Nig. Fl. 109. *A. asiaticum* Guill. & Perr. Fl. Seneg. i, 67 (non L.). *S. glauca* Cav. Ic. v, (1791) 8, t. 11. *S. pannosa* R. Br. in Salt Abyss. App. 65 (non Forsk.). *A. pannosum* Webb. Fragm. Fl. Aethiop. 51.

HABITAT: II. Jiddah (Fischer 162! Zohrab 55!); Yaman (Bové 250!); oasis of Lahaj (Defl. 133!); W. El Kebir near Lahaj (Defl. 158!); Shuqra (S. 86!).

Fl.: Mar. 1831 (Bové), Mar. 1881 (S.), Oct.-Mar. (Fischer), Dec. 1898 (Defl.). Fr.: Mar. 1831 (Bové) Mar. 1881 (S.), Dec. 1898 (Defl.).

DISTRIB.: Mediterranean region, Tropical Africa, Cape, Arabia, Afghanistan, India, Ceylon, Australia.

o. *A. graveolens* W. & A. Prodr. i, 56; Oliv. Fl. Trop. Afr. i, (1868) 184; Hook. f. Fl. Brit. Ind. i. pt. II (1874) 327.—*Sida graveolens* Roxb. Hort. Beng. 50. *A. tortuosum* Guill. & Perr. Fl. Seneg. 68.

HABITAT: II. Agara near Hojela, maize fields (S. 1074!); border of desert near Lahaj (Busse); Yaman (Defl. 992!).

III. Hadramaut : Dhofar Mts. (Bent 39 !); W. Bayren (Hirsch 179).  
Fr. : Feb. 1889 (S.).

DISTRIB. : Tropical Africa, Baluchistan, India, Malaya, Australia, New Caledonia.

Vern. name : *Kapto* (Hirsch).

VAR. *hirtum* Masters in Hook. f. Fl. Brit. Ind. i, pt. II (1874) 327.—  
*A. hirtum* Sweet Hort. Brit. ed. 1, 53.

HABITAT : III. Hadramaut : Dhofar Mts. (Bent 232 !).

DISTRIB. : Tropical Africa, Arabia, India, West Indies, Central America, Peru.

6. *A. indicum* Sweet Hort. Brit. i, 54; Oliv. Fl. Trop. Afr. i, (1868) 186.—*Sida indica* DC. Prodr. i, 471. *Sida grandiflora* Don. Gen. Syst. i, 504.

HABITAT. : II. Jiddah (Zohrab 311 !).

III. Hadramaut : Dhofar Mts., coast (Bent 61 ! 225 !).

DISTRIB. : Spread through the tropical zone in both hemispheres.

7. *A. ramosum* Guill. & Perr. Fl. Seneg. i, 68; Cooke Fl. Bomb. i, (1903) 98.—*A. elæocarpoides* Webb. Frag. Fl. Aethiop. 52. *Sida ramosa* Cav.; DC. Prodr. i, (1824) 469.

HABITAT : II. Tropical Arabia (ex Cocke).

DISTRIB. : Senegambia, Abyssinia, Kordofan, India, N.-W. Provinces.

8. *A. Theophrasti* Medic. Malv. (1787) 28.—*A. Avicennæ* Gaertn. Fruets ii, 251, t. 135. *Sida abutilon* L.; DC. Prodr. i, (1824) 470.

HABITAT : I. Arabia Petraea (ex Musch.).

DISTRIB. : Europe, Mediterranean region, China, Australia (naturalized in many parts of Asia, Africa and N. America).

#### 6. *Pavonia* L.

1. *P. arabica* Hochst. Pl. Schimp. Abyss. ; Oliv. Fl. Trop. Afr. i, (1868) 193; Boiss. Fl. Or. i, (1867) 837.

HABITAT : II. W. Fatimah (Schimp. 889 !); upper region of Mt. Seddr (Fischer 156 !).

II. Hadramaut : Dhofar Mts. (Bent !).

Fl. : Mar. 1836 (Schimp.), Mar. 1837 (Fischer). Fr. : Mar. 1836 (Schimp.).

DISTRIB. : Abyssinia, Arabia, Sind.

2. *P. glechomaefolia* Rich. Fl. Abyss. i, (1847) 54; Oliv. Fl. Trop. Afr. i, (1868) 190; Cooke Fl. Bomb. i, (1903) 101.—*Urena glabra* R. Br. in

Salt Abyss. App. 65. *Lebretonia procumbens* Wight & Arn. Prodr. Fl. Ind. i, 47. *L. cordata* Hochst. Pl. Schimp. Abyss.

HABITAT : II. Trop. Arabia (ex Oliv. and Cooke ll. cc.).

DISTRIB. : Abyssinia, Kordofan, Zambesi, Arabia, India, Ceylon.

3. *P. Kotschyi* Hochst in Webb Fragm. Fl. Aethiop. 43 ; Oliv. Fl. Trop. Afr. i, (1868) 192.

HABITAT : II. Jiddah (Zohrab 181 ! ) ; Gunfuda (Ehrenb.).

Fr. : Feb. (Ehrenb.).

DISTRIB. : Konka, Sennar, Kordofan, Abyssinia, Somaliland, Arabia.

### 7. *Senra* Cav.

1. *S. ineana* Cav. Diss. ii, 83, t. 35, & 3 ; DC. Prodr. i, 457 : Dene. Pl. l'Arab. Heur. in Ann. Sc. Nat. ser. 2, iv (1835) 71 ; Oliv. Fl. Trop. Afr. i, (1868) 194 ; Defl. Yemen (1889) 114.—*Dumreichera arabica* Hochst. in Herb. Schimp. Arab. *S. arabica* Webb Fragm. Fl. Aethiop. 48. *S. nubica* Webb l. c.

HABITAT : II. Mor (Ehrenb. ! ) ; W. Fatimah (Fischer 158 ! ) ; Unsert near Mecca (Schimp. 817 ! ) ; Yaman, in fields (Bové 251 ! ) ; Bilad Hojeria (Defl. 571 ! ) ; J. Rujami (Defl. 571 ! ) ; W. el Kebir, neighbourhood of Lahaj (Defl. 163 ! ) ; Shuqra (S. 66 ! ).

III. Hadramaut : Shari Burrock Valley, Mokalla 200-300 ft. (Bent. 55 ! ) ; Dhofar Mts. (Bent. 66 ! ) ; Kishin (Hirsch 50).

Fl. : Feb. (Fischer), Feb. 1836 (Schimp.), Mar. 1831 (Bové), Mar. 1881 (S.), Apr. 1890 (Defl.), Dec. 1889 (Defl.).

Fr. : Feb. 1836 (Schimp.), Mar. (Ehrenb.), Mar. 1881 (S.).

DISTRIB. : Kordofan, Abyssinia, Sennar, Somaliland, Arabia, Sind.

Vern. name : *Efar* (Ellenbeck), *Ataf* (Hirsch), *Aina* (S.).

### 8. *Hibiscus* L.

1. *H. cannabinus* L. Syst. ed. X (1759) 1149 ; DC. Prodr. i, (1824) 450 ; Boiss. Fl. Or. i, (1867) 140.—*H. vitifolius* Mill. Dict. ed. 8 (1768) n. 8. *H. tripartitus* Forsk. Fl. Aeg. Arab. (1775) 126. *H. radiatus* Cav. Diss. ii, 150, t. 154, f. 2. *H. verrucosus* Guill. & Perr. Fl. Seneg. i, 480.

HABITAT : II. Cultivated in W. Harr, near Hojela, 500 m. (Defl. 199).

DISTRIB. : Cultivated in most tropical countries.

2. *H. Deflersii* Schweinf. in Hb.—*H. micranthus* L. var. *sanguineus* Hoehr. in Ann. Conserv. Jard. Bot. Genève iv, (1900) 83 (partim).

HABITAT : II. Wasil, 1400 m. (S. 1114 ! ) ; neighbourhood of Aden (Hunter 131 ! 100 ! ).

Fl. : Feb. 1889 (S.). Fr. : Feb. 1889 (S.).

DISTRIB. : Endemic.

Vern. name : *Gilloch* (S.).

3. *H. esculentus* L. Sp. Pl. (1753) 696 ; DC. Prodr. i, (1824) 450. — *H. præcox* Forsk. Fl. Aeg. Arab. (1775) 125.

HABITAT : II. Cultivated in Yaman (Defl.) ; near Lahaj (Ellenbeck).

DISTRIB. : Naturalized in all tropical countries.

Vern. name : *Bamir* (Ellenbeck), *Bamia*, *Ueki*, *Bacledi* (Forsk.).

4. *H. intermedius* Rich. Fl. Abyss. i, (1847) 58 ; Oliv. Fl. Trop. Afr. i, (1868) 198 ; Hook. f. Fl. Brit. Ind. i, pt. II (1874) 336. — ? *H. palmatus* Forsk. Fl. Aeg. Arab. (1775) 126.

VAR. *genuinus* Hochr. in Ann. Conserv. Jard. Bot. Genève iv, (1900) 94.—*H. intermedius* Rich. sensu str.

HABITAT : II. Mor (Ehrenb.!).

Fl. : Mar. (Ehrenb.). Fr. : Mar. (Ehrenb.).

DISTRIB. : Of the species : Abyssinia, Mozambique Distr., Arabia, Sind. Of the var. : Tropical Africa, Arabia.

VAR. *aristaevalvis* Hochr. in Ann. Conserv. Jard. Bot. Genève iv, (1900) 94.—*H. aristaevalvis* Gareke in Bot. Zeit. vii, (1849) 849. *H. trionoides* Hochs. Pl. Schimp. Abyss. (1853) n. 497.

HABITAT : II. Trop. Arabia (ex Rohrb.).

DISTRIB. : Of var. : Tropical Africa, Arabia, India.

5. *H. lunariifolius* Willd. Sp. Pl. iii, (1801) 811 ; DC. Prodr. i, (1824) 451 ; Oliv. Fl. Trop. Afr. i, (1868) 202 ; Hook. f. Fl. Brit. Ind. i, pt. II (1874) 338.—*H. guineensis* Don. Gen. Syst. i, (1831) 481 (non DC.). *H. dongolensis* Del. in Cail. Voy. Meroë, Bot. (1826-27) 59 ; Defl. Yemen (1889) 115.

HABITAT : II. W. Hawayat near Hojela, 800 m. (Defl. 197) ; Wasil, 1000 m. (Defl. 247) ; neighbourhood of Aden (Hunter 249!).

DISTRIB. : Upper Guinea, Abyssinia, Sennar, Lake Ngami, Mozambique Distr., Arabia, India.

Vern. name : *Kalit al Raai* (Hunter).

6. *H. micranthus* L. Mant. p. 308 ; DC. Prodr. i, (1824) 453 ; Anders. Fl. Aden. (1860) 8 ; Hook. f. Fl. Brit. Ind. i, 335 ; Oliv. Fl. Trop. Afr. i, (1868) 205 ; Blatt. Fl. Aden (1915) 124.—*H. rigidus* L. f. Suppl. 310. *H. clandestinus* Cav. Ic. i, t. 2. *H. ovalifolius* Vahl Symb. Bot. i, (1790) 50 ; Boiss. Fl. Or. i, (1867) 839. *H. intermedius* Hochst. in Schimp. Pl. Abyss.

n. 2211. *H. eriospermus* Hochst. l. c. n. 130. *H. rupestris* Hochst. l. c (1842). *H. parvifolius* Hochst. ibid. *H. versicolor* Schum. & Thonn. P Guin. p. 311. *Urena ovalifolia* Forsk. Fl. Aeg.-Arab. (1775) 124.

HABITAT: I. Arab. Petr. (McDonald !); Sinai (Auch.-Eloy 855 ! Figari !) S. and Central Midian (Burton !).

II. Near Gunfuda (Ehrenb. !); Mt. Kessr (Schimp. 890 !); Bakara (Fischer 92 !); Agara near Hojela (S. 1012); Wulej (S. 792); near Hojela, 600 m. (Defl. 122); near Manakhah, 2300 m. (Defl. 313); near Kaukaban, 2800 m. (Defl. 625); near Taez (Botta !); Aden (Perry ! Balfour ! S. 86 ! Anders. ! Defl. ! Birdw. !).

III. Hadramaut: Dhofar Mts. (Bent 102 !).

IV. Masqat (Auch.-Eloy 4281 !).

Fl.: Feb. (Ehrenb.), Feb. 1837 (Fischer), Feb. 1889 (S.), Mar.-Apr. (Defl.). Fr.: Jan. 1880 (Balfour), Feb. 1836 (Schimp.), Feb. 1889 (S.), March 1878 (Perry), Nov. 1888 (S.).

DISTRIB.: Tropical Africa, Arabia, India, Ceylon.

Vern. name: *Osarru* (S.).

Uses: Eaten by animals (Burton).

7. *H. purpureus* Forsk. Fl. Aeg.-Arab. (1775) 126 and CXVII, n. 421.

HABITAT: II. Hadie (Forsk.).

DISTRIB.: Endemic.

Vern. names: *Chobaes*, *Sech*, *Hotomtóm*, *Mahat* (Forsk.).

8. *H. trionum* L. Sp. Pl. (1753) 697; Boiss. Fl. Or. i, (1867) 840; Oliv. Fl. Trop. Afr. i, (1868) 196; Hook. f. Fl. Brit. Ind. i, pt. II (1874) 334; Defl. Yemen (1889) 114.—*H. ternatus* Cav. Diss. iii, (1787) 171, t. 64, f. 3. *H. vesicarius* Cav. l. c. t. 62, f. 2; DC. Prodr. i, (1824) 453.

HABITAT: II. Yaman: Near Yerim, 2,500 m. (Defl. 645).

III. Hadramaut: Dhofar Mts. (Bent 142 !).

DISTRIB.: Common throughout Africa and S. Asia, extending northwards to China and the Amur.

9. *H. vitifolius* L. Sp. Pl. (1753) 696; DC. Prodr. i, (1824) 450; Oliv. Fl. Trop. Afr. i, (1868) 197; Hook. f. Fl. Brit. Ind. i, pt. II (1874) 338; Defl. Yemen (1889) 114.—*H. modaticus* Hochst. in Pl. Schimp. Abyss. sect. II (1842) 1029; Rich. Fl. Abyss. (1847) 56; Kotschy in Sitzb. kais. Akad. Wiss. lii, (1866) 13. *H. obscurus* et *H. jatrophaefolius* Rich. l. c. 57.

HABITAT: II. Hille, J. Bura (S. 343 !); Bilad Fodhli 200-300 m. (Defl. 394 !).

III. Hadramaut: Dhofar Mts. (Bent 151 !).

Fl. : Jan. 1889 (S.), Mar. 1890 (Defl). Fr. : Jan. 1889 (S.).

DISTRIB. : Tropical Africa, India, Australia.

Vern. name : *Dàa dàa, reddàadàan* (S.).

### 9. *Fugosia* Juss.

1. *F. areysiana* Defl. in Bull. Soc. Bot. France xlii, (1895) 299.—*Gossypium areysianum* Defl. Esq. de Geogr. Bot. 49.

HABITAT : II. J. el Areys, 700-800 m. (Defl. 1058).

Fl. : Apr. 1893 (Defl.). Fr. : Apr. 1893 (Defl.).

DISTRIB. : Endemic.

2. *F. Welshii* Hochr. Annu. Conserv. Jard. Bot. Genève vi, (1900) 174.—*Cienfuegosia Welshii* Garcke in Eicnl. Jahrb. Bot. Gard. Berl. ii, (1833) 337. *Hibiscus Welshii* Anders. Fl. Aden. (1860) 8; Defl. Bull. Soc. Bot. France xxxii, 347, Blatt. Fl. Aden (1915) 125.

HABITAT : II. Aden (Thomson ! Hook. f. 51 ! Perry ! Defl. 60 ! S. 75 ! Beavor 6 ! Anders. ! Birdw. ! Hildebr.).

Fr. : Feb. (Thomson), Nov. 1888 (S.), Dec. (Hook.), Dec. 1889 (Defl.).

DISTRIB. : Endemic.

### 10. *Thespesia* Corr.

1. *T. populnea* Soland. ex Correa in Ann. Mus. Par. ix, (1807) 290; Blatt. Fl. Aden (1915) 125.

HABITAT : II. Aden (Blatt.).

Fl. : Throughout the year.

DISTRIB. : Throughout the tropics.

Tulip or Portia tree.

### 11. *Gossypium* L.

1. *G. arboreum* L. Sp. Pl. (1753) 693 (excl. syn. Rheede); Prosper Alpinus de Pl. Aegypt. (1592) p. et t. 29; Watt, Cotton Plants of the World (1907) 81.—*G. rubrum* Forsk. Fl. Aeg. Arab. (1775) 125.

VAR. *sanguinea* Watt, l. c. 91.—*G. sanguineum* Hassk. Cat. Hort. Bog. 290. *G. puniceum* Jacq. Eclogae Pl. Rar. ii, (1844) 7, t. 134.

HABITAT : II. Hijaz (Schimp. 1025 !).

DISTRIB. : Of the type and var. : Africa, Arabia, India, China, Japan, Java, Malaya. Of the var. : Africa, Arabia.

Vern. name : *Otb, Odjas* (Forsk.).

The bracteoles are much larger and more deeply gashed than in the typical condition of *G. arboreum* (Watt in H. K.). Schimper's No. 1025 shows an approximation to *G. neglectum* Ted

VAR. *neglecta* Watt, Cotton Plants of the World (1907) 95.—*G. neglectum* Tod. Relaz. Cotoni (1877) 169-175.—For syn. see Watt.

HABITAT: II. W. Fatimah (Fischer 197!).

Fl.: Feb. 1837 (Fischer).

Approximates to VAR. *sanguinea*.

2. *G. barbadense* L. Hort. Upsal. i, (1748) 204; Sp. Pl. (1753) 693. Watt, Cotton Plants of the World (1907) 265.

HABITAT: II. Aden Hinterland: Wady Kebir (Ellenbeck).

DISTRIB.: Cultivated and wild, probably indigenous in America.

Vern. name: *Lekid* (Ellenbeck).

3. *G. herbaceum* L. Sp. Pl. (1753) 693 (partim); DC. Prodr. i, (1824) 456; Boiss. Fl. Or. i, (1867) 840; Watt, Cotton Plants of the World (1907) 155.—*G. arboreum* Forsk. Fl. Aeg.-Arab. (1775) 125.

HABITAT: I. N. Arabia (Watt).

II. Yaman (Forsk.).

III. Hadramaut: In the palm garden at Abrail.

DISTRIB.: Probably indigenous in N. Arabia and Asia Minor.

4. *G. Nanking* Meyen Reise ii, (1836) 323; Watt, Cotton Plants of the World (1907) 114 (vide ibi syn.).

VAR. *Roji* Watt l. c. 134.—*G. Vaupellii* Graham Cat. Pl. Bomb. (1839) 15.

HABITAT: III. Hadramaut (Lunt 131!).

DISTRIB.: India, Africa, Arabia, Madagascar.

5. *G. Stocksii* Mast. Fl. Brit. Ind. i, pt. II (1874) 346; Watt, Cotton Plants of the World (1907) 73.—*G. herbaceum* Tod. (in part) Relaz. Cult. dei Cot. 132. *G. obtusifolium* Stocks (non Roxb.) MS. name in Herb. Kew. *G. herbaceum* Aliotta, Rev. Crit. Gen. Goss. (1903) 70, 104 (in part).

HABITAT: III. Hadramaut: Dhofar Mts. (Bent 173!).

DISTRIB.: Sind, S. Arabia.

## XXI. STERCULIACEÆ.

### 1. Sterculia L.

1. *S. arabica* Anders. Fl. Aden (1860) 9, t. 213; Baker in Kew Bull. (1894) 329; Blatt. Fl. Aden (1915) 127.—*S. abyssinica* R. Br. (partim) in App. Salt Abyss. et in Pl. Jav. Rar. 227.

HABITAT : II. Aden (Thomson ! Defl. 72 ! S. 42 ! Balfour ! Perry ! Hook. f. ! Birdw. ! Hildebr.).

III. Hadramaut (Lunt 108 !).

Fl. : Jan. 1880 (Balfour), Apr. (Thomson), Dec. 1889 (Defl.). Fr. : Nov. 1888 (S.).

DISTRIB. : Yaman, Hadramaut, Socotra.

2. *S. platanifolia* L. f. Suppl. 423 ; DC. Prodr. i, (1824) 483 ; Benth. Fl. Hongk. 36.—*Hibiscus simplex* L. Sp. Pl. ed 2, 977. *St. pyriformis* Bunge Enum. Pl. Chin. Bor. 9. *Culhamia* Forsk. Fl. Aeg. Arab. (1775) cxii and p. 96.

HABITAT : II. Hadie (Forsk.).

Fl. : Mar. (Forsk.). Fr. : Mar. (Forsk.).

DISTRIB. : China, Japan, Arabia.

Vern. name : *Kulham* (Forsk.).

## 2. *Melhania* Forsk.

1. *M. abyssinica* Rich. Fl. Abyss. i, (1847) 76, t. 18 ; Oliv. Fl. Trop. Afr. i, (1868) 231 ; Defl. Yemen (1889) 115.—*M. Kotschyi* Ehr. Herb. Arab. in Mus. Bot. Berol. (ex Defl.). *M. oblongata* Hochst. in Pl. Schimp., Abyss.

HABITAT : II. Foot of Mt. Hadda near Sana, 2300 m. (Defl. 507) ; near Hojela, 900 m. (Defl. 218) ; near Manakhah 2300 m. (Defl. 259).

DISTRIB. : Cape Verde Islands, Abyssinia, Yaman, Sind.

2. *M. Denhamii* R. Br. in Denh. et Clapp. Voy. App. p. 233 ; Oliv. Fl. Trop. Afr. i, (1868) 230 ; Blatt. Fl. Aden (1915) 129.—*Brotera bracteosa* Guill. & Perr. Fl. Seneg. i, 80, tab. 17. *M. Kotschyi* Hochst. Pl. Nub. sect. I, no. 219. *M. bracteosa* Boiss. Fl. Or. i, 841. *Cardiostegia Kotschyi* Presl. Epimel. Bot. p. 249. *M. reniformis* Hochst. & St. ex Steud. Nom. ed. 2, ii, 118.

HABITAT : II. Mor (Ehrenb. !) ; near Ferish (Fischer 181 ! Schimp. 996 !) ; Jiddah (Zohrab 38 !) ; Aden (Beavor ! Defl. ! Birdw. !).

III. Hadramaut : Dhofar Mts. (Bent 46 !) ; Ras Makalla (Hirsch 51).

Fl. : Feb. 1837 (Fischer). Fr. : Feb. 1836 (Schimp.), Nov. 1884 (Beavor).

DISTRIB. : Nubia, Eritrea, Kordofan, Darfur, Central and S. Arabia, Baluchistan, Sind.



3. *M. velutina* Forsk. Fl. Aeg. Arab. (1775) cvii, n. 158, p. 64.

HABITAT : II. Foot of J. Melhan (Forsk.).

III. Hadramaut (Hirsch 152).

DISTRIB. : Endemic.

### 3. *Mahernia* L.

1. *M. modesta* Planch. in Ann. Sc. Nat. ser. 4, iii, 292.—*Trichanthera modesta* Ehrenb. in Linn. iv, 401. "*Hermannia modesta* Planch." Mast. in Oliv. Fl. Trop. Afr. i, (1868) 232 (per errorem).

HABITAT : II. Near Jiddah towards Mecca (ex Ehrenb.), also south of that locality (ex Schumann).

DISTRIB. : Nubia, Soturba, Arabia.

### 4. *Glossostemon* Desf.

1. *G. Bruguieri* DC. Prodr. i, (1824) 486.—*Dombeya arabica* Baker in Kew Bull. (1895) 315.

HABITAT : III. Hadramaut (Hirsch 170)

DISTRIB. : Endemic.

## XXII. TILIACEAE.

### 1. *Grewia* L.

1. *G. arborea* Lam. Encyclop. iii, (1789) 45. *G. excelsa* Vahl Symb. i, (1790) 35. *G. dubia* Deff. in Bull. Bot. Soc. France. xlii (1895) 300. *Chadara arborea* Forsk. Fl. Aeg. Arab. (1775) 105.

HABITAT : II. Bilad Hojeria, J. Masava (Deff. 601 !); mountains of Yaman (Forsk.).

Fl. : Apr. 1890 (Deff.).

DISTRIB. : Endemic.

Vern. name : *Saerak* (Forsk.).

2. *G. bicolor* Juss. in Ann. Mus. Par. iv, (1804) 90, t. L, f. 2. *Var. canescens* Burret in Engl. Jahrb. 45 (1910) 177.

HABITAT : II. Southern slope of J. el Areys, 400—500 m. (Deff. 997); near Hille (S. 269); W. Mawad, 600 m. (Deff. 124).

DISTRIB. : Of var. : Eritrea, Abyssinia, Sennar, Somaliland, Yaman.

3. *G. carpinifolia* Juss. in Ann. Mus. Par. iv, (1804) 91, t. 51., f. 1; Deff. Yemen (1889) 115.

HABITAT : II. Yaman : W. Heggah near Hojela, 500 m. (Deff. 88).

DISTRIB. : Trop. Africa, Arabia, India.

4. *G. erythraea* Schweinf. in Verh. Zool. Bot. Ges. Wien, vol. 18 (1868) 671.—*G. crenata* Hochst. ex Mast. in Oliv. Fl. Trop. Afr. i, (1868) 246.

HABITAT: II. Yaman (Defl. 486 !); J. Sidr (Fischer 104 !); Aden (S. 117 ! Perry ! Hook. f!).

III. Hadramaut (Lunt 204 !).

Fl. : Dec. 1888 (S.).

DISTRIB.: Nubia, Abyssinia, Eritrea, Arabia.

5. *G. petitiāna* A. Rich. in Fl. Abyss. i, (1847) 89. — *G. mollis* Juss.

VAR. *petitiāna* Burret in Engl. Jahrb. 45 (1910) 175.

HABITAT: II. Neighbourhood of Aden (Hunter 255 !).

DISTRIB.: Eritrea, Abyssinia, Yaman.

6. *G. tembensis* Fres. in Mus. Senck. ii, (1837) 158; Burret in Engl. Jahrb. 45 (1910) 193.

HABITAT: II. Wasil, 1460 m. (S. 1349 ! 329 !); Wulej (S. 783).

Fl. : Jan. 1889 (S.) ; Feb. 1889 (S.). Fr.: Jan. 1889 (S.).

DISTRIB. : Tropical Africa, Arabia.

7. *G. tenax* Fiori Bos. Piante legn. Eritrea (1909) 246.—*G. populifolia* Vahl Symb. i, (1790) 33 ; DC. Prodr. i, (1824) 511 ; Dcne. pl. l'Arab. Heur. in Ann. Sc. Nat. ser. 2. iv. (1835) 74; Anders. Fl. Aden. (1860) 10 ; Boiss. Fl. Or. i, (1867) 843 ; Oliv. Fl. Trop. Afr. i, (1868) 246 ; Hook, f. Fl. Brit. Ind. i, (1874) 385 ; Blatt. Fl. Aden (1915) 131. *Chadara tenax* Forsk. Fl. Aeg. Arab. p. CXIV and p. 105. *G. chadara* Lamk. in Encycl. Meth. Bot. iii, (1789) 44. *G. reticulata* Hochst. Pl. Schimp. Abyss. *G. ribesiaefolia* Hochst. Pl. Schimp. Abyss. *G. membranacea* Rich. Fl. Abyss. i, (1847) 90. *G. betulaefolia* Juss. in Ann. Mus. Par. iv, (1804) 92, t. L, f. 1.

HABITAT: I. Arab. Petr. (ex Post).

II. Yaman (Bové 254 !); Mts. Seddr and Kesser (Schimp. 946 !); Bakara (Fischer 103 !); Surdud (Forsk.); Fodhli, 20 miles E. N. E. of Shuqra, 150 m. (Defl. 375 !); Aden (S. ! Defl. ! Hook. ! Birdw. ! Perry. !); neighbourhood of Aden, 2,000 ft. (Hunter 142 !).

III. Hadramaut: Dhofar Mts. (Bent 181 !).

Fl. : Mar. 1890 (Defl.). Fr.: Mar. 1890 (Defl.), June 1878 (Perry), Aug. 1880 (Hunter).

DISTRIB. : Tropical Africa, Senegambia, Mauritius, Egypt, Arabia, Persia, Sind, W. India, Ceylon.

Veru. name: *Moucken* (Bové), *Chadar*, *Nabba* (Forsk.).

8. *G. velutina* Vahl Symb. Bot. i, (1790) 35; Lam. in Encycl. Meth. Bot. iii, (1789) 45; Defl. Yemen (1889) 116. — *Chadara velutina* Forsk. Fl. Aeg. Arab. (1775) CXIV, n. 340 and p. 106.

HABITAT: II. Hadie (Forsk.), near Mefhak, 1700 m. (Defl. 603!), neighbourhood of Aden (Hunter 194!).

DISTRIB.: Endemic.

Vern. name: *Nescham* (Forsk.).

9 *G. villosa* Willd. in Ges. Nat. Fr. Neue Schr. iv, (1803) 205; Burret in Engl. Bot. Jahrb. 45 (1910) 198. — *G. villosa* Roth, Nov. Sp. (1821) 288; Defl. Yemen (1889) 116. *G. echinulata* Del. Cent. Pl. Afriq. (1826) 92. *G. corylifolia* A. Rich. in Fl. Senegal. i, (1830-33) 95, t. XX.

HABITAT: II: Near Hojela, 600 m. (Defl. 71! 107); near Mefhak, 1800 m. (Defl. 594); J. Bura (S. 322).

DISTRIB.: Tropical and South Africa, Arabia.

#### 10. *Grewia* sp.

HABITAT: II. Hojela, Wady Madfar, 700 m. (S. 992!).

Fl.: Jan. 1889 (S.).

Vern. name: *Nischam* (S). This species differs from *G. petitiiana* A. Rich. in the short gonophore, hairy in fruit, and the petals which lack the characteristic scale-like claw, Burret quotes S. 992 as *G. mollis* var. *trichocarpa*, but the Kew specimen of S. 992 is in Sprague's opinion not *G. trichocarpa*.

### 2. *Triumfetta* L.

1. *T. flavescens* Hochst, in Rich. Fl. Abyss. i, (1847) 82; Oliv. Fl. Trop. Afr. i, (1868) 255. — *T. monoica* Hochst. et Steud. Herb. Arab. n. 761.

HABITAT: II. Mt. Seddr (Fischer 144! Schimp. 761!); Wady Jara (Ehrenb.!).

Fl.: Feb. (Fischer), Feb. 1836 (Schimp.).

DISTRIB.: Lower Guinea, Abyssinia, Eritrea, Somaliland, Arabia.

2. *T. pentandra* A. Rich. in Fl. Seneg. Tent. (1830) 93, t. 19. — *T. neglecta* W. & A. Prodr. (1834) 75; Oliv. Fl. Trop. Afr. i, (1868) 255. *T. cuneata* Hochst. in Rich. Fl. Abyss. i, (1847) 84.

HABITAT: II. J. Bura, Hille, 800 m. (S. 433!).

Fl.: Jan. 1889 (S.). Fr.: 1889 (S.).

DISTRIB.: Abyssinia, Arabia.

3. *T. rhomboidea* Jacq. Enum. Pl. Carib. 22; DC. Prodr. i, (1824) 507; Oliv. Fl. Trop. Afr. i, (1868) 257. — *T. glandulosa* Forsk. Fl. Aeg. Arab. (1775) CXII n. 297. *T. velutina* Vahl Symb. Bot. iii, (1794) 62.

HABITAT: II. Trop. Arabia (ex Oliv.).

DISTRIB.: Tropical Arabia, India, China, West Indies.

### 3. *Corchorus* L.

1. *C. antichorus* Raeüschel Nom. Bot. ed. 3, p. 158; Anders. Fl. Aden. (1860) 10; Boiss. Fl. Or. i, (1867) 846, Hook. f. Fl. Brit. Ind. i. 398; Oliv. Fl. Trop. Afr. i, (1868) 263; Defl. Yemen (1889) 116; Blatt. Fl. Aden (1915) 132.—*Antichorus depressus* L. Mant. p. 64; DC. Prodr. i. (1824) 504; Dene. Pl. l'Arab. Heur. in Ann. Sc. Nat. ser. 2, iv, (1835) 74. *Corchorus microphyllus* Pres. in Mus. Senck. ii, 156. *C. humilis* Munro Hort. Agrensis Append. p. 35. *Jussiaea edulis* Forsk. Fl. Aeg. Arab. (1775) 210.

HABITAT: I. J. Hamram—Sidna—Musa (Musch.); Arab. Petr. (Bové 238!).

II. Jiddah (Zohrab 104! Schimp. 813! Fischer 66! Ehrenb.!; near Puma (Lunz 2!); near Hodeidah (Defl. 8); near Lohaya (Forsk.); Perim Island (H. K.!); Aden (Thomson! Madden 9! Balfour! Ol. and Cl.! Anders.! Birdw.! Defl!).

III. Hadramaut: Dhofar Mts., coast (Bent 206!); Ras Shirwen (Hirsch 104).

IV. Masqat (Auch.-Eloy 4286!).

Fr.: Jan. 1800 (Balfour), Feb. 1837 (Thomson), Mar. 1830 (Madden), Oct.-Jan. 1857 (Fischer), Nov. 1833 (Schimp.), Nov. 1888 (S.), Dec.-Jan. (Ehrenb.).

DISTRIB.: Cape Verd Islands, N. Africa, Tropical Africa, Arabia, Afghanistan, Sind, Deccan.

Vern. name: *Uaeki* (Forsk.), *Setah* (Hirsch), *Meluchijeh* (Musch.).

2. *C. cinerascens* Defl. in Bull. Soc. Bot. France xlii, (1895) 300.

HABITAT: II. Bilad Fodhli: S. ravines of J. Areys, 20 miles E. N. E. of Shuqra, 150 m. (Defl. 376! 483, 843!).

Fl. Apr. (Defl.). Fr.: Apr. (Defl.).

DISTRIB.: Endemic.

Vern. name: *Dounoun* (Defl.).

3. *C. olitorius* L. Sp. pl. (1753) 529; Forsk. Fl. Aeg. Arab. (1775). 101; DC. Prodr. i, (1824) 511; Boiss. Fl. Or. i, (1867) 845; Oliv. Fl. Trop. Afr. i, (1868) 262; Hook. f. Fl. Brit. Ind. i, 347; Blatt. Fl. Aden. (1915) 133.—*C. decemangularis* Roxb. Fl. Ind. ii, 582.

HABITAT: I. J. Hammam-Sidna-Musa (Musch.).

II. Jiddah (Zohrab 50!); El Hami (S. 167!); Aden (Birdw.! Ellenbeck!).

III. Dhofar Mts. (Bent!).

IV. Masqat (Auch.-Eloy 4285!).

DISTRIB.: It is stated in Hooker's Flora of British India, that this species is indigenous in many parts of India, and distributed by cultivation to all

tropical countries. Watt, however, thinks that its claim to being strictly speaking indigenous in India rests on doubtful evidence.

Vern. name: *Melochia* (Forsk.), *Meluhhiye* (Post), *Jute*, *Jew's Mallow*.

4. *C. trilocularis* L. Mant. p. 77; DC. Prodr. i, (1824) 584; Harv. — Sond. Fl. Cap. i, 229; Boiss. Fl. Or. i, (1867) 845; Oliv. Fl. Trop. Afr. i, (1868) 268; Hook. f. Fl. Brit. Ind. i, (1874) 397; Defl. Yemen (1889) 116; Blatt. Fl. Aden (1915) 133. — *C. astuans* Forsk. Fl. Aeg. Arab. (1775) CXIV n. 346 and p. 191.

HABITAT: II. Wady Mor (Forsk.); near Wasil 1,000 m. (Defl. 252); W Fatimah (Fischer 107!); Yaman (Schimp. 886!); Oasis of Labaj (Defl. 119!).

III. Hadramaut: Dhofar Mts. (Bent!).

IV. Masqat (Auch.-Eloy. 4285!).

Fl.: Feb. 1837 (Fischer). Fr.: Nov. 1835 (Schimp.), Dec. (Defl.).

DISTRIB.: Tropical and South Africa, Arabia, Afghanistan, Sind.

Vern. name: *Melochia* (Forsk.).

### XXIII. LINACEAE.

#### 1. *Linum* L.

1. *L. gallicum* L. VAR. *abyssinicum* Planch. in Lond. Journ. Bot. vii, 479; Oliv. Fl. Trop. Afr. i, (1868) 269; Schweinf. in Bull. Herb. Boiss (1899) App. II, 271. — *L. abyssinicum* Hochst. in Schimp. Pl. Abyss. n. 1107.

HABITAT: II. Near Manakhah, 2,700 m. (S. 1757).

Fl. Mar. 1889 (S.).

DISTRIB.: Eritrea, Abyssinia, Arabia.

2. *L. strictum* L. Sp. Pl. (1753) 279; DC. Prodr. i, (1824) 424; Oliv. Fl. Trop. Afr. i, (1868) 269. — *L. abyssinicum* Hochst. in Schimp. Pl. Abyss. n. 70.

HABITAT: I. Arab. Petr. (ex Musch.).

DISTRIB.: From Canaries through the Mediterranean to N. W. India and Tibet, Abyssinia, Eritrea.

Vern. name: *Kittan*, *Zir*, *Farq* (Post).

### XXIV. MALPIGHIACEAE.

#### 1. *Acridocarpus* Guill. & Perr.

1. *A. orientalis* A. Juss. in Arch. Mus. Par. iii, (1843) 488; Balfour Bot. Socotra (1888) 41.

HABITAT : III. Hadramaut : Dhofar Mts. (Bent. 118 !).

IV. Masqat (Aucher-Eloy !).

DISTRIB. : Socotra, Arabia.

## 2. *Caucanthus* Forsk.

1. *C. edulis* Forsk. Fl. Aeg. Arab. (1775) CXI. n. 289 and p. 91; Schweinf. in Bull. Herb. Boiss. (1899) App. II, 296.—*Aspidopterys Yemensis* Defl. Yemen (1889) 117. *C. Arabicus* Lamk. Encycl. i, 658. *C. Forskalii* Raeusch. Nom. ed. III, 132.

HABITAT : II. Taz (Forsk.) ; between Beha and Hojela (S. 915) ; near Hojela 600—700 (Defl. 87,153) ; above Hille, 700 m. (S. 532) ; near Wasil 1,200 m. (S. 1189).

Fl. : Dec. 1888 (S.). Fr. : Jan. 1889 (S.), Feb. 1889 (S.).

DISTRIB. : Endemic.

Vern. name : *Kaka* or *kanka* (Forsk.), *ga' ga'*, *qaqa*, *quh* (S.).

## XXV. ZYGOPHYLLACEÆ.

### 1. *Tribulus* L.

1. *T. alatus* Del. Ill. Fl. d. Eg. (1813) n. 438 ; Boiss. Fl. Or. i, (1867) 902 ; Defl. Yemen (1889) 118.—*T. longipetalus* Viv. Dec. Pl. Aeg. 10, t. 2, f. 6.

HABITAT : I. Et Tih to Sinai (ex Post).

II. Jiddah (Fischer 115 ! Zohrab 125 ! ) ; near Hojela, 600 m. (Defl. 93).

III. Hadramaut : Foot of Dhofar Mts. (Bent 116 ! ).

Fl. : Oct.-Mar. (Fischer).

DISTRIB. : Egypt, Arabia, Syria, Sind.

Vern. name : *Jatha*, *Dreisi*, *Kharshum-en-Naqh* (Post).

VAR. *micropteris* Kral. in Ann. Sc. Nat. ser. 3, xi, (1849) 30.

HABITAT : II. Near Jiddah and Taifa (Botta).

DISTRIB. : Endemic.

VAR. *odontopteris* Kral l. c.

HABITAT : II. Near Jiddah (Botta).

DISTRIB. : Egypt, Nubia, Arabia.

2. *T. macropterus* Boiss. Diagn. Pl. Or. ser. 1, i (1842) 61 ; Fl. Or. ii, (1867) 903.—*T. pterocarpus* Ehrenb. Mss. in Herb. Berol. ; Koernicke in Müll. Ann. iv, 409.

HABITAT : II. Jiddah (Zohrab 125 ! ).

DISTRIB. : Egypt, Tropical Arabia, Persia, Afghanistan.

3. *T. megistropterus* Kralik in Ann. Sc. Nat. ser. 3, xi, (1849) 32.

HABITAT : II. Near Jiddah (Botta).

DISTRIB. : Endemic.

4. *T. pentandrus* Forsk. Fl. Aeg. Arab. (1775) 88 ; Schweinf. in Bull. Herb. Boiss. (1899) App. II, 278 — *T. bimucronatus* Viv. Dec. Pl. Aeg. (1830) 9, t. 2, f. 4 ; Boiss. Fl. Or. i, (1867) 901. — *T. sinicus* Boiss. Diagn. Pl. Or. ser. 1, viii (1849) 120. — *T. spurius* Kralik in Ann. Sc. Nat. ser. 3, xi, 28. — *T. intermedius* Kral. l. c. 27. ? *T. inermis* Kral. l. c. 25. *T. vispinulosus* Kral. l. c. 26.

HABITAT : I Lower W. es-Shaikh (Kneuck.).

II Jennat (Botta) ; Tihamah in Yaman (Botta) ; Aggara 600 m. (S. 1047) ; J. Bura above Hille, 1,200 m. (S. 497) ; near Lohaya and Kurma (Forsk.) ; Shuqra (S. 96).

Fl. : Jan. & Feb. 1889 (S.), Mar. 1881 (S.). Fr. : Jan. & Feb. 1889 (S.), Mar. 1881 (S.).

DISTRIB. : Eritrea, Egypt, Syria, Palestine.

Vern. names : *Kotaba* (Forsk.), *Kedba*, *Kadhab* (S.).

5. *T. terrestris* L. Sp. Pl. (1753) 387 ; DC. Prodr. i, (1824) 703 ; Boiss. Fl. Or. i, (1867) 902 ; Oliv. Fl. Trop. Afr. i, (1868) 283 ; Hook. f. Fl. Brit. Ind. i, 423 ; Blatt. Fl. Aden (1915) 136 ; Carter in Rec. Bot. Surv. Ind. vi. (1917) 194. — *T. albus* Poir. DC. l. c. 703. *T. humifusus* Schum. & Thonn, Guin. Pl. p. 215. *T. kotschyanus* Boiss. Diagn. Pl. Or. ser. 2, i, 111. *T. mollis* Ehrenb. in Schweinf. Fl. Aethiop. p. 29. *T. excrucians* Wawr. & Peyr. Sert. Beng. 17. *T. lanuginosus* L. Sp. Pl. (1753) 387.

HABITAT : I. Desert Kaha (Kneuck.) ; Sinai Peninsula : W. Feiran (Lord ! ) ; Sinai (Drake 102 ! Auch. Eloy 805 ! ) ; North and Central Midian (Burton ! )

II. Jiddah (Fischer 115 ! ) ; W. Mor (Ehrenb. ! ) Aden (Birdw. ! ).

IV. Masqat (Bent 4 ! ).

Fl. : Apr.-May 1868 (Lord), Oct.-Mar. 1837 (Fischer).

Fr. : Apr.-May 1868 (Lord).

DISTRIB. : Tropics of the Old World, Southern Europe, Australia, Sind.

6. *Tribulus* sp

HABITAT : III. Hadramaut : between Tahiyeh and Abrail 2,000 ft. Lunt ! ).

2. *Nitraria* L.

1. *N. retusa* Aschers. in Verhandl. Bot. Ver. Prov. Brandbg. xviii, (1876) 94.—*N. tridentata* Desf. Fl. Atl. i, 372; Dene. Fl. Sin. in Ann. Sc. Nat. ser. 2. iii, (1835) 261; Boiss. Fl. Or. i, (1867) 919; Durand & Barr. Fl. Libyc. Prodr. n. 214. *N. senegalensis* Lam. Ill. t. 403, f. 2. *Peganum retusum* Forsk. Fl. Aeg. Arab. (1775) 60. *N. sericea* Jaub. & Spach Ill. t. 294.

HABITAT: I. Arab. Petr. (McDonald!); W. Ghurundel (Hart!); Tor (Lord!); Sinai (Drake 106!); shores of Red Sea (Bové 179!); Ras Abu Zenima and W. Ghurundel (Kneuck.).

Fl.: Mar. 1877 (S.); June 1868 (Lord).

DISTRIB.: Senegal, Algeria, Tunisia, Tripolitania, Egypt, Arabia Petraea, Persia.

Vern. names: *Rattaf* (Bové); *Ghargad*, *Sahanum*, *Enab-ed-Dib* (Post).

This plant is supposed by some to be the Lotus of the ancients, by others to be the plant thrown into the bitter waters at Marah (Ex. XV, 25). Post.

3. *Seetzenia* R. Br.

1. *S. orientalis* Dene. Fl. Sin. in Ann. Sc. Nat. ser. 2. iii, (1835) 281, t. 7; Boiss. Fl. Or. i, (1867) 917.—*S. africana* R. Br. in Denh. & Clapp. app. 26.—*Zygophyllum prostratum* Thunbg. sec. Sond. Fl. Cap. i, 366.

HABITAT: I. Sinai desert (Bové 168! Hart!); Arab. Petr. (McDonald!).

Fr.: June 1832 (Bové).

DISTRIB.: N. and S. Africa, Arabia.

Vern. name: *Haut-el-Soliman* (Bové).

4. *Zygophyllum* L.

1. *Z. album* L. Sp. pl. (1762) 552; Dene. Fl. Sin. in Ann. Sc. Nat. ser. 2. iii, (1835) 283; Boiss. Fl. Or. i, (1867) 915; Oliv. Fl. Trop. Afr. i, (1868) 286; DC. Pl. Grass. t. 154.—*Z. proliferum* Forsk. Fl. Aeg.-Arab. (1775) 87, t. 12, f. A; DC. Prodr. i, (1824) 706.

HABITAT: I. Tor (Lord! Bové 169! Musch.); Sinai (Auch.-El. 793!); Ras Abu Zenimah, between W. Ghurundel and W. Werdan (Kneuck.).

II. Jiddah (Zohrab 151! 73! Fischer 95!); Perim Island (Farmer!).

III. Hadramaut (Hirsch 85); Dhofar Mts. (Bent!).

Fl.: June 1832 (Bové).

DISTRIB.: Canaries, Algeria, Tunisia, Tripolitania, Syria, Asia Minor.

Vern. names: *Gallam* (Bové), *Haemd*, *Hmada*, (Forsk.), *Khuraisi*, *Hamd*, *Illam*, *Botn-el-Bahsan*, *Bizz Kelbeh*, *Belbel*, *Bawal* (Post).



2. *Z. amblyocarpum* Bak. in Hook. Ic. ined. ; Kew Bull. (1894) 330.

HABITAT : III. Hadramaut ; Shari Burrock Valley, Mukalla, 2-300 ft. (Lunt 51 !).

Fl. : Dec. 1893 (Lunt). Fr. : Dec. 1893 (Lunt).

DISTRIB. : Endemic.

3. *Z. coccineum* L. Sp. Pl. (1753) 386 ; DC. Prodr. i, (1824) 706 ; Dene. Fl. Sin. in Ann. Sc. Nat. ser. 2. iii, (1835) 282 ; Schenk Sp. Pl. it. Aeg.-Arab. & Syr. (1840) n. 249 ; Boiss. Fl. Or. i, (1837) 915. *Z. desertorum* Forsk. Fl. Aeg.-Arab. (1775) 87, t. 11. *Z. propinquum* Dene. Fl. Sin. l. c. 283.

HABITAT : I. From Dead Sea southward to Sinai (ex Post) ; Arab. Petr. (McDonald !) ; neighbourhood of Tor (Bov. 175 ! 172 ! 173 !) ; Mt. Sinai (Schenk) ; J. Hammam-Sidna-Musa, J. Nakus, desert Kaha (Musch.) ; N. Midian (Burton !).

II. Jiddah (Schimp. 877 ! Fischer 45 !).

IV. Masqat (Auch.-Eloy. 4306 !).

Fl. : Feb. (Fischer) ; June 1832 (Bové). Fr. : June 1832 (Bové).

DISTRIB. : Canaries, Egypt, Nubia, Somaliland, Arabia, Palestine, Sind.

Vern. names : *Gallam* (Bové), *Rottraejt* (Forsk.), *Qillab*, *Ghasul*, *Belbel*, *Bawal* (Post).

According to Burton the plant is eaten by animals, whilst Forskal says that neither cattle nor camels eat it.

4. *Z. cornutum* Coss. in Bull. Soc. Bot. France ii, (1855) 364.

HABITAT : I. Arab. Petr. (McDonald !).

II. Island near Jiddah (Steud. 591 !).

DISTRIB. : Algeria, Arabia.

5. *Z. decumbens* Del. Fl. Egypt 221, t. 27 ; DC. Prodr. i, (1824) 705 ; Dene. Fl. Sin. in Ann. Sc. Nat. ser. 2. iii, (1835) 283 ; Boiss. Fl. Or. i, (1867) 914.

HABITAT : I. Damp places in neighbourhood of Tor (Bové 171, 172 ! 173).

III. Hadramaut (Hirsch 112).

DISTRIB. : Egypt, Arabia.

Vern. names : *Gallam* (Bové), *Naga* (Hirsch).

6. *Z. dumosum* Boiss. Diagn. Pl. Or. ser. 1, fasc. viii, (1849) 125 ; Fl. Or. i, (1867) 911.

HABITAT : I. Arab Petr. (Boiss !) ; borders of Et-Tih, southward to Akaba (ex Post).

DISTRIB. : Egypt, Arabia Petraea, Syria.

7. *Z. Fabago* L. Sp. Pl. (1753) 335 ; Boiss. Fl. Or. i, (1867) 913, Musch. Fl. Eg. i, (1912) 577.

HABITAT: I. Arab. Petr. (ex Musch.).

DISTRIB.: Spain, Egypt, Arabia Petraea, Syria, Persia, Caucasus, Turkestan, Baluchistan.

8. *Z. Guyotii*, Kneucker Muschler in Allg. Bot. Zeitschr. (1904) 162 (*Z. album* × *Z. coccineum*) ; Muschler. Fl. Eg. i, (1912) 579.

HABITAT: I. Sinai (ex Musch.).

DISTRIB.: Egypt, Sinai.

9. *Z. hamiense* Schweinf. in Bull. Herb. Boiss. (1899), App. II, 277.

HABITAT: II. El. Hami (S. 183).

Fl. Apr. 1881 (S.).

DISTRIB.: Endemic.

10. *Z. simplex* L. Mant. 68 ; DC. Prodr. i, (1824) 705 ; Dene. Fl. Sin. in Ann. Sc. Nat. ser. 2. iii, (1835) 282 ; Schenk Sp. Pl. it. Aeg. Arab. & Syr. (1840) n. 248 ; Anders. Fl. Aden. (1860) 13 ; Kotschy in Sitzb. Kais. Akad. Wiss. lxx, (1866) 13 ; Boiss. Fl. Or. i, (1867) 912 ; Hook. f. Fl. Brit. Ind. i, (1874) 424 ; Oliv. Fl. Trop. Afr. i, (1868) 268 ; Blatt. Fl. Aden (1915) 137. — *Z. portulacoides* Forsk. Fl. Aeg. Arab. (1775) 88, t. 12, f. B.

HABITAT: I. Arab. Petr. (McDonald!) ; neighbourhood of Tor (Bové 170!) ; W. Mokateb (H. K.!) ; W. Hebran (Schimp. 441!) ; desert Kaha (Musch!) ; oasis Feiran (Kneuck.) ; W. Nash (Lord!) ; Sinai (Holland!) ; Central Midian (Burton!).

II. Yaman (Lunz 44!) ; Hijaz (ex Kotschy) ; Jiddah (Zohrab 111! Steudner 593! Schimp. 978! Fischer 11!) ; Hanish Island (Slade 7!) ; Perim Island (Farmer!) ; Aden (Thomson! Hook. f. 59! Perry! S. 37! Edgew.! Madden! Anders.! Birdw.!).

IV. Masqat (Auch.-Eloy 4305!).

Fl.: Feb. 1851 (Thomson), Mar. (S.), Apr. 1868 (Lord), June (Schimp.), June 1861 (Steudner), June and Feb. (Fischer), Dec. 1847 (Hook.).

Fr.: Feb. 1851 (Thomson), Mar. 1878 (Perry.), Apr. 1861 (Thomson).

DISTRIB.: Cape Verd Islands, Egypt, Palestine, Nubia, Arabia, highlands of Somaliland, Cape of Good Hope, S.-W. Africa, Sind.

Vern. names: *Jarmal*, *Qurmah*, *Adhir* (Post), *Gormon* (Bové).

11. *Z. sp.*

HABITAT: III. Hadramaut: Shari-Burrock Valley, Mukalla, 200—300 ft. (Lunt 50!).

NOTE.—A prostrate plant with spreading habit and grey leaves, no flowers. There is a second specimen in H. K. collected by Lunt (n. 75!) between Tokham and Ghafyt, 200 ft. The plant is different from No. 50. It is a thin bushy plant, 9 inch high. The leaves are much smaller, and not greyish.

5. *Fagonia* L.

1. *F. acerosa* Boiss. Diagn. Pl. Or. ser. I, viii, (1849) 124; Fl. Or. i; (1867) 908.

HABITAT: IV. Masqat (Auch.-Eloy 4307!).

DISTRIB.: Persia.

*F. arabica* L. Sp. Pl. (1753) 386; Forsk. Fl. Aeg. Arab. (1775) 88; DC. Prodr. i, (1824) 704; Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, iii, (1835) 280; Schenk Sp. Pl. it. Aeg.-Arab. & Syr. (1840) n. 251; Defl. Yemen (1889) 118; Baker in Kew Bull. (1894) 330.

HABITAT: I. Arab. Petr. (McDonald!); foot of Mt. Sinai (Schimp. 251); W. Useit (Boiss.); W. Nasb, W. Sewook and neighbourhood (Lord!); Sinai (Holland! Schenk); between Tor and Mt. Sinai (Bové 163! 164!); Midian (Burton!).

II. Near Mor (Forsk.); near Sanah 2,500 m. (Defl. 470); W. Kebir near Heathalim (Ellenbeck); Aden (Perry! Thomson!).

III. Hadramaut: Dhofar Mts., coast of Merbut (Bent 17!); Hegwir (Hirsch 113 a, 135); Hills at Ghofit, 200 ft. (Lunt 72!).

Fr.: June 1832 (Bové), July (Schimp.).

DISTRIB.: Tripolitania, Egypt, Palestine, Syria, Arabia.

Vern. names: *Naffel orrage* (Bové); *Schoki* (Forsk.) *Betut* (Hirsch); *Aqul-el-Ghazal*, *Gemdeh*, *Had*, *Shuweikah*, *Shaukan* (Post).

3. *F. Bruguieri* DC. Prodr. i (1824) 704; Boiss Fl. Or. i, (1867) 905; Schweinf. in Bull. Herb. Boiss. (1899) App. II, 275; Carter in Rec. Bot. Surv. Ind. vi, (1917) 194.

HABITAT: I. Sinai (ex Post), W. el-Ain (Hart!); North Midian (Burton!).

II E. of Bajil (S. 593).

IV Zor Hills (Cox 23).

Fl.: Jan. 1889 (S.). Fr. Jan. 1889 (S.).

DISTRIB.: Algerian deserts, Egypt, Arabia, Syria, Mesopotamia, Persia.

Note: Eaten by animals (Burton).

Vern. names: *Jambah*, *shacha'ah* (Cox).

VAR. *Ehrenbergii* Schweinf. l. c. 275.

HABITAT: II. Near Mör (Ehrenb.!).

Fr.: Mar. 1825 (Ehrenb.!).

DISTRIB.: Endemic.

4. *F. cretica* L. Sp. pl. (1753) 553; Forsk. Fl. Aeg.-Arab. (1775) CXI, n. 280; DC. Prodr. i, (1824) 704; Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, iii (1835) 280; Anders. Fl. Aden. (1860) 11; Boiss Fl. Or. i (1867) 905;

Oliv. Fl. Trop. Afr. i, (1868) 257; Blatt. Fl. Aden (1915) 138 (partim).

HABITAT: I. Sinai (ex Post); J. Hammam-Sidna-Musa, J. Nakus (ex Musch.).

II. Jiddah (Zohrab 41!); top of Mt. Sidr and Kesser (Fischer 29!); near Muza (Lunz 42!); oasis of Lahaj (Defl. 144!); neighbourhood of Aden (Hunter 132!); Aden (Edgew. ! Anders. ! Hook f. 57 ! 58 ! S. ! Balfour Birdw. ! Perry ! Thomson !).

Fl.: Mar. (Fischer); Dec. 1889 (Defl.). Fr.: Mar. 1878 (Perry); Dec. 1847 (Hook.); Dec. 1889 (Defl.).

DISTRIB.: Both shores of the Mediterranean, in S. extra-tropical Africa, warmer dry parts of Asia, Western N. and S. America.

Vern. names: *Schoacka*, *Schouki* (Forsk.).

As there are so many transition forms between this species and *F. arabica* L. it would be better to unite them.

5. *F. glabra* Krause in Engl. Bot. Jahrb xxxv, Heft 5, p. 42; Blatt. fl. Aden (1915) 140.

HABITAT: II. Aden, on rocks of the Shum Shum Range at a height of about 1000 ft., and near the top at about 1700 ft. (W. Busse 2062).

DISTRIB.: Endemic.

6. *F. glutinosa*, Del. Ill. Fl. d' Eg. (1813) 86, t. 26, f. 3; Dene. Fl. Sin. in Ann. Sc. Nat. ser. 2 iii (1835) 250; Boiss. Fl. Or. i, (1867) 904.—*F. viscosa* Hochst. in Schimp. Pl. Arab. exsicc. *F. viscida* Presl. Bemerkg. 30.

HABITAT: I. Arab. Petr. (McDonald ! Post 469 !); desert of Suez and Tor (Bové 165 !); Ras Hammam (Schimp. 193 !); W. Ghurundel and Ramleh (Lord !); W. Ghurundel and W. Sudr (Hart !).

III. W. Raida, W. Bayren (Hirsch 3).

Fl.: Mar. (Schimp.); June 1832 (Bové). Fr.: June 1832 (Bové).

DISTRIB.: Algeria, Tunisia, Tripolitania, Egypt, Arabia, Palestine, Asia.

Vern. names: *Hamdha* (Hirsch); *Attany* (Musch.); *Shika'ah*, *Modahin* (Post); *Hallane* (Schimp.).

VAR. *incana* Boiss.

HABITAT: I. Arab. Petr. (Pinard !).

VAR. *intermedia* Boiss.

HABITAT: I. Arab. Petr. (Boiss.!).

Fl.: Mar. 1846 (Boiss.). Fr.: Mar. 1846 (Boiss.).

7. *F. grandiflora* Boiss. Diagn. Pl. Or. ser. I, viii (1849) 121; Fl. Or. i, (1867) 907.—*F. mollis* VAR. *grandiflora* Post Fl. Syr., etc. (1896) 189.

HABITAT : I. W. Araba (ex Post).

DISTRIB. : Arabia Petraea, Palestine.

8. *F. kahirina* Poiss. Diagn. Pl. Or. ser. I, viii, (1849) 122, Fl. Or. i, (1867) 965; Post Fl. Syr. etc. (1896) 188.—*F. glutinosa* Schimp. Pl. exs. (non L.).

HABITAT : I. Et Tih and southward (ex Post).

DISTRIB : Algeria, Tunis, Tripolitania, Egypt, Sinai, Syria.

Vern. name : *Hhalawat-et-Tih* (Post).

VAR. *minima* Post. l. c. 188.

HABITAT : I. Et Tih. (ex Post).

9. *F. Lahovarii* Volkens & Schweinf. in Liste des Plantes rec. par les princes D. et N. Ghika-Comanesti (1897) 6; Schweinf. in Bull. Herb. Boiss. (1899) App. II. 272.

HABITAT : II. Shuqra, el Hami (S. 160 A).

Fl. : Mar. 1881 (S.). Fr. : Mar. 1881 (S.).

DISTRIB. : Arabia, Somaliland.

10. *F. latifolia* Del. Illustr. Fl. d'Eg. (1813) 86, t. 28, f. 3; DC. Prodr. i, (1824) 704; Dene. Fl. Sin. in Ann. Sc. Nat. ser. 2, iii (1835) 20; Boiss. Fl. Or. i, (1867) 904; Musch. in Verh. Bot. Ver. Prov. Brandenb. 49, (1907) 103.

HABITAT : I. El Tor (Bové 166 !); J. Hammam-Sidna-Musa, J. Nakus (ex. Musch.).

DISTRIB. : Algeria, Tunis, Egypt, Sinai.

11. *F. Luntii* Baker in Kew Bull. (1894) 330.

HABITAT : III. Mokalla in the Shari Burrock Valley, 100—200 ft. (Lunt 47 !); Dhofar Mts. (Bent 17 !).

Fl.: Dec. 1893 (Lunt). Fr.: Dec. 1893 (Lunt).

DISTRIB.: Endemic.

12. *F. mollis* Del. Ill. Fl. d'Eg. (1813) 86, t. 28, f. 2; Dene. Fl. Sin. in Ann. Sc. Nat. ser. 2, <sup>iv</sup>iii, (1835) 280; Boiss. Fl. Or. i, (1867) 907.—*F. cistoides* Del. in Bov. plant. exsicc.

HABITAT.: I. Arab. Petr. (Pinard ! McDonald !); W. Ghurundel (Post 274 !); W. Feiran (Lord !); Sinai (Holland ! Bové 162 !); J. Musa (Drake 5 !); W. Gurra (Schimp. 443 !); J. Hammam-Sidna-Musa, J. Nakus (Musch.); W. es-Sle (Kneuck.); Et Tih (ex Post); Central Midian (Burton !).

Fr.: June (Schimp.), June 1832 (Bové).

DISTRIB. : Egypt, Sinai.

Vern. names : *Oraga* (Bcvé), *Wárágá* (Burton), *Schuekah* (Musch.), *Uraca* (Schimp.).

13. *F. myriacantha* Boiss. Diagn. Pl. Or. ser. I, viii, (1849) 123 ; Fl. Or. i, (1867) 906—*F. Schimperii* Presl Bemerk. 30.

HABITAT : I. Sinai (Auch.-Eloy 798 ! Boiss.! Schimp. 251 ! ) ; W. es-Sle (Hart ! ) ; Desert between Tor and Sinai (Bové 164 ! ) ; W. Tarfa (Kneuck.) ; Et Tih to Sinai (ex Post).

DISTRIB. : Endemic.

14. *F. nummularifolia* Baker in Kew Bull. (1895) 181.

HABITAT : III. Hadramaut : Dhofar Mts. : Coast Merbat (Bent 68 !).

DISTRIB. : Endemic.

15. *F. Olivieri* DC. Prodr. i, (1824) 704 ; Boiss. Fl. Or. i, (1867) 906.

HABITAT : I. Numan Island (Burton ! ) ; N. Midian (Burton !).

DISTRIB. : Arabia, Syria.

Uses : Eaten by animals (Burton).

16. *F. parviflora* Boiss. Diagn. Pl. Or. ser. I, viii, (1849) 124 ; Fl. Or. i, (1867) 908 ; Schweinf. in Bull. Herb. Boiss. (1899) App. II, 274.

HABITAT : II. Shuqra (S. 128) ; El Hami (S. 1941).

Fl. : Mar. and Apr. 1881 (S.). Fr. : Mar. and Apr. 1881 (S.).

DISTRIB. : Upper Egypt, Nubia, Arabia, Abyssinia, S. Persia.

VAR. *brevispina* Schweinf. l. c. 274 ; Blatt. Fl. Aden (1915) 139.

HABITAT : II. Aden (S. ! Busse, Defl.!).

DISTRIB. : Schweinfurth found the same variety on the island of Macour on the Nubian coast (21° N. L.), where the plant occurs on coral débris under similar conditions.

17. *F. sinaica* Boiss. Diagn. Pl. Or. ser. I, i, (1842) 61.—*F. Kahirina* Boiss. VAR. *Sinaica* Boiss. Fl. Or. i, (1867) 905 ; Post Fl. Syr. etc., (1896) 188.

HABITAT : I. Sinai (Auch.-Eloy 800 ! ) ; oasis Feiran (Kneuck.).

DISTRIB. : Endemic.

18. *F. socotrana* Schweinf. in Bull. Herb. Boiss. (1899) App. II, 272.—*F. cretica* L. VAR. *socotrana* Balf. f. Bot. Socotra, 43.

HABITAT : II. El Hami. (S. 160).

Fl. : Apr. 1881 (S). Fr. : Apr. 1881 (S).

DISTRIB. : Socotra, Arabia.

19. *F. tenuifolia* Hochst. & Steud. in Schimp. Pl. Arab. exs.; Boiss. Fl. Or. i, (1867), 909.

HABITAT: II. Top of Mt. Sidr and Kessr (Fischer 29!); Mt. Kessr (Schimp. 917!).

Fl.: Feb. (Schimp.); Mar. (Fischer), Fr.: Feb. (Schimp.).

DISTRIB.: Endemic.

## XXVI. GERANIACEÆ.

### 1. Monsonia L.

1. *M. heliotropoides* Boiss. Fl. Or. i, (1867) 897; Knuth Geraniac. in Engl. Pflanzenr. iv, 129 (1912) 294.—*M. hispida* Boiss. Diagn. Pl. Or. ser. I, viii (1849) 120. *M. mallica* Edgew. in Journ. Linn. Soc. vi, (1862) 200 *Erodium heliotropoides* Willd. Spec. pl. iii, (1800) 638; DC. Prodr. i, (1824) 648.

HABITAT: I. Hebran (H. K.!).

Fr.: June (H. K.)

DISTRIB.: Egypt, Nubia, Arabia, S. Persia, Punjab.

2. *M. nivea* J. Gay Adnot. in Herb. (1836); Dene. in Webb. Fragm. (1854) 59; Boiss. Fl. Or. i, (1867) 897; Musch. Verh. Bot. Ver. Prov. Brandenb. 49 (1909) 100.—*Erodium niveum* Dene. Fl. Sin. in Ann. Sc. Nat. ser. 2, iii, (1835) 285. *E. glaucophyllum* Bove ex Dene l. c. 285.

HABITAT: I. Ramleh and W. Humr (Hart!); Et Tih to Sinai (ex Post); Sinai (Boiss.); El Tor (Bové 154!); desert of Kaba, W. es-Sle (Kneuck.), North Midian (Burton!).

IV. Sand hills in Central Arabia (Pelly!).

Fr.: June 1832 (Bové).

DISTRIB.: Tripolitania, Egypt, Arabia, Palestine.

Vern. name: *Yahaq* (Post).

3. *M. senegalensis* Guill. & Perr. Fl. Seneg. Tent. i, (1830-1833) 131; Boiss. Fl. Or. i, (1867) 898; Knuth Geraniac. in Engl. Pflanzenr. iv, 129 (1912) 301.

HABITAT: II. Upper region of Mt. Sidr (Fischer 195!).

Fl.: Feb. 1837 (Fischer).

DISTRIB.: Senegambia, Abyssinia, Kordofan, German East Africa, Hereroland, Malabar.

### 2. Geranium L.

1. *G. dissectum* L. Cent. i, (1755) 21, n. 62; DC. Prodr. i, (1824) 643;— Engl. Pflanzenr. iv, 129 (1912) 51.

HABITAT: I. Arab. Petr. (ex Musch).

DISTRIB.: Mediterranean region, Persia, America.

2. *G. molle* L. Sp. pl. (1753) 682 ; Boiss. Fl. Or. i, (1867) 882 ; Hook. f. Fl. Brit. Ind. i, pt. II (1874) 432 ; Knuth Geraniac. in Engl. Pflanzenr. iv, 129 (1912) 57.

HABITAT : I. Arab. Petr. (ex Post).

DISTRIB. : Mediterranean region, Persia, Afghanistan, Western Himalaya, Japan.

3. *G. ocellatum* Camb. in Jacquem. Voy. Bot. (1841-1844) 33, t. 38 ; Hook. f. Fl. Brit. Ind. i, pt. II (1874) 433 ; Knuth Geraniac. in Engl. Pflanzenr. iv, 129 (1912) 62.—*G. mascatense* Boiss. Diagn. Pl. Or. ser. I, i, (1842) 59 ; Fl. Or. i, (1867) 882.

HABITAT : I. Central Midian (Burton !).

II. Near Manakhah, 2400 m. (S. 1874).

IV. Masqat, J. Akadar (A uch.-Eloy 4303 !).

Fl. : Feb. 1889 (S.). Fr. : Feb. 1889 (S.).

DISTRIB. : Tropical E. Africa, Abyssinia, Eritrea, Socotra, Arabia, Persia, N.-W. India.

Uses : Eaten by man and beast (Barton).

4. *G. simense* Hochst. in Rich. Fl. Abyss. i, (1847) 116 ; Oliv. Fl. Trop. Afr. i, (1869) 291 ; Defl. Yemen (1889) 118 ; Schweinf. in Bull. Herb. Boiss. (1899) App. II, 268.—*G. arabicum* Forsk. var. *f. albo*, Fl. Aeg. Arab. (1775) 124? *G. compar* R. Br. in H. Salt Voy. Abyss. App. (1814) 65, nomen. *G. impar* Steud. Nom. ed. 2, i, (1840) 678.

HABITAT : II. Manakhah, 2200—3000 m (S. 1390 ! 1366) ; W. Rehemi, 2000 m (S. 1861).

Fl. : Feb. and Mar. 1889 (S.). Fr. : Feb. and Mar. 1889 (S.).

DISTRIB. : The whole of tropical Africa, Arabia.

Vern. names : *Talah, chada, ghash* (Forsk.).

Uses : A decoction of this plant is used as a lotion against headache (Forsk.).

5. *G. trilophum* Boiss. Diagn. Pl. Or. ser. i, vi (1845) 30 ; Fl. Or. i, (1867) 882 ; Knuth Geraniac. in Engl. Pflanzenr. iv, 129 (1912) 60.

HABITAT : II. Aden (S. 1124 !).

DISTRIB : Nubia, Eritrea, Arabia, S. Persia.

VAR. *omphalodeum* Lange Ind. sem. Havn. (1865) 27 ; Schweinf. in Bull. Herb. Boiss. (1899) App. II, 269—*G. favosum* Hochst. in sched. Schimp. partim n. 147 (non Rich.)—*G. Yemense* Defl. Yemen (1889) 118, 119.

HABITAT : II. Manakhah, 2300—2600 m (S. 1944 !) ; J. Bura, 900 m (S. 538) ; near Hojela, 900 m (S. 969).

Fl. : Jan. and Feb. 1889 (S.). Fr. : Jan. and Feb. 1889 (S.).

DISTRIB : Arabia, Eritrea.



6. *G. tuberosum* L. Sp. Pl. (1753) 608; Del. Frag. Fl. Arab. Petr. (1833) n. 60; Boiss Fl. Or. i, (1867) 872; Knuth Geraniac. in Engl. Pflanzenr. iv, 129 (1912) 96.—*G. libanoticum* Schenk Sp. Pl. it. Aeg. Arab & Syr. (1840) n. 259. *G. macrostylum* Boiss. Diagn. Pl. Or. ser. I, i, (1842) 58.

HABITAT: I. Arab. Petr. (DeLalorde).

DISTRIB.: Mediterranean region, Afghanistan, temperate Asia, Persia.

### 3. *Erodium* L'Hérit.

1. *E. arborescens* Willd. Sp. Pl. iii, (1800) 638; DC. Prodr. I, (1824) 648; Musch. Verh. Bot. Ver. Prov. Brandenb. 49 (1907) 101; Knuth Geraniac. in Engl. Pflanzenr. iv, 129 (1912) 229.—*Geranium arborescens* Desf. Fl. Atlant. ii, (1798-1800) 110. *E. Husseni* Boiss. Diagn. Pl. Or. ser. I, viii (1849) 119; Fl. Or. i, (1867) 885.

HABITAT: I. Sinai (ex Post, ex Knuth); desert Kaba (Musch.).

DISTRIB.: Algeria, Egypt, Sinai, Syria.

Vern. name: *Dameh* (Musch.).

2. *E. bryoniæfolium* Boiss. Diagn. Pl. Or. ser. I, i, (1842) 61; Fl. Or. i, (1867) 896; Knuth Gerania. in Engl. Pflanzenr. iv, 129 (1912) 226.—*E. stipaceum* Edgew. & Hook. f. Fl. Brit. Ind. i, pt. II (1874) 435.

HABITAT: I. Arab. Petr. (McDonald! Boiss.! Pinard!); W. Gennah (Lord!); Sinai (Auch.-Eloy 2087! Schimp. 201!); plain of Raha, W. es-Shaikh (Kneuck.).

DISTRIB.: Mediterranean region, Persia, Baluchistan, Afghanistan.

Vern. names: *Dehamin*, *Murghit* (Post).

3. *E. chium* Willd. Sp. Pl. i, (1794) 10; DC. Prodr. i, (1824) 647; Boiss. Fl. Or. i, (1867) 894; Knuth Geraniac. in Engl. Pflanzenr. iv, 129 (1912) 244; Musch. Fl. Eg. i, (1912) 558.—*Geranium chium* Burm. f. Sp. Geran. (1759) 32.

HABITAT: I. Arab. Petraea (ex Musch.).

DISTRIB.: Mediterranean region.

4. *E. ciconium* Ait. Hort. Kew. ed I, ii, (1789) 415; DC. Prodr. i, (1824) 646; Boiss. Fl. Or. i, (1867) 891.—*E. ciconium* VAR. *erectum* DC. l. c. 646. *E. ciconium* VAR. *aristatum* Post Fl. Syr., etc. (1896) 194.

HABITAT: Arab. Petr. (ex Post).

DISTRIB.: Mediterranean region, Persia, Afghanistan, N. America.

5. *E. cicutarium* L'Hérit. ex Ait. Hort. Kew. ed. I, ii (1789) 414; DC. Prodr. i, (1824) 646; Boiss. Fl. Or. i, (1867) 890; Carter in Rec. Bot. Surv. Ind. vi (1917) 193.—*E. ailotrichum* Steud. in Schimp. It. Abyss. sect. III

(1844) n. 1488; A. Rich. Fl. Abyss. i, (1847) 116; *Geranium cicutarium* L Sp. pl. (1753) 680.

HABITAT: I. Plain of Raha (Kneuck.); Sinai (H. K. !), N. Midian (Burton !). II. Manakhah, 2500 m (S. 1760). IV. Zor Hills (Cox 17, 19, 42), very common on "huz-um" lands and low lands.

Fl.: Mar. 1889 (S.). Fr.: Mar. 1889 (S.).

DISTRIB.: Cosmopolitan.

Vern. names: *Ragam, garsh, bisbas* (Cox).

Uses: Both men and animals eat the plant, particularly the Arabs who eat it raw (Cox).

6. *E. glaucophyllum* L'Hérit. Geran. (1787) n. 25; DC. Prodr. i, (1824) 648; Schenk Sp. Pl. it. Aeg. Arab. & Syr. (1840) n. 257; Boiss. Fl. Or. i, (1867) 895; Musch. Verh. Bot. Ver. Prov. Brandenb. 49 (1907) 101; Knuth Geraniac. in Engl. Pflanzenr. iv, 129 (1912) 321.—*Geranium crassifolium* Forsk. Fl. Aeg. Arab. (1775) 123.

HABITAT: I. Arab. Petr. (Schimp. 197! 201! McDonald! Boiss!); near El Tor (Bové! Post); W. Ghurundel, W. Werdan (Kneuck.); Sinai Desert (ex Schenk); J. Hammam-Sidna-Musa (Musch.).

Fl.: Mar. 1846 (Boiss.), Mar. (Schimp.). Fr.: Mar. 1846 (Boiss.).

DISTRIB.: Mediterranean region to Persia.

Vern. names: *Tummaejr, Kabsjie* (Forsk.), *Kabshiyah, Ka'kul, Tummeir, Lisan-el Hhamal* (Post), *Mohe rüd, Dahammi* (Schimp.).

7. *E. gruinum* L'Hérit. ex Ait. Hort. Kew. ed. I, ii, (1789) 415; DC. Prodr. i, (1824) 647; Del. Frag. Fl. Arab. Petr. (1833) n. 62; Boiss. Fl. Or. i, (1867) 892; Knuth Geraniac. in Engl. Pflanzenr. iv, 129 (1912) 258.—*E. monsenioides* Steud. ex Boiss. l. c.

HABITAT: I. Arab. Petr. (De Laborde); W. Masa (ex Schenk).

DISTRIB.: Mediterranean region, Persia.

8. *E. hirtum* Willd. Sp. Pl. iii, (1800) 632; DC. Prodr. i, (1824) 646; Del. Frag. Fl. Arab. Petr. (1833) 61; Boiss. Fl. Or. i, (1867) 894; Musch. Verh. Bot. Ver. Prov. Brandenb. 49 (1907) 101; Knuth Geraniac. in Engl. Pflanzenr. iv, 129 (1912) 227.—*Geranium hirtum* Forsk. Fl. Aeg. Arab. (1775) 123. *G. crassifolium* Desf. Fl. Atl. ii, (1798-1800) 111.

HABITAT: I. Arab. Petr. (Pinard! De Laborde!); W. Useit (Boiss.); W. Gennah (Lord!); Et Tih, Sinai (ex Post).

DISTRIB.: Mediterranean region.

Vern. names: *Tummeir, Bislis* (Post).

9. *E. malacoides* Willd. Phyt. i, (1794) 10; DC. Prodr. i, (1824) 648; Dene. Fl. Sin. in Ann. Sc. Nat. ser. 2 iii, (1835) 286; Boiss. Fl. Or. i,

(1867) 893; Musch. Verh. Bot. Ver. Prov. Brandenb. 49 (1907) 102; Blatt. Fl. Aden (1915) 141.—*E. glabellum* Del. Fl. Aeg. iii, (1813) 20. *Geranium malacoides* L. Sp. Pl. (1753) 680; Forsk. Fl. Aeg. Arab. (1775) 123.

HABITAT: I. Sinai (H. K. !); Desert of Tor (Bové 1583).

II. Aden (Madden!).

DISTRIB.: All over the Mediterranean region (Spain, Portugal, S. France, Italy, Dalmatia, Western Asia, Syria, Egypt, Algeria, Morocco), Madeira, Island of Kishm in the Southern Persian Gulf.

Naturalized in the S.-W. Cape Region, South America (Argentine, Peru), N. America.

Vern. names: *Garna*, *Djarna* (Forsk.), *Uqeil* (Post).

Uses: Camels, sheep and goats eat the plant (Forsk.).

10. *E. moschatum* L'Hérit. ex Ait. Hort. Kew. ed. I, ii, (1789) 414; DC. Prodr. i, (1824) 647; Boiss. Fl. Or. i, (1867) 891.—*Geranium moschatum* L. Sp. Pl. (1753) 680.

HABITAT: I. Arab. Petr. (ex Post).

DISTRIB.: Cosmopolitan.

Vern. name: *Missaiiki* (Post).

11. *E. triangulare* Musch. Fl. Eg. (1912) 558.—*E. laciniatum* Willd. Sp. Pl. iii, (1800) 633; DC. Prodr. i, (1824) 646; Dene Fl. Sin. in Ann. Sc. Nat. ser. 2. iii, (1835) 286; Boiss. Fl. Or. i, (1867) 893; Musch. Verh. Bot. Ver. Prov. Brandenb. 49 (1907) 100. *E. alexandrinum* et *reflexum* Del. Fl. Aeg. Ill. (1813) 20.—*Geranium triangulare* Forsk. Fl. Aeg. Arab. (1775) 123.—*G. laciniatum* Cav. Diss. iv, (1787) 228, t. 113, f. 3.

HABITAT: I. Arab. Petr. (McDonald! Boiss.); W. es-Sle, W. Tarfa (Kneuck.); near Ras Hammam (Schimp. 119!); W. Sewook and neighbourhood (Lord!); Sinai (Drake 77!); W. Hebran, W. es-Sle, desert Kaha (Musch.); Northern, Central and S. Midian (Burton!).

Fl.: Mar. 1836 (Schimp.), Apr. 1868 (Lord), Apr. 1877 (S.). Fr.: Mar. 1836 (Schimp.), Apr. 1868 (Lord), Apr. 1877 (S.).

DISTRIB.: Mediterranean region, Abyssinia.

Vern. names: *Morghat* (Klunzinger), *Dahammi* (Schimp.).

Uses: Eaten by cattle (Burton).

VAR. *Bovei* Murbeck Contrib. i, (1897) 53.—*E. arabicum* Dene. Fl. Sin. in Ann. Sc. Nat. ser. 2. iii, (1835) 285. *E. laciniatum* var. *pulverulentum* Post Fl. Syr. etc. (1896) 194. (non Boiss.).

HABITAT: I. Desert of Tor (ex Dene.); Midian (Burton!).

DISTRIB.: Algeria, Tunis, Egypt, Sinai.

Vern. names: *Ujreiyat-el-Ghazal*, *Murghat* (Post).

VAR. *pulverulentum* Boiss. Fl. Or. i, (1867) 893; Knuth Geraniac. in Engl. Pflanzenr. iv, 129 (1912) 243.

HABITAT: I. Arabia Petr. (Boiss. !); Monastery St. Catherine, plain of Raha, oasis Feiran (Kneuck.).

DISTRIB.: Mediterranean region.

Vern. names: *Ujreiyat-et-Ghazal*, *murghat* (Post).

#### 4. *Pelargonium* L'Herit.

1. *P. multibracteatum* Hochst. in Flora xxiv, (1841) I. Intell. 29; Rich. Fl. Abyss. i, (1847) 119; Oliv. Fl. Trop. Afr. i, (1868) 293; Defl. Yemen (1889) 119; Knuth Geraniac. in Engl. Pflanzenr. iv, 129 (1912) 433.—*Geranospermum multibracteatum* O. Ktze. Rev. Gen. i, (1891) 94. *P. abyssinicum* R. Br. in Salt Abyss. (1814) app. 65.

HABITAT: II. Wasil, 1400 m (S. 1130 !); Manakhah, 2300 m (S. 1408); near Manakhah (Defl. 294).

Fl.: Feb. 1889 (S.). Fr.: Feb. 1889 (S.).

DISTRIB.: Ukamba, Abyssinia, Eritrea, Somaliland, Arabia.

Vern. name: *Gjahdeb* (S.).

#### 5. *Oxalis* L.

1. *O. cernua* Thunb. Fl. Cap. i, (1807-13) 348; Boiss. Fl. Or. i, (1867) 867.—*O. libyca* Viv. Fl. Libyc. 82.

HABITAT: I. Arab Petr. (ex Musch.).

DISTRIB.: Cape, Mediterranean region, Australia.

2. *O. corniculata* L. Sp. Pl. (1753) 435; Forsk. Fl. Aeg. Arab (1775) CXII n. 293; Boiss. Fl. Or. i, (1867) 866; Defl. Yemen (1889) 119.—*O. villosa* M. B. Fl. Taur. Cauc. i, 355; DC. Prodr. i, (1824) 692. *O. procumbens* Steud. in Rich. Fl. Abyss. i, (1847) 123. *O. radicata* Rich. l. c.

HABITAT: II. Near Hille, 700 m (S. 347); above Manakhah, 2600 m (S. 1761); near Wasil, 1400 m (S. 1269, Defl. 219), near Manakhah, 2400 m (Defl. 336); near Boka (Forsk.); neighbourhood of Aden (Hunter 53!).

IV. Masqat (Auch.-El. 4304!).

Fl.: Jan.—Mar. 1889 (S.). Fr.: Jan.—Mar. 1889 (S.).

DISTRIB.: Europe, Mediterranean region, Eritrea, Transcaucasus, Afghanistan.

Vern. names: *Haemda*, *Homadmad* (Forsk.), *Hhammadh* (Post), *Hommed* (S.).

## XXVII. RUTACEÆ.

## 1. Ruta L.

1. *R. chalepensis* L. Mant. (1764) 69; Boiss. Fl. Or. i, (1867) 922; Defl. Yemen (1889) 119; Schweinf. in Bull. Herb. Boiss. (1889) App. II, 279.—*R. angustifolia* Pers. Syn. i, 464; Schenk Sp. Pl. it. Aeg. Arab. & Syr. (1840) n. 244; DC. Prodr. i, (1824) 710.

VAR. *bracteosa* Boiss. Fl. Or. i (1867) 922; *R. bracteosa* DC. l. c. 710.

HABITAT: I. Mt. Sinai (ex Schenk). II. In the mountains (Botta!); below Manakhah, 2300 m (Defl. 257); Manakhah, 2200 m (S. 1498! 1564); J. Bura, above Hille, 1000 m (S. 507, 1818). IV. Masqat: J. Akadar (Auch.-Floy 4315!).

Fl.: Feb. 1889 (S.). Fr.: Feb. 1889 (S.).

DISTRIB.: Canaries, Mediterranean region, Eritrea, Arabia.

Vern. names: *Sadhab* (Post), *sheddeb* (S.).

2. *R. tuberculata* Forsk. Fl. Aeg. Arab. (1775) 86; Defl. Yemen (1889) 119; Baker in Kew Bull. (1894) 330.—*Haplophyllum tuberculatum* A. Juss. in Mem. Mus. xii, (1825) 464, t. 17, n. 10; Kotschy in Sitzb. kais. Akad. Wiss. lxx (1866) 13; Boiss. Fl. Or. i, (1867) 939; Jaub. & Spach Ill. Pl. Or. t. 269; Musch. Verh. Bot. Ver. Prov. Brandenb. 49 (1907) 105.

HABITAT: I. Arab. Petr. (Boiss.); El Ghor, Et Tih, Sinai (Bové); between Tor and Sinai (Bové); W. Zewerah (Hayne!); Mt. Sinai (Schimp. 292!); W. Ghurundel and Ramleh (Lord!); J. Hammam-Sidna-Musa, J. Nakus (Musch.). III. Cleared cultivated ground at Katan 1100 ft. (Lunt!). IV. Central Arabia (Pelly!).

Fl.: July (Schimp.).

DISTRIB.: Mediterranean region, Nubia, Arabia, Persia, Sind.

Vern. names: *Maeddjenninæ* (Forsk.), *gergig*, *derratoh*, *shegeret-el-rih*, *rihek* (Musch.).

VAR. *arabica* nov. comb.—*Haplophyllum arabicum* Boiss. Diagn. Pl. Or ser. I, viii, (1849) 127.

HABITAT: II. Near Dhula, 2300 m (Defl. 518!); Yaman (Schimp.).

## 2. Peganum L.

1. *P. Harmal* L. Sp. Pl. (1753) 444; Forsk. Fl. Aeg. Arab. (1775) LXVI, n. 247; Del. Frag. Fl. Arab. Petr. (1833) n. 68; Dene. Fl. Sin. in Ann. Sc. Nat. ser. 2, iii, (1825) 279; Boiss. Fl. Or. i, (1867) 917; Defl. Yemen (1889) 120; Baker in Kew Bull. (1894) 330.

HABITAT: I. Desert of Sinai (Bové 161!); W. Arbain 5000 ft. (Rüppell); foot of Mt. Sinai (Schimp. 310!); Mt. Sinai to Tor (Lord!); J. Musa (Drake 14!).

II. Near Sanah, 2300 m (Defl. 451).

III. Hadramaut : Hills at Bir Backban, 3500 ft. (Lunt !).

Fl. : May (Schimp.). Fr. : June 1832 (Bové).

DISTRIB. : Mediterranean region through Persia to Central Asia.

Vern. names : *Hurremlán* (Drake), *Harmal*, *Ghalget-ed-Dib* (Forsk.), *Ghalqat-ed-Dib*, *Kharjil*, *Haremlan*, *Hharmall* (Post).

### 3. *Thamnosma* Torr. & Frem.

1. *T. Hirschii* Schweinf. in Kew Bull. (1895) 315, n. 212.

HABITAT : II. Hadramaut : Kishin (Hirsch 77 !).

DISTRIB. : Endemic.

Vern. name : *Bdelit* (Hirsch).

### 4. *Toddalia* Juss.

1. *T. nobilis* Benth. & Hook. Gen. Pl. i, 301 : Oliv. Fl. Trop. Afr. i, (1868) 306 ; Schweinf. in Bull. Herb. Boiss. (1899) App. II, 279. *Teclea nobilis* Del. in Ann. Sc. Nat. ser. 2, XX, 90 ; Rich. Fl. Abyss. Atlas, t. 28. *Aspidostigma acuminatum* Hochst. in Flora (1844) 18.

HABITAT : II. Above Hille, 100 m (S. 1178 !).

DISTRIB. : Abyssinia, Eritrea, Yaman.

Vern. names : *durram*, *dhurm*, *warim* (S.).

Use : In Eritrea the fruit is eaten.

### 5. *Citrus* L.

1. *C. aurantium* Risso in Ann. du Mus. Hist. Nat. XX, 181 ; Schweinf. in Bull. Herb. Bois. (1899) App. II, 282.

HABITAT : II. Above Hille, 1000 m (S. 1840). Cultivated.

Vern. name : *Burteqan* (Post), *bortuqan hali* (S.).

2. *C. Bigaradia* Loisel. in Duham. Arb. ed. nov. vii, 99. Schweinf. l. c. 281.

HABITAT : II. Okeber, 1900 (S. 827) ; above Hille 1000 m. (S. 1828). Cultivated.

Fl. : Jan. 1889 (S.).

Vern. names : *Naring*, *Kubbeid* (Post), *tibbä*, *tübbai* (S.).

3. *C. limonum* Risso in Ann. du Mus. Hist. Nat. XX, 201, var. *pusilla* Risso l. c. ; Schweinf. in Bull. Herb. Boiss. (1899) App. II, 279.—*C. medica* L. ; Forsk. Fl. Aeg. Arab. (1775) CXVIII n. 466.

HABITAT : II. Okeber, 1900 m (S. 82 !) ; above Hille, 1600 m. (S. 1842) ; cultivated. Mountainous region of Yaman, partly wild (Forsk.).

Fl. : Jan. 1889 (S.). Fr. : Jan. 1889 (S.).

Vern. names : *Leimum málihh*, *Leimum khamidh*, *Leimum murokabi*, *lim* (S.).

VAR. *dulcis* Moris ; Schweinf. l. c. 281.

HABITAT: II. Okeber, 1900 m. (S. 848). Cultivated.

Vern. names : *Leimum Hhelu* (Post), *tim halib* (S.).

4. *C. medica* Risso l. c. 199 ; Schweinf. l. c. 282.

HABITAT: II. Okeber (S. 840). Cultivated.

Fl. : Jan. 1889 (S.)

Vern. names : *Kibbad* (Post), *turung* (S.).

## XXVIII. SIMARUBACEÆ.

### 1. *Balanites* Delile.

1. *B. aegyptiaca* Del. Fl. Eg. (1813) 221, t. 28, f. 1 ; Oliv. Fl. Trop. Afr. i, (1868) 315.

HABITAT: II. Tihamah : Kalife (S. 211 ! ) ; Jiddah (Zohrab 208 !).

III. Hadramaut (Hirsch 107).

Fr. : Dec. 1888 (S.).

DISTRIB. : Tropical Africa, Eritrea, Arabia, India.

Vern. name : *Heleg* (S.).

On this genus see Sprague, Kew Bull. (1913) 137 and Engl. Bot. Jahrb. ii, 157.

2. *B. arabica* nov. comb.—*Agialida arabica* Van Tiegh. in Ann. Sc. Nat. ser. IX, iv, (1906) 231.—? *Haledj* Forsk. Fl. Aeg.-Arab. (1775) App. 197, n. XXXIII.

HABITAT: II. Yaman : Near Zeyda (Defl. 224 ! ) ; ? Surdud (Forsk.).

Fl. : Jan. 1890 (Defl.).

DISTRIB.: Endemic.

3. *B. rotundifolia* nov. comb.—*Agialida rotundifolia* Van Tiegh. in Ann. Sc. Nat. ser. IX, iv, (1906) 231.

HABITAT: II. Aden (Courbou !).

DISTRIB. : Tadjurah, Arabia.

## XXIX. OCHNACEÆ.

### 1. *Ochna* Schreb.

1. *O. inermis* Schweinf. ex Penzig in Atti Congr. Bot. Genova (1893) 335.—*Evonymus inermis* Forsk. Fl. Aeg. Arab. (1775) CVII, n. 157 and p. 204. *O. parvifolia* Vahl. Symb. Bot. i, (1790) 33 ; Hochst. in Pl. Schimp. Abyss. Herb. compl. n. 485 ; Defl. Yemen (1889) 120.

HABITAT: II. Near Hojela and Attara, 1000-1500 m (Defl. 56 ! 235) ; Halie (Forsk.).

DISTRIB.: Somaliland, Abyssinia, Eritrea, Yaman.

Vern. names : *Benat, onun ennemr* (Forsk.)

### XXX. BURSERACEAE.<sup>1</sup>

#### 1. *Commiphora* Jacq.

1. *C. abyssinica* Engl. in DC. Prodr. Cont. iv, (1883) 10 ; Schweinf. in Bull. Herb. Boiss. (1899) App. II, 291 ; Blatt. Fl. Aden (1915) 148.—*Balsamodendron abyssinicum* Berg in Bot. Zeit. (1862) 181. *B. kafal* Herb. Schimper n. 1359, A. Rich.; *Balsamea abyssinica* Engl. in Bot. Jahrb i, 41.

VAR. *simplicifolia* Schweinf. l. c. ; Blatt. l. c.

HABITAT: II. Mt. el Areys, 200-300 m (Defl. 900 !) ; near Bajil (S. 525!) ; Hojela, 600 m (S. 998 !) W. Matshal (S. 920 !) ; Wasil, 1400 m (S. 1122 ! 1310 !) ; Aden (S. 131 !).

III. Hadramaut: Dhofar Mts. (Bent 93!) ; Hegwir (Hirsch. 96).

Fl. : Feb. 1889 (S.), Dec. 1888 (S.). Fr. : Feb. 1889 (S.), Apr. 1893 (Defl.), Dec. 1888 (S.).

DISTRIB.: Of the species : Eritrea, Abyssinia, Kordofan, S. Arabia.

Vern. names : *Dik' ik* (Hirsch), *Quafal, Chaddash* (S.).

2. *C. erythraea* Engl. in DC. Mon. Phan. iv, (1883) 20 ; Schweinf. in Bull. Herb. Boiss. (1899) App. II, 285—*Hemprichia erythraea* Ehrenb. in Linnaea iv, 396 ; Benth. & Hook. Gen. Pl. i, 327 ; ? *Amyris Kafal* Forsk. Fl. Aeg. Arab. (1775) 80.

HABITAT: II. Island of Kutanbal (Ehrenb. ex Engl.).

DISTRIB.: Nubia, Somaliland, Arabia.

Uses : For economic uses see Forsk. l. c.

3. *C. kataf* Engl. in DC. Mon. Phan. iv, (1883) 19 ; Schweinf. in Bull. Herb. Boiss. (1899) App. II, 284.—*Amyris Kataf* Forsk. Fl. Aeg.-Arab. (1775) 80 ; Vahl Symb. Bot. (1790) 28. *Balsamodendron Kataf* Kunth-Tereb. Gen. in Ann. Sc. Nat. ii, 349 ; DC. Prodr. ii, 76.

HABITAT: II. Near Wasil, 1000 m (S. 1022) ; Wulej, J. Melhan (S. 684 !) ; Bajil (S. 555 !) ; Beit el Fakih, cultivated (Forsk.) ; Abu Areys (Forsk.).

<sup>1</sup> The material of this order was not always satisfactory and often very poor. Better specimens from the various localities will probably correct several of my statements.—E. B.



Fl.: Jan. 1889 (S.). Fr.: Jan. and Feb. 1889 (S.).

DISTRIB.: Endemic.

Vern. names: *Kataf* (Forsk., S.), *Kafal* (S.)

Uses: For economic uses see Forsk. l. c.

4. **C. Mukul** Engl. in DC. Monogr. Phanerog. iv, (1883) 12.—*Balsamodendron Buxburghii* Stocks in Journ. As. Soc. Bomb. ii (1848) 391, non W. et A. *B. mukul* Hook. in Kew Journ. i, 259, t. 8; Boiss. Fl. Or. ii, (1872) 3. *Balsamea Mukul* Engl. Bot. Jahrb. i, 41.

HABITAT: S. Arabia (ex. Boiss., Balfour, Cooke).

DISTRIB.: Arabia, Baluchistan, Sind, Mysore.

Pop. names: *Resin*; *Myrrha*, *Indian Bdellium*, *Googul*, *Mukul*.

5. **C. myrrha** Engl. in DC. Mon. Phan. iv, (1883) 10; Schwëinf. in Bull. Herb. Boiss (1899) App. II, 285.—*Balsamodendron myrrha* Nees Dusseld. p. 357; Defl. Yemen (1889) 120. —? *B. Playfairii* Hook f. in Oliv. Fl. Trop Afr. i, (1868), 326.

HABITAT: II. Aman (Botta!); Mor (Ehrenb. and Hemprich 1825!); Bajil (S. 1787! 554!); near Hojela (S. 919!); near Kalife, 500 m (S. 221!); Tihamah: W. of J. Damer (S. 473!); neighbourhood of Aden (Hunter 144!).

Fr.: Jan. 1889 (S.).

DISTRIB.: Somaliland, Arabia.

Vern. names: *Kafal*, *Ugje* (S.); *el-mour* (Dell.).

6. **C. opobalsamum** Engl. var. *Ehrenbergiana* Engl. in DC. Mon. Phan. iv, (1883) 17.

HABITAT: II. Mor (Ehrenb.).

DISTRIB.: Endemic.

VAR. **gileadensis** Engl. l. c. 15; Bot. Jahrb. vol. 48, 470. — *Amyris gileadensis* Linn. Amœn. Acad. vii, 55; Vahl Symb. Bot. i, (1790) 28, t. 11. *Balsamodendron gileadense* Kunth Gen. Tereb. 16; DC. Prodr. ii, 76.

HABITAT: II. Not far from Mecca (Ehrenb.); Aden (Hildebr.).

DISTRIB.: Nubia, Somaliland, Arabia.

Uses: See Pharm. Journ. ser. III, Vol. X, 82, Vol. XI, 42.

VAR. **Kunthii** Engl. l. c. 16; Bot. Jahrb. 48 (1913) 470. — *Amyris opobalsamum* L. Diss. Opob.; Amœn. Acad. vii, 68; Forsk. Fl. Aeg. Arab. (1775) 79. *Balsamodendron opobalsamum* Kunth Gen. Tereb. 16; DC. Prodr. ii, 76 (excl. syn.); Defl. Yemen (1889) 120.

HABITAT: II. Mt. Sidr (Fischer 105! Schimp. 836!); Arabia deserta (Bruce!); Bajil, plentiful (S. 526! 551!); Haes (Forsk); near Kalifa (S. 194); Aden (Thomson! Balfour! Lunt 302!).

III. Hadramaut : Dhofar Mt. (Bent 192 ! 187 ! 194 !).

Fl.: Jan. 1889 (S.), Feb. 1836 (Schimp.), Feb. 1837 (Fischer). Fr.: Apr. 1861 (Thomson), Nov. 1888 (S.), Dec. 1847 (Hook.), Dec. 1889 (Defl.).

DISTRIB. : Endemic.

Vern. names : *Abuschām* (Forsk.), *Timdud* (Hirsch), *Bischam* (S.).

English names : Balsam of Mecca, Balm of Gilead.

Biblical names : Basam or besem.

Name of resin in S. Arabia : Balessam (S.).

7. *C. quadricincta* Schweinf. in Engl.-Prantl, Pflanzenf. iii, 4 (1896) 253; Bull. Herb. Boiss. (1899) 283.

HABITAT : II. Tihamah : Sejid-Soliman (S. 444 ex Engl.).

Fr.: Jan. 1889 (S.).

DISTRIB. : Eritrea, Nubia, Yaman.

8. *C. Schimperi* Engl. in DC. Mon. Phan. iv, (1883) 13; Schweinf. in Bull. Herb. Boiss. (1899) App. II, 288. — *Balsamodendron Schimperi* Berg. in Bot. Zeit. (1862) 162. *Balsamea Schimperi* Engl. in Bot. Jahrb. i, 41.

HABITAT : II. Wasil, 1400 m. (S. 1310, 1152).

Fl.: Feb. 1889 (S.). Fr.: Feb. 1889 (S.).

DISTRIB. : Abyssinia, Eritrea, Yaman.

Vern. name : *Qataf* (S.).

## 2. *Boswellia* Roxb.

1. *B. Carterii* Birdw. in Linn. Soc. xxvii, (1871) 143; Engl. in DC. Mon. Phan. iv, (1883) 33; Blatt. Fl. Aden. (1914) 152. — ? *B. serrata* Carter in Journ. Bomb. Br. As. Soc. ii, t. 28. — ? *B. sacra* Flück. Lehrb. d. Pharmakogr. (1867) 31.

HABITAT : II. Merbat (Carter !); Aden (Playfair ! Birdw. ! Collins !), probably not indigenous in Aden.

III. Hadramaut : Dhofar Mts. (Bent 541 !); High plateau (Hirsch 42); Maharas (Carter).

Fl. June 1867 (Birdw.).

DISTRIB.: Somaliland, Arabia.

Vern. names : *Moh Add* (Birdw.), *Mayhrayt d'sheehaz* (Carter), *Muger* (Hirsch), *mohr meddhu* (ex Engl.).

English name : Frankincense tree, Olibanum tree.

Note : For historical information see Blatt. Fl. Aden l. c.

2. *B. Frereana* G. Birdw. in Trans. Linn. Soc. xxvii, (1871) 143, t. 31, 32; Engl. in DC. Mon. Phan. iv, (1883) 31.

HABITAT : II. Aden (Birdw. ! Playfair !).

DISTRIB.: Somaliland, Aden.

Vern. name : *Laban Maiti* (Playfair).

## XXXI. MELIACEÆ.

1. *Turraea* L.

1. *T. parvifolia* Defl. in Bull. Soc. Bot. France xlii (1895) 301.

HABITAT : II. J. el-Areys, 400—600 m. (Defl. 990 !); W. Moaden (Defl. 1143).

Fl. : Apr. (Defl.). Fr. : Apr. (Defl.).

DISTRIB. : Endemic.

2. *Melia* L.

1. *M. Azedarach* L. Sp. Pl. (1753) 384; Boiss. Fl. Or. i, (1867) 954; Blatt. Fl. Aden (1915) 144.

HABITAT : II. Cultivated in the oasis of Lahaj (Defl. 177 !); Shaikh Othman, naturalized (Defl.).

Fr. : Dec. 1889 (Defl.).

DISTRIB. : Widely dispersed by cultivation in warm countries; supposed to be indigenous in Baluchistan and the Jhelum Valley in Kashmir (Brandis).

Vern. name : *Ssile-asadiracht*.

English name : *Persian Liñac, Bastard Cedar, Bead Tree*.

3. *Azadirachta* A. Juss.

1. *A. indica* A. Juss. Mém. Mel. (1830) 68, t. 2, n. 5.

HABITAT : II. Shaikh Othman, naturalized (Busse); Bajil, 200 m. (S. 583).

DISTRIB. : Wild in the dry region of the Irawadi Valley from Prome upwards; cultivated and naturalized in many hot climates.

Vern. name : *Neshem*.

English name : *Neem or maygosa tree*.

4. *Trichilia* L.

1. *T. emetica* Vahl Symb. Bot. i, (1790) 31; Defl. Yemén (1889) 121; Schweinf. in Bull. Herb. Boiss. (1899) App. II, 295.—*Geniostephanus tomentosus* Fenzl in Flora (1844) 312. *Rochelia choënis* Del. in Roch. d'Héric IIe Voy. Bot. n. 47 (fide Rich.). *Elcaja* Forsk. Fl. Aeg.-Arab. (1775) CXVI, n. 409, and p. 127.

HABITAT : II. Near Hojela, 600 m. (Defl. 53, 78, 168, S. 921 !); Wulej, J. Melhan (S. 752 !); J. Bura, Hille (S. 365 !); Wasil, 1400 m. (S. 1943); Hadie (Forsk.).

Ft. : Jan. 1889 (S.). Fr. : Jan. 1889 (S.).

DISTRIB. : Sierra Leone, Senegambia, Madi, White Nile, Abyssinia, Upper Zambesi, Eritrea, Arabia.

Vern. names : *Roqáh, rugáh* (S.).

For economic uses see Forsk. l. c.

## XXXII. CELASTRACEÆ.

### 1. *Catha* Forsk.

1. *C. edulis* Forsk. Fl. Aeg.-Arab. (1775) CVII n. 155, p. 63 ; Oliv. Fl. Trop. Afr. i, (1868) 365 ; Defl. Yemen (1889) 121 ; Schweinf. in Bull. Herb. Boiss. (1899) App. II, 337.—*Celastrus edulis* Vahl Symb. Bot. i, (1790) 21 ; DC. Prodr. ii, 6.—*Catha Forskahlîi* Rich. Fl. Abyss. i, (1847) 134, t. 30.—*Trigonotheca serrata* Hochst. in Flora (1841) 622.

HABITAT : II. Manakhah, 2300 m., cultivated (S. 1897 ! ) ; coffee-region of Yaman (Forsk.) ; near Tæz, 1600—1800 m., cultivated (Defl. 717) ; near Jennat (Botta !).

Fr. : Mar. 1889 (S.).

DISTRIB. : Abyssinia ; probably cultivated in Arabia.

Vern. names : *Kaff* (Bové), *Gat, Kat* (Forsk.).

For economic uses see Forsk. l. c. and Defl. l. c.

### 2. *Gymnosporia* W. & A.

1. *G. arbutifolia* Loes. in Engl. Bot. Jahrb. xvii, (1893) 542.—*Celastrus arbutifolius* Hochst. in Rich. Fl. Abyss. i, (1847) 133 ; Defl. Yemen (1889) 122.

HABITAT : II. J. Bura, Hille (S. 279 ! ) ; near Attara 1900 m. (Defl. 398) ; near Tæz, 1400 m. (Defl. 689 ! 699).

Fr. : Jan. 1889 (S.).

DISTRIB. : Abyssinia, Eritrea, Arabia.

Vern. name : *negjeràn* (S.).

2. *G. serrata* Loes. in Engl. Bot. Jahrb. xvii, (1893) 541 ; Schweinf. in Bull. Herb. Boiss. (1899) App. II, 336.—*Celastrus serratus* in Rich. Fl. Abyss. i, (1847) 131 ; Oliv. Fl. Trop. Afr. i, (1868) 362. *C. obscurus* Rich. l. c. 131. *C. Schimperî* and *C. edulis* Hochst. in Schimp. Pl. Abyss. *C. serrulatus* R. Br. in Salt. Abyss. App. 64.

HABITAT : II. Wasil, 1400 m. (S. 1109 !).

Fr. : Feb. 1889 (S.).

DISTRIB. : Abyssinia, Eritrea, Arabia.

Vern. name : *Tra, Negieran, Gherom* (S.).

VAR. *pubescens* Schweinf. l. c. 336.

HABITAT: II. Wulej, 600 m. (S. 1844 !); above Hille, 400 m. (S. 279).

Fl.: Jan. 1989 (S.). Fr.: Jan. 1889 (S.).

DISTRIB.: Endemic.

3. *G. spinosa* Fiori Bos. e Piante legn. Eritrea (1909) 225.—*Catha spinosa* Forsk. Fl. Aeg.-Arab. (1775) 64. *Celastrus senegalensis* Lam. Dict. i, (1783) 661; Defl. Yemen (1889) 122. *Celastrus parviflorus* Vahl Symb. Bot. i, (1790) 21. *Celastrus montanus* Roth Nov. Sp. Pl. (1821) 154. *G. montana* Benth. Fl. Austral. i, (1863) 400. *G. senegalensis* Loes. in Engl. Bot. Jahrb. xvii, (1893) 541; Schweinf. in Bull. Herb. Boiss. (1899) App. II. 335.

HABITAT: II. J. Bura, Hille (S. 256 !); near Wulej (S. 629, 742); near Bajil (S. 600 !); el Hami (S. 161 !); West of J. Menif (Defl. 288 !); Kurma (Forsk.).

Fl.: Dec. 1888 (S.), Jan. 1889 (S.). Fr.: Dec. 1888 (S.), Jan. 1889 (S.), Jan. 1890 (Defl.).

DISTRIB.: Mediterranean region, tropical Africa, Arabia, India, Australia.

Vern. names: *Tharra*, *therrän*, *tara'h*, *serh* (S.).

### XXXIII. RHAMNACEAE.

#### 1. *Zizyphus* Juss.

1. *Z. lotus* Lam. Dict. iii, 316; Anders. Fl. Aden. (1860) 13; Baker in Kew Bull. (1894) 330; Blatt. Fl. Aden (1915) 159.—*Rhamnus lotus* L. Sp. Pl. (1753) 194.

HABITAT: I. El Ghor (ex Post). II. Aden (Hook f.! Birdw.! Defl.).

III. Hadramaut, very common (Lunt!).

Fr.: Dec. 1889 (Defl.).

DISTRIB.: Mediterranean region, Arabia.

Vern. name: *Ailb* (Lunt).

2. *Z. spina-Christi* Willd. Sp. Pl. (1797) 1105; DC. Prodr. ii, 20; Boiss. Fl. Or. ii, (1872) 13; Defl. Yemen (1889) 128; Blatt. Fl. Aden (1915) 158; Carter in Rec. Bot. Surv. Ind. vi, (1917) 195.—*Rhamnus spina-Christi* L. Sp. Pl. (1753) 194. *R. nabeca* Forsk. Fl. Aeg.-Arab. (1775) 204. (incl. duas var. *divaricatus* et *rectus*). *Z. jujuba* Defl. (non Lamk.) in Bull. Soc. Bot. France xxxii, (1885) 348.

HABITAT: I. Oasis of Et-Tih (ex Post); W. Feiran (H. K. !); W. Zewerah (Hayne!).

II. Jiddah (Zobrab 76 !); Kalifa (S. 184 !); near Kuba, 600 m. (Defl.); Aden (Defl. 59 ! Thomson ! Balfour ! S.!).

III. Hadramaut, very common (Lunt 147 !); Dhofar Mts. (Bent 179 !); al Hauri, 2,200 ft. (Lunt 160 !); Hadramaut, everywhere in the interior (Hirsch 24).

IV. Masqat (Bent 3 !); Zor Hills (Cox).

Fl. : Jan. 1894 (Lunt). Fr. : Jan. 1867 (H. K.), Jan. 1894 (Lunt), Dec. 1889 (Defl.).

DISTRIB. : Senegambia, Niger, Algeria, Egypt, Libya, Nubia, Abyssinia, Eritrea, Arabia, Socotra, Afghanistan, N.-W. India.

Vern. names : *Ardj*, *Ardj Orredj*, *Aelb*, *Ghasl*, *Sidr* (Forsk.), *Olb*, *Döm* (Hirsch); fruit : *Döm* (Hirsch), *Ailb* (Lunt), *Nabq*, *Sidr* (Post), *ärq* (S.), *Nebek* (Cox).

Uses : A decoction of the leaves is used by Muslims to wash the dead, on account of the sacredness of the tree (Cox).

VAR. *inermis* Boiss. l. c. 13 ; Kneuck. in Allg. Bot. Zeitsch. ix, (1903) 146.

HABITAT : I. Oasis Feiran, W. Aleyat (Kneuck.).

DISTRIB. : Egypt, Sinai, Syria.

3. *Z. vulgaris* Lam. Dict. iii, 316.

HABITAT : II. Yaman, cultivated (Defl.).

DISTRIB. : Mediterranean region, Persia.

Vern. name : *Ennab* (Post).

## 2. *Berchemia* Neck.

1. *B. yemensis* Defl. Yemen (1889) 123 ; Fiori Bos. e Piante legn. Eritrea (1909) 235.—*Rhamnus spiciflorus* Martelli Flor. Bogos. (1886) 18, an Rich.?

HABITAT : II. Near Mefhak, 1800 m. (Defl. 599).

DISTRIB. : Eritrea, Yaman.

## 3. *Rhamnus* L.

1. *R. disperma* Ehrenb. in Boiss. Fl. Or. Suppl. (1888) 156.—*R. palestina* Aschers. & Schweinf. in Aschers.-Schweinf. Ill. Fl. d'Eg. 60, n. 271, not Boiss. ; Aschers.-Schweinf. Ill. Fl. d'Eg. Suppl. 753.

HABITAT : I. Sinai (Schimp. 264).

DISTRIB. : Egypt, Sinai.

2. *R. leucodermis* Baker in Kew Bull. (1895) 316.

HABITAT : III. Hadramaut : High plateau (Hirsch 84).

DISTRIB. : Endemic.

3. *R. oleoides* L. Sp. Pl. ed. 2 (1762) 279 ; Boiss. Fl. Or. ii, (1872) 15.

HABITAT : I. Half way up Mt. Catherine (Schimp. 449 !).

DISTRIB. : Mediterranean region.

Vern. name : *Arnodel* (Schimp.).

4. *Rhamnus* sp. in Defl. Yemen (1889) 124.

HABITAT : II. Near Manakhah, 2200 m. (Defl. 430 !).

Nearly allied to *R. Pallasii* and *R. spathulaefolia* F. et. M. (Defl.). Deffler describes another specimen (N. 711) collected at Tazeh which might probably be a new species.

4. *Sageretia* Brongn.1. *S. brandrethiana* Aitch. in Journ. Linn. Soc. viii, (1865) 62. (Very near *S. theezans*).

HABITAT : I. J. Baghir (Milne !).

DISTRIB. : Orient, N.-W. India.

5. *Hellinus* E. Mey.1. *H. arabica* Jaub. & Sp. Illustr. v, 81, t. 472.

HABITAT : II. Mt. Maammara (Botta !).

Fl. : Oct. 1837 (Botta).

DISTRIB. : Endemic.

## XXXIV. AMPELIDACEÆ.

1. *Vitis* L.1. *V. cyphopetala* Baker in Oliv. Fl. Trop. Afr. i, (1868) 407.—*Cissus cyphopetala* Fres. in Mus. Senckenb. ii, (1837-45) 282 ; Gilg. & Brandt. in Engl. Bot. Jahrb. 46 (1912) 540.

HABITAT : III. Hadramaut : W. Raida near Sehet, W. Yidnut (Hirsch 120, 175).

DISTRIB. : Tropical Africa, Arabia.

Vern. name : *Halk* (Hirsch).2. *V. digitata* Defl. Yemen (1889) 125.—*Cissus digitata* Lamk. in Illustr. (1791) 332, n. 1627 ; Planch. in DC. Mon. Phan. v, (1857) 605. *Saelanthus digitatus* Forsk. Fl. Aeg.-Arab. (1775) CV, n. 102 and p. 35 (Excl. charact. fructus manifeste falso sec. Planchon).

HABITAT : II. Below Wasil (S. 1154) ; Wasil, 1400 m. (S. 1086 !) ; near Wulej (S. 747) ; J. Bura, 1000 m. (S. 469) ; near Manakhah, 2200 m. (S. 1532) ; Hadie (Forsk.).

Fl. : Feb. 1889 (S.). Fr. : Feb. 1889 (S.).

DISTRIB. : Endemic.

Vern. name : *Haluack* (Forsk.), *chummel*, *halluaq* (S.)3. *V. erythrodes* Fres. Mus. Senck. ii, (1837) 284 ; A. Rich. Fl. Abyss. (1847) 113 ; Oliv. Fl. Trop. Afr. i, (1868) 402 ; Defl. Yemen (1889).

125.—*Rhoicissus erythrodes* Planch. in DC. Mon. Phan. v, (1887) 465 ; Gilg. & Brandt. in Engl. Bot. Jahrb. 46 (1912) 440.

HABITAT : II. W. Nahemi, Attara, 1800 m. (S. 1747 ! ) ; near Attara, 2000 m. (Defl. 415).

Fr. : Mar. 1889 (S.).

DISTRIB. : Tropical Africa, Arabia.

4. *V. Forskahlii* nov. comb.—*Saelanthus rotundifolius* Forsk. Fl. Aeg.-Arab. (1775) CV, n. 100 and p. 35, Icon. t. 4. *Cissus rotundifolia* Vahl Symb. Bot. iii, (1794) 19.—*V. rotundifolia* Defl. Yemen (1889) 125 (non Michx.).

HABITAT : II. Near Hojela, 600-800 m. (Defl. 206) ; near Taz, 1300 m. (Defl.) ; J. Menif (Ellenbeck) ; Wasil, 1400 m. (S. 1847 ! ) ; Kalifa (S. 188 ! ) ; Surdud (Forsk.).

III. S. Arabia (Bent ! ):

Fl. : Feb. 1889 (S.).

DISTRIB. : Kilimandjaro, Mozambique, Zanzibar, Somaliland, Egypt, Abyssinia, Arabia.

Vern. names : *Sala* (Ellenbeck) *haelaes*, *halika* (Forsk.), *chummel* (S.).

5. *V. quadrangularis* Wall. Cat. 5992 fide W. et A. Prod. Fl. Pen. Ind. Or. i, 125 ; Oli. Fl. Trop. Afr. i, (1868) 399 ; Defl. Yemen (1889) 125 ; Blatt. Fl. Aden (1915) 160. — *Cissus quadrangularis* L. Mant. 39. *Saelanthus quadrangonus* Forsk. Fl. Aeg.-Arab. (1775) CV, n. 98 and p. 33, t. 2, (incl. duas var.).

HABITAT : II. Aden (Lunt 356 ! Birdw. ! ) ; Aggara, Hojela (S. 1061 ! ).

III. Hadramaut : Dhofar Mts. ; coast at Merbat (Bent 92 ! ).

Fl. : Feb. 1889 (S.).

DISTRIB. : Senegambia, Nubia, Abyssinia, Zambesi-land, Arabia, throughout India, Ceylon, Java, Malay Archipelago.

Vern. names : *Ssele*, *sila* (S.).

6. *V. ternata* nov. comb. — *Cissus ternata* Gmel. in Syst. i, (1791) 256. *Saelanthus ternatus* Forsk. Fl. Aeg.-Arab. (1775) CV, n. 101 and p. 35. *V. apodophylla* Baker in Kew Bull. (1894) 330.

HABITAT : II. Hanish Island (Slade 6 ! ) ; El Hami (S. 181 ! ) ; W. Kanune (Ehrenb. ! ) ; Haës (Forsk.) ; neighbourhood of Aden (Hunter 136 ! )

III. Hadramaut : Ghafit, 600 ft. (Lunt 89 ! ).

DISTRIB. : Somaliland, Eritrea, Arabia.

Vern. names : *Hanka*, *lkaja* (Forsk.), *Heik* (S.).



7. *V. vinifera* L.

HABITAT: Cultivated in Yaman (Defl.).

2. *Rhoicissus* Planch.

1. *R. Revoilii* Planch. in DC. Mon. Phan. v, (1887) 469; Gilg. & Brandt. in Engl. Bot. Jahrb. 46 (1912) 440. — *R. yemensis* Schweinf. M. S. ex Gilg. & Brandt. l. c. *Vitis Yemensis* Schweinf. M. S. in Herb. Kew.

HABITAT: II. Above Hille (S. 320 !); Wulej (S. 718 !); Wasil, 1400 m. (S. 1837 !); Hojela (S. 1867 !).

DISTRIB.: Somaliland, Zanzibar, Ussagara, Kilimandjaro, Mozambique, E. Africa, Yaman.

## XXXV. SAPINDACEÆ.

1. *Cardiospermum* L.

1. *C. canescens* Wall. Pl. Asiatic. Rar. i, (1830) 14, t. 14; Oliv. Fl. Trop. Afr. i, (1868) 418; Schweinf. in Bull. Herb. Boiss. (1899) App. II, 338. — *C. clematideum* et *C. oblongum* Rich. Fl. Abyss. i, (1847) 100.

HABITAT: II. Okeber 1000 m. (S. 870 !); Wulej, 600 m. (S. 767) below Wasil, 1000 m. (S. 1212).

Fl. Jan. and Feb. 1889 (S.). Fr. Jan. and Feb. 1889 (S.).

DISTRIB.: Abyssinia, Eritrea, Yaman, W. India.

2. *C. Halicacabum* L. Sp. Pl. (1753) 366; Boiss. Fl. Or. i, (1867) 945; Defl. Yemen (1889) 126.

HABITAT: II. W. Fatimah (Fischer 61! Schimper 814 !); Okeber, J. Melhan (S. 870 !); Jiddah (Zohrab 288 !); near Wasil, 100 m (S. 242).

Fl.: Jan. 1889 (S.), Feb. (Fischer). Fr.: Jan. 1889 (S.), Feb. 1836 (Schimp.).

DISTRIB.: Tropical and sub-tropical Africa, America, India.

3. *C. microcarpum* H. B. K. Nov. Gen. Am. v, 104; Oliv. Fl. Trop. Afr. i, (1868) 418; Defl. Yemen (1889) 126; Schweinf. in Bull. Herb. Boiss. (1899) App. II, 337. — *C. truncatum* Rich. Fl. Abyss. i, (1847) 101.

HABITAT: II. Below Wasil, 1000 m. (S. 1169 !); near Bajil (S. 733); Hojela, 600 m. (S. 1004 !); near Taz 1200—1300 m. (Defl. 680). IV Masqat (Auch.-Eloy 4171 !).

Fl.: Jan. and Feb. 1889 (S.). Fr.: Jan. and Feb. 1889 (S.).

DISTRIB.: Throughout the tropics.

2. *Allophylus* L.

1. *A. rubifolius* Engl. in Abhandl. Preuss. Akad. Wiss. ii, (1892) 292; Schweinf. in Bull. Herb. Boiss. (1899) App. II, 338.—*Schmidelia rubifolia* Hochst. in A. Rich. Fl. Abyss. i, (1847) 103. *A. africanus* Martelli (ex Fiori).

HABITAT: II. Wulej, 600 m. (S. 632, 667).

Fl.: Jan. 1889 (S.).

DISTRIB.: Mozambique, Kilimandjaro, Abyssinia, Eritrea, Yaman.

Vern. name: *Nischem* (S.).

3. *Sapindus* L.

1. *S. trifolius* L. Sp. Pl. (1753) 367; Hook. f. Fl. Brit. Ind. i, pt. III (1875) 682.

HABITAT: III. Hadramaut (Hirsch 8)

DISTRIB.: Tropical Asia, Arabia.

4. *Dodonaea* L.

1. *D. viscosa* Jacq. En. Pl. Carib. (1760) 19; L. Mant. (1767) 228; Boiss. Fl. Or. Suppl. (1888) 150; Schweinf. in Bull. Herb. Boiss. (1899) App. II, 340.—*D. arabica* Hochst. & Steud. in Pl. Arab. n. 766.

HABITAT: II. Wasil, 1400 m. (S. 1326); above Hille, 1000 m. (S. 580) near Wulej, 800 m. (S. 743).

III. Hadramaut (Hirsch 93).

Fl.: Jan. and Feb. (S.).

DISTRIB.: Tropical and Southern temperate regions.

Vern. names: *Zèru* (Hirsch), *Rummach*, *Schath* (S.).

## XXXVI. MELIANTHACEÆ.

1. *Bersama* Fresen.

1. *B. abyssinica* Fres. in Mus. Senck. ii, (1837) 280, t. 17; Schweinf. in Bull. Herb. Boiss. (1899) App. II, 340; Fiori Bosc. Piante legn. Eritrea (1909) 233.—*B. integrifolia* et *serrata*, A. Rich. Fl. Abyss. i, (1847) 107.

HABITAT: II. Above Hille, 1000 m. (S. 1881); Okeber, 900 m. (S. 854!).

DISTRIB.: Natal, Abyssinia, Eritrea, Yaman.

Vern. name: *Uhbbä* (S.).

## XXXVII. ANACARDIACEÆ

1. *Mangifera* L.

1. *M. indica* L. Sp. Pl. (1753) 200; Schweinf. in Bull. Herb. Boiss. (1899) App. II, 332.

HABITAT: II. Yaman, cultivated (Defl.); Okeber, 1000 m. (S. 721); below Manakhah, 2000 m. (S. 1614); near Hille, 700 m. (S. 376); cultivated in the terraces of the coffee plantations, also run wild in the Wadies (S.); near Lahaj (Ellenbeck).

Fl. : Jan. and Feb. 1889 (S.).

DISTRIB. : Of Indian origin.

Vern. names: *Amba*, *Amba-ssuak*, *Amba-ssaua* (S.).

## 2. *Anacardium* Rottb.

1. *A. occidentale* L. ; DC. Prodr. ii, (1825) 62.

HABITAT: III. Hadramaut: Planted on the coast (Hirsch 76).

DISTRIB. : Tropical America; cultivated in the tropics of the Old World.

Vern. name: *Bidan* (Hirsch).

## 3. *Anaphrenium* E. Mey.

1. *A. insigne* Fiori Bosc. e Piante legn. Eritrea (1909) 220.—*Ozoroa insignis* Del. in Ann. Sc. Nat. Ser. 1, xx, (1843) 91, t. 1, f. 3. *A. abyssinicum* Hochst. in Flora (1844) 32. *Heeria insignis* O. Ktze. Rev. Gen. Pl. (1891) 152; Schweinf. in Bull. Herb. Boiss. (1899) App. II, 334.

HABITAT: II. Near Hille, 700 m. (S. 284).

Fl. : Jan. 1889 (S.).

DISTRIB. : S. Africa, Senegambia, Zambesi, Congo, Abyssinia, Eritrea.

Vern. name: *Ruadh* (S.).

## 4. *Rhus* L.

1. *R. abyssinica* Hochst. in Flora, xxiv, 1, Intell. (1841) 31 (nomen); Oliv. Fl. Trop. Afr. i, (1868) 438; Schweinf. in Bull. Herb. Boiss. (1899) App. II, 333.—? *R. foliosa* Rich. Fl. Abyss. i, (1847) 143.

HABITAT: II. Wasil, 1400 m. (S. 1326).

DISTRIB. : Nubia, Abyssinia, Eritrea, Yaman.

Vern. name: *Tueleb* (S.).

2. *R. Aucheri* Boiss. Diagn. Pl. Or. ser. 1, ii, 5; Engl. in DC. Mon. Phan. iv, (1883) 439.

HABITAT: IV. Masqat (Auch.—Eloy 4324!).

DISTRIB. : Endemic.

3. *R. coriaria* L. Sp. Pl. (1753) 265; Engl. in DC. Mon. Phan. iv, (1883) 381.

HABITAT: I. Sinai (Ehrenb.).

DISTRIB. : Mediterranean region, Persia, Transcaucasus, Afghanistan.

Vern. name: *Simmaq* (Post). Uses: The fruit is used to make an acid drink. The fruit, bark and young leaves are used in tanning and dyeing (Post).

4. *R. flexicaulis* Baker in Kew Bull. (1895) 316.

HABITAT: III. Hadramaut (Hirsch 153!).

DISTRIB.: Endemic.

5. *R. glaucescens* A. Rich Fl. Abyss. i, (1847) 143; Oliv. Fl. Trop. Afr. i, (1868) 437; Engl. in DC. Mon. Phan. iv, (1883) 441; Schweinf. in Bull. Herb. Boiss. (1899) App. II, 333.—*R. undulata* Rich. l. c.

HABITAT: II. Okeber, 900 m. (S. 855); above Hille, 1000 m. (S. 523!).

Fr.: Jan. 1889 (S.).

DISTRIB.: Abyssinia, Somaliland, Eritrea, Zambesi, Arabia.

Vern. name: *Ammet-el-heiss* (S.).

6. *R. oxyacantha* Cav. Ic. iii, (1794) 36; Engl. in DC. Mon. Phan. iv, (1883) 437; Post Fl. Syr. etc. (1896) 206.

HABITAT: I. Wady Araba, Sinai (ex Post); Central Midian (Burton!).

DISTRIB.: Morocco, Algeria, Egypt, Nubia, Arabia Petraea, Syria.

7. *R. retinorrhœa* Steud. in Pl. Schimp. it. iii, (1827) ex Rich. Fl. Abyss. i, (1847) 142; Oliv. Fl. Trop. Afr. i, (1868) 438; Engl. in DC. Mon. Phan. iv, (1883) 444; Schweinf. in Bull. Herb. Boiss. (1899) App. II, 333.—*R. viminalis* Rich. l. c. 142.

HABITAT: II. Above Hille, 900 m. (S. 520); Wasil, 1400 m. (S. 1103!) between Wasil and Attara, 1600 m. (S. 1776); below Manakhah, 1900—2000 m. (S. 1535).

Fr.: Jan.-Feb.-Mar. 1889 (S.).

DISTRIB.: Central Africa, Abyssinia, Eritrea, Somaliland, Yaman.

Vern. names: *Thalab, thalub* (S.).

8. *R. saeneb* Forsk. Fl. Aeg.-Arab. (1775) CIX, n. 216 and p. 206.

HABITAT: II. Hadie (Forsk.).

DISTRIB.: Endemic.

Vern. names: *saeneb, baejad* (Forsk.).

### XXXVIII. MORINGACEAE.

#### 1. *Moringa* Juss.

1. *M. peregrina* Fiori Bos. e Piante legn. Eritrea (1909) 148.—*Hyperanthera peregrina* Forsk. Fl. Aeg.-Arab. (1775) CVII, n. 159 and p. 67.—*M. aptera* Gaertn. Fruct. ii, (1791) 315; Boiss. Fl. Or. ii, (1872) 23; Baker in Kew Bull. (1894) 331; Blatt. Fl. Aden (1915) 161. *M. arabica* Pers. Euch. i, (1805) 460; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 195. *Balanus myrepsica* Belon Obs. 126.—

HABITAT : I. Arab. Petr. : Wady Feiran (Schimp. 418 ! Lord !).

II. Aden (Hook. f. 104 ! Balfour ! Thompson ! Anders. !  
Defl. 42 ! 91 ! S. ! Perry !) ; Beit el Fakih (Forsk.) ;  
Arabia (Ehrenb. !).

III. Hadramaut : Dhofar Mts. (Bent 128 !) ; Al Agum,  
2300 ft. (Lunt 162 !).

IV. Masqat (Auch-Eloy 4374 !).

Fl. : Jan. 1880 (Balfour), Jan. 1894 (Lunt), Mar. 1878 (Perry), May  
1868 (Lord), July (Schimp.), Dec. 1889 (Defl.).

DISTRIB. : Upper Egypt, Abyssinia, Nubia, Eritrea, Kordofan, Sennaar,  
Arabia, Syria.

Uses : See Blatt. Fl. Aden l. c.



HABITAT: I. Arab. Petr. : Wady Feiran (Schimp. 418! Lord!).

II. Aden (Hook. f. 104! Balfour! Thomson! Anders.! Deff. 42! 91! S.! Perry!); Beit el Fakih (Forsk.); Arabia (Ehrenb.!).

III. Hadramaut : Dhofar Mts. (Bent 128!); Al Agum, 2,300 ft. (Lunt 162!).

IV. Masqat (Auch.-Eloy 4374!).

Fl. : Jan. 1880 (Balfour), Jan. 1894 (Lunt), Mar. 1878 (Perry), May 1868 (Lord), July (Schimp.), Dec. 1889 (Deff.).

DISTRIB. : Upper Egypt, Abyssinia, Nubia, Eritrea, Kordofan, Sennaar, Arabia, Syria.

Uses : See Blatt. Fl. Aden l. c.

### XXXIX. LEGUMINOSAE.

#### §PAPILIONACEAE.

##### 1. Anagyris L.

I. *A. foetida* L. Sp. Pl. (1753) 374; Boiss. Fl. Or. ii, (1872) 24.

HABITAT: I. Ramleh (Lowne!); J. Maamara (Botta!).

II. Near Sanah, 2,800 m. (Deff. 485!).

DISTRIB. : Mediterranean region, Arabia.

Vern. name: *Gerrud* (ex Boiss.), *Jarrud* (Post).

##### 2. Lotononis DC.

I. *L. abyssinica* Kotschy in Sitzb. Acad. Wien, Math.-Nat. Abth. ii, (1865) 263.—*Leobordea abyssinica* Hochst. ex Rich. Fl. Abyss. i, (1847) 161.

HABITAT: II. Hijaz (ex Kotschy).

DISTRIB. : Abyssinia, Arabia.

2. *L. dichotoma* Boiss. Fl. Or. ii, (1872) 30.—*Lotus dichotomus* Del. Ill. Fl. d' Eg. n. 717.—*Leobordea lotoidea* Del. Frag. Fl. Arab. Petr. (1833) n. 85; Done. Fl. Sin. in Ann. Sc. Nat. ser. 2, iii, (1835) 266; Kotschy in Sitzb. Kais. Akad. Wiss. lii, (1866) 13.—*Lotononis Leobordea* Benth. Lond. Journ. xi, 607.

HABITAT: I. Wady Zewerah (Lowne!); Wady Shaikh (Boiss.); W. Sewook, W. Gennah, W. Feiran (Lord!); Mt. Sinai (Schimp. 414! Auch. 1041!); Desert of Sinai (Bové 194); Arabia Petraea (McDonald! De Laborde); W. es Sle, Plain of Raha (Kneuč.); N. & Central Midian (Burton!).

II. Yaman (Ehrenb. !); Jiddah (Zohrab 116 ! 127 ! Fischer 64 !).

FL. : Febr. (Fischer), Apr. (Schimp.).

DISTRIB. : Mediterranean region, Abyssinia, Arabia.

Vern. name : *Horbos* (Bové), *Hhurbut* (Post).

Note : Eaten by cattle (Burton).

VAR. *persica* Post Fl. Syr. etc. (1896) 211.—*L. persica* Boiss. Fl. Or. ii, (1872) 30.—*Leobordea persica* Jaub. & Sp. Ann. Sc. Nat. (1843) 285.

HABITAT : I. Sinai (ex Post); W. Feiran (Botta !).

II. Jiddah (Schimp. 768 !).

DISTRIB. : Arabia, Persia, Baluchistan.

### 3. *Crotalaria* L.

1. *C. aegyptiaca* Benth. in Hook. Lond. Journ. Bot. ii, (1843) 473 ; Boiss. Fl. Or. ii, (1872) 25 ; Post Fl. Syr. etc. (1896) 212 ; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 97 ; Baker in Journ. Linn. Soc. lii, (1914) 258.

HABITAT : I. Sinai (Bové 521 !); Sinai Desert (Bové 197 ! Boiss. !); Arabia Petraea (Boiss. ! Schimp. 718 !); J. Nakus (Musch.).

IV. Masqat (Auch.-Eloy 4464 ! 4354 !).

FL. : Mar. 1846 (Boiss.).

DISTRIB. : Egypt, Nubia, Arabia.

Vern. name : *Natash* (Post).

2. *C. Deflersii* Schweinf. in Bull. Herb. Boiss. (1896) App. II, 224.— ?  
*C. clavata* W. & A. Prodr. Fl. Ind. Or. 194. See Defl. Yemen (1889) 127.

HABITAT : II. Hajeilah, W. Madfar, 650 m. (S. 934 !).

FL. : Jan. 1889 (S.).

FR. : Jan. 1889 (S.).

DISTRIB. : Eritrea, Yaman.

3. *C. astragalina* Hochst. in Schimp. Herb. Abyss. n. 808 ; Oliv. Fl. Trop. Afr. ii, (1871) 43 ; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 226.—*C. striata* A. Br. in Flora, xxiv, (1841) 280, non DC.—*C. abyssinica* D. Dietr. Syn. iv, (1847) 933.

HABITAT : II. Wasil, 1,400 m. (S. 1317).

FL. : Feb. 1889 (S.).

FR. : Feb. 1889 (S.).

DISTRIB. : Abyssinia, Eritrea, Yaman.



4. *C. falcata* Vahl; DC. Prodr. ii, 132; Benth. in Lond. Journ. Bot. ii, 585; Baker in Oliv. Fl. Trop. Afr. ii, (1871) 40; Blatt. Fl. Aden (1915) 166.—*C. striata* Schum. et Thon. Pl. Guin., non DC.

HABITAT: II. Aden (Playfair).

DISTRIB.: Upper Guinea, Lagos, Nigeria, Congo.

5. *C. incana* L. Sp. Pl. (1753) 716; DC. Prodr. ii, (1825) 132; Oliv. Fl. Trop. Afr. ii, (1871) 31; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 224.—*C. Schimperi* A. Rich. Fl. Abyss. i, (1847) 151; Defl. Yemen (1889) 126.—*C. montana* A. Rich. l. c. 152.—*Chrysocalyx Schimperi* Hochst. in Schimp. Pl. Abyss. n. 394.

HABITAT: II. W. Hejan below Wasil, 1,000 m. (S. 1276 !); Hajeilah, 600 m. (Defl. 358); in the mountains of Yaman (Botta!).

FL.: Feb. 1889 (S.).

FR.: Feb. 1889 (S.).

DISTRIB.: Cosmopolitan in the tropics.

6. *C. juncea* L. Sp. Pl. (1753) 714; Defl. Yemen (1889) 125.

HABITAT: II. Cultiv. ground near Lahaj (Defl.).

DISTRIB.: Arabia, India, Malaya, Australia.

7. *C. leptocarpa* Balf. f. Bot. Socotra 66, t. XIV A.; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 228; Blatt. Fl. Aden (1915) 164.—*C. dubia* Balf. f. Proc. Roy. Soc. Edinb. xi, 508 (non Graham).

HABITAT: II. Aden (S. 44. ! Birdw. !); Little Aden (Defl. !).

FL.: Mar. 1881 (S.).

FR.: Mar. 1881 (S.).

DISTRIB.: Socotra, Somali-coast.

8. *C. microphylla* Vahl Symb. Bot. i, (1790) 52; DC. Prodr. ii, (1825) 134; Oliv. Fl. Trop. Afr. ii, (1871) 16; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 223; Baker in Journ. Linn. Soc. lii, (1914) 401.—*C. pumila* Hochst. et Steud. Schimp. Pl. Arab.

HABITAT: II. Jiddah (Schimp. 778! Fischer 65! Zohrab 179!); Shuqra (S. 124).

FL.: Jan. 1836 (Schimp.), Feb.-Mar. (Fischer), Mar. 1881 (S.).

FR.: Mar. 1881 (S.).

DISTRIB.: Sudan, Eritrea, Arabia.

9. *C. pycnostachya* Benth. in Hook. Lond. Journ. Bot. ii, (1843) 584; Oliv. Fl. Trop. Afr. ii, (1871) 43; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 226.—*C. melilotoides* Steud. ex Rich. Fl. Abyss. i, (1847) 155.

HABITAT: II. Okeber, 900 m. (S. 858!).

FL.: Jan. 1889 (S.).

FR.: Jan. 1889 (S.).

DISTRIB.: Sudan, Abyssinia, Somaliland, British East Africa.

10. *C. retusa* L. Sp. Pl. (1753) 715; DC. Prodr. ii, (1825) 125; Oliv. Fl. Trop. Afr. ii, (1871) 13; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 223; Baker in Journ. Linn. Soc. lii, (1914) 270.—*Dolichos cuneifolius* Forsk. Fl. Aeg.-Arab. (1775) 134.

HABITAT: II. J. Bura, Hille (S. 294!); neighbourhood of Lahaj (Defl. 300!); Lahaj (Ellenbeck); Yaman (Ehrenb.); Wady Mor (Forsk.); E. of Marrana (S. 180); below Wasil, 1,200 m. (S. 1270).

FL.: Jan.-Feb. 1889 (S.), Jan. 1890 (Defl.), Dec. 1888 (S.).

FR.: Jan. 1889 (S.), Jan. 1890 (Defl.).

DISTRIB.: Tropical Africa, Mascarene Islands, India, Ceylon, China, Malaya, Australia, America.

Vern. name: *semetigai* (Ellenbeck), *kolkol* (Forsk.), *qulqul* (S.).

11. *C. Saltiana* Andrews Bot. Rep. t. 648 (1811); Baker f. in Journ. Linn. Soc. xlii, (1914) 309.—*C. lupinoides* Hochst. in Herb. Kotschy Nub. n. 41; Benth. in Hook. Lond. Journ. Bot. ii, 583; Defl. Yemen (1889) 126; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 225; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 97; Blatt. Fl. Aden (1915) 164.

HABITAT: I. Kalat et Tor (Musch.).

II. Mountainous region of Yaman (Botta); near Hajeilah (Defl. 187); Aden (Perry! Balfour! Lunt 351! Defl. 98! S. 90! Beevor! Birdw.); neighbourhood of Lahaj (Defl. 298!); oasis of Lahaj (Defl. 132!); Shuqra (S. 90).

FL.: Jan. 1890 (Defl.), Mar. 1881 (S.), Dec. 1888 (S.), Dec. 1889 (Defl.).

FR.: Jan. 1890 (Defl.), Mar. 1881 (S.), Dec. 1888 (S.), Dec. 1889 (S.).

DISTRIB.: Upper Egypt, Nubia, Abyssinia, Eritrea, Kordofan, Arabia.

Vern. name: *Natasch* (Musch.).

12. *C. Schweinfurthii* Defl. in Bull. Soc. Bot. France, xxxii, (1885) 348 (*non Taub. neque Vierh.*); Blatt. Fl. Aden (1915) 165.

HABITAT: Aden (Defl.).

FL.: Mar.-Apr. (Defl.).

DISTRIB.: Endemic.

13. *C. spinosa* Hochst. in Herl. Schimp. i, n. 150 ; iii, n. 1540 et in Flora xxiv, I, Intell. 32, (1841) ; Oliv. Fl. Trop. Afr. ii, (1871) 17 ; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 228.

HABITAT : II. Below Wasil, 1,200 m. (S. 1990).

FR. : Feb. 1889 (S.).

DISTRIB. : Widely distributed in Tropical Africa.

14. *C. squamigera* Defl. Yemen (1889) 126.

HABITAT : II. Near Tæz, 1,400 m. (Defl. 695).

DISTRIB. : Endemic.

15. *C. striata* DC. Prodr. ii, (1825) 131 ; Bot. Mag. t. 3200 ; Hook. Fl. Brit. Ind. ii, (1876) 84 ; Oliv. Fl. Trop. Afr. ii, (1871) 28 ; Baker in Kew Bull. (1894) 331 ; Blatt. Fl. Aden (1915) 166.—*C. pisiformis* Guill. & Pers. Fl. Seneg. 162.

HABITAT : II. Aden (Perry ! Lunt !).

III. Banks of irrigation channel at Furuth, 2,100 ft. (Lunt).

DISTRIB. : Throughout the tropics of both hemispheres.

16. *C. sp.* Defl. Yemen (1889) 126.

HABITAT : II. Yaman : near Sanah, 2,300 m. (Defl. 507).

Note : Nearly allied to *C. microcarpa* Vahl.

#### 4. *Lupinus* L.

1. *L. angustifolius* L. Sp. Pl. (1753) 721.

HABITAT : I. Arabia Petraea (ex Musch.).

DISTRIB. : Mediterranean region.

27. 2. *L. palaestinus* Boiss. Diagn. Pl. Or. ser. 1, ix, 9 ; Fl. Or. ii, (1872)

HABITAT : I. Arabia Petraea (Boiss.).

DISTRIB. : Arabia Petraea, Palestine.

#### 5. *Argyrolobium* Eckl. et Zeyh.

1. *A. arabicum* Jaub. & Sp. Ill. Pl. Or. i, 115 ; Anders. Fl. Aden. (1860) 15 ; Boiss. Diagn. Pl. Or. ser. 1, ii, 13 ; Defl. Yemen (1889) 128 ; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 228 ; Blatt. Fl. Aden (1915) 167.—*Cytisus arabicus* Dene. Pl. l'Arab. Heur. in Ann. Sc. Nat. ser. 2, iv, (1835) 78.

HABITAT : II. Aden (S. ! Defl. !); near Sanah, 2,600 m. (Defl. 469).

FL. : Jan. 1831 (Bové), Mar. (S.), Oct. (Marchesetti).

FR. : Jan. 1831 (Bové).

DISTRIB. : Endemic.

2. *A. roseum* Jaub. & Sp. Ill. Pl. Or. i, (1842) 116; Hook. Fl. Brit. Ind. ii, 64.—*Cytisus roseus* Camb. in Jacq. Voy. Bot. iv, 35, t. 40.—*A. ornithopodioides* Jaub. & Sp. in Ann. Sc. Nat. ser. 2, xix, 51; Ill. Pl. Or. i, 116.—*A. Kotschyi* Boiss. Diagn. Pl. Or. ser. 1, vi, 32.

HABITAT : II. Aden, in sandy flats (Perry ! S. 43 ! Lunt 283 !).

III. Dhofar Mts. : Wady Darbat, 800 ft. (Bent !).

FL. : Apr. 1894 (Lunt). FR. : Mar. 1881 (S.), Apr. 1894 (Lunt).

DISTRIB. : Tropical and sub-tropical tracts of the north-west of India, ascending from the plains to 7,000 ft. in Kumaon, Sind, Baluchistan, Persia, Arabia.

3. *A. uniflorum* Jaub. & Sp. in Ann. Sc. Nat. ser. 2, xix, (1843) 45; Boiss. Fl. Or. ii, (1872) 32.—*Cytisus uniflorus* Dene. Fl. Sin. in Ann. Sc. Nat. ser. 2, iii, (1835) 265.

HABITAT : I. Desert of Sinai (Bové 197 !).

FR. : June 1832 (Bové).

DISTRIB. : Mediterranean region, Eritrea.

4. *A. virgatum* Baker in Oliv. Fl. Trop. Afr. ii, (1871) 46; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 228.

HABITAT : II. Above Manakhah, 2,600 m. (S. 1659).

FL. : Mar. 1889 (S.). FR. : Mar. 1889 (S.).

DISTRIB. : Abyssinia, Eritrea, Arabia.

5. *A. sp.* probably a new species.—*A. arabicum* T. Anders. (*non* Jaub. & Sp.).

HABITAT : II. Aden (Beevor 4 ! Hook. 65 ! Thomson ! Perry !).

Note : See note in Blatt. Fl. Aden, p. 168.

## 6. *Genista* L.

1. *G. ferox* Poir. Encyc. Suppl. II, 708.

HABITAT : I. Midian (Burton !).

DISTRIB. : N. Africa, Arabia.

## 7. *Retama* Boiss.

1. *R. Rætam* Webb. Phyt. Cauc. ii, (1836-1850) 56; Boiss. Fl. Or. ii, (1872) 37; Musch. Fl. Eg. i, (1912) 473.—*Genista Rætam* Forsk. Fl. Aeg.-Arab. (1775) 214.—*G. monosperma* Lamk.; DC. Prodr. ii, (1825) 150; Dene. Fl. Sin. in Ann. Sc. Nat. ser. 2, iii, (1835) 265; Schenk. Sp. Pl. it. Aeg. Arab. & Syr. (1840) n. 211.—*Spartium Rætam* Jaub. & Sp. in Ann. Sc. Nat. ser. 2, xix, 288, t. 16, f. 1.

HABITAT: I. Sinai (Drake! Holland! Bové 183! Auch.-Eloy 1088!); Wady Staf (Schimp. 228!); Wady Harun (Hart!); Arabia Petraea (Ehrenb.! Pinard! Boiss.! McDonald!); N. Midian (Burton!).

FR.: Apr. 1835 (Schimp.), June 1832 (Bové).

DISTRIB.: Tunisia, Algeria, Morocco, Egypt, Arabia Petraea, Palestine.

Vern. name: *Retam* (Bové), *Ratam behâm* (Forsk.).

Note: For medical uses and symbolism see Forsk. l. c.

VAR. *Duriæi* Letourn. in Bull. Soc. Bot. France, xxxvi, (1889) 94; Musch. Fl. Eg. i, (1912) 473.—*R. Duriæi* Webb. in Ann. Sc. Nat. ser. 2, xx, 279; Boiss. Fl. Or. Suppl. (1888) 159.—*Spartium Duriæi* Spach in Ann. Sc. Nat. ser. 2, xix, 289, t. XVI, f. 2.

HABITAT: I. Arabia Petraea (ex Musch.).

DISTRIB.: Tunisia, Algeria, Egypt, Arabia Petraea, Palestine

Vern. name: *Retem* (ex Musch.).

### 8. *Ononis* L.

1. *O. mitissima* L. Sp. Pl. (1753) 717; Boiss. Fl. Or. ii, (1872) 64; Musch. Fl. Eg. i, (1912) 478.

HABITAT: I. Arabia Petraea (ex Musch.).

DISTRIB.: Mediterranean region.

2. *O. natrix* L. Sp. Pl. (1753) 717. VAR. *stenophylla* Boiss. Fl. Or. ii, (1872) 59.

HABITAT: I. Ramleh (Hart!).

DISTRIB.: Of var.: Arabia Petraea. Palestine, Syria.

Vern. name: *Wesba* (Post).

3. *O. pubescens* L. Mant. 267; Boiss. Fl. Or. ii, (1872) 62; Musch. Fl. Eg. i, (1912) 476.—*O. calycina* Lam. Dict. i, 506.

HABITAT: I. Arabia Petraea (ex Musch.).

DISTRIB.: Mediterranean region.

Vern. name: *Dibbaiqah* (Post).

4. *O. reclinata* L. Sp. Pl. (1762) 1011; Boiss. Fl. Or. ii, (1872) 61.

HABITAT: IV. Neighbourhood of Kuwait (Pelly!).

DISTRIB.: Mediterranean region, Abyssinia, Persia.

VAR. *minor* Moris Fl. Sard. (1837) 422; Boiss. l. c.—*O. Cherleri* Desf. Atl. ii, 148 (non L.).

HABITAT: I. Arabia Petraea (Boiss.); Arabia Petraea and southwards (ex Post).

DISTRIB.: Mediterranean region, Persia.

5. *O. serrata* Forsk. Fl. Aeg.-Arab. (1775) 130; Boiss. Fl. Or. ii, (1872) 63; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 97.

HABITAT: I. Arabia Petraea (McDonald ! Boiss. !); neighbourhood of El Tor (Musch.).

DISTRIB.: Mediterranean region, Persia.

6. *O. sicula* Guss. Adnot. Cat. Hort. Boccard (1821) 10; Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, iii, (1835) 265; Boiss. Fl. Or. ii, (1872) 60.—*O. persica* Burm. Ind. t. 49, f. 1.

HABITAT: I. Arabia Petraea: Naharrek (Schimp. 136 !), Arabia Petraea (Auch.-Eloy 1139 ! Boiss.); Desert of Sinai (Bové 187 !).

FL.: June 1832 (Bové). FR.: June 1832 (Bové).

DISTRIB.: Mediterranean region, Persia, India.

Vern. name: *Address* (Bové).

7. *O. vaginalis* Vahl Symb. Bot. i, (1790) 53; Boiss. Fl. Or. ii, (1872) 59; Musch. Fl. Eg. i, (1912) 476.—*O. Kotschyana* Fenzl. Pug. Illustr. Syr. 15.—*O. Cherlei* Forsk. Fl. Aeg.-Arab. (1775) 130. (*non L.*)

HABITAT: I. Arabia Petraea (ex Musch.).

DISTRIB.: Canaries, Cyrenaica, Egypt, Arabia Petraea.

### 9. *Trigonella* L.

1. *T. anguina* Del. Ill. Fl. d'Eg. (1813) 110, t. 33, f. 2; Schenk Sp. Pl. it. Aeg. -Arab. & Syr. (1840) n. 213; Boiss. Fl. Or. ii, (1872) 86.

HABITAT: I. Between Suez and Tor (ex Schenk).

DISTRIB.: Mediterranean region, Persia.

2. *T. arabica* Del. Frag. Fl. Arab. Petr. (1833) n. 78, f. 5; Boiss. Fl. Or. ii, (1872) 90.—*Pocockia arabica* Boiss. Diagn. Pl. Or. ser. 1, ix, 13.—*T. pecten* Schenk Sp. Pl. it. Aeg.-Arab. & Syr. (1840) n. 216.

HABITAT: I. Arabia Petraea (Boiss. ! De Laborde); Deserts of Sinai, Akaba (Lambert !).

DISTRIB.: Egypt, Arabia Petraea, Palestine.

3. *T. cylindracea* Desv. Journ. Bot. iii, (1814) 77; Boiss. Fl. Or. ii, (1872) 82; Musch. Fl. Eg. i, (1912) 480.

HABITAT: I. Arabia Petraea (ex Musch.).

DISTRIB.: Ciliciae, Syria, Palestine, Arabia Petraea.

4. *T. Foenum-graecum* L. Sp. Pl. (1762) 1095; Forsk. Fl. Aeg.-Arab. (1775) CXVIII, n. 464; Boiss. Fl. Or. ii, (1872) 70; Baker in Kew Bull. (1894) 331.

HABITAT : II. Cultivated in the plains and mountains (Forsk.).

III. Hadramaut: Cultivated at Katan, 1,500 ft. (Lunt 178!).

FL. : Feb. 1894 (Lunt). FR. : Feb. 1894 (Lunt).

DISTRIB. : Mediterranean region, Abyssinia, Arabia, Persia.

Vern. name : *haelbe* (Forsk.), *Kadb* (Lunt), *hhilbah* (Post).

Note : The sweet smelling seeds are used to give savour to hay that has become musty (Post).

5. *T. hamosa* L. Sp. Pl. (1762) 1094; Forsk. Fl. Aeg.-Arab. (1775) 141; Boiss. Fl. Or. ii, (1872) 84; Suppl. (1888) 162; Post Fl. Syr. etc. (1896) 224.—*T. striata* Vivian Pl. Aeg. Decad. (*non* L.)—*T. glabra* Thunbg. Fl. Cap. 160.

HABITAT : I. Arabia Petraea (ex Post).

II. Jiddah (Zohrab 119! 130! 205!).

DISTRIB. : Egypt, Nubia, Arabia, Cape.

Vern. name : 'Usheib-el-melek', *Darāraq Kuteihak* (Post).

6. *T. laciniata* L. Sp. Pl. (1762) 1095; Boiss. Fl. Or. Suppl. (1888) 162.

HABITAT : II. Jiddah (Zohrab 122!).

DISTRIB. : Tropical and extra tropical Egypt, Arabia.

7. *T. maritima* Del. in Poir. Encycl. v, (1817) 361; Boiss. Fl. Or. ii, (1872) 85; Post Fl. Syr. etc. (1896) 224.

HABITAT : I. Arabia Petraea (ex Post).

DISTRIB. : Mediterranean region, Egypt, Arabia Petraea, Palestine.

8. *T. monspeliaca* L. Sp. Pl. (1762) 1095; Boiss. Fl. Or. ii, (1872) 76; Musch. Fl. Eg. i, (1912) 480.

HABITAT : I. Arabia Petraea (ex Musch.).

DISTRIB. : Mediterranean region, Persia.

9. *T. occulta* Del. Ill. Fl. Eg. (1813) 101; Boiss. Fl. Or. ii, (1872) 84; Musch. Fl. Eg. i, (1912) 480.—*T. arguta* Vis. Pl. Aeg. 33, t. 8.

HABITAT : I. Arabia Petraea (ex Musch.).

DISTRIB. : Egypt, Arabia Petraea, Persia.

10. *T. stellata* Forsk. Fl. Aeg.-Arab. (1775) 140; Del. Frag. Fl. Arab. Petr. (1833) n. 77; Boiss. Fl. Or. ii, (1872) 85; Post Fl. Syr. etc.

(1896) 225 ; Kneuck. in Allg. Bot. Zeitsch. ix, (1903) 146 ; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 99.—*T. microcarpa* Fres. Mus. Senck. i, (1833) 86 ; Dene. Fl. Sin. in Ann. Sc. Nat. ser. 2, iii, (1835) 266.—*T. hamosa* var. *microcarpa* Webb. Phyt. Canar. ii, 67.

HABITAT : I. Sinai (Drake !), Wady Feiran (Lord !); Wady Hebran, W. es Sle (ex Musch.); Desert between Suez and Tor (Bové 198 !); Arabia Petraea (Pinard ! McDonald ! Boiss. ! Schimp. 426 !); Wady Tarfa, Plain of Raha, Wady Shaikh (Kneuck.); N. and Central Midian (Burton !).

### III Arabia (Wellsted !).

FL. : Mar. 1835 (Schimp.), Apr. 1846 (Boiss.).

FR. : June 1832 (Bové).

DISTRIB. : Mediterranean region.

Vern. name : *gargas, serakrak, hendakuk* (Musch.), *odur elch addam, Ethreni* (Schimp.).

11. *T. polycerata* L. Sp. Pl. 777 ; Carter in Rec. Bot. Surv. Ind. vi, (1917) 190.—*T. brahunica* Boiss. Fl. Or. ii, (1872) 73.

HABITAT : IV. Zor Hills (Cox 66).

DISTRIB. : Siberia, S. Europe, Western Asia, Punjab, Upper Gangetic Plain.

Vern. name : *Nifal* (Cox).

12. *T. media* Del. Fl. Aegypt. Ill. 71 ; Boiss. Fl. Or. Suppl. ; Carter in Rec. Bot. Surv. Ind. vi, (1917) 191.

HABITAT : IV. Zor Hills (Cox 58).

DISTRIB. : Egypt, Arabia.

Vern. name : *Handakuk*.

13. *T. sp.*

HABITAT : IV. Near Masqat (Last !).

### 10. *Medicago* L.

1. *M. apiculata* Willd. Sp. Pl. iii, 1414.—*M. denticulata* Willd. var. *apiculata* Boiss. Fl. Or. ii, (1872) 103.—*M. hispida* Gaertn. var. *apiculata* Urb. Verh. Bot. Ver. Prov. Brandenb. xv, (1873) 74 ; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 229.

HABITAT : II. Above Manakhah, 2,400 m. (S. 1932).

FL. : Feb. 1889 (S.).

FR. : Feb. 1889 (S.).

DISTRIB. : Egypt, Arabia, Syria, Mesopotamia, Persia.

Vern. name : *Uennem* (S.).



2. *M. arabica* All. Fl. Pedem. i, (1785) 315 ; Musch. Fl. Eg. i, (1912) 490.—*M. maculata* Willd. Sp. Pl. iii, 1412 ; Post Fl. Syr. etc. (1896) 229.

HABITAT : I. Arabia Petraea (ex Musch.).

DISTRIB. : Europe, Mediterranean region, Persia.

3. *M. arborea* L. Sp. Pl. (1753) 778 ; Boiss. Fl. Or. ii, (1872) 93 ; Musch. Fl. Eg. i, (1912) 486.

HABITAT : I. Arabia Petraea (ex Musch.).

DISTRIB. : Mediterranean region.

4. *M. Aschersoniana* Urb. in Verh. Bot. Ver. Prov. Brandenb. xv, (1873) 77 ; Post Fl. Syr. etc. (1896) 230.—*M. laciniata* All. var. *brachyacantha* Boiss. Fl. Or. ii, (1872) 104.—*M. Schimperiana* Hochst. in Schimp. exs.

HABITAT : I. Arabia Petraea (Schimp. !); Arabia Petraea and southwards (ex Post).

DISTRIB. : Egypt, Nubia, Cape, Arabia, Persia, India.

5. *M. eoronata* L. Sp. Pl. (1753) 780 ; Boiss. Fl. Or. ii, (1872) 101 ; Musch. Fl. Eg. i, (1912) 489.

HABITAT : I. Arabia Petraea (ex Musch.).

DISTRIB. : Mediterranean region.

6. *M. denticulata* Willd. Sp. Pl. iii, 1414 ; Boiss. Fl. Or. ii, (1872) 102.—*M. hispida* Gaertn. var. *denticulata* Urb. in Verh. Bot. Ver. Prov. Brandenb. xv, (1873) 74.

HABITAT : I. Arabia Petraea (Boiss. !).

II. Jiddah (Zohrab 122 ! 123 ! 283 !); Fatimah, in cornfields (Fischer 68 !).

FL. : Feb. (Fischer).

DISTRIB. : Egypt, Eritrea, Arabia, Caucasus, Afghanistan.

7. *M. laciniata* All. Fl. Ped. i, (1785) 316 ; Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, iii, (1835) 266 ; Boiss. Fl. Or. ii, (1872) 104 ; Post Fl. Syr. etc. (1896) 230 ; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 99 ; Carter in Rec. Bot. Surv. Ind. vi, (1917) 191.

HABITAT : I. Desert between Suez and Tor (Bové 196 !); Arabia Petraea and southwards and eastwards (ex Post); Central Midian (Burton !).

IV. A specimen collected by Cox, without precise locality.

FR. : June 1832 (Bové).

DISTRIB. : Mediterranean region, Persia.

8. *M. lappacea* Desrouss. ap. Lam. Encycl. iii, (1789) 637; Dur. & Barr. Fl. Libyc. Prodr. (1910) 71.—*M. denticulata* var. *lappacea* Boiss. Fl. Or. ii, (1872) 103.

HABITAT : I. Arabia Petraea (ex Dur. & Barr.).

DISTRIB. : Europe, Mediterranean region.

9. *M. lupulina* L. Sp. Pl. (1753) 779; Boiss. Fl. Or. ii, (1872) 105; Defl. Yemen (1889) 128; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 230.

HABITAT : II. J. Shibam above Manakhah, 2,500 m. (S. 1387!); Wady Mazeb near Manakhah, 2,200 m. (Defl. 387).

FL. : Feb. 1889 (S.). FR. : Feb. 1889 (S.).

DISTRIB. : Europe, Mediterranean region, Abyssinia, Arabia, Persia, Afghanistan, temperate Asia.

10. *M. minima* Bartal Cat. Piant. Sien. (1776) 61; Boiss. Fl. Or. ii, (1872) 103; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 229.

HABITAT : I. Arabia Petraea (ex Musch.).

II. Above Manakhah near Kahil, 2,500 m. (S. 1469!).

FL. : Feb. 1889 (S.). FR. : Feb. 1889 (S.).

DISTRIB. : Europe, Mediterranean region, Abyssinia, Arabia, Persia, Afghanistan, Kashmir.

11. *M. orbicularis* All. Fl. Pedem. i, (1785) 314; Boiss. Fl. Or. ii, (1872) 97; Post Fl. Syr. etc. (1896) 227.

HABITAT : I. Arabia Petraea (ex Post).

DISTRIB. : Central Europe, Mediterranean region, Abyssinia, Persia.

12. *M. rigidula* Desrouss. ap. Lam. Encycl. iii, (1789) 634; Urb. in Verh. Bot. Ver. Prov. Brandenb. xv, (1873) 68; Musch. Fl. Eg. i, (1912) 488.

HABITAT : I. Arabia Petraea (ex Musch.).

DISTRIB. : Europe, Mediterranean region, Persia.

13. *M. rotata* Boiss. Diagn. Pl. Or. ser. 1, ii, 24; Post Fl. Syr. etc. (1896) 227.

HABITAT : I. Arabia Petraea (ex Post).

DISTRIB. : Arabia Petraea, Palestine, Syria, Mesopotamia.

14. *M. sativa* L. Sp. Pl. (1762) 1096; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 229; Blatt. Fl. Aden (1915) 169.

HABITAT : II. Cultivated in Yaman (Defl.); cult. above Manakhah, 2,300-2,600 m. (S. 1444); Shaikh Othman, cult. (Defl!).

## III. Hadramaut, cult. (Hirsch 36).

FL. : Feb. 1889 (S.).

DISTRIB. : Europe, Mediterranean region, cultivated elsewhere.

Vern. name : *Gádub* (Hirsch), *qutat*, *duhkrajah* (Post), *qadhb* (S.).VAR. *erecta* Schweinf. in Bull. Herb. Boiss. (1896) App. II, 229.

HABITAT : II. Yaman, cultiv. near El Hami (S. 157 !).

FL. : Apr. 1881 (S.).

Vern. name : *qadhūb* (S.).

Note : The flowers are lilac.

15. *M. scutellata* All. Fl. Ped. i, 315 ; Boiss. Fl. Or. ii, (1872) 96 ;  
Post Fl. Syr. etc. (1896) 227.

HABITAT : I. Arabia Petraea (ex Post).

DISTRIB. : Mediterranean region.

16. *M. tribuloides* Desrouss. ap. Lam. Encycl. iii, (1789) 635; Boiss.  
Fl. Or. ii, (1872) 99 ; Post Fl. Syr. etc. (1896) 228.—*M. murex* Willd.  
Guss. ex Boiss.

HABITAT : I. Arabia Petraea (Boiss. and ex Boiss.).

DISTRIB. : Mediterranean region.

17. *M. tuberculata* Willd. Sp. Pl. iii, (1800) 1410 ; Boiss. Fl. Or. ii,  
(1872) 99 ; Urb. in Verh. Bot. Ver. Prov. Brandenb. xv, (1873) 71.

HABITAT : I. Arabia Petraea (Boiss. !).

DISTRIB. : Mediterranean region.

18. *M. sp.* in Deff. Yemen (1889) 128. [fortassis varietas pubescens  
*M. sativæ* L.].

HABITAT : II. Between Sanah and Raudha, cult., 2,300 m. (Deff. 531 !).

19. *M. sp.* in Carter in Rec. Bot. Surv. Ind. vi, (1917) 191.HABITAT : Zor Hills, grows on the plains, hills and sand hills, fairly  
common (Cox 34)Vern. name : *Umm ukhwaitim* (= mother of rings) (Cox).

Note : Flowers white, fruits said to resemble rings, whence the native name.

11. *Melilotus* Juss.

1. *M. alba* Desr. in Lam. Dict. i, 63 ; Boiss. Fl. Or. ii, (1872) 109 ;  
Schweinf. in Bull. Herb. Boiss. (1896) App. II, 230.—*M. officinalis* VAR.  
β. L. Sp. Pl. (1762) 1078.

HABITAT : II. Above Manakhah, cult., 2,600 m. (S. 1646) ; Shuqra,  
cult. (S. 136).

FL. : Mar. 1881 (S.). Fr. : Feb. 1889 (S.), Mar. 1881 (S.).

DISTRIB. : Europe, Mediterranean region, Arabia, Persia, Siberia, China.

Vern. name : *khandaqūq* (Post), *reimann*, *remán* (S.).

Note :—The flowers are put between the clothes on account of their fragrance (S.).

2. *M. elegans* Salzman in DC. Prodr. ii, 188; Boiss. Fl. Or. ii, (1872) 107; Musch. Fl. Eg. i, (1912) 493.—*M. abyssinica* Hochst. ex Boiss. l. c.—*M. abyssinica* Baker in Oliv. Fl. Trop. Afr. ii, (1871) 53.

HABITAT : I. Arabia Petraea (ex Musch.).

DISTRIB. : Mediterranean region, Abyssinia.

3. *M. indica* L. Sp. Pl. (1762) 1077; Kneuck. in Allg. Bot. Zeitsch. ix, (1903) 146.—*M. parviflora* Desf. Fl. Atl. ii, (1798) 192; Boiss. Fl. Or. ii, (1872) 108; Post Fl. Syr. etc. (1896) 231.

HABITAT : I. Arabia Petraea (Boiss. !); Wady Feiran (Kneuck.).

DISTRIB. : Mediterranean region, Caucasus, Mesopotamia, Persia, Afghanistan, India, China, America.

Vern. name : *muhheilibah*, *qurt* (Post).

4. *M. messanensis* Desf. Fl. Atlant. ii, (1798) 192; Boiss. Fl. Or. ii, (1872) 107; Musch. Fl. Eg. i, (1912) 493.—*Trifolium messanense* L. Mant. 275.

HABITAT : I. Arabia Petraea (ex Musch.).

DISTRIB. : Mediterranean region.

5. *M. sulcata* Desf. Fl. Atl. ii, (1798) 193; Boiss. Fl. Or. ii, (1872) 106; Post Fl. Syr. etc. (1896) 230; Musch. Fl. Eg. i, (1912) 492.

HABITAT : I. Arabia Petraea (ex Musch.).

DISTRIB. : Mediterranean region.

VAR. *maior* Camb. ex Boiss. l. c; Musch. l. c. 493.

HABITAT : I. Arabia Petraea (ex Musch.).

DISTRIB. : Egypt, Arabia Petraea, Syria.

## 12. *Trifolium* L.

1. *T. angustifolium* L. Sp. Pl. (1753) 769; Boiss. Fl. Or. ii, (1872) 122; Musch. Fl. Eg. i, (1912) 496.

HABITAT : I. Arabia Petraea (ex Musch.).

DISTRIB. : Mediterranean region, Persia.

2. *T. clypeatum* L. Sp. Pl. (1753) 769; Boiss. Fl. Or. ii, (1872) 129; Post Fl. Syr. etc. (1896) 238.

**HABITAT :** I. Arabia Petraea (Boiss.!).

**DISTRIB. :** Mediterranean region.

Vern. name : *Bezaz-ul-boqr* (Post).

**3. T. dichroanthum** Boiss. Diagn. Pl. Or. ser. 1, ix, 20; Fl. Or. ii, (1872) 124; Musch. Fl. Eg. i, (1912) 498.

**HABITAT :** I. Arabia Petraea (ex Musch.).

**DISTRIB. :** Mediterranean region.

**4. T. lappaceum** L. Sp. Pl. (1753) 768; Boiss. Fl. Or. ii, (1872) 119; Musch. Fl. Eg. i, (1912) 496.

**HABITAT :** I. Arabia Petraea (ex Musch.).

**DISTRIB. :** Mediterranean region.

**5. T. nigrescens** Viv. Fl. Ital. Fragm. i, (1808) 12, t. 13; Boiss. Fl. Or. ii, (1872) 143; Musch. Fl. Eg. i, (1912) 499.

**HABITAT :** I. Arabia Petraea (ex Musch.).

**DISTRIB. :** Mediterranean region.

**6. T. purpureum** Loisel. Fl. Gall. ed. 2, ii, (1828) 125, t. 14; Schenk Sp. Pl. it. Aeg. Arab. & Syr. (1840) 218; Boiss. Fl. Or. ii, (1872) 123.

**HABITAT :** I. Desert of Mt. Sinai (Schenk!).

**DISTRIB. :** Mediterranean region.

Vern. name : *abu dalebise* (ex Boiss.).

**7. T. semipilosum** Fres. Mus. Senck. ii, (1837) 52; Defl. Yemen (1889) 128; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 231.

**HABITAT :** II. J. Shibam, Manakhah, 2,300—2,600 m. (S. 1384! 1673, 1803, 1986); near Manakhah (Defl. 287); near Metne, 2,600—3,000 m. (Botta!).

**FL. :** Feb. and Mar. 1889 (S.). **FR. :** Feb. and Mar. 1889 (S.).

**DISTRIB. :** Abyssinia, Eritrea, Yaman.

**8. T. stellatum** L. Sp. Pl. (1753) 769; Boiss. Fl. Or. ii, (1872) 121; Musch. Fl. Eg. i, (1912) 496.

**HABITAT :** I. Arabia Petraea (ex Musch.).

**DISTRIB. :** Mediterranean region.

**9. T. stenophyllum** Boiss. Diagn. Pl. Or. ser. 1, ix, 30; Fl. Or. ii, (1872) 151; Musch. Fl. Eg. i, (1912) 500.

**HABITAT :** I. Arabia Petraea (ex Musch.).

**DISTRIB. :** Mediterranean region.

**10. T. tomentosum** L. Sp. Pl. (1753) 771; Boiss. Fl. Or. ii, (1872) 138.

HABITAT : I. Arabia Petraea (Kotschy ex Boiss.).

DISTRIB. : Mediterranean region, Persia.

**11. T. xerocephalum** Fenzl Pug. (1842) 10; Boiss. Fl. Or. ii, (1872) 140; Musch. Fl. Eg. i, (1912) 499.

HABITAT : I. Arabia Petraea (ex Musch.).

DISTRIB. Mediterranean region.

### 13. Helminthocarpum A. Rich.

**1. H. abyssinicum** A. Rich. Fl. Abyss. i, (1847) 200, t. 86; Oliv. Fl. Trop. Afr. ii, (1871) 60; Defl. Yemen (1889) 128; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 231.—*Antopetitia cancellata* Hochst. in Herb. Schimp. Abyss. sect. II, n. 1108; sect. III, 1544.

HABITAT : II. J. Shibam, Manakhah, 2,300-2,600 m. (S. 1386!); J. Kahel, near Manakhah, 2,500 m. (Defl. 323); J. Sumara (Defl. 644, 652).

FL. : Feb. 1889 (S.). FR. : Feb. 1889 (S.).

DISTRIB. : Abyssinia, Eritrea, Yaman.

### 14. Hymenocarpus Savi.

**1. H. nummularius** Boiss. Fl. Or. ii, (1872) 160; Musch. Fl. Eg. i, (1912) 501.

HABITAT : I. Arabia Petraea (ex Musch.).

DISTRIB. : Egypt, Arabia Petraea, Syria, Palestine, Persia, India.

### 15. Securigera DC.

**1. S. Coronilla** DC. Fl. Fr. iv, 609; Boiss. Fl. Or. ii, (1872) 176.—*Bonaveria Securidaca* Desv. Journ. Bot. i, (1813) 120; Musch. Fl. Eg. i, (1912) 502.—*Coronilla Securidaca* L. Sp. Pl. (1753) 743.

HABITAT : I. Arabia Petraea (ex Musch.).

DISTRIB. : Europe, Mediterranean region.

### 16. Lotus L.

**1. L. angustissimus** L. Sp. Pl. (1753) 774; Boiss. Fl. Or. ii, (1872) 171; Post Fl. Syr. etc. (1896) 250; Musch. Fl. Eg. i, (1912) 506.

HABITAT : I. Arabia Petraea (ex Musch.).

DISTRIB. : Western Europe, Mediterranean region, Russia, Siberia.

VAR. *diffusus* Aschers. & Schweinf. Ill. Fl. d' Eg. (1887) 64, n. 334; Musch. Fl. Eg. i, (1912) 507.

HABITAT : I. Arabia Petraea (ex Musch.).

DISTRIB. : S. Europe, Orient.

2. *L. arabicus* L. Mant. (1764) 104; Dene. Fl. Sin. in Ann. Sc. Nat. ser. 2, iii, (1835) 266; Schenk Sp. Pl. it. Aeg. Arab. & Syr. (1840) n. 222; Boiss. Fl. Or. ii, (1872) 170; Defl. Yemen (1889) 128; Post Fl. Syr. etc. (1896) 249; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 99.—*L. roseus* Forsk. Fl. Aeg.-Arab. (1775) 140.

HABITAT : I. Neighbourhood of Tor (Bové! Schimp. 214!) Arabia Petraea (McDonald!); Wady Tarfa (Kneuck.); Wady Sahdi (ex Schenk).

II. Near Manakhah, 2,200 m. (Defl. 385).

DISTRIB. : Canaries, Senegambia, Nubia, Abyssinia, Kordofan, Egypt; Arabia.

Vern. name : *Khuddeirah, Qabd, Jeddab* (Post).

VAR. *trigonelloides* Balfour Bot. Socotra, 71.—*L. trigonelloides* Webb. et Benth. Phytog. Canar. ii, 86.

HABITAT : Arabia (ex Balfour).

DISTRIB. : From Canary Islands through N. Africa to Arabia and Persia, Socotra.

3. *L. brachycarpus* Hochst. & Steud. in Rich. Fl. Abyss. i, (1847) 177.—*Dorycnium Schimperii* Jaub. et Sp. Ill. Pl. Or. t. 473.

HABITAT : II. Hadnar (Botta).

DISTRIB. : Abyssinia, Somaliland, Yaman.

VAR. *menachensis* Schweinf. in Bull. Herb. Boiss. (1896) App. II, 233.

HABITAT : II. J. Shibam, Manakhah, 2,300—2,500 m. (S. 1506, 1516!).

FL. : Feb. 1889 (S.). FR. : Feb. 1889 (S.).

DISTRIB. : Of var. : Somaliland, Yaman.

4. *L. corniculatus* L. Sp. Pl. (1753) 775; Boiss. Fl. Or. ii, (1872) 165; Post Fl. Syr. etc. (1896) 248; Musch. Fl. Eg. i, (1912) 504.

HABITAT : I. Arabia Petraea (ex Musch.).

DISTRIB. : Europe, Mediterranean region, Abyssinia, N. Asia, India, Japan, New Holland.

Vern. name : *Kutetkah* (Post).

5. *L. creticus* L. Sp. Pl. (1753) 775; Boiss. Fl. Or. ii, (1872) 164; Dur. & Barr. Fl. Libyc. Prodr. (1910) 76.

HABITAT : I. Arabia Petraea (ex Dur. & Barr.).

DISTRIB. : Mediterranean region.

6. *L. cytisoides* L. Sp. Pl. (1753) 776; Boiss. Fl. Or. Suppl. (1888) 170; Post Fl. Syr. etc. (1896) 248; Musch. Fl. Eg. i, (1912) 504.—*L. creticus* VAR. *cytisoides* Boiss. Fl. Or. ii, (1872) 165.

HABITAT : I. Arabia Petraea (ex Musch.).

DISTRIB. : Mediterranean region.

7. *L. edulis* L. Sp. Pl. (1753) 774; Boiss. Fl. Or. ii, (1872) 173; Musch. Fl. Eg. i, (1912) 508.

HABITAT : I. Arabia Petraea (ex Musch.).

DISTRIB. : Mediterranean region.

8. *L. Gareinii* DC. Prodr. ii, (1825) 212; Boiss. Fl. Or. ii, (1872) 174; Brand in Engl. Bot. Jahrb. xxv, (1898) 223.—*Aspalathus persica* Burm. Fl. Ind. (1768) 155, excl. syn.—*L. stiliger* Ehrenb. MS. ex Brand l. c.—*Oxonis Anckeri* Jaub. & Sp. Ill. Pl. Or. i, 85.

HABITAT : I. Sinai (Ehrenb!).

II. Yaman (Defl.).

DISTRIB. : Arabia, Persia.

9. *L. glinoides* Del. in Ann. Sc. Nat. vii, (1837) 286; Boiss. Fl. Or. ii, (1872) 170; Post Fl. Syr. etc. (1896) 249.

HABITAT : I. Sinai near El Tor (Bové!); Sinai (ex Post); Arabia Petraea (Boiss.).

DISTRIB. : Egypt, Arabia.

Vern. name: *Qadb* (Post).

10. *L. hebranicus* Hochst. ex Brand in Engl. Bot. Jahrb. xxv, 176, 221.—*L. arabicus* L. var. *glabrescens* Schweinf. ex Brand l. c. 222.

HABITAT : I. Wady Hebran (Schimp. 214!); Wady Gennah (Lord!).

FL. : Apr. 1835 (Schimp.).

DISTRIB. : Eritrea, Egypt, Arabia Petraea.

11. *L. lamprocarpus* Boiss. Diagn. Pl. Or. ser. i, ix, (1849) 33; Fl. Or. ii, (1872) 166; Post Fl. Syr. etc. (1896) 249; Musch. Fl. Eg. i, (1912) 505.

HABITAT : I. Arabia Petraea (ex Musch.).

DISTRIB. : Mediterranean region.

12. *L. lanuginosus* Vent. Malm. (1803) 92; Boiss. Fl. Or. ii, (1872) 167; Post Fl. Syr. etc. (1896) 249.

HABITAT : I. Tih (Boiss.); Arabia Petraea (Pinard!).

FL. : Mar. 1846 (Boiss.).

DISTRIB. : Egypt, Arabia Petraea, Syria.

13. *L. ornithopodioides* L. Sp. Pl. (1753) 775; Boiss. Fl. Or. ii, (1872) 173; Musch. Fl. Eg. i, (1912) 508.

HABITAT : I. Arabia Petraea (Musch.).

DISTRIB. : Mediterranean region.



14. *L. palæstinus* nov. comb.—*Tetragonolobus palaestinus* Boiss. Diagn. Pl. Or. ser. 2, ii, (1856) 20; Musch. Fl. Eg. i, (1912) 509.—*T. purpureus* Moench. VAR. *palaestinus* Post Fl. Syr. etc. (1896) 251.

HABITAT: I. Arabia Petraea (ex Musch.).

DISTRIB.: Egypt, Arabia Petraea, Palestine, Syria, Cilicia.

Vern. name: *Asabi'-el-'Arús* (Post).

15. *L. Schimperi* Steud. Nom. ii, (1841) 75; Boiss. Fl. Or. ii, (1872) 170; Musch. Fl. Eg. i, (1912) 506.—*L. Ehrenbergii* Schweinf. pl. exs.

HABITAT: I. Arabia Petraea (ex Musch.).

II. Yaman (Ehrenb. !); Jiddah (Schimp. 844 ! Fischer 139 ! Zohrab 116 ! 138 !).

FL.: Jan. (Schimp.). FR.: Jan. (Schimp.).

DISTRIB.: Egypt, Arabia.

16. *L. villosus* Forsk. Fl. Aeg.-Arab. (1775) LXXI, n. 386.—*L. pusillus* Viv. Fl. Lib. 47, t. 17, f. 13; Boiss. Fl. Or. ii, (1872) 173. VAR. *maior* Boiss. l. c. 173.—*L. halophilus* Boiss. et Sprun. Diagn. Pl. Or. ser. 1, ii, 37-38.

HABITAT: I. Arabia Petraea (Boiss. !).

DISTRIB.: Mediterranean region.

Vern. name: *Karn-el-gasal* (Forsk.).

17. *L. sp.* in Defl. Yemen (1839) 128.

HABITAT: II. Near Samah, 2,400 m. (Defl. 560).

18. *L. sp.*

HABITAT: Arabia (Botta !).

### 17. *Psoralea* L.

1. *P. bituminosa* L. Sp. Pl. (1753) 763; Dene. Fl. Sin. in Ann. Sc. Nat. ser. 2, iii, (1835) 266; Boiss. Fl. Or. ii, (1872) 187; Post Fl. Syr. etc. (1896) 252.—*P. palaestina* L. Gouan, Jacq. Hort. Vind. t. 184; Kneuck. in Allg. Bot. Zeitsch. ix, (1903) 146.

HABITAT: I. Desert of Sinai (Bové 190 !); Wady Tarfa (Kneuck.).

FL.: Jan. 1832 (Bové). FR.: Jan. 1832 (Bové).

DISTRIB.: Canaries, Mediterranean region.

Vern. name: *Odden-el-farrass* (Bové), 'Uweineh, 'Awarineh (Post).

2. *P. corylifolia* L. Sp. Pl. (1753) 764; DC. Prodr. ii, (1825) 218; Baker in Hook. f. Fl. Brit. Ind. i, pt. i, (1872) 103; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 245; Krause in Engl. Bot. Jahrb. xxxv,

(1905) 735.—*Trifolium unifolium* Forsk. Fl. Aeg.-Arab. (1775) CXVIII, n 460 and p. 140.

HABITAT: II. Tæz (Forsk.); El Hami (S. 185!); near Lahaj (Ellenbeck).

III. Dhofar plain: Hauran (Bent 226!).

FL.: Apr. 1881 (S.). FR.: Apr. 1881 (S.).

DISTRIB.: Arabia, India, Ceylon.

Vern. name: *Mahalép* (Ellenbeck), *Löbab el abid* (Forsk.).

3. *P. plicata* Del. Ill. Fl. d'Eg. (1813) 322; Boiss. Fl. Or. ii, (1872) 186.

HABITAT.: II. Jiddah (Schimp. 776! Zohrab 113! 250! Fischer 146!).

FL.: Jan. (Fischer). FR.: Jan. 1836 (Fischer).

DISTRIB.: Inner Algeria, Nubia, Sennaar, tropical Africa, Cape, Arabia.

### 18. *Cyamopsis* DO.

1. *C. psoralioides* DC. Prodr. ii, (1825) 216; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 236.

HABITAT: II. Cultivated near Shaikh Othman (S. 270).

FL.: Dec. 1888 (S.). FR.: Dec. 1888 (S.).

DISTRIB.: India.

Vern. name: *hindia* (S.).

2. *C. senegalensis* G. & P. Fl. Seneg. i, 174, t. 45; Oliv. Fl. Trop. Afr. ii, (1871) 65.

HABITAT: II. Jiddah (Zohrab 118! Fischer 67!).

FL.: Feb. (Fischer).

DISTRIB.: Senegambia, Kordofan, Yaman.

VAR. *angustifolia* nov. var.

HABITAT: II. Jiddah (Zohrab 184! Schimp. 840!).

FR.: Feb. 1836 (Schimp.).

DISTRIB.: Endemic.

### 19. *Indigofera* L.

1. *I. amorphoides* Jaub. & Sp. Ill. Pl. Or. t. 483! Oliv. Fl. Trop. Afr. ii, (1871) 97.—*T. abyssinica* Hochst. in Schimp. Pl. Abyss. n. 2213.—*I. alta* Schweinf. Fl. Aethiop. (1867) 11.

HABITAT: II. Cultivated ground in the neighbourhood of El Jebel near Qu'taba (Defl. 227!); Manakhah, 200 m. (S. 1777!).

FR. : Jan. 1890 (Defl.), Mar. 1889 (S.).

DISTRIB. : Abyssinia, Eritrea, Somaliland, Arabia.

2. *I. arabica* Jaub. & Sp. Ill. Pl. Or. v, 89, t. 479; Anders. Fl. Aden. (1860) 15; Oliv. Fl. Trop. Afr. ii, (1871) 103; Defl. Yemen (1889) 130; Baker in Kew Bull. (1894) 331; Blatt. Fl. Aden (1915) 171.

HABITAT : I. Sinai (ex Post).

II. Near Yerim, 2,600 m. (Defl. 640); near Sanah, 2,300 m. (Defl. 538); Yaman (Lunz 21 !); in the mountains (Botta); Aden (Hook. 66! Beevor! Birdw.!).

III. Dhofar Mts. : Coast Merbat (Bent 16! 22!); Hill sides near Sibeh, 800 ft. (Lunt); Ras Shirwen (Hirsch 20).

FR. : Dec. 1847 (Hook.).

DISTRIB. : White Nile, Arabia.

Vern. name : *Yidere* (Hirsch), *Ssabagh Nil* (Post).

3. *I. arrecta* Hochst. in Rich. Fl. Abyss. i, (1847) 184; Defl. Yemen (1889) 129; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 242.

HABITAT : II. Near Sanah, 2,300 m. (Defl. 530); top of J. Shibam, 2,800 m. (Defl. 344); in the mountains (Botta!).

FL. : Mar. 1889 (S.). FR. : Mar. 1889 (S.).

DISTRIB. : Kilimandjaro, Sennaar, Abyssinia, Eritrea, Yaman.

4. *I. articulata* Gouan. Ill. et Observ. (1773) 49; Fiori Bos. e Pianto legn. Eritrea (1909) 180.—*I. argentea* L. Mant. 27 (*non* Burm.); Oliv. Fl. Trop. Afr. ii, (1871) 97; Boiss. Fl. Or. ii, (1872) 190; Defl. Yemen (1889) 129; Baker in Kew Bull. (1894) 331; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 243; Blatt. Fl. Aden (1915) 172.—*I. tinctoria* Forsk. Fl. Aeg.-Arab. (1775) CXVIII, n. 452 and 133 (*non* L.).—*I. glauca* Lam. Encycl. iii, 246.

HABITAT : I. Arabia Petraea (ex Post); Arabia Petraea : coast of Red Sea (Bové 232!).

II. Jiddah (Zohrab 289! 293! 308!); Wady Fatimah (Fischer 80!); Yaman (Ehrenb. !); J. Bura 700—1,000 m. (S. 493); E Hami (S. 192); Bajil (S. 598); Wasil, 1,400 m. (S. 1211, 1187); Aden (Perry! Balfour! S. 133!).

III. Hadramaut : Shibam (Lunt 168!); Dhofar Mts.: Coast Merbat (Bent 9! 103!); near Sehut and J. Hegwir (Hirsch 99).

IV. Masqat (Auch.-Eloy 4340!).

FL. : Jan. 1894 (Lunt), Feb. 1837 (Fischer), Feb. 1889 (S.), Apr. (S.)

FR. : Feb. 1837 (Fischer), Mar. 1878 (Perry), Apr. (S.).

DISTRIB. : Egypt, Nubia, Abyssinia, Eritrea, Kordofan, Socotra, S. Arabia, Sind, W. India.

Vern. name : *Nile* (Forsk.), *Hawir* (Hirsch), *Neel* (Lunt), *Nileh*, *Sschagh* (Post), *kouer* (S.).

Note :—Cultivated for an Indigo dye at Schibam (Lunt). For medical uses see Forsk. l. c.

VAR. *genuina* Defl. Yemen (1889) 129.

HABITAT : II. Near Mefhak, 1,800 m. (Defl. 596); in the mountains (Botta !).

DISTRIB. : Endemic.

VAR. *polyphylla* Hochst. Herb. Kotschy Nub. n. 217; Defl. Yemen (1889) 129.

HABITAT : II. Near Taez, 1,300—1,400 m. (Defl. 694, 700); Oasis of Lahaj (Defl. 130 !); in the mountains (Botta !).

FL. : Dec. 1889 (Defl.). FR. : Dec. 1889 (Defl.).

DISTRIB. : Nubia, Abyssinia, Yaman.

5. *I. Burmanni* Boiss. Fl. Or. ii, (1872) 189; Suppl. (1888) 172; Defl. Yemen (1889) 129; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 241.—*I. semitrijuga* Forsk. VAR. *tetrasperma* DC. Prodr. ii, (1825) 230.

HABITAT : II. Jiddah (Fischer 75! Schimp. 882!); near Mantar (Defl. 25); E. of Marrana (S. 169); El Hami (S. 175!); Yaman (Ehrenb. !); neighbourhood of Aden (Hunter 230!); Shuqra (S. 130).

FL. : Jan. 1837 (Fischer), Mar. and Apr. 1881 (S.), Dec. 1888 (S.).

FL. : Jan. 1836 (Schimp.), Jan. 1837 (Fischer.), Mar. and Apr. 1881 (S.), Dec. 1888 (S.).

DISTRIB. : Egypt, Sudan, Abyssinia, Arabia, Sind.

6. *I. desmodioides* Baker in Kew Bull. (1894) 331.

HABITAT : III. Hadramaut : Katan, 2000 ft. (Lunt 185!).

FL. : Feb. 1894 (Lunt).

DISTRIB. : Endemic.

7. *I. gonioides* Hochst. Schimp. Herb. Abyss. n. 2242; Oliv. Fl. Trop. Afr. ii, (1871) 85; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 240.

HABITAT : II. Wasil, 1,400 m. (S. 1343!).

FR. : Feb. 1889 (S.).

DISTRIB. : Abyssinia, Buluwayo, Arabia.

8. *I. hendecaphylla* Jacq. Collect. ii, (1788) 358.—*I. endecaphylla* Bot. Reg. t. 789; Hook. f. Fl. Brit. Ind. ii, pt. iv, (1876) 98.

HABITAT : II. Jebel Nakhai, 700 m. (Defl. 512!).

FL. : Apr. 1890 (Defl.).

DISTRIB. : Senegaambia, Nubia, Abyssinia, Congo, Zambesi, S. Africa, Arabia, Western India, Burma, China.

9. **I. Hochstetteri** Baker in Oliv. Fl. Trop. Afr. ii, (1871) 101; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 244.

HABITAT : II. Near Hajeilah, 600 m. (S. 1009).

FL. : Feb. 1889 (S.).

FR. : Feb. 1889 (S.).

DISTRIB. : Eritrea, Yaman.

10. **I. Houer** Forsk. Fl. Aeg.-Arab. (1775) CXVIII, n. 453 and p. 137; Cooke Fl. Bomb. i, (1903) 318.—*I. caerulea* Roxb. Fl. Ind. iii, 377.—*I. argentea* L. var. *caerulea* Baker in Hook. f. Fl. Brit. Ind. ii, pt. iv, (1876) 99.

HABITAT : II. Wady Surdud (Forsk.).

DISTRIB. : Egypt, Abyssinia, Arabia, India.

Vern. name : *Hozer* (Forsk.).

11. **I. intricata** Boiss. Fl. Or. ii, (1872) 190; Balfour Bot. Socotra, 74.

HABITAT : IV. Masqat (Auch.-Eloy 4324 ! 4343).

DISTRIB. : Arabia, Socotra, Persia.

12. **I. Jabertiana** Schweinf. in Bull. Herb. Boiss. (1896) App. II, 245.—*I. ornithopodioides* Hochst. et Steud. in Jaub. & Sp. Ill. Pl. Or. t. 480 (*non* Schum. & Thonn. nec Cham. & Schl.).

HABITAT : II. Jiddah (Fischer 84 !); Wasil 1,400 m. (S. 1142 !).

FL. : Jan. and Feb. 1837 (Fischer), Feb. 1889 (S.).

FR. : Jan. and Feb. 1837 (Fischer), Feb. 1889 (S.).

DISTRIB. : Arabia.

13. **I. oblongifolia** Forsk. Fl. Aeg.-Arab. (1775) CXVIII, n. 455 and p. 137; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 240; Baker Journ. Bot. xli, (1903) 265.—*I. paucifolia* Del. Fl. d'Eg. p. 127, tab. 37, fig. 2; DC. Prodr. ii, (1825) 224; Boiss. Fl. Or. ii, (1872) 190; Hook. Fl. Brit. Ind. ii, 97; Oliv. Fl. Trop. Afr. ii, (1871) 88; Defl. Yemen (1889) 129; Blatt. Fl. Aden (1915) 170.—*I. erythrantha* Hochst. Herb. Abyss. n. 2178.

HABITAT : I. Arabia Petraea (Bové); S. end of Dead Sea (ex Post).

II. Jiddah (Fischer 79 ! Schimp. 773 ! Zohrab 143 !); Wady Mor, Hadiyah (Forsk.); Wady Jalut (Lunz 34 !); near Hodeidah (Defl. 15 !); Hills N. of El Jebel near Qu'taba (Defl. 249 !); Shaikh Othman (Ellenbeck, Busse); Hanish Islands, common (Slade 14 !); Aden (Birdwood 139 !); Little Aden (Defl. !).

III. Dhofar Mts. (Bent 36 !); *Jebel Hegwir* (Hirsch !).

IV. Masqat (Auch.-Eloy 4341 !).

FL. : Jan. 1831 (Bové), Aug. 1898 (Birdw.), Oct.-Jan. (Fischer).

FR. : Jan. 1800 (Deff.), Nov. 1888 (S.), Dec. 1835 (Schimp.).

DISTRIB. : Java, Ceylon, India, Baluchistan, Arabia, Abyssinia, Nubia, Kordofan, Socotra, Senegambia.

VERN. name: *Afar* (Burton), *Hasar* (Forsk.), *hissor* (Hirsch), *Widmek* (Post).

VAR. *carpostigma* Schweinf. l. c. 240; Blatt. l. c. 170.

HABITAT : II. Aden (S. 88 !).

FR. : Nov. 1888 (S.).

DISTRIB. : Endemie.

14. *I. orthocarpa* Baker in Oliv. Fl. Trop. Afr. ii, (1871) 99; Deff. Yemen (1889) 130; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 213.—*I. Anil* I. var. *orthocarpa* DC. Prodr. ii, (1825) 225.

HABITAT : II. Cult. ground near Lahaj (Deff.); near Hajeilah 600—800 m. (S. 991 ! 1934); between Hajeilah and Beha (S. 887); Wulej (S. 1935).

FL. : Jan. 1889 (S.). FR. : Jan. 1889 (S.).

DISTRIB. : Nubia, Kordofan, Sennaar, Eritrea, Yaman.

15. *I. parviflora* Heyne in Wall. Cat. 5457; Baker in Oliv. Fl. Trop. Afr. ii, (1871) 83; Journ. Bot. xli, (1903) 260; Cooke Fl. Bomb. i, (1903) 317.—*I. deflexa* Hochst. Herb. Nub. n. 14, (1839); Rich. Fl. Abyss. i, (1847) 178.—*Indigastrium deflexum* Jaub. & Sp. Ill. Pl. Or. i, t. 492.

HABITAT : II. Jennat (Botta).

DISTRIB. : Senegambia, Nubia, Kordofan, Abyssinia, Arabia, India, N. Australia.

16. *I. parvula* Del. in Caill. Voy. ii, (1826) 38, 39, t. 3, f. 1; Oliv. Fl. Trop. Afr. ii, (1871) 81; Blatt. Fl. Aden (1915) 170.—? *I. parvula* Hochst. & Steud. in Rich. Fl. Abyss. i, (1847) 180; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 239.

HABITAT : II. Aden (Birdw. 140 !).

FR. : Aug. 1898 (Birdw.).

DISTRIB. : Abyssinia, Nubia, Eritrea.

17. *I. Schimperi* Jaub. & Sp. Ill. Pl. Or. t. 484; Oliv. Fl. Trop. Afr. ii (1871) 93; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 241.

HABITAT : II. Hajeilah, 600 m. (S. 999).

DISTRIB. : Abyssinia, Nubia, Somaliland, Zambesi, Zanzibar, Arabia.

18. *I. semitrijuga* Forsk. Fl. Aeg.-Arab. (1775) CXVIII, n. 454 and p. 137, Oliv. Fl. Trop. Afr. ii, (1871) 93; Hook. f. Fl. Brit. Ind. ii, pt. iv, (1876) 98; Schweinf. in Bull. Herb. Boiss. (1896) App. II. 241; Blatt. Fl. Aden (1915) 171.—*I. diffusa* R. Br. in Salt Abyss. App. 65 (*non Desv.*).—*I. somalensis* Vatke in Oesterr. Bot. Zeit. (1878) 201.

HABITAT : II. El Hami (S. 175 a !); Lohaja (Forsk.); Aden (Birdw. 141 ! S. 93, Desf. !); Little Aden (Desf. !); Shuqra (S. 117 !).

III. Hadramaut : Sibeh 800 ft. (Lunt 110 !).

FL. : Apr. 1881 (S.), Aug. 1898 (Birdw.).

FR. : Mar. and Apr. 1881 (S.), Aug. 1898 (Birdw.); Dec. 1893 (Lunt).

DISTRIB. : Upper Egypt, Nubia, Abyssinia, Kordofan, Sennaar, highlands of Somaliland, Eritrea, S. Arabia, Sind.

19. *I. senegalensis* Lam. Dict. iii, (1789) 248 ; DC. Prodr. iii, (1825) 228.

HABITAT : II. Jiddah (Zohrab 324 !); Yaman : Unsert (Schimp 769 !).

FR. : Feb. 1836 (Schimp.).

DISTRIB. : Senegambia, Somaliland.

20. *I. Spachii* Baker in Oliv. Fl. Trop. Afr. ii, (1871) 92.—*I. coroniloides* Jaub. & Sp. Ill. Pl. Or. (1853-57) t. 485-6 (*non Mart.*).—? *I. quartiniiana* Rich. Fl. Abyss. i, (1847) 183; Oliv. l. c.

VAR. *trifollolata* Schweinf. in Bull. Herb. Boiss. (1896) App. II, 240.

HABITAT : II. Below Wasil, 1,000—1,200 m. (S. 1142, 1933, 1200); near Manakhah, 2,000 m. (S. 1984).

FL. : Feb. and Mar. 1889 (S.). FR. : Feb. and Mar. 1889 (S.).

DISTRIB. : Eritrea, Yaman.

21. *I. spicata* Forsk. Fl. Aeg.-Arab. (1775) CXVIII, n. 456 and p. 138.—? *I. endecaphylla* Hochst. ex Schweinf. Arab. Pflanzennamen, (1912) 144.

HABITAT : II. Hadiyah (Forsk.).

DISTRIB. : Yaman.

Vern. name : *Mscheter*, *Schiter* (Forsk.).

22. *I. spinosa* Forsk. Fl. Aeg.-Arab. (1775) CXVIII, n. 457 and p. 137; Denc. Pl. P Arab. Heur. in Ann. Sc. Nat. ser. 2, iv, (1835) 77; Vahl Symb. Bot. i, (1790) 55; Jaub. & Sp. Ill. Pl. Or. i, 491; Oliv. Fl.

Trop. Afr. ii, (1871) 77 ; Defl. Yemen (1889) 129 ; Baker in Kew Bull. (1894) 331 ; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 236.

HABITAT : I. Southern Midian (Burton !).

II. Jiddah (Fischer 76 ! 77 ! Schimp. 945 ! Zohrab 59 ! 39 ! 190 !); Tehama : Bajil (S. 587 !); near Bajil (Defl. 42); Tehama (Botta !); in the mountains (Botta !); near Hille 300 m. (S. 263); below Manakhah 2,000 m. (S. 1549); Hadiyah and Wady Surdud (Forsk.); S. of Jebel el Areys, 30 km. E. N. E. of Shuqra (Defl. 380 !); Arabia (Ehrenb. !); neighbourhood of Aden (Hunter 160 !); Aden (Bevor 54 !); Shuqra (S. 111 !).

III. Hadramaut (Hirsch 110); Hajrain, 2,600 ft. (Lunt 145 !).

FL. : Feb. 1837 (Fischer), Oct.-Mar. (Fischer).

FR. : Jan. 1889 (S.), Jan. 1894 (Lunt), Feb. 1836 (Schimp.), Mar. 1881 (S.), Mar. 1890 (Defl.).

DISTRIB. : Egypt, Nubia, Abyssinia, Eritrea, Arabia, Somaliland.

Vern. name : *hell* (S.), *haell* (Forsk.).

VAR. *spiniflora* Schweinf. in Bull. Herb. Boiss. (1896) App. II, 237.

—*I. spiniflora* Hochst. et Steud. in Schimp. Pl. Arab. n. 945.

HABITAT : II. Near Bajil (S. 878).

FL. : Jan. 1889 (S.).

DISTRIB. : Eritrea, Yaman.

23. *I. tinctoria* L. ; DC. Prodr. (1825) 224.

HABITAT : II. Tehama : Beha, Hajeilah (S. 887 !).

DISTRIB. : Universally cultivated.

24. *I. trigonelloides* Jaub. & Sp. Ill. v, (1857) 92, t. 482 ; Hook. Fl. Brit. Ind. ii, 94 ; Blatt. Fl. Aden (1915) 173.—*I. asperifolia* Hochst. in Schimp. Pl. Abyss. n. 2273.—*I. aeruginis* Schweinf. Fl. Aethiop. 11.

HABITAT : II, Aden (Bevor 60 ! Perry !).

DISTRIB. : Abyssinia, Arabia, Sind, Afghanistan, Punjab.

25. *I. tritoides* Baker in Kew Bull. (1895), p. 214 ; Journ. Bot. xli, (1903) 234.—*I. leptocarpa* Hochst. et Steud. in Schimp. Pl. Arab. n. 731 ; Blatt. Fl. Aden (1915) 172.—*I. tenuisiliqua* Schweinf. in Bull. Herb. Boiss. (1896) App. II, 241.

HABITAT : II. Jiddah (Zohrab 88 ! Fischer 78 ! Schimp. 771 ! Hildebr. !); Gumfuda and mountains near Jiddah (Ehrenb. !); Jebel el Areys, 30 km. E. N. E. of Shuqra, 200-300 m. (Defl. 437 !); Little Aden (Defl. !).

FL. : Jan. and Feb. (Fischer), Mar. 1890 (Defl.).



FR. : Dec. 1835 (Schimp.).

DISTRIB. : Nubia, Eritrea, Central and Southern Arabia, Socotra.

**26. I. viscosa** Lam. Encyc. iii, (1789) 247 ; Baker in Oliv. Fl. Trop. Afr. ii, (1871) 81 ; Journ. Bot. xli, (1903) 242 ; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 238.

HABITAT : II. Jebel Bura, Hille (S. 390 !); Wady Chiwiet 1,200 m. (S. 1201).

FL. : Jan. and Feb. 1889 (S.).

FR. : Jan. and Feb. 1889 (S.).

DISTRIB. : Abyssinia, Eritrea, Somaliland, Arabia.

**27. T. Defflersii** Baker f. in Viertelj. Naturf. Ges. Zürich, xlix, 194.

### 20. Tephrosia Pers.

**1. T. anthylloides** Hochst. ex Webb in Hook. Kew Journ. ii, (1850) 345 ; Oliv. Fl. Trop. Afr. ii, (1871) 118 ; Defl. Yemen (1889) 131 ; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 246.—*T. apollinea* Guill. et Perr. (1830—33) 197 ; Rich. Fl. Abyss. i, (1847) 187 (*non DC.*).—*T. cordofana* Hochst. ex Oliv. l. c.

HABITAT : II. Jiddah (Ehrenb. !); Wady Shigu near Bolhaf (S. 152); Aden (Birdw. !); Red Sea : Hakeko (Lord !).

III. Sehut, Jebel Hegwir (Hirsch 69).

FL. : Mar. 1869 (Lerd), Mar. 1881 (S.).

DISTRIB. : Senegambia, Nubia, Abyssinia, Eritrea, Arabia

Vern. name : *chazaire*, *Tuifir*, *Dhafir* (Hirsch).

**2. T. apollinea** Link Enum. Hort. Berol. ii, 252 ; DC. Prodr. ii, (1825) 254 ; Schenk Sp. Pl. it. Aeg. Arab. & Syr. (1840) n. 224 ; Anders. Fl. Aden. (1860) 16 ; Oliv. Fl. Trop. Afr. ii, (1871) 126 ; Boiss. Fl. Or. ii, (1872) 192 ; Defl. Yemen (1889) 131 ; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 246 ; Blatt. Fl. Aden (1915) 174.—*Falega apollinea* Del. Fl. d' Eg. 144, t. 53, f. 5.

HABITAT : I. Akaba (Hart !); Arabia Petraea (McDonald !); Sinai (Holland !); Wady Sahdi (ex Schenk); N. and Central Midian (Burton !).

II. Yaman (Ehrenb. !); near Wasil, 900 m. (Defl. 207 !); Bajil (S. 590 !); near el Hami (S. 197); Oasis of Lahaj (Defl. 120 !); Shaikh Othman (Ellenbeck); Aden (S. 22 ! Hook. ! Birdw. ! Defl. !); Hanish Islands, in ravines (Slade 13 !).

FL. : Jan. 1889 (S.), Apr. 1881 (S.), Nov. 1888 (S.), Dec. 1889 (Defl.).

FR. : Jan. 1889 (S.), Nov. 1888 (S.), Dec. 1889 (Defl.).

DISTRIB. : Upper Egypt, Nubia, Libya, Abyssinia, highlands of Somaliland, Socotra, Arabia.

Vern. name : *Tawil* (Burton), *Amyānah* (Post), *Obeira*.

Note : Eaten by animals (Burton).

3. **T. Boivini** nov. comb.—*Pogonostigma Boivini* Jaub. & Sp. III. Pl. Or. v, (1853-57) t. 476.

HABITAT : II. Near Hes (Boivin).

FL. : Jan. 1845 (Boivin). FR. : Jan. 1845 (Boivin).

DISTRIB. : Endemic.

4. **T. decorticans** Taub. in Engl. Jahrb. xxiii, 184.

HABITAT : III. Hadramaut (Hirsch 79 !).

DISTRIB. : Somaliland, Hadramaut.

5. **T. desertorum** Scheele in Linnaea, xvii, (1843) p. 338.

HABITAT : II. Jiddah (Schimp. 770 ! Fischer 85 ! Zohrab 120 ! 124 !).

FL. : Mar. 1881 (S.), Dec. 1835 (Schimp.), Dec.-Jan. (Fischer).

FR. : Mar. 1881 (S.), Dec. 1835 (Schimp.), Dec.-Jan. (Fischer).

DISTRIB. : Endemic.

6. **T. diffusa** W. & A. Prodr. 213; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 245.—*T. purpurea* Pers. var. *pumila* Baker in Hook. f. Fl. Brit. Ind. ii, pt. iv, (1876) 113.

HABITAT : II. Wasil, 1,400 m. (S. 1147 !), above Hille, 700-1,000 m. (S. 403); Aggara 600 m. (S. 1026).

FL. : Jan., Feb. 1889 (S.). FR. : Jan., Feb. 1889 (S.).

DISTRIB. : Everywhere in the tropics.

7. **T. dura** Baker in Kew Bull. (1894) 331.

HABITAT : III. Hadramaut : near Shibam, 2,000 ft. (Lunt 171 !).

FR. : Jan. 1894 (Lunt).

DISTRIB. : Endemic.

8. **T. elata** Defl. Yemen (1889) 130.

HABITAT : II. Yaman : Foot of Mt Sumaru, 1,800 ft. (Defl. 653 !).

DISTRIB. : Endemic.

9. **T. geminiflora** Baker in Kew Bull. (1895) 316.

HABITAT : III. Hadramaut (Hirsch 94).

DISTRIB. : Endemic.

10. *T. Hausknechtii* Bornm. in Mitt. Thür. Bot. Ver. N. Folge, vi, (1894) 54.

HABITAT : Trop. Arabia (ex Bornm.).

DISTRIB. : Endemic.

11. *T. lathyroides* Guill. & Perr. Fl. Seneg. i, 193.

HABITAT : II. Aden (Perry ! Hook. 42 !).

FL. : Dec. 1847 (Hook.). FR. : Dec. 1847 (Hook.).

DISTRIB. : Cape Verde Islands, and ?.

12. *T. persica* Boiss. Diagn. Pl. Or. ser. 1, ii, 40 ; Fl. Or. ii, (1872) 192, Fl. Or. Suppl. (1888) 172.

HABITAT : IV. Masqat (Auch.-Eloy 4334 !).

DISTRIB. : Arabia, Persia.

13. *T. Pogonostigma* Boiss. Fl. Or. ii, (1872) 193 ; Defl. Yemen (1889) 131 ; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 247 ; Blatt. Fl. Aden (1915) 174. — *T. arabica* Steud. Nomencl. Bot. ed. 2, ii, 666. — *Pogonostigma arabicum* Boiss. Diagn. Pl. Or. ser. 1, ii, 39 ; Anders. Fl. Aden. (1860) 16. — *Psoralea arabica* Hochst. in Schimp. Pl. Arab. n. 775. — *Catacline sericea* Edgew. Journ. As. Soc. Beng. vol. xvi, p. 1214.

HABITAT : II. Foot of Mt. Kesser (Schimp. 475 !); Mt. Sidr and Kesser (Fischer 69); E. of Marana (S.1989 !); Bajil (S.1794); near Lahaj (Defl.); Aden (Anders. ! Hook. ! Edgew. ! Munro ! S.39 ! Perry ! Thomson ! Birdw. 171 ! Defl. 52 ! 92, Balfour ! Madden 7 ! Lunt 340 !).

III. Hadramaut (Hirsch 100).

IV. Masqat (Auch.-Eloy 4456 !).

FL. : Feb. (Fischer), Mar. 1850 (Madden), Mar. 1878 (Perry), Apr. (Lunt), Aug. 1898 (Birdw.), Nov. 1888 (S.), Dec. 1889 (Defl.).

FR. : Feb. 1836 (Schimp.), Feb. 1837 (Thomson), Mar. 1850 (Madden), Mar. 1878 (Perry), Apr. (Lunt), Aug. 1898 (Birdw.), Nov. 1888 (S.), Dec. 1889 (Defl.).

DISTRIB. : Eritrea, Arabia.

14. *T. purpurea* Pers.; DC. Prodr. ii, (1825) 251 ; Oliv. Fl. Trop. Afr. ii, (1871) 124 ; Hook. f. Fl. Brit. Ind, ii, pt. iv, (1876) 112 ; Baker in Kew Bull. (1894) 331.

HABITAT : III. Dhofar Mts : Coast (Bent 84 !); Hadramaut : between Sif and Hajram, 2,000 ft. (Lunt 140 !).

IV. Masqat (Bent 13 !).

FL. : Jan. 1894 (Lunt). FR. : Jan. 1894 (Lunt).

DISTRIB. : Cosmopolitan in the tropics.

VAR. *leptostachya* Schweinf. in Bull. Herb. Boiss. (1896) App. II, 245.—*T. leptostachya* DC. Prodr. ii, (1825) 251.

HABITAT : II. Shuqra (S. 132 !).

FL. : Mar. 1881 (S.). FR. : Mar. 1881 (S.).

DISTRIB. : Cosmopolitan in the tropics.

15. *T. Schweinfurthii* Defl. in Bull. Soc. Bot. France, xlii. (1895) 302.

HABITAT : II. Wady Moaden (Defl. 1149 !).

FL. : May 1894 (Lunt).

DISTRIB. : Endemic.

16. *T. senticosa* Pers. Syn. ii, 330 ; Hook. f. Fl. Brit. Ind. ii, pt. iv, (1876) 112 ; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 245. *T. subtriflora* Hochst. in Schimp. Herb. Abyss. n. 2312 ; Oliv. Fl. Trop. Afr. ii, (1871) 117.

HABITAT : II. Jebel Bura, above Hille, 800 m. (S. 410 !).

FL. : Jan. 1889 (S.). FR. : Jan. 1889 (S.).

DISTRIB. : Kordofan, Abyssinia, Eritrea, Arabia, India, Ceylon.

Vern. name : *kaueréh* (S.).

17. *T. tomentosa* Pers. Syn. ii, 339.—*Lathurus tomentosus* Forsk. Fl. Aeg.-Arab. (1775) CXVII, n. 446 and p. 135.—*Symm elhorat* Forsk. l. c. 198, XLIII.

HABITAT : II. Wady Mor (Forsk.).

DISTRIB. : Endemic.

Vern. name : *Sonaefa*, *Symm elhorat* (Forsk.).

Note : *Symm elhorat* means fish poison and is used in the Red Sea in catching fish. cf. Forsk.

18. *T. vicioides* Rich. Fl. Abyss. i, (1847) 188 ; Oliv. Fl. Trop. Afr. ii, (1871) 117 ; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 246.

HABITAT : Tropical Arabia (ex Schweinf.).

DISTRIB. : Nubia, Abyssinia, Arabia.

## 21. *Sesbania* Pers.

1. *S. arabica* Hochst. ex Steud. Nom. ed. 2, ii, 573.

HABITAT : II. Wady Fatimah (Schimp. 881 ! Fischer 81 !) ; Tchama : Kahife (S. 229 !).

FL. : Mar. 1837 (Fischer), Dec. 1888 (S.).

FR. : Mar. (Schimp.), Mar. 1837 (Fischer), Dec. 1888 (S.).

DISTRIB. : Endemic.

Vern. name : *Homar* (S.).

2. *S. grandiflora* Pers. Syn. ii, (1807) 316; Defl. Yemen (1889) 131; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 248; Blatt. Fl. Aden (1915) 176.—*Dolichos sesban arboreus* Forsk. Fl. Aeg.-Arab. (1775) CXVII, n. 444 and p. 134.

HABITAT: II. Cultivated everywhere in the Tehama (Defl.); near Hodeidah and Mantar (Defl. 29); cult. at Shaikh Othman (Defl. ! S. 1930 !); Wady Zebid (Forsk.).

FL. : Dec. 1888 (Defl., S.).

DISTRIB. : Mauritius to North Australia, but often cultivated.

Vern. name : *Sesebān* (Forsk.).

3. *S. leptocarpa* DC. Prodr. ii, (1825) 265; Oliv. Fl. Trop. Afr. ii, (1871) 135; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 248 (*partim*).—? *Dolichos sesban annuus* Forsk. Fl. Aeg.-Arab. (1775) CXVII, n. 443.

HABITAT: II. Aggara, 600 m. (S. 1931 !).

DISTRIB. : Senegambia, Nubia, Yaman.

Vern. name : *Hōmar* (S.).

4. *S. punctata* DC. Prodr. ii, (1825) 265; Defl. Yemen (1889) 131.—*S. filiformis* Hochst. in Schimp. Herb. Abyss. n. 775.—*S. multijuga* Schweinf. ex Oliv. Fl. Trop. Afr. ii, (1871) 133.—*Dolichos aeschynome sesban* Forsk. Fl. Aeg.-Arab. (1775) 134.

HABITAT: II. Wady Harr near Hajeilah, 500—600 m. (Defl. 201).

III. Dhofar Mts. : Hofa coast (Bent 74 !).

DISTRIB. : Senegambia, Guinea, Sudan, Nubia, Kordofan, Sennaar, Abyssinia, Eritrea, Yaman.

## 22. Colutea L.

1. *C. haleppica* Lam. Encycl. i, (1783) 353; Dene. Fl. Sin. in Ann. Sc. Nat. ser. 2, iii, (1835) 266; Oliv. Fl. Trop. Afr. ii, (1871) 136; Post Fl. Syr. etc. (1896) 253; Kneuck. in Allg. Bot. Zeitsch. ix, (1903) 146.

HABITAT: I. Mt. Horeb (Auch.-Eloy 1044 !); Sinai (Holland ! Schimp. 160 ! Bove !); cultivated in Monastery of Mt. Sinai (Boiss.); Wady Aleyat (Kneuck.).

FL. : May 1835 (Schimp.).

DISTRIB. : Abyssinia, Eritrea, Arabia, Persia, Asia Minor.

Vern. name : *Sphocray* (Bové), *qasnur* (Post).

## 23. Astragalus L.

1. *A. abyssinicus* Hochst. et Steud. in Rich. Fl. Abyss. i, (1847) 123; Bunge Astrag. (1868-69) n. 140; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 249.

HABITAT : II. Kahil above Manakhah, 2,500 m. (S. 1423 !).

FR. : Feb. 1889 (S.).

DISTRIB. : Abyssinia, Eritrea, Yaman.

Vern. name : 'oussif (S.).

2. *A. acinaciferus* Boiss. Diagn. Pl. Or. ser. 1, ix, 72; Bunge Astrag. (1868-69) n. 273; Boiss. Fl. Or. ii, (1872) 300; Post Fl. Syr. etc. (1896) 266.

HABITAT : I. Dead Sea to Sinai (ex Post); Arabia Petraea (McDonald !); Wady Shaikh and Ramleh (Boiss. !); Mt. Sinai (Frauenfeld).

DISTRIB. : Endemic.

3. *A. alexandrinus* Boiss. Diagn. Pl. Or. ser. 1, ix, (1849) 74; Bunge Astrag. (1868-69) n. 210; Boiss. Fl. Or. ii, (1872) 284.—*A. lanigerus* Viv. Fl. Libyc. 44 (*non Desf.*).

HABITAT : I. Wady Zewerah to Beersheba (Hart !); Beersheba (Lowne !); Arabia Petraea (Boiss. ! McDonald !).

DISTRIB. : Tripolitania, Tunisia, Egypt, Arabia, Palestine, Syria.

4. *A. amalecitanus* Boiss. Diagn. Pl. Or. ser. 1, ix, 46; Bunge Astrag. (1868-69) n. 905.

HABITAT : I. S. of Ghazah (Boiss.).

DISTRIB. : Endemic.

5. *A. annularis* Forsk. Fl. Aeg.-Arab. (1775) 139; Del. Frag. Fl. Arab. Petr. (1833) n. 81; Bunge Astrag. (1868-69) n. 75; Boiss. Fl. Or. ii, (1872) 236; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 98.

HABITAT : I. Et Tih (ex Post); Arabia Petraea (Boiss. !); Desert of Ka'a (Musch.).

DISTRIB. : N. Africa, Arabia Petraea, Palestine, Syria.

Vern. name : *Koren* (Musch.).

6. *A. arabicus* Kotschy in Sitzb. Kais. Acad. Wiss. lii, (1866) 14.

HABITAT : II. Hijaz, towards Asyr (ex Kotschy).

DISTRIB. : Endemic.

7. *A. baeticus* L. Sp. Pl. (1753) 758; Bunge Astrag. (1868-69) n. 80; Boiss. Fl. Or. ii, (1872) 236.

HABITAT : I. S. of Ghazah (Boiss.).

FL. : Apr. (Boiss.).

DISTRIB. : Mediterranean region.

8. *A. bombycinus* Boiss. Diagn. Pl. Or. ser. 1, ii, 50; Bunge Astrag. (1868-69) n. 86; Boiss. Fl. Or. ii, (1872) 240.—*A. sultanensis* Bunge l. c. n. 87.

HABITAT: I. Arabia Petraea (McDonald!); Et Tih to Sinai (ex Post); Et Tih (Boiss.); plain of Raha, Wady es Shaikh, Serbal (Kneuck.); Desert of Sinai (Bové 195!).

FR.: June 1832 (Bové).

DISTRIB.: Egypt, Arabia Petraea, Palestine, Assyria, Persia.

Vern. name: *Omokrum* (Bové), *durreis*, *khansarat-el-arus* (Post).

9. *A. brachyceras* Ledeb. Ind. Pl. Dorp. (1822) 3; Bunge Astrag. (1868-69) n. 53; Boiss. Fl. Or. ii, (1872) 238; Musch. Fl. Eg. i, (1912) 522.—*A. arnoceras* Bunge l. c. n. 54.—*A. hamosus* Kotschy Pl. exs. Pers. Austr. n. 228.

HABITAT: I. Arabia Petraea (ex Musch.).

DISTRIB.: Egypt, Arabia Petraea, Syria, Persia, Transcaucasus, N. W. India.

Vern. name: *Deqis* (Post).

10. *A. cahiricus* DC. Prodr. ii, (1825) 292; Bunge Astrag. (1868-69) n. 422; Boiss. Fl. Or. ii, (1872) 420.—*A. longiflorus* Del. Fl. Eg. 112, t. 39 (non Pall.).—*A. isopetalus* Boiss. Diagn. Pl. Or. ser. 1, ix, 67.

HABITAT: I. Arabia Petraea (Pinard! Boiss.!).

DISTRIB.: Egypt, Arabia Petraea, Persia, Afghanistan, Baluchistan.

Vern. name: *Asabi-el-Arus* (Post).

11. *A. Camelorum* C. & W. Barbey Herb. Levant 131, t. 3; Post Fl. Syr. etc. (1896) 276.

HABITAT: I. Western border of Et Tih (ex Post).

DISTRIB.: Egypt, Arabia Petraea.

12. *A. Christianus* L. Sp. Pl. (1753) 755; Bunge Astrag. (1868-69) n. 169; Boiss. Fl. Or. ii, (1872) 274.

HABITAT: I. Sinai Peninsula (Fox!).

FL.: Jan. 1867 (Fox).

DISTRIB.: Armenia, Anatolia, Cappadocia, Sinai.

13. *A. corrugatus* Bertol ex DC. Prodr. ii, (1825) 289; Bunge Astrag. (1868-69) n. 58; Boiss. Fl. Or. ii, (1872) 232.—*A. trimestris* Boiss. Fl. Or. Suppl. (1888) 175 (*partim, non L.*).

HABITAT: I. Arabia Petraea (Boiss.!). Sinai (ex Post); Wady es Shaikh (Kneuck.).

Fl. : Apr. (ex Boiss.).

DISTRIB. : Mediterranean region, Mesopotamia, Persia, Afghanistan, Baluchistan.

VAR. *brevipes* Post Fl. Syr. etc. (1896) 258.

HABITAT : I. Wady Feiran (ex Post).

DISTRIB. : Endemic.

14. *A. cruciatus* Link. Enum. Hort. Berol. ii, (1822) 256 ; DC. Prodr. ii, (1825) 288 ; Del. Frag. Fl. Arab. Petr. (1833) n. 82 ; Bunge Astrag. (1868-69) n. 33 ; Boiss. Fl. Or. ii, (1872) 225.—*A. stella* M. B. Taur. Cauc. ii, 191 (*non* Gou.).

HABITAT : I. Arabia Petraea (Boiss. ! De Laborde).

DISTRIB. : Morocco, Algeria, Tunis, Tripolitania, Egypt, Arabia Petraea, Syria, Palestine, Transcaucasus.

Vern. name : *Khuzam-el-qutt* (Post).

15. *A. echinus* DC. Astr. n. 92, t. 34 ; Bunge Astrag. (1868-69) 526 ; Boiss. Fl. Or. ii, (1872) 338 ; Kneuck. in Allg. Bot. Zeitsch. ix, (1903) 147.—*A. Barba Mosis et Geddesia Barba Mosis* Ehrenb. MS. in Herb. Berol.

HABITAT : I. Mt. Catherine (Boiss. !); Jebel Musa ca. 2,100 m., Jebel Catherine ca. 2,450 m. (Kneuck.).

DISTRIB. : Arabia Petraea, Palestine, Syria.

VAR. *sinaicus*.

HABITAT : I. Mt. Sinai (Schimp. 268 ! Ehrenb. !).

FL. : Aug. 1835 (Schimp.).

DISTRIB. : Endemic.

16. *A. eremophilus* Boiss. Diagn. Pl. Or. ser. I, ii, 54 ; Bunge Astrag. (1868-69) n. 15.

HABITAT : I. Arabia Petraea (Mc Donald !); Sinai (ex Post).

II. Jiddah (Zohrab 126 ! 173 ! Schimp. 777 ! Ehrenb. !); Jiddah and Wady Fatimah (Fischer 87 !).

FL. : Jan. 1836 (Schimp.), Jan., Feb. 1837 (Fischer).

FR. : Jan. (Ehrenb.), Jan. 1836 (Schimp.), Jan., Feb. 1837 (Fischer).

DISTRIB. : Egypt, Arabia, Baluchistan.

Vern. name : *Umm-el-quirein, Fajaa-mukd* (Post).

17. *A. fatimensis* Hochst. in Schimp. pl. exs. 843.—*A. arabicus* Ehrenb. MS. Herb. Berol. (*non* Kotschy) ; Bunge Astrag. (1868-69) n. 26 ; Boiss. Fl. Or. ii, (1872) 223.



HABITAT : I. Arabia Petraea (Auch.-Eloy 4452 !); Sinai (ex Post).

II. Mecca (Schimp.); Jiddah (Zohrab 168 !); Wady Fatimah (Fischer 86 ! Schimp. !); Yaman (Ehrenb.).

FL. : Jan. (Ehrenb.), Feb. 1837 (Fischer).

FR. : Jan. (Ehrenb.), Feb. 1837 (Fischer).

DISTRIB. : Arabia, Baluchistan, India.

18. *A. Fresenii* Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2. iii, (1835) 266 ; Schenk Sp. Pl. it. Aeg. Arab. & Syr. (1840) n. 229 ; Bunge Astrag. (1868-69) 368 ; Boiss. Fl. Or. ii, (1872) 261.

HABITAT : I. Arabia Petraea (Mo Donald !); Mt. Catherine (Boiss. ! Auch.-Eloy 71 !); Mt. Horeb (Bové 191 !); Mt. Sinai (Schimp. 187 ! Auch.-Eloy 1372 ! Drake 26 !); Plain Raha, foot of Jebel Musa (Kneuck.).

Fl. : Apr. 1835 (Schimp.), Apr. 1846 (Boiss.), June 1832 (Bové).

FR. : June 1832 (Bové).

DISTRIB. : Endemic.

19. *A. gyzensis* Del. Ill. Fl. d' Eg. (1813) 64 ; Bunge Astrag. (1868-69) n. 64 ; Boiss. Fl. Or. ii, (1872) 234.—*A. hauarensis* Boiss. Diagn. Pl. Or. ser. 1, ix, 63.—*A. saccharensis* Ehrenb. in Herb. Berol. et Fischerianus (ex Bunge).—*A. drepanocarpus* Hochst. in Schimp. Pl. Arab. Herb. Mus. Florent. (ex Bunge).

HABITAT : I. Arabia Petraea (Schimp. 181 ! 189 ! 238 ! Boiss.); S. of Dead Sea and southward to Sinai (ex Post).

DISTRIB. : N. Africa, Arabia Petraea, Persia, Songaria.

Vern. name : *Adham-el-farah* (Post), *Dan-el-Phara* (ex Boiss.).

20. *A. hamosus* L. Sp. Pl. (1753) 1067 ; Bunge Astrag. (1868-69) n. 51 ; Boiss. Fl. Or. ii, (1872) 238.—*A. brachyceras* Boiss. Fl. Or. Suppl. (1888) 175 (*partim*).

HABITAT : I. Arabia Petraea (ex Post).

DISTRIB. : Mediterranean region, Transcaucasus, Punjab.

Vern. name : *El-Koren* (ex Boiss.).

21. *A. hispidulus* DC. Astr. 105, n. 30, t. 13 ; Bunge Astrag. (1868-69) n. 72 ; Boiss. Fl. Or. ii, (1872) 235 ; Post Fl. Syr. etc. (1896) 259.—*A. bidentatus* Ehrenb. (ex Bunge).

HABITAT : I. Arabia Petraea (Boiss. !); Et Tih to Sinai (ex Post).

DISTRIB. : Egypt, Arabia Petraea, Palestine.

22. *A. Kneuckeri* Freyn in Bull. Herb. Boiss. ser. 2, iv, 1113.

HABITAT : I. Between Wady Tarfa and Jebel Musa (Kneuck.).

DISTRIB. : Endemic.

23. *A. leucacanthus* Boiss. Diagn. Pl. Or. ser. 1, ix, 93 ; Bunge Astrag. (1868-69) n. 279 ; Boiss. Fl. Or. ii, (1872) 303.

HABITAT : I. Between Suez and Aijun Musa and northward (ex Post).

DISTRIB. : Egypt, Arabia Petraea.

24. *A. nummularioides* Desf. ex emend. DC. Astr. n. 131, excl. syn. ; Del. Frag. Fl. Arab. Petr. (1833) n. 79 ; Bunge Astrag. (1868-69) n. 845.

HABITAT : I. Arabia Petraea (DeLaborde!).

DISTRIB. : Mediterranean region.

25. *A. peregrinus* Vahl Symb. Bot. i, (1790) 57 ; Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, iii, (1835) 266 ; Bunge Astrag. (1868-69) n. 85 ; Boiss. Fl. Or. ii, (1872) 241 ; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 98.

HABITAT : I. Sinai desert (Bové !); Arabia Petraea (McDonald !); S. of Ghazah (Boiss.).

DISTRIB. : N. Africa, Egypt, Arabia Petraea, Palestine.

Vern. name : *Omokrun-acfa* (Bové).

26. *A. prolixus* Sieb. ex Bunge Astrag. i, (1868-69) n. 27 ; Boiss. Fl. Or. ii, (1872) 223 ; Musch. in Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 98.

HABITAT : I. Wady es Sle (Kneuck.); Jebel Nakus (Musch.).

II. Jiddah (Zohrab 172 ! 128 !); Wady Fatimah (Fischer ! Schimp. 843 !).

FL. : Feb. (Fischer), Feb. 1836 (Schimp.).

FR. : Feb. (Fischer), Feb. 1836 (Schimp.).

DISTRIB. : Egypt, Nubia, Abyssinia, Dongola, Arabia, Sind, Punjab,

Vern. name : *Tauil* (Musch.).

27. *A. pseudostella* Del. Ill. Fl. d'Eg. Suppl. 64 ; Bunge Astrag. (1868-69) n. 31 ; Boiss. Fl. Or. ii, (1872) 225.—*A. sinaicus* Boiss. Diagn. Pl. Or. ser. 1, ix, 57.—*A. stella* var. *acutifolius* Desf. Atl. ii, 187 (ex Bunge).

HABITAT : I. Arabia Petraea (McDonald !); Mt. Sinai (Schimp 181 ! Auch.-Eloy 1309 !).

DISTRIB. : Tunis, Algeria, Egypt, Arabia Petraea.

28. *A. radiatus* Ehrenb. MS. ex Bunge Astrag. (1868-69) n. 32 ; Boiss. Fl. Or. ii, (1872) 226 ; Post Fl. Syr. etc. (1896) 258.

HABITAT : I. Et Tih (ex Post) ; Arabia Petraea, towards Palestine (Boiss. !).

FL. : Mar. (Boiss.).

DISTRIB. : Algeria, Tunis, Egypt, Arabia Petraea, Palestine.

**29. *A. sanctus*** Boiss. *Diagn. Pl. Or.* ser. 1, ix, 47; Bunge *Astrag.* (1868-69) n. 881.

HABITAT: I. Et Tih (ex Post); Arabia Petraea (Boiss.!).

DISTRIB.: Arabia Petraea, Palestine, Syria

**30. *A. Schimperi*** Boiss. *Diagn. Pl. Or.* ser. 1, ii, (1843) 53; *Fl. Or.* ii, (1872) 226; *Post Fl. Syr. etc.* (1896) 258.

HABITAT: I. Wady Feiran (Schimp. 238!); Sinai (ex Post).

FL.: Mar. 1835 (Schimp.). FR.: Mar. 1835 (Schimp.).

DISTRIB.: Egypt, Arabia Petraea.

Vern. name: *qureieun aswad* (Post), *Kroid-um uoswod* (Schimp.).

**31. *A. scorpius*** Boiss. *Diagn. Pl. Or.* ser. 1, ix, 103; Bunge *Astrag.* (1868-69) n. 508.

HABITAT: I. Arabia Petraea (McDonald!).

DISTRIB.: Arabia Petraea, Persia.

**32. *A. Sieberi*** DC. *Prodr.* ii, (1825) 295; Schenk *Sp. Pl. it. Aeg. Arab. & Syr.* (1840) 226; Bunge *Astrag.* (1868-69) n. 277; Boiss. *Fl. Or.* ii, (1872) 301.—*A. Barba Aronis* Ehrenb. MS. (ex Bunge).—*A. radicans* Dcne. *Fl. Sin.* in *Ann. Sc. Nat.* ser. 2, iii, (1835) 268.

HABITAT: I. Desert of Sinai (Bové 193!); Wady Barak, Wady Lebweh (Hart!); near Beersheba (Lowne!); Wady Nasb and W. Araba (Hart!); Wady es Sle, W. Tarfa, Serbal ca. 1,950 m., W. Ghurundel (Kneuck.); between Suez and Tor, Wady Shaikh (ex Schenk); Arabia Petraea (Sieber, Auch.-Eloy! Boiss.! Botta); N. and S. Midian (Burton!).

DISTRIB.: Egypt, Arabia Petraea, Midian.

Vern. name: *Sab-al-aross* (Bové), *qudad*, *asabi-el-arur*, *khansar-el-arus* (Post).

**33. *A. sparsus*** Dcne. *Fl. Sin.* in *Ann. Sc. Nat.* ser. 2, iii, (1835) 267; Bunge *Astrag.* (1868-69) n. 287; Boiss. *Fl. Or.* ii, (1872) 299; *Musch. Verh. Bot. Ver. Prov. Brandenb.* xlix, (1907) 99.

HABITAT: I. Wady Shaikh (Boiss.!). Deserts of Sinai and Tor (Bové 192!); Wady Hebran (Schimp. 181!); Arabia Petraea (McDonald!); foot of Serbal (Kneuck.); Sinai (Auch.-Eloy 1293!); N. Midian (Burton!).

FL.: Mar. 1846 (Boiss.), Apr. (Boiss.).

FR.: Mar. 1846 (Boiss.), Apr. 1835 (Schimp.), June 1832 (Bové)

DISTRIB.: Endemic.

Vern. name: *Sabalarose* (Bové).

**34. *A. spinosus*** *Musch. Verh. Bot. Ver. Prov. Brandenb.* xlix, (1907) 98.—*Colutea spinosa* Forsk. *Fl. Aeg.-Arab.* (1775) 151.—*A. tumidus* Willd. *Act. Berol.* (1794) 26 (*partim*); Dcne. *Fl. Sin.* in *Ann. Sc. Nat.* ser. 2, ii,

(1835) 268.—*A. Forskalei* Boiss. Diagn. Pl. Or. ser. 1, ix, 101 ; Bunge Astrag. (1868-69) n. 505.—*A. Rauwolfii* Vahl. Russ. Alep. t. 5.

HABITAT : I. Mt. Sinai (Ehrenb. ! Boiss. 472 ! Schimp. 127 ! Drake 18 !); Arabia Petraea (Pinard !); above Oasis Feiran (Kneuck.) ; N. Midian (Burton !); Desert between Suez and Tor (Bové 189 !).

IV. Kuwait and neighbourhood of Regat (Pelly !).

FR. : June 1832 (Bové).

DISTRIB. : Egypt, Arabia, Palestine, Syria.

Vern. name : *Kidad* (Burton), *thimrah* (Post).

35. *A. stella* Gouan ex DC. Astrag. 84, n. 7 ; Schenk. Sp. Pl. it. Aeg. Arab. Petr. & Syr. (1840) n. 228 ; Bunge Astrag. (1868-69) n. 46.—*A. stella* VAR. *obtusifolius* DC. l. c. excl. var.  $\beta$ .

HABITAT : I. Wady es Shaikh (ex Schenk).

DISTRIB. : Mediterranean region.

36. *A. tenuirugus* Boiss. Diagn. Pl. Or. ser. 1, ix, 61 ; Bunge Astrag. (1868-69) n. 60 ; Boiss. Fl. Or. ii, (1872) 232.

HABITAT : I. Arabia Petraea : Hamata and Bestan (Schimp. 120 ! 322 !); Arabia Petraea (Boiss. !); Sinai, et Tih (ex Post).

FL. : Apr. 1846 (Boiss.), May 1835 (Schimp.).

FR. : Apr. 1846 (Boiss.), May 1835 (Schimp.).

DISTRIB. : N. Africa, Arabia Petraea, Palestine.

37. *A. tribuloides* Del. Ill. Fl. d' Eg. (1813) n. 696, t. 64, f. 17 ; DC. Prodr. ii, (1825) 288 ; Bunge Astrag. (1868-69) n. 29 ; Boiss. Fl. Or. ii, (1872) 224 ; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 97.—*A. tribuliformis* Hochst. MS. in Pl. Schimp.

HABITAT : I. Between Suez and Sinai (Boiss. !); Wady Tarfa, Monastery of St. Catherine, foot of Jebel Serbal (Kneuck.); el Tor (Musch.).

DISTRIB. : Mediterranean region, Persia, Baluchistan, Afghanistan, Punjab, Central Asia.

Vern. name : *Ruchainu*, *quedd* (Musch.), *Rukhaimi quadaā* (Post).

VAR. *leiocarpus* Boiss. Fl. Or. ii, (1872) 225 ; Post Fl. Syr. etc. (1896) 257.—*A. ammocryptus* Boiss. Diagn. Pl. Or. ser. 1, ix, 60.

HABITAT : I. Northern border of Et Tih (ex Post).

DISTRIB. : Arabia Petraea, Palestine, Persia.

VAR. *minutus* Boiss. Fl. Or. ii, (1872) 225 ; Post Fl. Syr. etc. (1896) 257.—*A. minutus* Boiss. Diagn. Pl. Or. ser. 1, ix, 58.

HABITAT : I. Mt. Sinai (Schimp. 181 !); between Nukul and Ghazah (Boiss. !); Nukul (ex Post).

FL. : Apr. 1835 (Schimp.). FR. : Apr. 1835 (Schimp.).

DISTRIB. : Egypt, Arabia, Mesopotamia, Persia, Afghanistan, Baluchistan.

38. *A. trigonus* DC. Astr. (1802) n. 81 ; Bunge Astrag. (1868-69) n. 280 ; Boiss. Fl. Or. ii, (1872) 302.

HABITAT : I. Arabia Petraea (Boiss. ! Botta) ; Dead Sea to Sinai (ex Post).

DISTRIB. : Egypt, Arabia Petraea.

39. *A. trimestris* L. Sp. Pl. (1753) 761 ; Bunge Astrag. (1868-69) n. 66 ; Boiss. Fl. Or. ii, (1872) 234 ; Post Fl. Syr. etc. (1896) 259.

HABITAT : I. Et Tih (ex Post).

DISTRIB. : Egypt, Arabia Petraea.

40. *A. tuberculosus* DC. Astr. 33, t. 22 ; Bunge Astrag. (1868-69) n. 82 ; Boiss. Fl. Or. ii, (1872) 239.—*A. Kotschyanus* Fisch. in Kotschy Pl. Alepp. n. 252.

HABITAT : I. Ramleh (Lowne !)

FL. : Apr. (Boiss.).

DISTRIB. : Mediterranean region, Mesopotamia.

41. *A. virgatus* Pallas Astr. 20, n. 25, t. 18 ; Del. Frag. Fl. Arab. Petr. (1833) n. 78 ; Bunge Astrag. (1868-69) n. 867.—*A. varius* DC. Astr. 109, n. 34.

HABITAT : I. Arabia Petraea (De Laborde ex Del.) Non vidi sp.

DISTRIB. : S. Russia to Caspian Sea, Arabia Petraea.

#### 24. *Scorpiurus* L.

1. *S. muricata* L. Sp. Pl. (1753) 745 ; Boiss. Fl. Or. ii, (1872) 178 ; Musch. Fl. Eg. i, (1912) 529.

HABITAT : I. Arabia Petraea (ex Musch.).

DISTRIB. : Mediterranean region.

#### 25. *Hippocrepis* L.

1. *H. bicontorta* Loisel Nouv. Not. (1827) 32.—*H. Cornigera* Boiss Diagn. Pl. Or. ser. 1, ii, 102 ; Fl. Or. ii, (1872) 185.—*H. velutina* Del. II. Fl. d' Eg. t. 64.—*H. buceras* Del. l. c. t. 64, f. 13.—*H. divaricata* Hochst. MS. ex Boiss.

HABITAT : I. Arabia Petraea (McDonald ! Pinard !); Sinai (Auch.-Eloy 1153 !); near Ras Hamam Schimp. 190 !); Wady Sewook and neighbourhood (Lord !); Ramleh (Post !); S. end of Dead Sea to Sinai (ex Post).

## IV. In the neighbourhood of Kuwait (Pelly!).

FL. : Mar. 1835 (Schimp.), Mar. 1882 (Post), Apr. 1868 (Lord).

FR. : Mar. 1835 (Schimp.), Mar. 1882 (Post), Apr. 1868 (Lord).

DISTRIB. : Mediterranean region.

Vern. name : *Medahin* (Post).

2. *H. bisiliqua* Forsk. Fl. Aeg.-Arab. (1775) LXXI, n. 371; Musch. Fl. Eg. i, (1912) 530.

HABITAT : I. Arabia Petraea (ex Musch.).

DISTRIB. : Egypt, Arabia Petraea, Mesopotamia.

3. *H. constricta* Kze. Pugill. Plant. Prim. (1838) 42; Boiss. Fl. Or. Suppl. (1898) 171; Musch. Fl. Eg. i, (1912) 531.—*H. ciliata* Boiss. Fl. Or. ii, (1872) 185, *partim* (non Willd.).—*H. elegantula* Hochst.

HABITAT : I. Arabia Petraea (ex Musch.).

II. Jiddah (Schimp. 939! Fischer 82! Zohrab 157!).

FL. : Mar. 1837 (Schimp., Fischer).

FR. : Mar. 1837 (Schimp.).

DISTRIB. : Mediterranean region, tropical Arabia.

4. *H. multisiliquosa* L. Sp. Pl. (1753) 744; Boiss. Fl. Or. ii, (1872) 185; Musch. Fl. Eg. i, (1912) 530.

HABITAT : I. Arabia Petraea (ex Musch.).

DISTRIB. : Mediterranean region.

5. *H. unsiliquosa* L. Sp. Pl. (1753) 744; Boiss. Fl. Or. ii, (1872) 184; Musch. Fl. Eg. i, (1912) 530.—*H. monocarpa* M.B. Fl. Taur-Cauc. iii, 480.

HABITAT : I. Arabia Petraea (ex Musch.).

DISTRIB. : Mediterranean region, Caucasus.

26. *Hedysarum* L.

1. *H. spinosissimum* Sibth. & Smith Fl. Gr. viii, 16, t. 721; Boiss. Fl. Or. ii, (1872) 513; Musch. Fl. Eg. i, (1912) 533.—*H. capitatum* var. *pallens* Moris Flor. Sard. t. 68, f. B.

HABITAT : I. Arabia Petraea (ex Musch.).

DISTRIB. : Mediterranean region.

Vern. name : *androsarum* (Post).

27. *Taverniera* DC.

1. *T. glauca* Edgew. Journ. Asiat. Soc. Beng. xvi, 1214; Anders. Fl. Aden. (1860) 17; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 249; Blatt. Fl. Aden (1915) 176.

HABITAT: II. Aden (Beevor 42! Edgew.! S. 59! Balf.! Lunt 340! Deff.!).

FL.: Jan. 1856 (Edgew.), Apr. 1894 (Lunt.), Nov. 1888 (S.).

FR.: Jan. 1880 (Balfour), Apr. 1894 (Lunt.), Mar. and Nov. (S.).

DISTRIB.: Abyssinia, Arabia.

2. *T. lappacea* DC. Prodr. ii, (1825) 339; Oliv. Fl. Trop. Afr. ii, (1871) 140; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 249.—*Hedysarum lappaecum* Forsk. Fl. Aeg.-Arab. (1775) CXVII, n. 451 and p. 136.

HABITAT: I. Naaman Island (Burton!).

II. Near el Hami (S. 171); Yaman (Ehrenb.!); Lohaja (Forsk.).

FL.: Apr. 1881 (S.). FR.: Apr. 1881 (S.).

DISTRIB.: Nubia, Arabia.

Vern. name: *Höbb el adjais* (Forsk.).

Note: Eaten by animals (Burton).

3. *T. Schimperii* Jaub. & Sp. Illustr. Pl. Or. t. 474; Oliv. Fl. Trop. Afr. ii, (1871) 141; Blatt. Fl. Aden (1915) 177.—*T. cyclophylla* Hochst. in Schimp. Herb. Abyss. 2329.—*T. floribunda* Schweinf. Fl. Aethiop. 17.

HABITAT: II. Aden (Deff.!).

DISTRIB.: Abyssinia, Aden.

28. *Onobrychis* Gaertn.

1. *O. Crista galli* Lam. Fl. France, ii, (1778) 652; Schenk Sp. Pl. it. Aeg. Arab. Syr. (1840) n. 233; Boiss. Fl. Or. ii, (1872) 528; Post Fl. Syr. etc. (1896) 281.—*Hedysarum Crista galli* L. Syst. 563.

HABITAT: I. Arabia Petraea (ex Post); Wady Musa (ex Schenk).

DISTRIB.: Morocco, Algeria, Tunisia, Tripolitania, Egypt, Arabia Petraea, Palestine, Syria.

2. *O. ptolemaica* DC. Prodr. ii, (1825) 347; Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, iii, (1835) 269; Boiss. Fl. Or. ii, (1872) 547; Post Fl. Syr. etc. (1896) 283.—*Hedysarum ptolemaicum* Del. Fl. Eg. 328, t. 39, f. 1.

HABITAT: I. Sinai (Auch.-Eloy 1049! Schimp. 215! Drake 96! Boiss.); Arabia Petraea (McDonald! Bové!); Dead Sea to Sinai (ex Post); Plain Raha, Wady es Shaikh, Serbal region (Kneuck.).

FL. : Apr. 1835 (Schimp.). FR. : Apr. 1835 (Schimp.).

DISTRIB. : Egypt, Arabia Petraea, Palestine.

Vern. name : *khansar-el-'Arûs* (Post).

### 29. Ebenus L.

1. *E. stellata* Boiss. Diagn. Pl. Or. ser. 1, ii, 100; Fl. Or. ii, (1872) 557.—*E. tragacanthoides* Jaub. & Sp. Ill. Pl. Or. 158, t. 254.—*E. horrida* and *E. ferruginea* Jaub. & Sp. l. c. 159, 160.

HABITAT : IV. Jebel Akhdhar (Auch.-Eloy 4436 !); Masqat (Auch.-Eloy 4430 !).

DISTRIB. : Arabia, Persia, Baluchistan.

VAR. *unifoliolata* Boiss. Fl. Or. ii, (1872) 557.—*E. erinacea* Jaub. & Sp. Ill. Pl. Or. t. 255.

HABITAT : IV. Masqat (Auch.-Eloy !).

DISTRIB. : Endemic.

### 30. Alhagi Desv.

1. *A. camelorum* Fisch. Ind. Gor. (1812) 72; Boiss. Fl. Or. ii, (1872) 559; Cooke Fl. Bomb. i, (1903) 333.

HABITAT : Arabia (ex Cooke). Non vidi sp.

DISTRIB. : Arabia, Persia, Afghanistan, Baluchistan, N. W. India.

2. *A. Maurorum* Medic. in Vorles. Churpf. Phys. Ges. ii, (1787) 397; DC. Prodr. ii, 352; Boiss. Fl. Or. ii, (1872) 558; Baker in Kew Bull. (1894) 331; Blatt. Fl. Aden (1915) 178.—*A. mannifera* Desv. Journ. Bot. i, (1813) 120.

HABITAT : I. J. Musa and Ain Musa (Hart!); Wady Ghurundel (Kneuck.); Wady Feiran (Lord); Wady Hebran (Schimp. 363!); Sinai (Drake 107!).

II. Aden (Birdw. 180!).

III. Hillsides at Sibeh, 500 ft. (Lunt!).

FL. : June 1835 (Schimp.), June 1868 (Lord).

FR. : June 1868 (Lord).

DISTRIB. : Nubia, Egypt, Arabia, Syria, Mesopotamia.

Vern. name : *Aqoul* (Bové), *Āqâl* (Post).

### 31. Ormocarpum Beauv.

1. *O. bibracteatum* Baker in Oliv. Fl. Trop. Afr. ii, (1871) 143; Defl. Yemen (1889) 132; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 249.—*Acrotaphros bibracteata* Steud. ex Rich. Fl. Abyss. i, (1847) 207.

HABITAT : II. Jebel Bura, Hille (S. 350!); Aggara, Hajeilah (S. 1007!); near Hajeilah (Defl. 76! 116, 136); neighbourhood of Aden (Hunter!).



FL. : Jan., Feb. 1889 (S.). FR. : Jan., Feb. 1889 (S.).

DISTRIB. : Senegambia, Abyssinia, Eritrea, Somaliland, Yaman.

Vern. name : *kömrár* (S.).

### 32. *Aeschynomene* L.

1. *A. arabica* Defl. in Bull. Soc. Bot. France, xlii, (1895) 303.

HABITAT : II. Wady Moaden (Defl. 1150!).

FL. : May 1894 (Defl.). FR. : May 1894 (Defl.).

DISTRIB. : Endemic.

### 33. *Stylosanthes* Swartz.

1. *S. mucronata* Willd. Sp. Pl. iii, (1803) 1166; Oliv. Fl. Trop. Afr. ii, (1871) 157; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 250.—*S. setosa* Harv. & Sond. Fl. Cap. ii, 217.

HABITAT : II. Above Hille, 800 m. (S. 448!); below Wasil, 1,200 m. (S. 1263); Okeber, 900 m. (S. 863).

FL. : Jan., Feb. 1889 (S.). FR. : Jan., Feb. 1889 (S.).

DISTRIB. : Senegal, Mozambique, Zambesi, Cape, Eritrea, Yaman, India.

### 34. *Desmodium* Desv.

1. *D. gangeticum* DC. Prodr. ii, (1825) 327; Oliv. Fl. Trop. Afr. ii, (1871) 161; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 250.

HABITAT : II. Jebel Bura, Hille (S. 245!); near Wulej, 600 m. (S. 709).

FL. : Jan. 1889 (S.). FR. : Jan. 1889 (S.).

DISTRIB. : Tropical Africa, India, Malaya.

Vern. name : *Orgãssí* (S.).

2. *D. Scalpe* DC. Prodr. ii, (1825) 334; Oliv. Fl. Trop. Afr. ii, (1871) 164; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 250.—*D. Schimperii* Hochst. ex Rich. Fl. Abyss. i, (1847) 205.

HABITAT : II. Near Wasil, 1,400 m. (S. 1228!).

FL. : Feb. 1889 (S.). FR. : Feb. 1889 (S.).

DISTRIB. : Tropical Africa, Natal, Mascarene Islands, India, Malaya.

### 35. *Alysicarpus* Neck.

1. *A. nummularifolius* DC. Prodr. ii, (1825) 353; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 250.

HABITAT : II. Wulej, 600 m. (S. 867).

FL. : Jan. 1889 (S.). FR. : Jan. 1889 (S.).

DISTRIB. : Tropics of the Old World.

2. *A. rugosus* DC. Prodr. ii, (1825) 353; Oliv. Fl. Trop. Afr. ii, (1871) 171; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 250.—*A. Hochstetteri* Rich. Fl. Abyss. i, (1847) 209.

HABITAT: II. Yaman (Ehrenb. !); Wasil, 1,400 m. (S. 1321).

FL.: Feb. 1889 (S.). FR.: Feb. 1889 (S.).

DISTRIB.: Tropics of the Old World, Cape, Australia.

### 36. Cicer L.

1. *C. arietinum* L. Sp. Pl. (1753) 738; Boiss. Fl. Or. ii, (1872) 560; Schweinf. in Bull. Herb. Boiss. (1893) App. II, 251; Musch. Fl. Eg. i, (1912) 538; Carter in Rec. Bot. Surv. Ind. vi, (1917) 192.—*C. cuneatum* Hochst. in Schimp. Herb. Abyss. n. 810.

HABITAT: I. Arabia Petraea (ex Musch.).

II. Above Manakhah, 2,400 m. (S. 1590!).

IV. Principality of Kuwait (Cox).

DISTRIB.: Widely cultivated in tropical and sub-tropical regions.

Vern. name: *Hummus* (Post), *kamas, nakhi* (Cox).

### 37. Vicia L.

1. *V. angustifolia* L. Amoen. iv, 105; Boiss. Fl. Or. ii, (1872) 574.—*V. stricta* L. var. *angustifolia* Alef. in Landwirtsch. Flor. (1866) 60; Musch. Fl. Eg. i, (1912) 540.

HABITAT: I. Arabia Petraea (ex Musch.).

II. Jiddah (Zohrab 154! 301!); Manakhah, 2,800 m. (S. 1385!).

FR.: Feb. 1889 (S.)

DISTRIB.: Mediterranean region:

2. *V. Ervilia* Willd. Sp. Pl. iii, (1800) 1103; Boiss. Fl. Or. ii, (1872) 595; Post Fl. Syr. etc. (1896) 290; Musch. Fl. Eg. i, (1912) 543.

HABITAT: I. Arabia Petraea (ex Musch.).

DISTRIB.: Central Europe, Mediterranean region, Persia, Afghanistan.

Vern. name: *Kirseneh* (Post).

3. *V. Faba* L. Sp. Pl. (1753) 737; Defl. Yemen (1889) 132.

HABITAT: II. Cultivated near Amran, 2,300 m. (Defl. 631!);

DISTRIB.: Cultivated in all warm countries:

4. *V. gracilis* Loisel. Fl. Gall. ii, 148, t. 12; Boiss. Fl. Or. ii, (1872) 596; Post Fl. Syr. etc. (1896) 290; Musch. Fl. Eg. i, (1912) 543.

HABITAT: I. Arabia Petraea (ex Musch.).

DISTRIB.: Central Europe, Mediterranean region:

5. *V. lutea* L. Sp. Pl. (1753) 736. var. *hirta* Boiss. Fl. Or. ii, (1872) 570; Post Fl. Syr. etc. (1896) 286; Musch. Fl. Eg. i, (1912) 540.—*V. lutea* Forsk. Fl. Aeg.-Arab. (1775) LXX, n. 367.

HABITAT: I. Arabia Petraea (ex Musch.).

DISTRIB.: Mediterranean region, Persia.

6. *V. narbonensis* L. Sp. Pl. (1753) 737; Boiss. Fl. Or. ii, (1872) 577; Post Fl. Syr. etc. (1876) 288.

HABITAT: I. Wady Zəwerah (Lowne!).

DISTRIB.: Mediterranean region, Persia.

Vern. name: *Nu'māni-barri*, *Fāl-Iblis*, *Bakher*.

7. *V. peregrina* L. Sp. Pl. (1753) 737; Boiss. Fl. Or. ii, (1872) 576; Post Fl. Syr. etc. (1896) 287; Muech. Fl. Eg. i, (1912) 541.

HABITAT: I. Arabia Petraea (ex Musch.).

DISTRIB.: Central Europe, Mediterranean region, Persia.

8. *V. salamina* Heldr. & Sart. in Boiss. Diagn. Pl. Or. ser. 2, ii, 39; Fl. Or. ii, (1872) 591; Musch. Fl. Eg. i, (1912) 543.

HABITAT: I. Arabia Petraea (ex Musch.).

DISTRIB.: Mediterranean region and Orient.

9. *V. sativa* L. Sp. Pl. (1753) 736; Forsk. Fl. Aeg.-Arab. (1775) LXX, n. 366; Del. Frag. Fl. Arab. Petr. (1833) n. 84; Boiss. Fl. Or. ii, (1872) 574; Post Fl. Syr. etc. (1896) 287.

HABITAT: I. Arabia Petraea (De Laborde).

DISTRIB.: Indigenous in Mediterranean region and Persia. Cultivated everywhere in the temperate and tropical regions.

Vern. name: *Baqiyah* (Post).

VAR. *abyssinica* Baker in Oliv. Fl. Trop. Afr. ii, (1871) 172; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 251.

HABITAT: II. Manakhah, 2,200 m. (S. 1385!).

FL.: Feb. 1889 (S.). FR.: Feb. 1889 (S.).

DISTRIB.: Abyssinia, Eritrea, Yaman.

VAR. *amphicarpa* Coss. & Kral. in Bull. Soc. Bot. France, iv, (1857) 40; Musch. Fl. Eg. i, (1912) 541.—*V. angustifolia* var. *amphicarpa* Alef. Bot. Zeitg. xx, (1862) 363.—*V. amphicarpa* L. Sp. Pl. ed. 2, (1762) 1030.

HABITAT: I. Arabia Petraea (ex Musch.).

DISTRIB.: Mediterranean region.

38. *Lens* Gren. et Godr.

1. *L. esculenta* Moench. Meth. (1794) 131; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 251; Musch. Fl. Eg. i, (1912) 544.—*Eroum Lens* L. Sp. Pl. (1762) 1039; Boiss. Fl. Or. ii, (1872) 598.

HABITAT: I. Arabia Petraea (ex Musch.).

II. Wady Fatimah (Fischer 194!); near Wasil, cultivated and run wild (S. 1314).

FL.: Feb. (Fischer), Feb. 1889 (S.). FR.: Feb. 1889 (S.).

DISTRIB.: Mediterranean region, Arabia, Persia, Afghanistan, Baluchistan, widely cultivated.

Vern. name: *Belssim* (S.).

39. *Lathyrus* L.

1. *L. annuus* L. Sp. Pl. (1762) 1032; Boiss. Fl. Or. ii, (1872) 603; Musch. Fl. Eg. i, (1912) 545.

HABITAT: I. Arabia Petraea (ex Musch.).

DISTRIB.: Mediterranean region.

2. *L. Aphaca* L. Sp. Pl. (1753) 729; Boiss. Fl. Or. ii, (1872) 602; Post Fl. Syr. etc. (1896) 292.

HABITAT: I. Arabia Petraea (ex Post).

DISTRIB.: Europe, Mediterranean region.

Vern. name: *Showarib-el-busein, hamam-el-bourg* (Post).

3. *L. Cicera* L. Sp. Pl. (1753) 730; Del. Frag. Fl. Arab. Petr. (1833) n. 83.

HABITAT: I. Arabia Petraea (De Laborde).

DISTRIB.: Mediterranean region, Persia, Transcaucasus.

4. *L. hierosolymitanus* Boiss. Diagn. Pl. Or. ser. 1, ix, 127; Fl. Or. ii, (1872) 604; Musch. Fl. Eg. i, (1912) 546.

HABITAT: I. Arabia Petraea (ex Musch.).

DISTRIB.: Marmarica, Egypt, Arabia Petraea, Palestine, Syria.

5. *L. marmoratus* Boiss. & Blanche in Fl. Or. ii, (1872) 606; Musch. Fl. Eg. i, (1912) 547.

HABITAT: I. Arabia Petraea (ex Musch.).

DISTRIB.: Marmarica, Egypt, Arabia Petraea, Palestine, Syria.

6. *L. sativus* L. Sp. Pl. (1753) 730; Boiss. Fl. Or. ii, (1872) 606; Defl. Yemen (1889) 224.

HABITAT : II. Yaman, cultivated (Defl.).

DISTRIB. : Europe, Mediterranean region, Abyssinia.

Vern. name : *Jilban* (Post).

40. *Pisum* L.

1. *P. fulvum* Sibth. & Sm. Fl. Graec. vii, 79, t. 688 ; Boiss. Fl. Or. ii, (1872) 628 ; Post Fl. Syr. etc. (1896) 295.

HABITAT : I. Wells of Moses (Fox !).

DISTRIB. : Arabia Petraea, Palestine, Syria, Asia Minor.

2. *P. sativum* L. Sp. Pl. (1753) 727.

VAR. *elatus* Alef. in Landwirtschaftl. Flora (1862) 63 ; Mucch. Fl. Eg. i, (1912) 548.—*P. elatus* M. B. Taur. Cauc. ii, 151 ; Boiss. Fl. Or. ii, (1872) 623.

HABITAT : I. Arabia Petraea (ex Musch.).

DISTRIB. : Mediterranean region, Caucasus, Persia, Himalaya.

Vern. name : *Bishleh*, *Bizella* (Post).

41. *Abrus* L.

1. *A. Bottæ* Defl. Yemen (1889) 132 ; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 252.

HABITAT : II. Round Hajeilah, 500—800 m. (Defl. 66, 228) ; Jebel Ras (Botta) ; near Bajil (S. 528 ! ) ; Aggara 600 m. (S. 1843) ; near Hille, 600 m. (S. 1936) ; Wulej (S. 701).

FL. : Jan. 1889 (S.). FR. : Jan., Feb. 1889 (S.).

DISTRIB. : Endemic.

Vern. name : *Tennueb*, *asb* (S.).

2. *A. precatorius* L. ; DC. Prodr. ii, (1825) 381 ; Oliv. Fl. Trop. Afr. ii, (1871) 175 ; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 252.

HABITAT : II. Near Okeber, 900 m. (S. 811 ! ) ; above Hille 600—1,000 m. (S. 486).

FR. : Jan. 1889 (S.).

DISTRIB. : Tropical region.

Vern. name : *Ain-lahla*, *ofrâss* (S.).

42. *Clitoria* L.

1. *C. Ternatea* L. Sp. Pl. (1753) 753 ; Oliv. Fl. Trop. Afr. ii, (1871) 177 ; Defl. Yemen (1889) 132 ; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 252.—*Lathyrus spectabilis* Forsk. Fl. Aeg.-Arab. (1775) CXVII, n. 445 and p. 135.

HABITAT : II. Surdud (Forsk.); near Hille, 600 m. (S. 260!); round Hajeilah and Wasil, 600—800 m. (Defl. 145, 176).

FL. : Dec. 1888 (S.). FR. : Dec. 1888 (S.).

DISTRIB. : Cosmopolitan in the tropics; common in cultivation.

Vern. name : *moglagidi* (S.).

#### 43. *Glycine* L.

1. *G. javanica* L. Sp. Pl. (1753) 754; DC. Prodr. ii, (1825) 242; Oliv. Fl. Trop. Afr. ii, (1871) 178; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 252.—*G. micrantha* Hochst. in Rich. Fl. Abyss. i, (1847) 212.—*G. moniliformis* Hochst. l. c. 211.

HABITAT : II. Above Hille, 1,000 m. (S. 442!); Wasil 1,400 m. (S. 1227).

FL. : Jan. 1889 (S.). FR. : Feb. 1889 (S.).

DISTRIB. : Upper Guinea, Sennaar, Abyssinia, Eritrea, Zanzibar, Natal, Tropical Asia,

#### 44. *Teramnus* Swartz.

1. *T. labialis* Spreng. Syst. iii, 235; Oliv. Fl. Trop. Afr. ii, (1871) 180; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 253.—*Glycine abyssinica* Hochst. in Schimp. Herb. Abyss. n. 1057; A. Rich. Fl. Abyss. i, (1847) 212.—*Kennedyia arabica* Hochst. et Steud. in Schimp. Herb. Arab. n. 900.

HABITAT : II. Above Hille, 700 m. (S. 309!); Wulej 600 m. (S. 1987); near Wasil, 1,200 m. (S. 1988).

FL. : Jan. 1889 (S.). FR. : Jan., Feb. 1889 (S.).

DISTRIB. : Tropics of Old and New World, Natal.

#### 45. *Galactia* P. Br.

1. *G. tenuiflora* W. & A. Prodr. Fl. Ind. 206. var. *biflora* Schweinf. in Bull. Herb. Boiss. (1896) App. II, 253.

HABITAT : II. Coffee region above Hille, 1,600 m. (S. 1863!).

FL. : Jan. 1889 (S.). FR. : Jan. 1889 (S.).

DISTRIB. : Zambesiland, Eritrea, Cape, Mascarene Islands, India.

#### 46. *Canavalia* Adans.

1. *C. polystachya* Schweinf. in Reliq. Kotschy, 25—28, t. XX, XXI; Bull. Herb. Boiss. (1896) App. II, 254.—*Dolichos polystachios* Forsk. Fl. Aeg.-Arab. (1775) CXVII, n. 437 and p. 134.—*D. virosus* Roxb Hort. Beng. 55.

HABITAT: II. Wady Mor, W. Surdud, Hadiyah (Forsk.); near Wulej, Jebel Milhan, 600 m. (S. 685!); near Hille 700 m. (S. 1829); Bajil (S. 586).

FL.: Jan. 1889 (S.). FR.: Jan. 1889 (S.).

DISTRIB.: Everywhere in the tropics.

Vern. name: *sséf-er-robáck*, *ssoreg* (S.). The cultivated plant is called *lubia hindi*, i.e. Indian bean (S.).

Note: For medical uses see Forsk. l.c.

#### 47. Phaseolus L.

1. *P. aconitifolius* Jacq. Obs. iii, 2, t. 52; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 260. — *P. palmatus* Forsk. Fl. Aeg.-Arab. (1775) 214.

HABITAT: II. Cultivated in Yaman (Forsk.); cult. near Marrana (S. 170).

FL.: Dec. 1888 (S.). FR.: Dec. 1888 (S.).

DISTRIB.: Eritrea, Yaman, India, Ceylon.

Vern. name: *gotn* (Forsk.), *gatten* (S.).

2. *P. Mungo* L. Mant. 101; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 260; Krause in Engl. Bot. Jahrb. xxxv, (1905) 735; Carter in Rec. Bot. Surv. Ind. vi, (1917) 192. — *P. radiatus* L. Sp. Pl. (1753) 725; Forsk. Fl. Aeg.-Arab. (1775) 214.

HABITAT: II. Okeber, 900 m. (S. 856!); near Lahaj (Ellenbeck); cult. in Yaman (Forsk.).

IV. Principality of Kuwait (Cox).

DISTRIB.: Commonly cultivated in tropical Asia.

Vern. name: *fanát* (Ellenbeck), *kuscheri* (S.), *mash* (Cox).

3. *P. vulgaris* L. Sp. Pl. 723; Carter in Rec. Bot. Surv. Ind. vi, (1917) 193.

HABITAT: IV. Principality of Kuwait (Cox).

DISTRIB.: Spread all over the tropical and temperate regions.

Vern. name: *lubi* (Cox).

4. *P. multiflorus* Willd. Sp. Pl. iii, 1030; Carter in Rec. Bot. Surv. Ind. vi, (1917) 193.

HABITAT: IV. Principality of Kuwait (Cox).

DISTRIB.: Widely cultivated.

Vern. name: *lubi ahmur* (Cox).

48. *Vigna* Savi.

I. *V. sinensis* Endl. ex Hassk. Pl. Jav. Rar. (1848) 386; Oliv. Fl. Trop. Afr. ii, (1871) 204; Baker in Kew Bull. (1894) 332; Krause in Engl. Bot. Jahrb. xxxv, (1905) 735.—*Dolichos Lubia* Forsk. Fl. Aeg.-Arab. (1775) LXX, n. 363 and p. 133.

HABITAT: II. Cultivated in the oasis of Lahaj (Defl. 115!); near Lahaj (Ellenbeck).

III. Hadramaut, cultivated at Katan, 1,150 ft. (Lunt 16!).

FL.: Dec. 1889 (Defl.).

DISTRIB.: Cultivated throughout the tropics.

Vern. name: *Dugr* (Lunt).

VAR. *sesquipedalis* (L.) Kornicke in Correspondenzbl. Naturhist. Ver. Rheinl. Westf. (1885) 147; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 260.—*Dolichos didjre* Forsk. Fl. Aeg.-Arab. (1775) 133.

HABITAT: II. Cultivated in the Tehama near Marrana (S. 171!); sold in the market at Bajil (S. 872).

III. Hadramaut (Hirsch 31).

FL.: Dec. 1888 (S.). FR.: Dec. 1888 (S.), Jan. 1889 (S.).

DISTRIB.: Cultivated in the tropics.

Vern. name: *Digr* (Hirsch), *Lubiyak belediyah* (Post).

2. *V. variegata* Defl. Yemen (1889) 132.

HABITAT: II. Near Attara 1,800 m. (Defl. 422).

DISTRIB.: Endemic.

49. *Dolichos* L.

I. *D. Lablab* L. Sp. Pl. (1753) 725; Oliv. Fl. Trop. Afr. ii, (1871) 210; Baker in Kew Bull. (1894) 332; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 263; Carter in Rec. Bot. Surv. Ind. vi, (1917) 193.—*Lablab vulgaris* Savi ex DC. Prodr. ii, (1825) 401.—*D. crenatifructus* Steud. in Schimp. Herb. Abyss. 513.

HABITAT: II. Jiddah (Fischer 201!).

III. Hadramaut: Cultivated under the date palms at Alrail, 2,000 ft. (Lunt 130!).

IV. Masqat (Auch.-Eloy 4359!); Principality of Kuwait (Cox).

FL.: Feb. (Fischer), Dec. 1893 (Lunt).

DISTRIB.: Cultivated throughout the tropics.



Vern. name: *Libláb Lubigah 'afinah Sheranjib* (Post), *Kischt* (S.), *lubia* (Cox).

VAR. **albiflorus** Schweinf. in Bull. Herb. Boiss. (1896) App. II, 263.—*Lablab vulgaris* VAR. *albiflorus* DC. l. c. 401.

HABITAT: II. Cultivated at Manakhah, 2,200 m. (S. 1697).

FL.: Mar. 1889 (S.).

VAR. **purpureus** Schweinf. in Bull. Herb. Boiss. (1896) App. II, 263.—*Lablab vulgaris* Savi VAR. *purpureus* DC. l. c. 401.

HABITAT: II. Cultivated near Okeber, 900 m. (S. 837).

FR.: Jan. 1889 (S.).

2. **D. cultratus** Forsk. Fl. Aeg.-Arab. (1775) 134; Schweinf. Arab. Pflanzennamen (1912) 138.

HABITAT: II. Lohaja (Forsk.).

DISTRIB.: Endemic.

Vern. name: *didjre, kescht* (Forsk.).

3 ? **D. faba indica** Forsk. Fl. Aeg.-Arab. (1775) 133.

HABITAT: II. Jiddah (Forsk.).

DISTRIB.: Endemic.

Vern. name: *Ful hendi* (Forsk.).

4. **D. formosus** A. Rich. Fl. Abyss. i, (1807) 225; Oliv. Fl. Trop. Afr. ii, (1871) 213; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 264.

HABITAT: II. Below Manakhah, 1,900 m. (S. 1530).

FL.: Feb. 1889 (S.). FR.: Feb. 1889 (S.).

DISTRIB.: Abyssinia, Eritrea, Yaman.

#### 50. *Cajanus* DC.

1. **C. indicus** Spreng. Syst. Veg. iii, 248; Oliv. Fl. Trop. Afr. ii, (1871) 216.—*C. flavus* DC. Cat. Hort. Monsp. 85, n. 43; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 254.

HABITAT: II. Cultivated above Hille, 700-1,000 m. (S. 565).

FL.: Jan. 1889 (S.). FR.: Jan. 1889 (S.).

DISTRIB.: Cultivated throughout the tropics.

Vern. name: *qischta* (S.).

#### 51. *Rhynchosia* Lour.

1. **R. flavissima** Hochst. in Oliv. Fl. Trop. Afr. ii, (1871) 219; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 255.

HABITAT : II. Wasil, 1,400 m. (S. 1351 !); Aggara, 600 m. (S. 1008); Wulej, 600 m. (S. 647).

FL. : Jan., Feb. 1889 (S.).

DISTRIB. : Abyssinia, Sennaar, Yaman.

2. *R. memnonia* DC. Prodr. ii, (1825) 386 ; Dene. Pl. l'Arab. Heur. in Ann. Sc. Nat. ser. 2, iv, (1835) 77 ; Oliv. Fl. Trop. Afr. ii, (1871) 220 ; Boiss. Fl. Or. ii, (1872) 625 ; Hook. f. Fl. Brit. Ind. ii, pt. iv, (1876) 224 ; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 254 ; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 100 ; Blatt. Fl. Aden (1915) 179.—*R. pulverulenta* Stocks in Kew Journ. Bot. iv, 147 ; Boiss. l. c. 655 ; Anders. Fl. Aden. (1860) 17.—*R. minima* DC. l. c. 386. VAR. *memnonia* Cooke, Fl. Bomb. Pres. i, 389.—*Glycine memnonia* Del. Fl. d'Eg. 100. t. 38, f. 3.

HABITAT : I. Jebel Hamam-Sidna-Musa, J. Nakus, Desert Ka'a (Musch.).

II. Yaman (Bové 234); between Behae and Hajeilah (S. 886); near Merawa (Defl. 36); Aden (S. 102 ! Defl. ! Anders. ! Hook. ! Balfour ! Brdw. !); Little Aden (Defl. !).

FL. : Jan. 1880 (Balfour), Jan. 1889 (S.).

DISTRIB. : Egypt, Nubia, Abyssinia, Kordofan, Sennaar, highlands of Somaliland, Kilimandjaro, Angola Lower Congo, Natal, Central and South Arabia, Sind.

Vern. name : *Robbely, wudéneh* (Musch.).

3. *R. minima* DC. Prodr. ii, (1825) 385 ; Oliv. Fl. Trop. Afr. ii, (1871) 219 ; Defl. Yemen (1889) 133 ; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 255.—*R. nuda*, *R. medicaginea*, *R. rhombifolia*, *R. ervoidea* et *R. punctata* DC. l. c.

HABITAT : Near Hajeilah, 600 m. (Defl. 116 !); Bajil (S. 558); Wady Hille, 600 m. (S. 702); near el Hami (S. 164).

FL. : Jan. 1889 (S.). FR. : Jan. 1889 (S.), Apr. 1881 (S.).

DISTRIB. : Sierra Leone, Senegambia, Nubia, Abyssinia, Arabia, Cape. (Everywhere in the tropics).

4. *R. Totta* DC. Prodr. ii, (1825) 388 ; Harv. & Sond. Fl. Cap. i, (1860) 255 ; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 255.—*Glycine Totta* Thunb. Fl. Cap. i, 591.

HABITAT : II. Manakhah, 2,100 m. (S. 1515).

FR. : Feb. 1889 (S.).

DISTRIB. : Cape, Eritrea, Yaman.

5. *R. viscosa* DC. Prodr. ii, (1825) 387; Oliv. Fl. Trop. Afr. ii, (1871) 222; Defl. Yemen (1889) 133.—*R. stipulosa* Rich. Fl. Abyss. i, (1847) 229, t. 43.

HABITAT : II. Wady Hawayat near Hajeilah, 700 m. (Defl. 192!).

DISTRIB. : Nubia, Abyssinia, Yaman, India, Mascarene Islands.

### 52. *Flemingia* Roxb.

1. *F. congesta* Roxb. ex Ait. Hort. Kew. ed. 2, iv, 349.—*F. rhodocarpa* Baker in Oliv. Fl. Trop. Afr. ii, (1871) 231.—*Pyrus hadiensis* Forsk. Fl. Aeg.-Arab. (1775) CXIII, n. 325 and p. 212.

HABITAT : II. Hadiyah (Forsk.).

DISTRIB. : Tropical Africa, India, China, Malay, Philippines.

Vern. name : *sfaerdiel* (Forsk.).

Note : For economic uses see Schweinf. in Schweinf. in Bull. Herb. Boiss. (1896) App. II, 204.

### 53. *Cadia* Forsk.

1. *C. purpurea* Ait. Hort. Kew. iii, (1789) 492.—*C. arabica* J. F. Gmel. (1791) 667.—*Paniciatica purpurea* Piccinoli (1785) ex Fiori.—*C. varia* L'Hérit. Diss. in Mag. Enc. v, (1795) 29; Oliv. Fl. Trop. Afr. ii, (1871) 255; Defl. Yemen (1889) 133; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 223.—*Cadia* Forsk. Fl. Aeg.-Arab. (1775) CXI, n. 276 and p. 90.

HABITAT : II. Wasil, 1,200-1,400 m. (S. 1937); near Wasil, 900 m. (Defl. 211); below Manakhah, 1,800 m. (S. 1630); Jebel Bura, 1,000 m. (S. 451!); Jebel Milhan, Okeber (S. 822!); Wady Gubud (Defl. 535 bis!); near el Mekhader, 1,800-2,000 m. (Defl. 651); Hadiyah (Forsk.); neighbourhood of Aden (Hunter 188!).

FL. : Jan. 1889 (S.). FR. : Jan. 1889 (S.), Apr. 1890 (Defl.),

DISTRIB. : Abyssinia, Eritrea, Somaliland, Yaman.

Vern. name : *Kadi* (Forsk.), *qadi*, *la'tta' h*, *la'ffa' h* (S.).

## § CÆSALPINIÆ.

### 54. *Caesalpinia* L.

1. *C. pulcherrima* Swartz Obs. p. 166; Hook. Fl. Brit. Ind. ii, 255; Baker in Kew Bull. (1894) 332; Blatt. Fl. Aden (1915) 188.—*Poinciana pulcherrima* L. Sp. Pl. 380; Bot. Mag. t. 995.

HABITAT : II. Cultivated at Aden (Lunt!).

III. Shari Burrock valley, Mukalla 200-300 ft. cult. (Lunt).

DISTRIB. : Home unknown. Has been found, apparently wild, by T. H. Aplin, in December 1887, in the Tapel Choung valley, Shan States, 1,700-5,000 feet.

### 55. *Pterolobium* R. Br.

1. *P. lacerans* R. Br. in Salt Abyss. App. 64; Oliv. Fl. Trop Afr. ii, (1871) 264; Defl. Yemen (1889) 133.—*P. abyssinicum* A. Rich. Fl. Abyss. i, (1847) 246; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 222.—*Quartinia abyssinica* Rich. in Ann. Sc. Nat. ser. 2, xiv, 260.—*Cantuffa exosa* J. F. Gmel Syst. (1791) 677.—*C. lacerans* Chiov. in Pir. Fl. Eritr. (1903) 102 (*non* Taub).

HABITAT : II. Wasil 1,400 m. (S. 1225!); Okeber 900 m. (S. 803); near Attara (Defl. 393); near Mekhader 1,800 m. (Defl. 654).

FR. : Jan.-Feb. 1889 (S.).

DISTRIB. : Abyssinia, Eritrea, Yaman.

Vern. name : *Kéllab*, *Kibān* (S.).

### 56. *Poinciana* L.

1. *P. elata* L. Mant. p. 16; Forsk. Fl. Aeg.-Arab. (1775) CXI, n. 274 and p. 84; DC. Prodr. ii, 484; Hook. Fl. Brit. Ind. ii, 260; Oliv. Fl. Trop. Afr. ii, (1871) 266; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 222; Blatt. Fl. Aden (1915) 180.—*Caesalpinia elata* Sw. Obs. 166.—*P. Playfairii* T. Anders. MS.; Gard. Chron. (1861) 388.

HABITAT : II. Yaman (Ehrenb. !); Jebel Horeib (Lunz 3!); upper and middle region of Mt. Kesser (Fischer 74!); Wady Fatimah (Schimp. 841!); near Wulej 600 m. (S. 617); Jebel Damer (S. 484); Milhan (Forsk.); Aden (Annesley! Balfour! Perry! Playfair! Defl. ! Birdw. ! Hildebr. ! Ellenbeck, Thomson ! S. 44!).

FL. : Jan. 1889 (S.), Mar. 1837 (Schimp.), Apr. 1878 (Perry), Nov. 1858 (S.).

FR. : Jan. 1889 (S.), Mar. (Fischer), Apr. 1878 (Perry), Nov. 1888 (S.).

DISTRIB. : Nubia, Abyssinia, Eritrea, highlands of Somaliland, Usagara-Usambara, Kilimandjaro, Central and Southern Arabia, Western India (?).

Vern. name *Mschillech* (Forsk.), *Rumf* (S.).

### 57. *Parkinsonia* L.

1. *P. aculeata* L. in Hort. Cliff. 157, t. 13; Baker in Kew Bull. (1894) 332; Musch. Verb. Bot. Ver. Prov. Brandenb. xlix, (1907) 97; Blatt. Fl. Aden (1915) 187.

HABITAT : I. Sinai Peninsula near the hot springs (Musch.).

II. Aden (Busse); Shaikh Othman (Defl. !).

III. Shabar, in the cultivated parts at sea-level (Lunt!).

**DISTRIB.** : This plant is indigenous in tropical America, but cultivated in most tropical countries. In India it is naturalized, where it is grown chiefly as a hedge plant in the drier districts.

Vern. name : *Sesebân* (Musch.).

**NOTE** : The natives of Aden use this plant for various purposes. The bark is employed against consumption in cattle, the flowers and seeds against fever, and the bast for the manufacture of paper.

### 58. Cassia L.

**1. C. absus** L. ; DC. Prodr. ii, (1825) 500 ; Oliv. Fl. Trop. Afr. ii, (1871) 279 ; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 221.

**HABITAT** : II. Coffee region above Hille, 1,000 m. (S.).

**DISTRIB.** : Tropical Africa, Asia.

Vern. name : *tuschmä* (S.).

**2. C. acutifolia** Del. Ill. Fl. d' Eg. (1813) 75 ; Baker in Kew Bull. (1894) 332.—*C. lanceolata* Collad. Hist. Cass. (1816) 93 (*non Forsk.*).—*Senna acutifolia* Batka Monogr. Senna (1866) 41.

**HABITAT** : I. Akaba (Hart!).

II. Near Bolhaf (S. 151!) ; Wady Dhabal near el Hagar (Defl. 229!).

III. Hadramaut : Between Tahiyeh and Alrail, 1,700 ft. (Lunt 120!).

**FL.** : Feb. 1869 (Lord), Feb. 1884 (Hart), Nov. 1883 (Hart), Dec 1893 (Lunt).

**FR.** : Feb. 1869 (Lord), Mar. 1881 (S.).

**DISTRIB.** : Tropical Africa, Egypt, Arabia.

**3. C. adenensis** Benth. in Trans. Linn. Soc. xxxvii, (1871) 553 ; Baker in Kew Bull. (1894) 332 ; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 220 ; Blatt. Fl. Aden (1915) 185.—*Senna Hookeriana* Batka in Bot. Zeitung. n. 36, p. 263 ; Monogr. Senna (1866) 52.

**HABITAT** : II. Aden (Thomson ! Oliv. & Cl. ! Perry ! S. 32 ! Hildebr. ! Defl. ! Lunt !, Kuntze, Hook. !).

III. Hadramaut : Bahram near Mukalla 200 ft. (Lunt 61 !); Sehut (Hirsch 46 a).

**FL.** : Jan. 1863 (Ol. & Cl.), Apr. (Thomson), June 1872 (Hildebr.), July 1878 (Perry), Nov. 1888 (S.), Dec. 1893 (Lunt).

**FR.** : Apr. (Thomson), June 1872 (Hildebr.), July 1878 (Perry), Nov. 1888 (S.), Dec. 1893 (Lunt).

**DISTRIB.** : Arabia, Somaliland.

Vern. name : *ssönnä* (S.).

4. *C. angustifolia* Vahl. Symb. Bot. i, (1790) 29; Oliv. Fl. Trop. Afr. ii, (1871) 279; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 220; Blatt. Fl. Aden (1915) 184.—*C. senna* Forsk. Pietri Flor. Arab. in Herb. Brit. Mus. (1772).—*C. medica* Forsk. Fl. Aeg.-Arab. (1775) CXI, n. 271.—*Senna angustifolia* Batka Monogr. Senna (1866) 30, 44.

HABITAT: II. Jiddah (Zohrab!); Lohaja (Forsk.); Yaman (Ehrenb.); near Hille, 760-1,000 m. (S. 494); Bajil (S. 530); Aden (Birdw., S.).

FR.: Jan. 1889 (S.).

DISTRIB.: Mozambique (near Tette), extending eastward to the desert tracts of North-Western and Peninsular India.

Vern. name: *ssonna* (S.), known in commerce under the names of *Senna indica*, *S. meccensis*, *S. halepensis*.

5. *C. auriculata* L. Sp. Pl. (1753) 379; Schweinf. Bull. Herb. Boiss. (1896) App. II, 221; Blatt. Fl. Aden (1915) 186.

HABITAT: II. Cultivated at Shaikh Othman (S. 1926).

FL.: Nov. 1888 (S.). FR.: Nov. 1888 (S.).

DISTRIB.: India, Ceylon.

English name: Tanner's Cassia.

6. *C. fistula* L. Sp. Pl. (1753) 377; Forsk. Fl. Aeg.-Arab. (1775) CXI, n. 267.

HABITAT: II. Lower mountainous region (Forsk.).

DISTRIB.: Tropical Asia.

Vern. name: *chiar schambar* (Forsk.).

7. *C. holosericea* Fres. in Flora i, (1839) 54; Franch. Sect. Somal. in Miss. Révoil p. 30; Oliv. Fl. Trop. Afr. ii, 278; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 220; Blatt. Fl. Aden (1915) 183.—*C. pubescens* R. Br. in Salt Abyss. App. p. 64.—*C. Schimperi* Steud. Nomencl. Bot. ed. 2, i. 307.—*C. cana* Wenderoth in Linnæa xii, 22.—*Senna ovalifolia* Batka Monogr. Senna (1866) 50.

HABITAT: II. Jiddah (Ehrenb.! Schimp. 780! Fischer 70! Zohrab!); Wady of Bolhaf (S. 150); Aden (Thomson! Hook. 63! Perry! Oliv. & Cl.! S.! Anders.! Birdw.!); between Hodeidah and Marrana (S.); Shuqra (S. 67!); Perim Island (Coomaraswamy!).

8. *C. nigricans* Vahl. Symb. Bot. i, (1790) 30; Oliv. Fl. Trop. Afr. ii, (1871) 280.—*C. procumbens* Forsk. Fl. Aeg.-Arab. (1775) CXI, n. 272.

HABITAT: II. Surdud (Forsk.).

DISTRIB.: Endemic.

Vern. name: *loumer* (Forsk.).

9. *C. obovata* Collad. Hist. Cass. p. 92, t. XV, A; DC. Prodr. ii, 492; A. Rich. Tent. Fl. Abyss. i, 249; Anders. Fl. Aden. (1860) 18; Boiss. Fl. Or. ii, (1872) 631; Hook. Fl. Brit. Ind. ii, 264; Oliv. Fl. Trop. Afr. ii, (1871) 277; Defl. Yemen (1889) 134; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 220; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 96; Blatt. Fl. Aden (1915) 182; Carter in Rec. Bot. Surv. Ind. vi, (1917) 190.—*C. senna* L. Sp. Pl. (1762) 539 (*partim*).—*C. aschrek* Forsk. Fl. Aeg.-Arab. (1775) CXI, n. 265 and p. 86.—*C. obtusa* Roxb. Hort. Beng. (1814) 31.

HABITAT: I. Arabah to Sinai (ex Post); Wady Feiran (Fox!); Desert near Suez (Bové 188!); Sinai: Wady es Shaikh (Drake 99!); Wady Gurra (Schimp. 303!); N. and C. Midian (Burton!).

II. Wady Mor (Ehrenb.); W. Merawa (Defl. 33); near Kalife, 300 m. (S. 235); Lohaja and Mor (Forsk.); Shuqra (S. 97), Aden (Balfour! Perry! S. 1925! Defl.! Hook.! Birdw.!); Perim Island (Farmer!).

III. Sehut (Hirsch 26); Oman (Cox).

FL.: Mar. 1881 (S.), June 1832 (Bové), June 1835 (Schimp.) July 1879 (Perry), Dec. 1888 (S.),

FR.: June 1832 (Bové), June 1835 (Schimp.), July 1879 (Perry), Nov.-Dec. 1888 (S.).

DISTRIB.: W. India, Sind, Arabia, Palestine, Egypt, Nubia, Eritrea, Abyssinia, Kordofan-Sennaar, highlands of Somaliland, Senegambia, Angola, Hereroland.

Vern. name: *Senné* (Bové), *Aschrek* (Forsk.), *Aschriq* (Hirsch), *Sená-Mekki* (Post), *Sennemath* (Schimp.), *Jamaica Senna*, *Italian Senna* and *Country Senna*.

10. *C. occidentalis* L.; DC. Prodr. ii, (1825) 497; Defl. Yemen (1889) 133; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 219; Krause in Engl. Bot. Jahrb. xxxv, (1905) 735.—*C. sophera* Hochst. Herb. Schimp. Abyss. sect. i, n. 312 (*non L.*).

HABITAT: II. Yaman: Ataba (Steud.); Wady Fatimah (Schimp. 779!); near Hajeilah, 900 m. (Defl. 173!); near Hajeilah 600 m. (S.); Kalife (S.); Heathalim (Ellenbeck).

FL.: Jan. 1862 (Steud.), Feb. 1836 (Schimp.), Jan.-Feb., Dec. (S.).

FR.: Jan. 1862 (Steud.), Feb. 1836 (Schimp.), Jan.-Feb., Dec. (S.).

DISTRIB.: Cosmopolitan in the tropics.

Vern. name: *Aschirak* (Ellenb.).

11. *C. oocarpa* Baker in Kew Bull. (1895) 181.

HABITAT: III. Coast at Merbat (Bent 69).

DISTRIB.: Endemic.

12. *C. pumila* Lam. Dict. i, 620 ; Hook. f. Fl. Brit. Ind. ii, pt. v, (1878) 266.

VAR. *yemensis* Defl. Yemen (1889) 134.

HABITAT : II. Near Wasil, 1,300 m. (Defl. 216 !).

DISTRIB. : Endemic.

13. *C. sophera* L. Sp. Pl. (1753) 542 ; Oliv. Fl. Trop. Afr. ii, (1871) 274 ; Hook. Fl. Brit. Ind. ii, pt. v, (1878) 262.—*C. lanceolata* Forsk. Fl. Aeg.-Arab. (1775) CXI, n. 270 and p. 85.—*C. ligustrina* Forsk. l. c. CXI, n. 268 and p. 86.

HABITAT : II. Wady Fatimah (Fischer 71 !); Surdud, Hadiyah, Jobba (Forsk.).

IV. Masqat (Auch.-Eloy 4368 !); Masqat, cultivated (Boiss.).

FL. : Feb. 1837 (Fischer). FR. : Feb. 1837 (Fischer).

DISTRIB. : Cosmopolitan in the tropics; said to be indigenous in Asia.

Vern. name : *Suna*, *Kolkol* (Forsk.).

14. *C. Tora* L. Sp. Pl. (1753) 376 ; Forsk. Fl. Aeg.-Arab. (1775) CXI, n. 266 and p. 86 ; Defl. Yemen (1889) 133 ; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 221.—*C. sunsub* Forsk. l. c. CXI, n. 269 and p. 86.

HABITAT : II. Wady Fatimah (Fischer 203 !); near Hajeilah 600 m. (Defl. 163); Aggara near Hajeilah 600 m. (S.); near Wulej (S.); Hadiyah, Uahfad, Surdud, near Taz (Forsk.).

Elahpad FL. : Feb. 1837 (Fischer), Feb. 1889 (S.).

FR. : Feb. 1837 (Fischer).

DISTRIB. : Cosmopolitan in the topics.

Vern. name : *kolkol*, *didjer el-akbar*, *Sunsub* (Forsk.), *gurgul* (S.).

### 59. *Ceratonia* L.

1. *C. siliqua* L. Sp. Pl. (1753) 1026 ; Defl. Yemen (1889) 134 ; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 219 ; Post Fl. Syr. etc. (1896) 297.

HABITAT : I. Wady Feiran (Lord !).

II. Cultivated at Okeber-(S. 839); cult. in coffee region above Hille, 700-900 m. (S.); near Taz, 1,400 m. (Defl. 693 !); near Jennat (Botta).

DISTRIB. : S. Europe, Syria, Palestine.

Vern. name : *Kharrub* (Post), *Chornub* (S.).

NOTE : Dibs is made of the pulp of the pods (Post)



60. *Bauhinia* L.

1. *B. inermis* Forsk. Fl. Aeg.-Arab. (1775) CXI, n. 264 and p. 85; Defl. Yemen (1889) 134; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 280.

HABITAT: II. Yaman: Milhan (Forsk.); near Wasil, 800—900 m. (Defl. 207); near Wulej (S. 791!).

FR.: Jan. 1889 (S.):

DISTRIB.: Arabia.

Vern. name: *Henn embas*, *henn el bagar*, *Tummār*, *Athbir* (Forsk.).

61. *Tamarindus* L.

1. *T. indica* L. Sp. Pl. (1753) 34; Defl. Yemen (1889) 134; Baker in Kew Bull. (1894) 332; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 218.—*T. erythraea* Mattei in Boll. Orto. Bot. Palermo, vii, (1908) 95.

HABITAT: II. Above Hille 900 m. (S. 375), near Taz 1,300 m. (Defl. 701); near Hajeilah, Wady Harr, apparently spontaneous (Defl. 248!).

III. Cultivated at Katan, 1,150 ft. (Lunt!); Hegwir (Hirsch 115).

FR.: Jan. 1889 (S.).

DISTRIB.: Tropical Africa, Arabia, India.

Vern. name: *Hōmer*, *Sabārd* (Hirsch), *Amara*.

§ MIMOSEÆ.

62. *Prosopis* L.

1. *P. juliflora* DC. Prodr. ii, (1825) 447; Blatt. Fl. Aden (1915) 196.

HABITAT: II. Cultivated at Aden (Birdw. ! S.!).

DISTRIB.: Tropical America.

2. *P. spicigera* L. Mant. 68; Boiss. Fl. Or. ii, (1872) 634; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 218; Cooke Fl. Bomb. i, (1903) 439.

HABITAT: II. Yaman: near Bolhaf (S. 147!).

FL.: Mar. 1881 (S.). FR.: Mar. 1881 (S.).

DISTRIB.: Arabia, Persia, Afghanistan, Baluchistan, India.

Vern. name: *ghāf* (S.).

3. *P. Stephaniana* Spreng. Syst. ii, (1825) 726; Boiss. Fl. Or. ii, (1872) 634; Post Fl. Syr. etc. (1896) 298; Musch. Fl. Eg. i, (1912) 456.—*Lagonychium Stephanianum* M. Bieb. Fl. Taur. Cauc. iii, 288.—*Acacia*

*Stephaniana* Willd. Sp. Pl. iv, 1088.—*A. heterocarpa* Del. Ill. Fl. d'Eg. 79.

HABITAT : I. Arabia Petraea (ex Musch.).

III. Wady Masile (Hirsch 43).

IV. Masqat (Auch.-Eloy 4370!).

DISTRIB. : Egypt, Arabia, Western Asia to Turkestan and Afghanistan, India.

Vern. name : *Kharembah, Junbût, Shilsh-hilâwi, 'Aqûl, 'Uqeil* (Post).

### 63. *Dichrostachys* DC.

1. *D. nutans* Benth. in Hook. Journ. Bot. iv, (1842) 353; Defl. Yemen (1889) 135; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 218.—? *Mimosa glomerata* Forsk Fl. Aeg.-Arab. (1775) CXXIII, n. 610 and p. 177.

HABITAT : II. Near Hajeilah, 600 m. (Defl. 131!); Aggara near Hajeilah 600 m. (S. 1006); Wasil I,400 m. (S. 1335); above Hille 900 m. (S. 400).

FL. : Feb. 1889 (S.). FR. : Jan. 1889 (S.).

DISTRIB. : Tropical Africa, Yaman.

Vern. name : *esfih, kuschkusch, gensîr* (S.).

### 64. *Mimosa* L.

1. *M. asperata* L. Benth. in Hook. Journ. Bot. iv, (1842) 400; Musch. Fl. Eg. i, (1912) 457.—*M. polycantha* Willd. Sp. Pl. iv, 1034; Boiss. Fl. Or. ii, (1872) 634.—*M. Habbas* Del. Fl. Eg. Ill. 111 (*non Link.*).

HABITAT : I. Arabia Petraea (ex Musch.).

DISTRIB. : Tropical Africa, tropical America, Orient.

Vern. name : *habbâs* (ex Musch.).

### 65. *Acacia* Willd.

1. *A. abyssinica* Hochst. ex Benth. in Hook. Lond. Journ. Bot. v, (1846) 97; Oliv. Fl. Trop. Afr. ii, (1871) 347; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 210.—*A. xiphocarpa* Hochst. in Rich. Fl. Abyss. i, (1847) 240.—*A. verugera* Defl. (*non Schweinf.*) VAR. *arabica* Defl. Yemen (1889) 136.

HABITAT : II. Wady Hadda near Sanah (Defl. 549!); neighbourhood of Mânakhah 1,900—2,500 m. (S. 1464, 1503, 1531, 1991, 1992).

FL. : Feb.-Mar. 1889 (S.). FR. : Jan. 1889 (S.).

DISTRIB. : Abyssinia, Eritrea, Yaman.

Vern. name : *ssujel, talh* (S.).

VAR. *macroloba* Schweinf. l. c. 212.

HABITAT : II. Below Wu'ej, 500 m. (S. 790!).

FR. : Jan. 1889 (S.).

DISTRIB. : Endemic.

2. *A. arabica* Willd. Sp. Pl. iv, (1806) 1085; Schweinf. in Linnæa xxxv, 335; in Bull. Herb. Boiss. (1896) App. II, 209; Oliv. Fl. Trop. Afr. ii, (1871) 350; Benth. Trans. Linn. Soc. xxx, (1875) 506; Defl. Yemen (1889) 135; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 96; Blatt. Fl. Aden (1915) 194.—*Mimosa arabica* Lam. Dict. i, (1783) 19.—*M. nilotica* L. Sp. Pl. (1753) 521; Forsk. Fl. Aeg.-Arab. (1775) LXXVII, n. 554; CXIII, n. 604.—*A. nilotica* Del. Fl. Aeg. (1813) 31.—*A. vera* Willd. l. c. 1085.—*A. Adansonii* Guill. et Perr. Fl. Seneg. 249.—*A. nilotica* Del. var. *arabica* Fiori Bos. e Painte legu. Eritrea (1909) 160.

HABITAT : I. Wady Hebran (Schimp. !); Jebel Hammam-Sidna-Musa, cult. (Musch.).

II. Near Lohaja and Beytel-Fakih, Wady Mor (Forsk.); oasis of Lahaj (Defl. 146 !); Shaikh Othman (Hirsch 11); Aden (Birdw. ! S. 36 ! Ellenb.).

IV. Central Arabia (Pelly !).

FR. : Mar. 1881 (S.).

DISTRIB. : Tropical Africa and Asia.

Vern. name : *Sunt*, *Garad*, (H. K.). *Saelam*, *Soul*, *Sänt*, *qaräd* (Forsk.).

3. *A. asak* Willd. Sp. Pl. iv, (1806) 1077; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 215.—*M. asak* Forsk. Fl. Aeg.-Arab. (1775) 176.—*A. hamulosa* Benth. in Hook. Lond. Journ. i, 509; Oliv. Fl. Trop. Afr. ii, (1871) 340; Baker in Kew Bull. (1894) 332; Blatt. Fl. Aden (1915) 191.—? *A. Hunteri* Oliv. in Hook. Ic. Pl. t. 1350.

HABITAT : II. Jiddah (Fischer 72 ! Schimp. 865 !); Hadiyah (Forsk.), Aden (Perry ! Balfour ! S. 71 ! 97 ! Hook 61 ! Thomson ! Defl. 34 ! Anders. !); neighbourhood of Aden (Hunter 143 ! 156 !).

III. Hadramaut : Common on the hills and plateaux, 500—3,000 ft. (Lunt 223 !); High Plateau (Hirsch 106).

FL. : Jan. 1837 (Fischer), Feb. 1894 (Lunt), Sept. 1880 (Hunter), Dec. (S.).

FR. : Jan. 1880 (Balfour), Mar. (S.), Sept. 1880 (Hunter), Nov., Dec. 1888 (S.), Dec. 1889 (Defl.).

DISTRIB. : Eritrea, Arabia.

Vern. name : *Asak* (Forsk.).

4. *A. campeptila* Schweinf. in Bull. Herb. Boiss. (1896) App. II, 208; Baker in Kew Bull. (1894) 332.

HABITAT : II. Yaman : Near Bolhaf (S. 153 !).

III. Hadramaut : Hajrain, 2,600 ft. (Lunt !).

FL. : Mar. 1881 (S.). FR. : Mar. 1881 (S.).

DISTRIB. : Endemic.

5. *A. eburnea* Willd. Sp. Pl. iv, 1081 ; DC. Prodr. ii, (1825) 461 ; Benth. Lond. Journ. Bot. i, 501 et Trans. Linn. Soc. xxx, 511 ; Boiss. Fl. Or. ii, (1872) 637 ; Anders. Fl. Aden. (1860) 19 ; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 213 ; Blatt. Fl. Aden (1915) 189.—*Mimosa eburnea* L. Mant. 437.

HABITAT : II. Aden (Thomson ! Hook. 60 ! 64 ! 67 ! Balfour ! S.41, 96 ! 98, Defl. ! Anders. ! Birdw.!).

FL. : Dec. 1888 (S.). FR. : Dec. 1888 (S.).

DISTRIB. : Ceylon, Deccan, Sind, Salt Range, Subhimalayan tract and outer valleys, ascending to 3,000 feet, east as far as Oudh, Baluchistan, Afghanistan, Arabia.

6. *A. Edgeworthii* Anders. Fl. Aden. (1860) 18 ; Benth. Trans. Linn. Soc. xxx, 504 ; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 207 ; Blatt. Fl. Aden (1915) 190.—*A. erioloba* Edgew. Journ. As. Soc. Beng. xvi, 1215 (*non E. Mey.*).

HABITAT : II. Jebel el Areys, 150 m. (Defl. 372 !); Aden (Anders. ! Balfour ! Thomson ! Perry ! S.42, 45 !, 1790 ! Defl. ! Edgew. ! Hook.!).

FL. : Jan. 1872 (Thomson), Mar. 1890 (Defl.), Nov. 1888—Mar. 1889 (S.).

FR. : Mar. 1890 (Defl.), May 1859 (Anders.).

DISTRIB. : Endemic.

Vern. name : *ssammor* (S.), *Khereb*, *Quaratt*.

7. *A. etbaica* Schw. in Linnaea, xxxv, 330 ; Oliv. Fl. Trop. Afr. ii, (1871) 349 ; Benth. Trans. Linn. Soc. xxx, (1875) 510.—*A. Adansonii* Martelli (1886) *non Guill. et Perr.* (ex Fiori).

HABITAT : II. Hills N. of el Jebel near Qa'taba (Defl. 253 !).

III. Hegwir (Hirsch 141).

FL. : Jan. 1890 (Defl.).

DISTRIB. : Guinea, Nubia, Abyssinia, Eritrea, Arabia.

Vern. name : *Smur*, *Herüt*, *Hörot* (Hirsch).

8. *A. Farnesiana* Willd. Sp. Pl. iv, (1805) 1053 ; Benth. in Trans. Linn. Soc. xxx, (1875) 502 ; Blatt. Fl. Aden (1915) 195.—*Mimosa scorpioides* Forsk. Fl. Aeg.-Arab. (1775) LXXVII, n. 553.

HABITAT : II. Near Shaikh Othman, cult. (Defl.!).

DISTRIB. : Indigenous in America, widely cultivated in tropical and subtropical regions.

Vern. name : *Faetne* (Forsk.), 'Anbar, Qurz (Post), *Cassia flower* (in Europe).

9. *A. flava* Schweinf. in Bull. Herb. Boiss. (1896) App. II, 214.  
—*Mimosa flava* Forsk. Fl. Aeg.-Arab. (1775) CXXIII, n. 612 and p. 176.  
—*A. Ehrenbergiana* Hayne Arzneigen. x, (1845) t. 29; Schweinf. in Linnaea, xxxv, 352, t. 15,16; Oliv. Fl. Trop. Afr. ii, (1871) 352; Musch. Fl. Eg. i, (1912) n. 628.

HABITAT : II. Jiddah (Zohrab 144 !); Wady Fatimah and Bakara (Fischer 73 !); Jebel Bura, Hille (S.222 !); Maylat (S.602 !); near Wulej (S.631 !); Milhan, Surdud (Forsk.).

FL. : Jan. 1889 (S.), Feb. (Fischer). FR. : Jan. 1889 (S.).

DISTRIB. : Egypt, Nubia, Abyssinia, Eritrea, Arabia.

Vern. name : *Syllim* (Forsk.), *Sselam* (S.).

10. *A. glaucophylla* Steud. in Rich. Fl. Abyss. i, (1847) 243; Schweinf. in Linnaea, xxxv, 372, t. 22; in Bull. Herb. Boiss. (1896) App. II, 217; Oliv. Fl. Trop. Afr. ii, (1871) 342; Benth. in Trans. Linn. Soc. xxx, (1875) 516; Defl. Yemen (1889) 135.—*A. triacantha* Hochst. in Rich. l. c. 244.  
—? *Mimosa stellata* Forsk. Fl. Aeg.-Arab. (1775) CXXIII, n. 609 and p. 177 —*Acacia stellata* Willd. Sp. Pl. iv, 1078.

HABITAT : II. Jebel Milhan, Wulej (S.610 !); below Manakhah, 2,000 m. (S.1609); near Mefhak, 1,900 m. (Defl. 593).

FR. : Jan., Feb. 1889 (S.).

DISTRIB. : Abyssinia, Nubia, Eritrea, Somaliland, Yaman.

Vern. name : *dahi, tahhieh* (S.).

11. *A. laeta* R. Br. in Salt. Abyss. App. 65; Schweinf. in Linnaea, xxxv, 367, t. 19-21; Oliv. Fl. Trop. Afr. ii, (1871) 341; Benth. in Trans. Linn. Soc. xxx, (1875) 517; Defl. Yemen (1889) 135; Blatt. Fl. Aden (1915) 192.

HABITAT : II. Near Hajeilah (Defl. 134); Aden (S.40 ! Defl.).

DISTRIB. : Abyssinia, Nubia, Eritrea, Yaman.

12. *A. Lahai* Steud. & Hochst.; Benth. in Hook. Lond. Journ. i, 506; Schweinf. in Linnaea, xxxv, 359; in Bull. Herb. Boiss. (1896) App. II, 215; Oliv. Fl. Trop. Afr. ii, (1871) 340.—*A. fasciculata* R. Br. in Salt Abyss. App. 65.—*A. Saltiana* Steud. Nom. Bot. ed. 2.

HABITAT : II. Above Hille, 700-800 m. (S.454 !); below Manakhah, 1,900 m. (S.1629).

DISTRIB. : Abyssinia, Eritrea, Yaman.

Vern. name : *Gensir, qarat* (S.).

**13. A. mellifera** Benth. in Hook. Lond. Journ. i, (1842) 507 ; Trans. Linn. Soc. xxx, (1875) 517 ; Schweinf. in Linnaea, xxxv, 365 ; in Bull. Herb. Boiss. (1896) App. II, 217 ; Oliv. Fl. Trop. Afr. ii, (1871) 340 ; Blatt. Fl. Aden (1915) 193.—*Mimosa unguis-cati* Forsk. Fl. Aeg.-Arab. (1775) CXXIII, n. 613 and p. 176 (*non L.*).—*M. mellifera* Vahl Symb. Bot. ii, (1791) 103.—*Inga mellifera* Willd. Sp. Pl. iv. 1006.

HABITAT : II. Hille, 600 m. (S.225 !); near Wulej (S.746); foot of Jebel Damer (S.475); Surdud, Hadiyah (Forsk.); Sejid Soliman, Moglaf (S. 599!).

III. Hadramaut : High plateau (Hirsch 108)

FL. : Dec. 1888 (S.), Jan., Mar. 1889 (S.).

FR. : Jan. 1889 (S.).

DISTRIB. : Abyssinia, Nubia, Eritrea, Kordofan, Somaliland, Togo, Arabia.

Vern. name : *dhoba, debb, smurr* (Forsk.), *dhub, Kittu, Tekker* (S.).

Note : For medical uses see Forsk. l. c.

**14. A. Nefasia** Schweinf. in Bull. Herb. Boiss. (1896) App. II, 209.—*Inga Nefasia* Hochst. in Rich. Fl. Abyss. i, (1847) 237.—*A. verugera* Schweinf. in Linnaea, xxxv, 340 ; Oliv. Fl. Trop. Afr. ii, (1871) 354.

HABITAT : III. Dhofar Mts. (Bent!).

DISTRIB. : Abyssinia, Eritrea, Nubia, White Nile.

**15. A. Orfota** Schweinf. in Bull. Herb. Boiss. (1896) App. II, 213.—*Mimosa Orfota* Forsk. Fl. Aeg.-Arab. (1775) CXXIII, n. 607 and p. 177.—*A. nubica* Benth. in Lond. Journ. Bot. i, (1842) 498 ; Trans. Linn. Soc. xxx, (1875) 511 ; Schweinf. in Linnaea xxxv, 337 ; Deff. Yemen (1889) 135 ; Blatt. Fl. Aden (1915) 192.—*A. pterygocarpa* Hochst. in Rich. Fl. Abyss. i, (1847) 239.—*A. Aucheri* Benth. in Hook. Lond. Journ. i, (1842) 499.

HABITAT : II. Surdud, Dahhi (Forsk.); Jebel Bura, below Hille (S.224 !); near Bajil (S.1785); between Bajil and Hajeilah, 300-600 m (Deff. 156, 158, 198); Aden (Birdw. ! Perry ! Beevor!)

III. Jebel Hegwir (Hirsch 105).

FL. : Mar. 1889 (S.). FR. : Jan. 1889 (S.).

DISTRIB. : Abyssinia, Eritrea, Nubia, Somaliland, Arabia.

Vern. name : *Harchair* (Hirsch), *Orföt* (S.).

Note : For medical uses see Forsk. l. c. 177.

**16. A. Senegal** Willd. Sp. Pl. iv, (1806) 1077 ; Benth. Trans. Linn. Soc. xxx, (1875) 516.—*Mimosa Senegal* L. Sp. Pl. (1753) 521.—*A. Verek* Guill. et Perr. Fl. Seneg. i, 245, t. 56

HABITAT : III. Dhofar Mts. (Bent 157 !).

DISTRIB. : Abyssinia, Nubia, Eritrea, Kordofan, Senegal, Arabia.

17. *A. Seyal* Del. Fl. Eg. 142, t. 52, f. 2 ; Schweinf. in Linnaea, xxxv, 348 ; in Bull. Herb. Boiss. (1896) App. II, 214 ; Dene. Fl. Sin. in Ann. Sc. Nat. ser. 2, iii, (1835) 264 ; Post Fl. Syr. etc. (1896) 299 ; Carter in Rec. Bot. Surv. Ind. vi, (1917) 189.—*A. Giraffæ* Sieb. Herb. Seneg. n. 45 (*non Willd.*).—? *Mimosa Sejal* Forsk. Fl. Aeg.-Arab. (1775) CXXIV, n. 614 and p. 177.—*M. gummifera* Forsk. l. c. CXXIV, n. 615.

HABITAT : I. Dead Sea and southward (ex Post) ; Wady Hebran (Schimp. 365 !); neighbourhood of Sinai (Bové !).

II. Tehama : Kalife (S. 223 !).

FL. : June 1835 (Schimp.), Dec. 1888 (S.).

FR. : June 1835 (Schimp.), Dec. 1888 (S.).

DISTRIB. : Senegal, Nubia, Abyssinia, Eritrea, Egypt, Arabia.

Vern. name : *talah* (Forsk.), *Seyyâl* (Post), *Ssellem* (S.), *Talh* (Cox).

Note : Prized for the good quality of gum arabic which is a valuable article of export (Cox).

18. *A. spirocarpa* Hochst. in Rich. Fl. Abyss. i, (1847) 239 ; Schweinf. in Linnaea, xxxv, 322 ; in Bull. Herb. Boiss. (1896) App. II, 207 ; Oliv. Fl. Trop. Afr. ii, (1871) 352 ; Boiss. Fl. Or. ii, (1872) 635 ; Benth. Trans. Soc. xxx, (1875) 505 ; Musch. Fl. Eg. i, (1912) 461 ; Blatt. Fl. Aden (1915) 192.—? *Mimosa tortilis* Forsk. Fl. Aeg.-Arab. (1775) CXXIII, n. 606 and p. 176.

HABITAT : II. Jebel Nakhai, 800 m. (Defl. 510 !); Bajil (S. 601 !); Shaikh Othman (S. 118); Shuqra (S. 59 ! 105); N. E. of Shuqra (Defl. 336 !); Aden (S. 19 ! 63 ! 1793, Lunt 287 ! Birdw. 178 ! 179 !).

III. Wady Hadiea, 2,000 ft. (Lunt 186 !).

FL. : Jan. 1889 (S.), Mar. 1890 (Defl.), Apr. 1894 (Lunt).

FR. : Mar. 1889 (S.).

DISTRIB. : Abyssinia, Eritrea, Nubia, Sennaar, Kordofan, Arabia.

Vern. name : *haves* (Forsk.), *ssamr*, *ssammor* (S.).

VAR. *minor* Schweinf. in Linnaea, xxxv, 323.

HABITAT : I. Moilah, 27°40' (ex S.).

DISTRIB. : Upper Egypt, Nubia, Eritrea.

19. *A. tortilis* Hayne Arzneig. x, t. 31 ; Schweinf. in Linnaea, xxxv, 327 ; Oliv. Fl. Trop. Afr. ii, (1871) 352 ; Boiss. Fl. Or. ii, (1872) 636 ; Benth. Trans. Linn. Soc. xxx, (1875) 506 ; Post Fl. Syr. etc. (1896) 98 ; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 96.—*A*

*fasciculata* Guill. et Perr. Fl. Seneg. 252 (non *H. B. & K.*).—*A. Perrottetii* Steud. Nom. Bot. ed. 2.

HABITAT : I. Dead Sea and southwards (ex Post); Desert Ka'a (Musch.); Wady Mokatteb (Boiss.); Wady es Sle, Wady el Leja, Jebel Catherine, Wady Aleyat, Wady Feiran (Kneuck.).

FR.: Apr. 1878 (S.).

DISTRIB. : Senegambia, Nubia, Egypt, Arabia.

Vern. name : *talh* (Musch.), *Seyyal* (Post).

**20. *A. Jacquemontii*** Benth. in Hook. Lond. Journ. Bot. i, 499 ; Carter in Rec. Bot. Surv. Ind. vi, (1917) 189.

HABITAT : IV. Without locality (Cox).

DISTRIB. : Arabia, Afghanistan, India.

Vern. name : *Babul* (Cox).

**21. *Acacia*** Sp.

HABITAT : III. Hádramaut : Between Gahfit and Sibeh, 600 ft. (Lunt 87 !).

Note : Collected by Lant 26-12-93. Large bush, 2 ft. high, yellowish green flowers.

### 66. *Calliandra* Benth.

**1. *C. umbrosa*** Benth. in Gen. Pl. i, 597 ; Hook. f. Fl. Brit. Ind. ii, pt. v, (1878) 302 ; Blatt. Fl. Aden (1915) 197.

HABITAT : II. Cultivated at Shaikh Othman (Defl. !).

DISTRIB. : Penang

### 67. *Albizzia* Durazzini.

**1. *A. Lebbek*** Benth. in Hook. Lond. Journ. ii, (1843) 561 ; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 96.

HABITAT : I. Cultivated in the palm garden of el Tor (Musch.).

DISTRIB. : Tropical and N. Africa and India.

Vern. name : *lebach* (Musch.).

## XL. ROSACEÆ.

### 1. *Prunus* L.

**1. *P. Armeniaca*** L. Sp. Pl. (1753) 474 ; Forsk. Fl. Aeg.-Arab. (1775) CXIII, n. 324 ; Defl. Yemen (1889) 223 ; Schweinf. in Bull. Herb. Boiss.



(1896) App. II, 206.—*Armeniaca vulgaris* Lam. Dict. i, 2 ; Boiss. Fl. Or. ii, (1872) 652.

HABITAT : II. Kahil, 2,500 m. (S. 1477 !); cultivated in the mountains (Forsk.).

FL. : Feb. 1889 (S.).

DISTRIB. : Caucasus region.

Vern. name : *mischmisch* (Forsk.), *Barquq* (S.).

2. *P. domestica* L. Sp. Pl. (1753) 475 ; Forsk. Fl. Aeg.-Arab. (1775) CXIII, n. 323 ; Boiss. Fl. Or. ii, (1872) 652 ; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 206 ; Post Fl. Syr. etc. (1896) 304.—*P. Damascena* Boiss. ex Boiss. l. c. 652.

HABITAT : II. Cultivated above Manakhah, 2,500 m. (S. 1651); cultiv. in Yaman (Defl. !); cultiv. in the mountains (Forsk.).

FL. : Feb. 1889 (S.).

DISTRIB. : Europe, Caucasus.

Vern. name : *barquq* (Forsk.), *ngâss* (S.), *Khaukh* (Post).

### 2. *Amygdalus* L.

1. *A. communis* L. Sp. Pl. (1753) 473 ; Boiss. Fl. Or. ii, (1872) 641 ; Defl. Yemen (1889) 223.

HABITAT : II. Cultivated in Yaman (Defl.).

DISTRIB. : Syria, Mesopotamia, Persia.

2. *A. Persica* L. Sp. Pl. (1753) 472 ; Forsk. Fl. Aeg.-Arab. (1775) CXIII, n. 322 ; Defl. Yemen (1889) 223 ; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 206.—*Persica vulgaris* Mill. Dict. iii, 465 ; Boiss. Fl. Or. ii, (1872) 640.

HABITAT : II. Above Hille, 1,000 m. (S. 665 !); Manakhah, 2,300 m (S.); mountainous region, Hadiyah (Forsk.).

FL. : Jan.-Feb. 1889 (S.).

DISTRIB. : Persia, Transcaucasus.

Vern. name : *fersik*, *chöck* (Forsk.), *firsik* (S.).

### 3. *Rubus* L.

1. *R. arabicus* Schweinf. in Bull. Herb. Boiss. (1896) App. II, 204.—*R. fruticosus* Forsk. Fl. Aeg.-Arab. (1775) CXIII, n. 328.—*R. glandulosus* VAR. *arabicus* Defl. Yemen (1889) 136.

HABITAT : II. Mountainous region (Botta); Hadiyah (Forsk.); coffee region above Hille, 900—1,000 m. (S. 499 !); Regma, 900 m. (S. 974);

Wasil, 1,500 m. (S. 1235); Manakhah 1,800—2,200 m. (S. 1410, 1728, 1489); near Manakhah, 2,200 m. (Defl. 375).

DISTRIB. : Endemic.

Vern. name : *Naefaes*, *Hommaes* (Forsk.), *hammeşs* (S.).

Note : For ancient names see Forsk. l. c.

**2. R. Petitianus** Rich. Fl. Abyss. i, (1847) 256 ; Defl. Yemen (1889) 136.

HABITAT : II. Near Manakhah, 2,200 m. (Defl.); in the mountains (Botta).

DISTRIB. : Abyssinia, Yaman.

**3. R. sanctus** Schreb. Ic. Pl. (1766) 15, t. 8 ; Musch. Fl. Eg. i, (1912) 452.—*R. discolor* W. et Nees Rub. Germ. 46, t. 20 ; Boiss. Fl. Or. ii, (1872) 695 ; Post Fl. Syr. etc. (1896) 304.

HABITAT : I. Arabia Petraea (ex Post).

DISTRIB. : Europe, N. Africa, Greece; Caucasus, Syria, Palestine, Arabia Petraea, Persia, Afghanistan.

#### 4. *Potentilla* L.

**1. P. pensylvanica** Lehm. Potent. 58.—*P. pensylvanica* VAR. *strigosa* L. Mant. i, 76. VAR. *arabica* Defl. Yemen (1889) 137.—? *P. dentata* Forsk. Fl. Aeg.-Arab. (1775) CXIII, n. 329 and p. 98.

HABITAT : II. Near Manakhah, 2,200 m. (Defl. 376).

DISTRIB. : Cosmopolitan.

**2. P. reptans** L. Sp. Pl. (1753) 499 ; Boiss. Fl. Or. ii, (1872) 723 ; Defl. Yemen (1889) 137.—*P. abyssinica* Rich. Fl. Abyss. i, (1847) 257.

HABITAT : II. Cultivated ground near Sanah, 2,300 m. (Defl. 522 !).

DISTRIB. : Europe, N. Africa, Abyssinia, Arabia, Siberia.

**3. P. supina** L. Sp. Pl. (1753) 497 ; Boiss. Fl. Or. ii, (1872) 725 ; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 95.—*P. denticulosa* Ser. in DC. Prodr. ii, (1825) 573.

HABITAT : I. El Tor (Musch.).

DISTRIB. : Central and S. Europe, North and Tropical Africa, Cape, India.

Vern. name : *saghlühl* (Aschers.)

**4. P. viscosa** Donn Hort. Cantab. ed. 2, 68 ; DC. Prodr. ii, (1825) 581.

HABITAT : Arabia (ex DC.) Non vidi sp.

DISTRIB. : Caspian region, Arabia.

Note : Perhaps a variety of *P. pensylvanica*.

### 5. *Alchemilla* L.

1. *A. cryptanta* Steud. in Rich. Fl. Abyss. i, (1847) 259 ; Oliv. Fl. Trop. Afr. ii, (1871) 377 ; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 205.

HABITAT : I. Near Manakhah, 2,000 m. (S. 1367 !); Halar, 2,600 m. (S. 246.).

DISTRIB. : Abyssinia, Yaman.

### 6. *Poterium* L.

1. *P. verrucosum* Ehrbg. Ind. Hort. Berol. (1829) ; Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, iii, (1835) 263 ; Boiss. Fl. Or. ii, (1872) 734.—*Sanguisorba verrucosa* A. Br. Ind. Hort. Berol. (1867) App. I, 13.

HABITAT : I. Arabia Petraea (McDonald !); Cult. places of Mt. Sinai (Bové 182 !); Jebel Catherine (Drake 27 !).

FR. : June 1832 (Bové).

DISTRIB. : S. Europe, Morocco, Algeria, Tunis, Egypt, Arabia Petraea.  
Vern. name : *Borass* (Bové).

### 7. *Rosa* L.

1. *R. abyssinica* R. Br. in Salt Abyss. (1814) App. 64 ; Oliv. Fl. Trop. Afr. ii, (1871) 381 ; Deff. Yemen (1889) 137 ; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 205.—*R. Schimperiana* Hochst. et Steud.; Rich. Fl. Abyss. i, (1847) 261.—*R. moschata* L. var. *abyssinica* Crép. (1879) ex Fiori.

HABITAT : II. Okeber, 900 m. (S. 832); above Attara, 1,800 m. (S. 1741); Jebel Bura, 1,000 m. (S. 504 !); Manakhah, 2,000 m. (S. 1832, 1938 !); Kahil near Manakhah (S. 1856).

FL. : Jan. 1889 (S.). FR. : Jan. 1889 (S.).

DISTRIB. : Abyssinia, Eritrea, Yaman.

Vern. name : *hagja, hommes, qarawan, aschaq* (S.).

2. *R. arabica* Crép. Prim. i, 123 ; Boiss. Fl. Or. Suppl. (1888) 218.—*R. rubiginosa* var. *sepium* DC. Prodr. ii, (1825) 617 ; Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, iii, (1835) 264.—*R. rubiginosa* var. *arabica* Boiss. Fl. Or. ii, (1872) 687.

HABITAT : I. Jebel Catherine (Bové ! Schimp. 446 ! 723 !).

FL. : May, Aug. 1835 (Schimp.). FR. : Aug. 1835 (Schimp.)

DISTRIB. : Endemic.

Vern. name : *Ouard Berri* (Bové), *Wrt berri* (Schimp.).

3. *R. damascena* Mill. Gard. Dict. ed. 8, n. 15; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 205.

HABITAT : II. Manakhah, 2,500 m. (S. 1583 !); above Hille in the coffee region (S. 420).

DISTRIB. : Orient.

4. *R. indica* L. Sp. Pl. (1753) 492 ; Forsk. Fl. Aeg.-Arab. (1775) CXIII, n. 327.

HABITAT : II. Hadiyah (Forsk.) Cultivata ?

DISTRIB. : China.

5. *R. villosa* L. Sp. Pl. (1753) 491 ; DC. Prodr. ii, (1825) 619 ; Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2. iii, (1835) 264.

HABITAT : I. Gardens of Sinai (Bové !).

DISTRIB. : Europe, Central Asia.

### 8. *Neurada* L.

1. *N. procumbens* L. Sp. Pl. (1753) 441 ; Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, iii, (1835) 263 ; Schenk Sp. Pl. it. Aeg.-Arab. & Syr. (1840) n. 209 ; Kotschy in Sitzb. Kais. Akad. Wiss. lii, (1866) 13 ; Oliv. Fl. Trop. Afr. ii, (1871) 382 ; Boiss. Fl. Or. ii, (1872) 735 ; Post Fl. Syr. etc. (1896) 309 ; Carter in Rec. Bot. Surv. Ind. vi, (1917) 139.—*Figaria aegyptiaca* Viv. Pl. Egypt. decad. iv, 13, t. 1.

HABITAT : I. Sinai (Auch.-Eloy 1491, Holland !); Wady Ghurundel and Ramleh (Lord !); Desert of Sinai (Bové 160 !); Ras Haman (Schimp. 240 !); Arabia Petraea (McDonald, Boiss.); between Wady Feiran and Maghura, Wady Shellal (Kneuck.); El Araba (ex Schenk); N. and S. Midian (Burton !).

II. Jiddah (Fischer 199 ! Zohrab 89 !); Hijaz (ex Kotschy).

IV. Zor Hills (Cox 44).

FL. : Feb. 1837 (Fischer), June 1832 (Bové).

FR. : Feb. 1837 (Fischer), Mar. 1835 (Schimp.), Apr. 1846 (Boiss.), Apr. 1868 (Lord), June 1832 (Bové), Nov. 1870 (Holland).

DISTRIB. : Algeria, Nubia, Egypt, Arabia, Palestine, Persia, Baluchistan, Afghanistan, N. W. India.

Vern. name : *Sa'adan* (Burton), *Sadann* (Bové).

Note : Eaten by man and beast (Burton).

### 9. *Cydonia* Tourn.

1. *C. vulgaris* Pers. Syn. ii, 40 ; Boiss. Fl. Or. ii, (1872) 656 ; Defl. Yemen (1889) 223.

HABITAT : II. Cultivated in Yaman (Defl.).

DISTRIB. : Mediterranean, Caucasus.

10. *Pyrus* L.

1. *P. communis* L.; Defl. Yemen (1889) 223; Schweinf in Bull. Herb. Boiss. (1896) App. II, 203.

HABITAT: II. Near Manakhah, 2,000 m. (S. 1713!); cultivated in Yaman (Defl.)

FL.: Mar. 1889 (S.).

DISTRIB.: Europe, Northern Asia, Himalaya region.

Vern. name: *Ambarât* (S.).

*f. vergens ad cordatum* (Desf.); Kneuck. in Allg. Bot. Zeitsch. ix, (1903) 147.

HABITAT: I. At the foot of Ras es-Safraf above the plain Raha, ca. 1,600 m. cultivated and partly run wild (Kneuck.).

11. *Malus* Hook. f.

1. *M. communis* Desf.; Defl. Yemen (1889) 223; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 204.

HABITAT: II. Cultivated in the coffee region above Hille, 1,000 m. (S. 664); cultivated in Yaman (Defl.).

DISTRIB.: Europe, Northern Asia, Himalaya region.

Vern. name: *Tiffah* (S.).

12. *Crataegus* L.

1. *C. sinaica* Boiss. Diagn. Pl. Or ser. 2, ii, 48; Fl. Or. ii, (1872) 663.—*C. Aronia* Dene. Fl. Sin. in Ann. Sc. Nat. ser. 2, iii, (1835) 264.

HABITAT: I. Mt. Sinai, Mt. Catherine (Bové 181! Schimp. 271!).

DISTRIB.: Arabia, Persia?

Vern. name: *Sarrour* (Bové).

13. *Cotoneaster* Medic.

1. *C. nummularia* F. et M. Ind. Petrop. ii, 34; Boiss. Fl. Or. ii, (1872) 666.

HABITAT: I. Mt. Sinai (Schimp. 270!).

DISTRIB.: N. Africa, Arabia Petraea, Syria, Asia Minor, Caucasus, Persia, Afghanistan, Baluchistan, N. W. India.

## XLI. CRASSULACEAE.

1. *Tillaea* L.

1. *T. pharnaceoides* Hochst. in Schimp. Herb. Abyss. 104; Oliv. Fl. Trop. Afr. ii, (1871) 387; Defl. Yemen (1889) 137.—*Combesia abyssinica* Reich. Fl. Abyss. i, (1847) 307

HABITAT : II. Jebel Kabil, near Manakhah, 2,500 m. (Defl. 312 !);  
Jebel Shibam near Manakhah 2,600 m. (Defl. 352.).

DISTRIB. : Tropical and S. Africa, Arabia, N. W. Himalayas.

## 2. *Crassula* L.

1. *C. alba* Forsk. Fl. Aeg.-Arab. (1775) CIX, n. 228 and p. 60; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 197.—*Sedum floribus corymbosis* Forsk. l. c. CXI, n. 273.—*C. puberula* R. Br. in Salt Abyss. App.—*Rochea dichotoma* Hochst. and *R. vaginata* Hochst. in Schimp. Herb. Abyss.—*C. abyssinica* Rich. Fl. Abyss. i, (1847) 309; Oliv. Fl. Trop. Afr. ii, (1871) 388; Defl. Yemen (1889) 137.

HABITAT : II. Hadiyah and Boka (Forsk.); in the mountains (Botta); near Yerim, 2,700 m. (Defl. 641); top of J. Shibam, 2,800 m. (Defl. 303); Manakhah, 2,300 m. (S. 1430!).

FL. : Feb. 1889 (S.). FR. : Feb. 1889 (S.)

DISTRIB. : Upper Guinea, Lower Guinea, Abyssinia, Eritrea, Yaman.

## 3. *Kalanchoe* Adans.

1. *K. alternans* Pers. Encl. i, 446; Defl. Yemen (1889) 137; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 201.—*Cotyledon orbiculata* Forsk. Fl. Aeg.-Arab. (1775) CXII, n. 292 (*non* L.).—*C. alternans* Vahl Symb. Bot. ii, (1791) 51 (*non* Haw.).

HABITAT : Yaman : Haez (Forsk.); Manakhah, 2,200 m. (S. 1426, Defl. 305, 444); Top of Jebel Areys, 1,200 m. (Defl. 1090!).

DISTRIB. : Endemic.

Vern. name : *Chodardar* (Forsk.).

2. *K. Bentii* C. W. Wright ex Hook. f. Bot. Mag. t. 7765.

HABITAT : III. S. Arabia (Bent).

DISTRIB. : Endemic.

3. *K. citrina* Schweinf. in Bull. Herb. Boiss. (1896) App. II, 199.

HABITAT : II. Wasil, 1,400 m. (S. 1831!).

FR. : Feb. 1889 (S.).

DISTRIB. : Eritrea, Yaman.

4. *K. deficiens* Aschers. & Schweinf. in Aschers.-Schweinf. Ill. Fl. d' Eg. (1887) 79, n. 402; Musch. Fl. Eg. i, (1912) 449.—*Cotyledon deficiens* Forsk. Fl. Aeg.-Arab. (1775) LXVI, n. 242 and p. 89.—*K. aegyptiaca* DC. Prodr. iii, 395.

HABITAT : II. Milhan (Forsk.); Jebel Sabor (Defl. 572); near Manakhah, 2,300 m. (Defl. 52!).

DISTRIB. : Endemic in Arabia, cultivated in Egypt.

Vern. name : *ödejn* (Forsk.).

5. *K. glaucescens* Britten in Oliv. Fl. Trop. Afr. ii, (1871) 393 ; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 201.

HABITAT : II. Manakhah, below 1,900 m. (S. 1611 !); above Hille in coffee region, 1,000 m. (S. 373); Wasil, 1,400 m. (S. 1101, 1156); Wulej 600 m. (S. 669 !).

FL. : Jan.-Feb. 1889 (S.). FR. : Feb. 1889 (S.).

DISTRIB. : Abyssinia, Eritrea, Yaman.

Vern. name : *Schjech—Scheh, Scho-uss* (S.).

6. *K. lanceolata* Pers. Syn. i, 446 ; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 202.—*Cotyledon lanceolata* Forsk. Fl. Aeg.-Arab. (1775) CXI, n. 291 and p. 89 ; Herb. Forsk. Hafniae n. 689 ex Schweinf. l. c.—*K. glandulosa* Hochst. in Rich. Fl. Abyss. i, (1847) 312 ; Oliv. Fl. Trop. Afr. ii, (1871) 396.

HABITAT : II. Kurma (Forsk.); Wulej, 600 m. (S. 695 !); Wasil, 1,400 m. (S. 1919); neighbourhood of Kahil (Botta).

DISTRIB. : Abyssinia, Eritrea, Yaman.

Vern. name : *homedet er robah* (Forsk.), *herg* (S.).

7. *K. yemensis* Schweinf. in Bull. Herb. Boiss. (1896) App. II, 202-203.—*K. brachycalyx* ? Rich. var. *yemensis* Defl. Yemen (1889) 138.

HABITAT : II. near Raudha, 2,300 m. (Defl. 632); near Maber, 2,400 m. (Defl. 694).

DISTRIB. : Endemic.

#### 4. *Cotyledon* L.

1. *C. Barbeyi* Schweinf. ; Baker in Gard. Chron. xiii, (1893) 624 ; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 196.

HABITAT : II. Manakhah, 2,300 m. (S. 1493 !); above Hille, 1,000 m. (S. 1875).

FL. : Feb. 1889 (S.). FR. : Feb. 1889 (S.).

DISTRIB. : Eritrea, Yaman.

Vern. name : *tufluk, tiffelok* (S.).

2. *C. Umbilicus* L. Sp. Pl. (1753) 429 ; Oliv. in Fl. Trop. Afr. ii, (1871) 398.—*Umbilicus pendulinus* DC. Prodr. iii, 400 ; Del. Frag. Fl. Arab. Petr. (1833) 74 ; Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, iii, (1835) 260.

HABITAT : I. Mt. Sinai (Bové ! Holland 125 !); Arabia Petraea (De Laborde); Central Midian (Burton !).

FR. : Feb. 1869 (Lord).

DISTRIB. : Europe, Canaries, N. W. Africa, tropical Africa, Arabia.

**5. Umbilicus DC.**

1. *U. horizontalis* DC. Prodr. iii, (1828) 400 ; Boiss. Fl. Or. ii, (1872) 770 ; Musch. Fl. Eg. i, (1912) 447.—*U. pendulinus* DC. var. *horizontalis* Boiss. Fl. Or. ii, (1872) 770.

HABITAT : I. Arabia Petraea (ex Post).

DISTRIB. : Mediterranean region.

2. *U. intermedius* Boiss. Fl. Or. ii, (1872) 769 ; Musch. Fl. Eg. i, (1912) 447.—*U. pendulinus* DC. var. *intermedius* Post Fl. Syr. etc. (1896) 314.

HABITAT : I. Arabia Petraea (ex Post).

DISTRIB. : Egypt, Arabia Petraea, Palestine, Syria, Mesopotamia, Armenia, Persia.

Vern. name : *Kuba es sech* (ex Boiss.).

**6. Sedum L.**

1. *Sedum* sp. Defl. Yemen (1889) 138.

HABITAT : II. Jebel Shibam, 2,800 m. (Defl.).

**7. Sempervivum L.**

1. *S. chrysanthum* Hochst. in Oliv. Fl. Trop. Afr. ii, (1871) 400 ; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 195.—*Aeonium leucoblepharum* Webb in Rich. Fl. Abyss. i, (1847) 314.

HABITAT : II. Top of Jebel Shibam near Manakhah, 2,900 m. (S. 1670!).

FL. : Mar. 1889 (S.). FR. : Mar. 1889 (S.).

DISTRIB. : Abyssinia, Eritrea, Yaman.

**XLII. RHIZOPHORACEAE.****1. Rhizophora L.**

1. *R. mucronata* Lam. Dict. iv, 169 ; Dene. Pl. l' Arab. Heur. in Ann. Sc. Nat. ser. 2, iv, (1835) 75 ; Oliv. Fl. Trop. Afr. ii, (1871) 407.

HABITAT : II. Near Haideytta (Bové 230!).

DISTRIB. : Tropical shores of Africa, Asia and Australia.

**XLIII. COMBRETACEAE.****1. Terminalia L.**

1. *T. Catappa* L. ; DC. Prodr. iii, 11 ; Baker in Kew Bull. (1894) 332 ; Krause in Engl. Bot. Jahrb. xxxv, (1905) 736.



HABITAT : II. Heathalim (Ellenb.).

III. Planted at Chail-ba-Wazir, 650 ft. (Lunt!).

DISTRIB. : India.

Vern. name : *Bechan* (Ellenb.).

2. *Terminalia* sp. ex Krause in Engl. Bot. Jahrb. xxxv, (1905) 724 ; Blatt, Fl. Aden (1915) 199.

HABITAT : II. Aden (Ellenb.).

DISTRIB. : Endemic.

NOTE : " This *Terminalia* which has been collected by Ellenbeck only and of which we have only a poor specimen, seems to be nearly allied to, and perhaps identical with, *T. Kelleri* Engl. & Diels of Somaliland." (Krause l. c.).

### 2. *Anogeissus* Wall.

1. *A. Bentii* Baker in Kew Bull. (1894) 332 ; Hook. Ic. Pl. t. 2354.

HABITAT : III. Ghail-Omar, 2,200 ft. (Lunt!).

DISTRIB. : Endemic.

### 3. *Combretum* L.

1. *C. trichanthum* Fres. Mus. Senck. ii, (1837) 155 ; Oliv. Fl. Trop. Afr. ii, (1871) 431.—? *C. molle* R. Br. in Salt Herb. Abyss. (1814).—*C. Schimperiana* (= *Terminalia hirta* Steud. ex A. Rich.).—*C. Rueppellianum* (= *C. reticulatum* Fres. (1837) non Presl) et *ferrugineum* A. Rich. (1847).

VAR. *yemensense* Defl. Yemen (1889) 138.

HABITAT : II. Wady Mawad near Hajeilah, 600 m. (Defl. 120!).

DISTRIB. : Abyssinia, Kordofan, Sennaar, Eritrea, Yaman.

## XLIV. MYRTACEAE.

### 1. *Psidium* L.

1. *Psidium* sp. in Defl. Yemen (1889) 138.

HABITAT : II. Yaman : Cultivated in gardens at Lahaj (Defl.).

## XLV. LYTHRACEAE.

### 1. *Ammannia* Houston.

1. *A. baccifera* Koehne in Engl. Bot. Jahrb. i, (1880) 258. VAR. *aegyptiaca* Koehne l. c. ; Musch. Fl. Eg. i, (1912) 671.—*A. aegyptiaca* Del. Ill. Fl. d' Eg. 75, n. 434.—*A. auriculata* VAR. *subsessilis* Boiss. Fl. Or. ii, (1872) 743.

HABITAT : I. Arabia Petraea (ex Musch.).

DISTRIB. : S. Europe, Africa, Asia.

## 2. Woodfordia Salisb.

1. *W. floribunda* Salisb. Parad. Lond. t. 42 ; Oliv. Fl. Trop. Afr. ii, (1871) 481.

HABITAT : III. Dhofar Mts. (Bent 143!).

DISTRIB. : Abyssinia, Sennaar. S. Arabia.

## 3. Lythrum L.

1. *L. hyssopifolium* L. Sp. Pl. (1753) 447 ; Musch. Fl. Eg. i, (1912) 668.—*Pentaglossum linifolium* Forsk. Fl. Aeg.-Arab. (1775) LIX, n. 11 and p. 11.

HABITAT : I. Arabia Petraea (ex Musch.).

DISTRIB. : Europe, Mediterranean region, Abyssinia, Cape, Australia.

2. *L. tribracteatum* Salzm. in Benth. Cat. (1826) 98 ; Musch. Fl. Eg. i, (1912) 667.—*L. bibracteatum* DC. Prodr. iii, 81 ; Boiss. Fl. Or. ii, (1912) 740.

HABITAT : I. Arabia Petraea (ex Musch.).

DISTRIB. : Mediterranean region, Central Russia, W. Asia.

## 4. Lawsonia L.

1. *L. inermis* L. Sp. Pl. (1753) 349 ; Forsk. Fl. Aeg.-Arab. (1775) CX, n. 259 ; Defl. Yemen (1889) 226 ; Baker in Kew Bull. (1894) 332 ; Krause in Engl. Bot. Jahrb. xxxv, (1905) 736 ; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 111 ; Blatt. Fl. Aden (1915) 220.—*L. spinosa* L. Sp. Pl. (1753) 349 (*non* Lour.).—*L. alba* Lam. Enc. iii, (1789) 106.

HABITAT : I. Akaba (Hart!).

II. Near Shaikh Othman and Lahaj (Ellenb. & Busse); Lohaja (Forsk.); oasis of Lahaj (Defl. 193); neighbourhood of Aden (Hunter 150!); cultivated in Yaman (Defl.).

III. Cultivated at Katan, 1,150 ft. (Lunt 169!); Hadramaut, cultivated (Hirsch 75).

Fl. : Dec. 1889 (Defl.).

DISTRIB. : Not exactly known ; probably indigenous in N. and E. Africa, Arabia, Persia, the drier parts of the Peninsula of India and Ceylon ; cultivated in many tropical and subtropical countries.

Vern. name : *honnun* (Ellenb.), *Henà*, *Handòn* (Hirsch), *Henna* (Lunt), *tamr-el-kindá* (Musch.), *Egyptian Privet*.

5. *Punica* L.

1. *P. granatum* L. Sp. Pl. (1753) 472; Boiss. Fl. Or. ii, (1872) 737; Defl. Yemen (1889) 223; Musch. Fl. Eg. ii, (1912) 673.

HABITAT : I. Arabia Petraea (ex Musch.).

II. Yaman, cultivated (Defl.).

DISTRIB. : Wild in the Suliman Range, Salt Range and West Himalaya.

Vern. name : *Rummar* (Post).

## XLVI. ORAGRACEÆ.

1. *Epilobium* L.

1. *E. hirsutum* L. Sp. Pl. (1753) 347; Oliv. Fl. Trop. Afr. ii, (1871) 487; Defl. Yemen (1889) 139.—*E. foliosum* Hochst. Herb. Schimp. Abyss.

HABITAT : Yaman : near Yazil, 2,700 m. (Defl. 570 !)

DISTRIB. : Europe, Africa, Asia.

## XLVII. LOASACEÆ.

1. *Kissenia* R. Br.

1. *K. spathulata* R. Br. in Herb. Mus. Brit.; Anders. Fl. Aden. (1860) 43; Oliv. Fl. Trop. Afr. ii, (1871) 501; Baker in Kew Bull. (1894) 332; Blatt. Fl. Aden (1915) 204.—*Fissenia capensis* Endl. Gen. Pl. Suppl. II, 76 (sine descript.); Harv. Thes. Cap. t. 98.—*Cnidone mentzeloides* E. Mey. in Herb. Drège, et Presl. Bot. Bemerk. p. 73.

HABITAT : II. Aden (Balfour! Perry! Defl. 2! S. 27! Thomson! Lunt! Ellenb., Courbon! Birdw.!).

III. Hadramaut : Alrail, 2,000 ft. (Lunt!); Wady Bayren (Hirsch 37).

FL. : Mar. 1881 (S.), Apr. 1861 (Thomson), Nov. (S.), Dec. 1889 (Defl.), Dec. 1893 (Lunt).

FR. : Apr. 1861 (Thomson), Nov. 1888 (S.), Dec. 1889 (Defl.), Dec. 1893 (Lunt).

DISTRIB. : Damaraland, Namaland, Somaliland, Arabia.

Vern. name : *Schabádh* (Hirsch).

## XLVIII. PASSIFLORACEÆ.

1. *Adenia* Forsk.

1. *A. venenata* Forsk. Fl. Aeg.-Arab. (1775) CX, n. 245 and p. 77; Defl. Yemen (1889) 139; Engl. in Engl. Bot. Jahrb. xiv, (1892) 376.—*Modecca abyssinica* Hochst. in Rich. Fl. Abyss. i, (1847) 297.

HABITAT: II. Near Hajeilah, 500—600 m. (Defl. 138!); Hadiyah (Forsk.).

DISTRIB.: Central Africa, Abyssinia, Eritrea, Yaman.

Vern. name: *Aden* (Forsk.).

Note: For medical uses see Forsk. l. c.

## XLIX. CUCURBITACEÆ.

1. *Lagenaria* Ser.

1. *L. vulgaris* Ser. in Mem. Soc. Genève, iii, pt. i, 25, t. 2.—*Cucurbita Lagenaria* L. Sp. Pl. (1753) 1010; Forsk. Fl. Aeg.-Arab. (1775) CXXII, n. 569 and p. 167, n. 40, 41 and 42; Defl. Yemen (1889) 225.

HABITAT: II. Mor (Forsk.); cultivated in Yaman (Defl.).

DISTRIB.: Tropical Africa, India, cultivated throughout the tropics.

Vern. name: *qarâ m'dauer*, *dubba dibbo*, *qara tauvil* (Forsk.).

2. *Momordica* Tourn.

1. *M. Balsamina* L. Sp. Pl. (1753) 1009; Forsk. Fl. Aeg.-Arab. (1775) CXXII, n. 568; Oliv. Fl. Trop. Afr. ii, (1871) 537; Boiss. Fl. Or. ii, (1872) 757; Defl. Yemen (1889) 139.—*M. Garriepensis* E. Mey.; Rich. Fl. Abyss. i, (1847) 291.

HABITAT: II. Wady Fatimah (Fischer 61!); Wady Fatimah near Unsert (Schimp. 850!); Yaman (Ehrenb.); Tehama: Kalife (S. 207!); Oasis of Lahaj (Defl. 114); near Aidah, 1,000 m. (Defl. 706).

III. Wady Sigem near Mukalla (Hirsch).

IV. Masqat (Auch.-Eloy 4502!).

FL.: Dec. 1888 (S.).

FR.: Feb. 1836 (Schimp.), Dec. 1888 (S.), Dec. 1889 (Defl.).

DISTRIB.: Cosmopolitan.

Vern. name: *mokahh moghadd* (Forsk.), *Guvâr* (Hirsch), *Beilasân* (Post), *Mukach humack* (S.).

2. *M. Charantia* L. Sp. Pl. (1753) 1009; Oliv. Fl. Trop. Afr. ii, (1871) 537; Cogn. in DC. Monogr. Phanerog. (1881) 436; Krause in Engl. Bot. Jahrb. xxxv, (1905) 737.

HABITAT : II. Near Heathalim (Ellenb.).

DISTRIB. : Cosmopolitan in the tropics.

Vern. name : *gemim* (Ellenb.).

### 3. *Luffa* Tourn.

1. *L. cylindrica* Roem. Syn. fasc. 2, p. 63 ; Cogn. in DC. Monogr. Phanerog. iii, (1881) 456.—*L. arabum* Dill. Cat. Pl. Giss. Append. p. 157, t. 11.—*Turia monoica pentandra* Forsk. Fl. Aeg.-Arab. (1775) 165, n. 35.—*T. foliis cordatis* Forsk. l. c. CXXI, 551 and p. 166, n. 37.

HABITAT : II. Mor (Ehrenb. !); cultivated in Yaman (Forsk.).

DISTRIB. : Tropics of Old World.

Vern. name : *turia* (Forsk.).

#### *Species dubia.*

*Turia Leloja* Forsk. Fl. Aeg.-Arab. (1775) CXXI, n. 552 and p. 165.  
(= *Luffa* sp. ?)

### 4. *Ecballium* A. Rich.

1. *E. Elaterium* Rich. in Dict. Class. Hist. Nat. vi, 19 ; Boiss. Fl. Or. ii, (1872) 760 ; Post Fl. Syr. etc. (1896) 324.

HABITAT : I. Arabia Petraea (ex Post).

DISTRIB. : Mediterranean region.

Vern. name : *qiththá-el-hamár* (Post).

Note: The inspissated juice is an exceedingly drastic and irritating, officinal cathartic.

### 5. *Cucumis* L.

1. *C. daucus indicus* Forsk. Fl. Aeg.-Arab. (1775) CXXII, n. 581.

HABITAT : II. Zebid, Beit el fakih (Forsk.).

DISTRIB. : Endemic.

Vern. name : *Djussar hendi* (Forsk.).

[Indis: *Gadjer*, *Schekarkand* (Forsk.).]

2. *C. dipaceus* Ehrenb. in Spach Veg. Phan. vi, 211 ; Oliv. Fl. Trop. Afr. ii, (1871) 543 ; Cogn. in DC. Monogr. Phanerog. iii, (1881) 500.—*Momordica dasycarpa* Hochst. ; Rich. Fl. Abyss. i, (1847) 291.

HABITAT : I. Wady Kamme (Ehrenb. !).

II. Cultivated in Yaman (Defl.).

DISTRIB. : Upper Guinea, Kordofan, Abyssinia, Nubia, Arabia.

3. *C. ficifolius* Rich. Fl. Abyss. i, (1847) 294, t. 53 bis ; Cogn. in DC. Monogr. Phanerog. (1881) 493.—*C. abyssinicus* Rich. l. c.—

*Bryonia obtusa* Rich. l. c.—? *C. trilobatus* Forsk. Fl. Aeg.-Arab. (1775) 168.—*C. Figarei* Del. Cat. Hort. Monsp. ex Naud. in Ann. Sc. Nat. ser. 4, xi, 16; Oliv. Fl. Trop. Afr. ii, (1871) 543; Defl. Yemen (1889) 139.

VAR. *echinophorus* Naud. in Ann. Sc. Nat. ser. 4, xi, 16; Defl. Yemen (1889) 139.

HABITAT: II. Jebel Bura, Hille (S. 336 !); near Hajeilah, 600 m. (Defl. 79); Mor (Ehrenb.).

FL.: Jan. 1889 (S.). FR.: Jan. 1889 (S.).

DISTRIB.: Angola, Senegambia, Guinea, Abyssinia, Arabia.

Vern. name: *Schirwe* (S.).

VAR. *ficifolius* Naud. l. c.

HABITAT: I. Arabia Petraea (McDonald!).

II. Yaman (Botta); Aden (Thomson!).

DISTRIB.: Abyssinia, Arabia.

4. *C. inedulis* Forsk. Fl. Aeg.-Arab. (1775) CXXII, n. 580.—*C. sativus arakis* Forsk. l. c. 169.

HABITAT: II. Mor, Lohaja (Forsk.).

DISTRIB.: Endemic.

Vern. name: *Arakis* (Forsk.).

5. *C. melo* L. Sp. Pl. (1753) 1011; Forsk. Fl. Aeg.-Arab. (1775) 168; Oliv. Fl. Trop. Afr. ii, (1871) 546; Cogn. in DC. Monogr. Phanerog. (1881) 482; Defl. Yemen (1889) 225; Krause in Engl. Bot. Jahrb. xxxv, (1905) 737.

HABITAT: II. Wady Kebir (Ellenb.); cultivated in Yaman (Defl.!).

DISTRIB.: Indigenous in tropical Africa and S. Asia, cultivated in all warm and temperate regions.

Vern. name: *cherir* (Ellenb.), *Battikh asfar* (Post).

VAR. *agrestis* Naud. in Ann. Sc. Nat. ser. 4, xi, 73 and xii, 110.—

*C. chate* L. Sp. Pl. (1762) 1437; Forsk. Fl. Aeg.-Arab. (1775) 168.

HABITAT: II. Jebel Bura, Hille (S. 240!).

Vern. name: *Muqti* (Post), *Smitt* (S.).

VAR. *culta* Kurz in Journ. Asiat. Soc. Beng. (1877) pt. 2, 102; Cogn. in DC. Monogr. Phanerog. (1881) 484.—*C. sativus* VARS. *Fakus*, *Smilli et Schemmam*; Forsk. Fl. Aeg.-Arab. (1775) 169.—*C. orientalis*? Forsk. l. c. CXXII, n. 579.

HABITAT: II. Lohaja (Forsk.).

Vern. name: *Smilli* (Forsk.); in Egypt: *Fakus*, *Schemmam* (Forsk.).

6. *C. ollæhic* Forsk. Fl. Aeg.-Arab. (1775) CXXII, n. 583.

HABITAT: II. Uzhfad (Forsk.).

DISTRIB. : Endemic.

Vern. name : *Ollakie* (Forsk.).

7. *C. prophetarum* L. Sp. Pl. (1762) 1436; Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, iii, (1835) 261; Oliv. Fl. Trop. Afr. ii, (1871) 545; Boiss. Fl. Or. ii, (1872) 758; Baker in Kew Bull. (1894) 333; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 120; Blatt. Fl. Aden (1915) 206.—*C. arabicus* Del. Cat. Hort. Monsp. ex Naud.—*C. anguria* Forsk. Fl. Aeg.-Arab. (1775) CXXII, n. 576 and p. 168 (*non* L.)

HABITAT: I. Sinai (Auch. 2857!); Wady Kamme (Ehrenb.!); Wady Nasb (Lord!); Wady Hebran (Schimp. 134!); neighbourhood of Tor (Bové!); Wady es Sle, W. es Shaikh (Kneuck.).

II. Jiddah (Zohrab 109! 110!); very common in the Tehama (Defl.); Aden (Lunt 328! S. 11! Perry! Balfour! Perrottet! Hildebr. Defl.! Ellenb., Marchesetti, Hook.! Thoms., Anders.); Mor (Ehrenb. 166!).

III. Hadramaut: Between Sibeh and Tahiyeh, 800—900 ft. (Lunt 106! 112!).

IV. Masqat (Auch.-Eloy 4503! Bent 11!).

FL.: Mar. 1878 (Perry), Apr. 1835 (Schimp.), Apr. 1868 (Lord), Dec. 1893 (Lunt).

FR.: Feb. 1851 (Thomson), Apr. 1835 (Schimp.), Apr. 1868 (Lord), Nov. 1888 (S.), Dec. 1893 (Lunt).

DISTRIB.: Egypt, Nubia, Abyssinia, Kordofan, Arabia, Socotra, Baluchistan, Sind.

Vern. name : *honedhāi* (Musch.), *damahir* (Ibn Beithar), *Nafi'ah* (Post).

8. *C. pustulatus* Hook. in Oliv. Fl. Trop. Afr. ii, (1871) 544; Cogn. in DC. Monogr. Phanerog. (1881) 495; Blatt. Fl. Aden (1915) 206.

HABITAT: I. Arabia Petraea (McDonald!).

II. Wasil, 1400 m. (S. 1088!); Aden (Thoms.! Hook. 68! S.!).

III. Sehut (Hirsch 34).

FR.: Feb. 1851 (Thomson), Feb. 1869 (Lord), Feb. 1889 (S.).

DISTRIB.: Abyssinia, Eritrea, Somaliland, Arabia.

Vern. name : *Hādīg*, *Hadgèt* (Hirsch).

9. *C. sativus* L. Sp. Pl. (1753) 1012.; Defl. Yemen (1889) 225.—*C. sativus Chiar* Forsk. Fl. Aeg.-Arab. (1775) 169.

HABITAT: I. Djowf (ex Palgrave).

II Cult. in Yaman (Defl.)

IV. Masqat (ex Palgrave)

FR. : July (Palgrave).

DISTRIB. : Probably indigenous in India.

Vern. name : *khiyâr* (Post)

10. *C. tuberculatus* Forsk. Fl. Aeg.-Arab. (1775) CXXII, n. 582.

HABITAT : II. Mor, Surdud (Forsk.).

DISTRIB. : Endemic?

Vern. name : *dahaq* (Forsk.).

*Species dubiae.*

*C. sativus battich Djebbal* Forsk. Fl. Aeg.-Arab. (1775) 169.

*C. m'heimta* Forsk. l. c. CXXII, n. 578.

6. *Citrullus* Neck.

1. *C. colocynthis* Schrad in Linnaea xii, (1838) 414; Anders. Fl. Aden. (1860) 20; Oliv. Fl. Trop. Afr. ii, (1871) 548; Boiss. Fl. Or. ii, (1872) 759; Defl. Yemen (1889) 139; Blatt. Fl. Aden (1915) 207.—*Cucumis colocynthis* L. Sp. Pl. (1753) 1011; DC. Prodr. iii, 302.

HABITAT : I. Wady Nasb (Drake 66!); Ramleh (Hart!); W. Gennah (Lord!); W. Ghurundel (Hart!); Wady es Sle, W. Tarfa, W. Shellal (Kneuck.); Midian (Burton!).

II. Jiddah (Zohrab 108!); Aden (Ol. & Cl. S. Defl. Anders. Birdw. Kuntze, Marchesetti).

III. Hadramaut : Between Sibeh and Tahiyeh, 900 ft. (Lunt 105!).

FR. : Jan. 1863 (Ol. and Cl.), Apr. 1868 (Lord), Dec. 1893 (Lunt).

DISTRIB. : Spain, Canaries, Cape Verd Islands, N. Africa, Arabia, Palestine, Sind, Punjab, Ceylon.

Vern. name : *Colocynth*. Arabic name : *Handhal*; (*dohnel-bandhal* = oil of C.), *hondol* (Post).

2. *C. vulgaris* Schrad. in Linnaea, xii, 412; Oliv. Fl. Trop. Afr. ii, (1871) 549; Cogn. in DC. Monogr. Phanerog. iii, (1881) 508; Krause in Engl. Bot. Jahrb. xxxv, (1905) 737.—*Cucurbita Citrullus* L. Sp. Pl. (1753) 1010; Forsk. Fl. Aeg.-Arab. (1775) CXXII, n. 570 and p. 167, n. 44; Defl. Yemen (1889) 225.—*Cucurbita Citrullus Battich* Forsk. l. c. CXXII, n. 572 and p. 167, n. 43.

HABITAT : II. Hadiyah and Uahfad, Mor (Forsk.); cultivated in Yaman (Defl.); near Lahaj (Ellenb.).

DISTRIB. : Tropical Africa, Arabia.

Vern name : *dubba farakis, schur:redj* (Forsk.), *hadeh, habbah* (Ellenbeck), *Jabas, Battikh akhdar* (Post).



VAR. **Kasch** nov. comb.—*Cucurbita Citrullus Kasch* Forsk. Fl. Aeg.-Arab. (1775) CXXII, n. 571 and p. 167, n. 45.

HABITAT: II. Hadiyah (Forsk.).

Vern. name: *Kasch* (Forsk.).

### 7. *Coccinia* W. & A.

1. ? *C. indica* W. & A. Prod. 347.—*Cephalandra indica* Naud. in Bent, Southern Arabia (1900) App. I, 432.

HABITAT: III. Dhofar Mts. (Bent 182!).

DISTRIB.: Tropical Asia.

2. *C. moghadd* Aschers. in Schweinf. Pl. Nub. n. 85, 86 and 336; Cogn. in DC. Monogr. Phanerog. iii, (1881) 531.—*Turia moghadd* Forsk. Fl. Aeg.-Arab. (1775) CXXI, n. 554 and p. 166.

HABITAT: II. Mor (Ehrenb. !); Lohaja (Forsk.).

DISTRIB.: Senegambia, Central Africa, Abyssinia, Nubia, Arabia.

Vern. name: *Moghadd* (Forsk.).

### 8. *Cucurbita* L.

1. *C. maxima* Duch. in Ham. Encycl. ii, 151; Cogn. in DC. Monogr. Phanerog. iii, (1881) 544; Defl. Yemen (1889) 225; Musch. Fl. Eg. ii, (1912) 940.—*C. pepo longa* Forsk. Fl. Aeg.-Arab. (1775) CXXII, n. 573. — *Pepo longa* Forsk. l. c. 168.

HABITAT: I. Cultivated in Arabia Petraea (ex Musch.).

II. Cultivated in Yaman (Defl.); cult. at Lohaja (Forsk.).

DISTRIB.: Probably indigenous in S. Asia.

Vern. name: *Kara* (Forsk.).

### *Species dubiae.*

*C. dubia* Forsk. Fl. Aeg.-Arab. (1775) CXXII, n. 574.

HABITAT: II. Cultivated in the plains of Yaman (Forsk.).

Vern. name: *Habbah* (Forsk.).

### 9. *Blastania* Kotschy & Peyr.

1. *B. fimbriatipula* Kotschy & Peyr. Pl. Tin. 15, t. 7; Cogn. in DC. Monogr. Phanerog. iii, (1881) 628; Cooke Fl. Bomb. i, (1903) 543.—*Ctenolepis cerasiformis* Hook. f. in Oliv. Fl. Trop. Afr. ii, (1871) 558.

HABITAT: II. Mor (Ehrenb.!).

DISTRIB.: Senegambia, Angola, Sulân, Abyssinia, Arabia, Sind, Gujerat.

10. *Corallocarpus* Welw.

1. *C. Courbonii* Cogn. in DC. Monogr. Phanerog. iii, (1881) 655.—*Rhynchocharpa Courbonii* Naud. in Ann. Sc. Nat. ser. 4, xviii, 197; Boiss. Fl. Or. ii, (1872) 762.—*C. Etbaicus* Hook. f. in Oliv. Fl. Trop. Afr. ii, (1871) 567.—*C. relutinus* C. B. Clarke in Hook. f. Fl. Brit. Ind. ii, pt vi, (1879) 628; Blatt. Fl. Aden (1915) 211.

HABITAT: II. Aden (Birdw. ! S. !).

IV. Near Masqat (Auch.-Eloy 4502 !).

FR. : Mar. (S.).

DISTRIB. : Abyssinia, Nubia, Arabia, Sind.

2. *C. Ehrenbergii* Hook f. in Oliv. Fl. Trop. Afr. ii, (1871) 566; Cogn. in DC. Monogr. Phanerog. iii, (1881) 653.—*Rhynchocharpa Ehrenbergii* Aschers. in Schweinf. Herb. Nub. (1865) n. 61; in Schweinf. Beitr. Z. Fl. Aeth. 251.

HABITAT: II. Mt. Kara (Ehenb. !)

DISTRIB. : Abyssinia, Nubia, Arabia.

3. *C. erostris* Oliv. Fl. Trop. Afr. ii, (1871) 567; Cogn. in DC. Monogr. Phanerog. iii, (1881) 652; Defl. Yemen (1889) 139; Blatt. Fl. Aden (1915) 211.—*Rhynchocharpa erostris* Schweinf. in Verh. Zool. Bot. Ges. Wien (1868) 673.

HABITAT: II. In gardens at Merawa (Defl.); Aden (Defl. ! S. !).

DISTRIB. : Nubia, Eritrea, Yaman.

4. *C. Gijef* Hook. f. in Oliv. Fl. Trop. Afr. ii, (1871) 566; Cogn. in DC. Monogr. Phanerog. iii, (1881) 657.—*Turia Gijef* Forsk. Fl. Aeg. Arab. (1775) CXXI, n. 553 and p. 166.

HABITAT: II. Mor (Ehrenb. !); Surdud (Forsk.).

DISTRIB. : Kordofan, Nubia, Arabia.

Vern. name: *Gijef* (Forsk.).

5. *C. glomeruliflorus* Schweinf. Manusk. Sammlung Arab.-Athiop. Pflanzen; Krause in Engl. Bot. Jahrb. xxxv, (1905) 732; Blatt. Fl. Aden (1915) 210.—*Rhynchocharpa Courbonii* Defl. in Bull. Soc. Bot. France, xxxii, 349.—*Phialocarpus glomeruliflorus* Defl. l. c. xlii, 304.—*C. Gijef* Schweinf. in Herb. Berol. (ex Krause).

HABITAT: II. Jebel el Areys (Defl. 449); Aden (S. 359! Beevor! Hildebr. ! Defl. !); Little Aden (Defl. !).

III. Hadramaut (Hirsch 15):

FR. : Mar. 1888 (S.).

DISTRIB. : Endemic.

6. *C. parvifolius* Cogn. in DC. Monogr. Phanerog. iii, (1881) 658; Baker in Kew Bull. (1894) 333.

HABITAT: II. Mt. Kara (Ehrenb.).

III. Hadramaut: Hills near Gambla, 1,500 ft. (Lunt 226!).

DISTRIB.: Endemic.

## L. FICOIDEÆ.

### 1. Mesembryanthemum L.

1. *M. Forskahlei* Hochst. in Schimp. Pl. Arab. exs. ed. 2; Boiss. Fl. Or. ii, (1872) 765.--*M. jeniculiflorum* Forsk. Fl. Aeg.-Arab. (1775) LXVII, n. 273 and p. 98.

HABITAT: I. Arabia Petraea (Schimp.); S. of Dead Sea (ex Post).

DISTRIB.: Egypt, Arabia Petraea.

Vern. name: *Semeh, samh* (Post).

Note: For iconomic uses see Forsk. l. c.

2. *M. Harazianum* Defl. Yemen (1889) 140.

HABITAT: II. Jebel Shibam, 2,800 m. (Defl. 337!)

DISTRIB.: Endemic.

3. *M. nodiflorum* L. Sp. Pl. (1753) 480; Forsk. Fl. Aeg.-Arab. (1775) LXVII, n. 272 and p. 98; Boiss. Fl. Or. ii, (1872) 764.

HABITAT: I. Arabia Petraea (McDonald! Schimp. 298!).

DISTRIB.: Mediterranean region.

Vern. name: *Ghassâl* (Post).

### 2. Aizoon L.

1. *A. canariense* L. Sp. Pl. (1753) 488; Del. Frag. Fl. Arab. Petr. (1833) n. 75; Dene. Fl. Sin. in Ann. Sc. Nat. ser. 2, iii, (1835) 261; Post Fl. Syr. etc. (1896) 327.—*Glinus crystallinus* Forsk. Fl. Aeg.-Arab. (1775) LXVII, n. 262 and p. 95, t. 14.

HABITAT: I. Arabia Petraea (De Laborde! McDonald!); Wady Hebran, 2,500 ft. (Ruppell!); Dead Sea and southwards (Post); oasis Feiran (Kueuck.); Wady Nasb (Lord!); near Tor (Bové!); S. Midian (Burton!).

II. Jiddab (Fischer 3! Zohrab 77! 78!).

IV. Masqat (Auch.-Eloy 4537!).

Fl.: Apr. (Lord).

DISTRIB.: Mediterranean region, Cape, Arabia, Persia, Baluchistan, N. W. India.

Vern. name: *Kushât-el-Belât, Hadaq* (Post).

2. *A. hispanicum* L. Sp. Pl. (1753) 488; Boiss. Fl. Or. ii, (1872) 765; Post Fl. Syr. etc. (1896) 327; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 84.—*Mesembryanthemum copticum* L. Sp. Pl. (1762) 688.

HABITAT: I. Arabia Petraea (Boiss. !); Sinai (ex Post).

DISTRIB.: Mediterranean region, Arabia, Persia.

Vern. name: *Ghassúl*, *Yasheníd* (Post).

### 3. *Trianthema* L.

1. *T. crystallina* Vahl Symb. Bot. i, (1790) 32; Anders. Fl. Aden. (1860) 20; Defl. Yemen (1889) 140; Schweinf. in Bull. Herb. (1896) App. II, 169; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 84; Blatt. Fl. Aden (1915) 213.—*Papularia crystallina* Forsk. Fl. Aeg.-Arab. (1775) CVIII, n. 199 and p. 69.

HABITAT: I. Jebel Nakus (Musch.).

II. Jiddah (Fischer 28! Zohrab 228! 273!); Dahhi (Forsk.); Wady Fatimah (Schimp. 883!); Wady Yalut (Lunz 10!); near Hajeilah (Defl. 9, 10); Aden (Lunt 350! Beevor 101! Defl.! Anders.! Birdw.! Hildebr.!); Shuqra (S. 89); Hanish Island (Slade 17!); Perim Island (Coomaraswamy!).

III. Ras Shirwen (Hirsch 172).

FL.: Feb. (Fischer), Feb. 1836 (Schimp.), Apr. 1894 (Lunt).

FR.: June 1872 (Hildebr.).

DISTRIB.: Upper Egypt, Nubia, Abyssinia, Kordofan, Arabia, Sind, Punjab.

2. *T. monogyna* L. Mant. 69; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 169; Blatt. Fl. Aden (1915) 214.

HABITAT: II. Near Hajeilah, 600 m. (S. 912); Jebel Bura, Hille (S. 242!); Kamaran Island (Bové!); Shaikh Othman (S. 124!).

DISTRIB.: Throughout India, Ceylon, and most tropical regions.

Vern. name: *Rigma* (S.).

3. *T. pentandra* L. Mant. (1762) 70; Boiss. Fl. Or. ii, (1872) 766; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 169; Post Fl. Syr. etc. (1896) 327; Blatt. Fl. Aden (1915) 213.—*Rocama prostrata* Forsk. Fl. Aeg.-Arab. (1775) CVIII, n. 200 and p. 71.

HABITAT: I. S. Midian (Burton!).

II. Jiddah (Zohrab 49! Fischer 10!); Lohaja, Surdud, Mor (Forsk.); Wady Saylet (Defl. 238!); near Hajeilah, 600 m. (S. 1065, 1994); Hille, 600 m. (S. 369!); El Hammi (S. 170); Aden (Birdw. 157!); Shuqra (S. 104).

## III. Ras Shirwen (Hirsch 168):

FL. : Jan., Feb. 1837 (Fischer), Aug. 1898 (Birdw.).

FR. : Jan. 1890 (Defl.), Aug. 1898 (Birdw.).

DISTRIB. : Tropical Africa, Arabia, N. W. India.

Vern. name : *Rocama* (Forsk.).

4. *T. polysperma* Hochst. Herb. Nub. Kotsch. 68 ; Oliv. Fl. Trop. Afr. ii, (1871) 588 ; Defl. Yemen (1889) 140.

HABITAT : II. Near Mantar (Defl. 26 !).

DISTRIB. : Kordofan, Nubia, Yaman.

5. *T. sedifolia* Vis. Pl. Aeg. ac Nub. 19 t. III, f. 1 ; Oliv. Fl. Trop. Afr. ii, (1871) 588 ; Defl. Yemen (1889) 140 ; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 169.

HABITAT : II. Near Hajeilah, 600 m. (S. 1063 ! Defl. 94).

DISTRIB. : Lower Guinea, Kordofan, Sennaar, Eritrea, Yaman.

VAR. *microphylla* Defl. l. c.

HABITAT : Yaman (Courbon!).

4. *Orygia* Forsk.

1. *O. decumbens* Forsk. Fl. Aeg.-Arab. (1775) CXIV, n. 344 and p. 103 ; Anders. Fl. Aden. (1860) 20 ; Boiss. Fl. Or. i, (1867) 755 ; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 169 ; Blatt. Fl. Aden (1915) 215.—*Portulaca decumbens* Vahl Symb. Bot. i, (1790) 33.

HABITAT : II. Musa (Forsk.); near Hille, 500 m. (S. 427); Shuqra (S. 129); Aden (Defl. 85 ! Lunt 282 ! Edgew. ! Hook. ! Perry ! Hunter ! Ellenb.).

## III. Hadramaut (Hirsch 103).

FL. : Feb. 1869 (Lord) Apr. 1894 (Lunt).

FR. : Feb. 1869 (Lord), Mar. 1878 (Perry), Apr. 1894 (Lunt), Dec. 1847 (Hook.).

DISTRIB. : Africa, Arabia, Baluchistan, Sind, Punjab, Mysore.

*Species dubia.*

*O. villosa* Forsk. Fl. Aeg.-Arab. (1775) CXIV, n. 343.

HABITAT : II. Boka (Forsk.).

5. *Telephium* L.

1. *T. sphaerospermum* Boiss. Diagn. Pl. Or. ser. J, iv, 12 ; Fl. Or. i, (1867) 754 ; Post Fl. Syr. etc. (1890) 165.

HABITAT: I. Wady Hebran (Schimp. 346!); Sinai Peninsula: Tor (Lord!); Sinai (ex Post); Wady Shaikh (Boiss.!).

FR.: June (Lord).

DISTRIB.: Cyrenaica, Egypt, Arabia Petraea.

### 6. *Mollugo* L.

1. *M. cerviana* Seringe MS.; DC. Prodr. i, (1824) 392; Anders. Fl. Aden. (1860) 7; Boiss. Fl. Or. i, (1867) 756; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 168; Blatt. Fl. Aden (1915) 216 — *Pharnaceum umbellatum* Forsk. Fl. Aeg.-Arab. (1775) CIX, n. 217 and p. 58.

HABITAT: II. Lohaja (Forsk.); Shuqra (S. 114); Aden (Lunt 355! Hook. 48! Defl. ! Anders. ! Birdw. ! Perry!).

FL.: Mar. 1878 (Perry), Apr. 1894 (Lunt), Dec. 1847 (Hook.).

FR.: Mar. 1878 (Perry), Apr. 1894 (Lunt), Dec. 1847 (Hook.).

DISTRIB.: Tropical and sub-tropical countries of the Old World, S. Europe.

2. *M. Glinus* A. Rich. Fl. Abyss. i, (1847) 48; Defl. Yemen (1889) 141.—*Glinus lotoides* L. Sp. Pl. (1753) 463; Forsk. Fl. Aeg.-Arab. (1775) LXVII, n. 261, CXIII, n. 320 and p. 96; Dene. Fl. Sin. in Ann. Sc. Nat. ser. 2, iii, (1835) 261; Boiss. Fl. Or. i, (1867) 755; Post Fl. Syr. etc. (1896) 165; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 84.

HABITAT: I. Wady Nasb (Hart!); Desert of Tor (Bové!).

II. Matara, Mor, Milhan (Forsk.); Jiddah (Zohrab 44! Fischer 89!); oasis of Lahaj (Defl. 125!).

III. Dhofar Mts. (Bent 222!).

FL.: Dec.-Feb. 1837 (Fischer), Dec. 1889 (Defl.).

FR.: Dec.-Feb. 1837 (Fischer), Dec. 1889 (Defl.).

DISTRIB.: Europe, N. Africa, Tropical Asia, Australia, America

Vern. name: *haschse* (Forsk.), *Ghubeirah* (Post).

Note: For medical uses see Forsk. l. c.

3. *M. hirta* Thunb. Prod. Pl. Cap. 24.—*Glinus setiflorus* Forsk. Fl. Aeg.-Arab. (1775) CXIII, n. 319 and p. 95.

HABITAT: II. Dabhi (Forsk.).

DISTRIB.: Tropical and sub-tropical regions.

4. *M. nudicaulis* Lam. Dict. iv, 234; Oliv. Fl. Trop. Afr. ii, (1871) 591; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 168.

HABITAT: II. Hille, 500 m. (S. 275!); Wulej, 600 m. (S. 619).

DISTRIB.: Zambesi, Congo, Senegambia, Kordofan, Nubia, Abyssinia, Eritrea; Arabia.

7. *Gisekia* L.

1. *G. pharnaceoides* L. ; DC. Prodr. xiii, pt. 2, 27 ; Oliv. Fl. Trop. Afr. ii, (1871) 593.

HABITAT : I. N. Midian (Burton!).

II. Jiddah (Fischer 50! Zohrab 202! 194!).

FL. : Jan. 1837 (Fischer).

DISTRIB. : Tropical and S. Africa, Arabia to India.

8. *Limeum* L.

1. *L. indicum* Stocks in Herb. Hook. ; Anders. Fl. Aden. (1860) 30 ; Oliv. Fl. Trop. Afr. ii, (1871) 596 ; Blatt. Fl. Aden (1915) 217.

HABITAT : II. Aden (Ol. & Cl. ! Perry! Hook.!).

FL. : Jan. 1863 (Ol. & Cl.), Mar. 1878 (Perry), Dec. 1847 (Hook.).

FR. : Jan. 1863 (Ol. & Cl.), Mar. 1878 (Perry).

DISTRIB. : Nubia, S. Arabia, Sind, Baluchistan, Punjab, Multan.

## LI. UMBELLIFERÆ.

1. *Anisosciadium* DC.

1. *A. lanatum* Boiss. Fl. Or. Suppl. (1888) 261.

HABITAT : I. Midian (Burton!).

DISTRIB. : Endemic.

2. *Pycnocycla* Lindl.

1. *P. Aucheriana* Dcne. MS. ; Boiss. Ann. Sc. Nat. (1844) 88 ; Fl. Or. ii, (1872) 952.

HABITAT : IV. Jebel Jebek (Auch.-Eloy!).

DISTRIB. : Arabia, Persia, Baluchistan.

2. *P. tomentosa*<sup>1</sup> Dcne. Ann. Sc. Nat. ii, 719 ; Fl. Sin. in Ann. Sc. Nat. ser. 2. iii, (1835) 258 ; Jaub. & Sp. Ill. Pl. Or. t. 242 ; Boiss. Fl. Or. ii, (1872) 952.

HABITAT : I. Sinai (Auch.-Eloy 3715!) ; Wady Feiran and neighbourhood (Lord!) ; Wady Senneh (Drake 88!) ; Arabia Petraea (McDonald) ; Wady Hebran (Schimp. 148!) ; W. Ghurundel (ex Post) ; W. Baruk (Bové 122!).

FL. : May 1868 (Lord), June 1835 (Schimp.)

FR. : June 1835 (Schimp.).

DISTRIB. : Endemic.

Vern. name : *Teyen*, *beyen* (Bové), *Seseban* (Schimp.).

3. *Bupleurum* L.

1. *B. linearifolium* DC. Prodr. iv, 132; Boiss. Fl. Or. ii, (1872) 849.

VAR. *Schimperianum* Boiss. l.c. 850; Post Fl. Syr. etc., (1896) 343 — *B. Schimperi* Boiss. Ann. Sc. Nat. ser. 3, ii, (1844) 151.

HABITAT: I. Sinai (Ehrenb. !); Raphidim (Schimp. 290 !).

FR.: Apr. 1835 (Schimp.).

DISTRIB.: Of species: Mediterranean region, Persia, Afghanistan.  
Of var.: Endemic.

2. *B. nodiflorum* Smith in Sibth. et Smith Fl. Graec. Prodr. i, (1806) 177; Boiss. Fl. Or. ii, (1872) 840; Musch. Fl. Eg. ii, (1912) n. 978. — *B. proliferum* Del. Fl. d'Eg. (1813) 61, t. 22, f. 2.

HABITAT: I. Arabia Petraea (ex Musch.).

DISTRIB.: Marmarica, Egypt, Arabia Petraea, Palestine, Syria

3. *B. semicompositum* L. Dissert. Dem. Pl. (1753) 7; Sp. Pl. (1762) 342; Musch. Fl. Eg. ii, (1912) n. 980. — *B. glaucum* Ledeb. Fl. Ross. ii, (1844-46) 261; Boiss. Fl. Or. ii, (1872) 842.

HABITAT: I. Arabia Petraea (ex Musch.).

DISTRIB.: Mediterranean region, Persia.

4. *B. subovatum* Link in Spreng. Spec. Umb. Min. Cogn. (1818) 19 Wolff Umbell.-Apioid. in Engl. Pflanzenr. (1910) p. 46; Musch. Fl. Eg. ii, (1912) n. 977. — *B. protractum* Link & Hoffgg. Fl. Portug. ii, (1820) 387; Boiss. Fl. Or. ii, (1872) 836. VAR. *heterophyllum* Wolff in Engl. l. c. p. 48.

HABITAT: I. Arabia Petraea (Boiss.).

DISTRIB.: Of species: Central Europe, Mediterranean region, Persia.

4. *Apium* L.

1. *A. graveolens* L. Sp. Pl. (1753) 264; Dene. Fl. Sin. in Ann. Sc. Nat. ser. 2, iii, (1835) 257; Boiss. Fl. Or. ii, (1872) 856.

HABITAT: I. Cultivated ground of Mt. Sinai (Bové!).

IV. Masqat (Auch.-Eloy 4580!).

DISTRIB.: Europe, Mediterranean region, Cape, Arabia, Baluchistan.

Vern. name: *Kurfus* (Post).

2. *A. nodiflorum* Reichb. f. Ic. Fl. Germ. xxi, 10. — *Heliosciadum nodiflorum* Koch Umb. 26; Musch. Fl. Eg. ii, (1912) 695.

HABITAT: I. Arabia Petraea (ex Musch.).

II. Wady Shurfa, Manakhah, 2,500 m. (S. 1763!).



DISTRIB. : Europe, N. Africa, Abyssinia, Arabia, Persia.

Vern. name : *qurrah*, *jezar-ʿafârît* (Post).

### 5. Ammi L.

1. *A. copticum* L. Mant. 56 ; Boiss. Fl. Or. ii, (1872) 891 ; Musch. Fl. Eg. ii, (1912) 700.—*Carum copticum* Benth. et Hook. f. Gen. Pl. i, 891 ; Baker in Kew Bull. (1894) 333.

HABITAT : I. Arabia Petraea (ex Musch.).

III. Cultivated at Katan, 1,150 ft. (Lunt!).

DISTRIB. : Egypt, Arabia, Palestine, Persia, Afghanistan.

Vern. name : *shamar* (Lunt).

2. *A. majus* L. Sp. Pl. (1753) 243 ; Boiss. Fl. Or. ii, (1872) 891 ; Post Fl. Syr. etc. (1896) 345.

HABITAT : IV. Masqat (Auch.-Eloy 4574! 4575!).

DISTRIB. : Europe, Mediterranean region, Abyssinia.

Vern. name : *Khilleh-Sheitânîyah* (Post).

### 6. Pituranthos Viv.

1. *P. tortuosus* Benth. & Hook. ex Aschers.-Schweinf. Ill. Fl. Eg. (1887) 80 ; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 112.—*Deverra tortuosa* DC. Prodr. iv, 143 ; Schenk Sp. Pl. it. Aeg. Arab. & Syr. (1840) n. 195 ; Boiss. Fl. Or. ii, (1872) 860 ; Post Fl. Syr. etc. (1896) 345.

HABITAT : I. Desert of Suez (Bové 125!) ; between Wady Ghurundel and W. Werdan (Kneuck.) ; between Suez and Tor (ex Schenk) ; Sinai (Musch.).

FL. : June 1832 (Bové). FR. : June 1832 (Bové).

DISTRIB. : N. Africa, Arabia Petraea.

Vern. name : *Keruni* (Musch.), *Soqâkh*, *Oasâkh*, *Shebet-el-Jebel* (Post).

2. *P. triradiatus* Aschers.-Schweinf. Ill. Fl. d'Eg. (1887) 86, n. 465 ; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 111.—*Deverra triradiata* Hochst. in Schimp. Pl. Arab. exs. ed. 2, n. 454 ; Boiss. Fl. Or. ii, (1872) 861 ; Post Fl. Syr. etc. (1896) 345.

HABITAT : I. Sinai (ex Post) ; foot of Mt. Sinai (Schimp.!) ; Jebel Hammam-Sidna-Musa, J. Nakus, Wady es Sle, Wady Hebran, Suez to el Tor (Musch.).

DISTRIB. : Egypt, Sinai Peninsula.

Vern. name : *qasâkh*, *Qazzuh* (Post).

Note : Eaten by amels (Musch.).

7. *Petroselinum* Benth.

1. *P. sativum* Hoffgg. Umb. Gen. i, 78; Boiss. Fl. Or. ii, (1872) 857; Defl. Yemen (1889) 225; Post Fl. Syr. etc. (1896) 344.—*Carum Petroselinum* Benth. & Hook. f. Gen. i, 891.

HABITAT : II. Cultivated in Yaman (Defl.!).

DISTRIB. : Cultivated in the Old World.

Vern. name : *Buqunis* (Post).

8. *Ptychotis* DC.

1. *P. arabica* Anders. Fl. Aden. (1860) 21; Blatt. Fl. Aden (1915) 218.

HABITAT : II Aden (S. ! Hook. ! Thomson ! Defl. ! Busse, Birdw. ! Perry !).

FL. : Feb. 1851 (Thomson), Mar. 1878 (Perry), Apr. 1861 (Thomson), Dec. 1847 (Hook.).

FR. : Feb. 1851 (Thomson), Mar. 1878 (Perry), Apr. 1861 (Thomson), Dec. 1847 (Hook.).

DISTRIB. : Endemic.

Vern. name : *Kebseve*.

*Species dubia.*9. *Sison* L.

1. *S. ammi* Forsk. Fl. Aeg.-Arab. (1775) CIX, n. 211.—An *Apium* sp. ?

HABITAT : II. Cultivated in the plains of Yaman (Forsk.).

Vern. name : *Nachu* (Forsk.).

10. *Sium* L.

1. *S. erectum* Huds. Fl. Angl. ed. 1, 103.—*Berula angustifolia* Koch Deutschl. Fl. (1840) 433; Boiss. Fl. Or. ii, (1872) 889; Musch. Fl. Eg. ii, (1912) 706.—*S. angustifolium* L. Sp. Pl. ed. 2, 1672.

HABITAT : I. Arabia Petraea (ex Musch.).

DISTRIB. : Europe, Mediterranean region.

2. ? *S. latifolium* L. Sp. Pl. (1753) 251; Forsk. Fl. Aeg.-Arab. (1775) CIX, n. 210.

HABITAT : II. Mountainous region of Yaman (Forsk.).

DISTRIB. : Europe, N. America.

3. *S. Thunbergii* DC. Prodr. iv, 125; Oliv. Fl. Trop. Afr. iii, (1877) 13; Defl. Yemen (1889) 141.

HABITAT : II. Near Sanah, 2,300 m. (Defl. 517!).

DISTRIB. : Abyssinia, Arabia, S. Africa.

11. *Pimpinella* L.

1. *P. Anisum* L. Sp. Pl. (1753) 264 ; Boiss. Fl. Or. ii, (1872) 866 ; Post. Fl. Syr. etc. (1896) 348 ; Musch. Fl. Eg. ii, (1912) 702.

HABITAT : I. Arabia Petraea (ex Musch.).

DISTRIB. : Cosmopolitan, cultivated.

Vern. name : *Yansûn* ( Post ).

2. *P. cretica* Poir. Suppl. i, 684.

VAR. *arabica* Boiss. Fl. Or. ii, (1872) 866 ; Post Fl. Syr. etc. (1896) 249.—*P. arabica* Boiss. Ann. Sc. Nat. (1844) 130.

HABITAT : I. Sinai (ex Post); Arabia Petraea (Schimp. 281 ! ); Midian (Burton ! ).

II. Jiddah (Zohrab 182 ! 231 ! ).

FL. : July 1835 (Schimp.). FR. : July 1835 (Schimp.).

DISTRIB. : Of species : Mediterranean region.

Note : Eaten by sheep (Burton).

3. *P. menachensis* Schweinf. MS. in Herb. Kew. (*aff. P. Griffithianae* § *puberulae*).

HABITAT : II. Manakhah, on walls, 2,200 m. (S. 1405 ! ).

FL. : Mar. 1889 (S.). FR. : Mar. 1889 (S.).

DISTRIB. : Endemic.

4. *P. peregrina* L. Mant. 357 ; Boiss. Fl. Or. ii, (1872) 867 ; Defl. Yemen (1889) 141.—*P. hirtella* Rich. Fl. Abyss. i, (1847) 323.—*Tragium hirtellum* Hochst. Herb. Schimp. Abyss. n. 355.

HABITAT : II. Jebel Kabel, near Manakhah, 2,500 m. (Defl. 309 ! )

DISTRIB. : Mediterranean region, Abyssinia, Yaman.

5. *P. Tragium* Vill. Daupl. ii, 606 ; Boiss. Fl. Or. ii, (1872) 871.

HABITAT : III. Coast of Dhofar (Bent 48 ! ).

DISTRIB. : Mediterranean region.

6. *P. sp.* in Defl. Yemen (1889) 141.

HABITAT : II. Near Wa'laun, 2,500 m. (Defl. 534).

*Species dubia.*

*P. saxifraga* Forsk. Fl. Aeg.-Arab. (1775) CIX, n. 214.

HABITAT : II. Mountainous region of Yaman (Forsk.).

12. *Scandix* L.

1. *S. pinnatifida* Vent. Hort. Cels. t. 14 ; Boiss. Fl. Or. ii, (1872) 916.—*S. stellata* Russell Alepp. ii, 249.

HABITAT : I. Mt. Sinai (Schimp. 117 ! ); Jebel Musa, ca. 1,600m., Jebel 'Arribe ca. 1,700 m., Convent of St. Catherine (Kneuck.).

FR. : Apr. 1835 (Schimp.).

DISTRIB. : Mediterranean region, inner N. Africa.

### 13. *Fœniculum* Adans.

1. *F. capiHaceum* Gilib. Flor. Lithuan. iv, (1781) 40.—*F. officinale* All. Ped. ii, 25 ; Boiss. Fl. Or. ii, (1872) 975 ; Baker in Kew Bull. (1894) 333 ; Post Fl. Syr. etc. (1896) 356.—*Anethum Fœniculum* L. Sp. Pl. (1753) 263 ; Forsk. Fl. Aeg.-Arab. (1775) CIX, n. 213.

HABITAT : II. Cultivated in the mountains of Yaman (Forsk.).

III. Cultivated at Katan, 1,150 ft. (Lunt ! ).

DISTRIB. : Europe, N. Africa, Arabia, Persia.

Vern. name: *Razainij*, *Shumâr* (Post), *Sekamar* (Forsk.), probably a misprint for *Schamar*.

2. *F. piperitum* DC. Prodr. iv, 142 ; Boiss. Fl. Or. ii, (1872) 975 ; Post Fl. Syr. etc. (1896) 356.

HABITAT : I. Arabia Petraea (McDonald ! ).

II. Jiddah (Zohrab 286 ! ); Manakhah, wild on all terraces, 2,200 m. (S. 1481 ! ).

FL. : Feb. 1889 (S.). FR. : Feb. 1889 (S.).

DISTRIB. : Mediterranean region.

Vern. name : *Schammar* (S.).

### 14. *Ferula* L.

1. *F. sinaica* Boiss. Diagn. Pl. Or. ser. 1, x, 40 ; Fl. Or. ii, (1872) 987. Post Fl. Syr. etc. (1896) 358.

HABITAT : I. St. Catherine (Schimp. 149 ! ).

FL. : May 1835 (Schimp.). FR. : May 1835 (Schimp.).

DISTRIB. : Egypt, Sinai.

Vern. name : *Shûmar* (Post).

Note : Mt. St. Catherine is called Um-shûmar from the large quantities of this species growing there (Post).

### 15. *Peucedanum* L.

1. *P. areysianum* Defl. in Bull. Soc. Bot. France, xlii, 305.

HABITAT : II. Top of Jebel el Areys, 1,200 m. (Defl. 1097 ! )

FL. : Apr. 1893 (Defl.). FR. : Apr. 1893 (Defl.).

DISTRIB. : Endemic.

2. *P. graveolens* Benth. & Hook. f Gen. Plant. i, 919 ; Oliv. Fl. Trop. Afr. iii, (1877) 19 ; Defl. Yemen (1889) 141.—*Anethum graveolens*

L. ; Forsk. Fl. Aeg.-Arab. (1775) CIX, n. 212 ; Boiss. Fl. Or. ii, (1872) 1026.

HABITAT : II. Near Manakhah, 2,200 m. (Defl. 367); cultivated in the plains of Yaman (Forsk.).

DISTRIB. : S. Europe, E. Mediterranean region, Arabia, Persia.

Vern. name : *Schibt* (Forsk.).

### 16. *Zosimia* Hoffm.

1. *Z. absinthifolia* DC. Prodr. iv, 195 ; Dene. Fl. Sin. in Ann. Sc. Nat. ser. 2, iii, (1835) 257 ; Boiss. Fl. Or. ii, (1872) 1037 ; Post Fl. Syr. etc. (1896) 366.—*Heracleum absinthifolium* Vent. Choix t. 22.

HABITAT : I. Neighbourhood of Mt Sinai (Bové 123 ! Schimp. 370 !); Sinai (ex Post).

DISTRIB. : Asia Minor, Syria, Arabia, Mesopotamia, Persia, Afghanistan, Baluchistan.

Vern. name : *emmehe* (Bové).

### 17. *Coriandrum* L.

1. *C. sativum* L. Sp. Pl. (1753) 256 ; Boiss. Fl. Or. ii, (1872) 920 ; Post Fl. Syr. etc. (1896) 334 ; Musch. Fl. Eg. ii, (1912) 691.

HABITAT : I. Arabia Petraea (ex Boiss.).

II. Wady Fatimah (Schimp. 975 ! Fischer 57 !).

FL. : Feb. (Fischer). FR. : Feb. (Fischer), Feb. 1837 (Schimp.).

DISTRIB. : Mediterranean region, Arabia, cultivated and run wild.

Vern. name : *Kuzbarah* (Post).

### 18. *Daucus* L.

1. *D. Broteri* Ten. Syll. Pl. (1831) 591 ; Boiss. Fl. Or. ii, (1872) 1073 ; Post. Fl. Syr. etc. (1896) 371 ; Musch. Fl. Eg. ii, (1912) 711.

HABITAT : I. Sinai (ex Musch.).

DISTRIB. : Mediterranean region.

2. *D. carota* L. Sp. Pl. (1753) 242 ; Forsk. Fl. Aeg.-Arab. (1775) CIX, n. 209 ; Boiss. Fl. Or. ii, (1872) 1076 ; Defl. Yemen (1889) 142.

HABITAT : II. Upper mountainous regions of Yaman (Forsk.); near Lahaj (Defl.).

DISTRIB. : Europe, Oriens.

Vern. name : *Djissar* (Forsk.), *Jezar* (Post).

3. *D. litoralis* Sibth. & Smith Fl. Graec. iii, 65 sub 272 ; Boiss. Fl. Or. ii, (1872) 1074. VAR. *Forskalei* Boiss. l. c. ; Post Fl. Syr. etc. (1896) 371.—*Caucalis glabra* Forsk. Fl. Aeg.-Arab. (1775) 206.

HABITAT : I. Et Tih (ex Post).

DISTRIB. : Of var. : Egypt, Arabia Petraea, Syria.

4. *D. Yemensis* Defl. Yemen (1889) 142.

HABITAT : II. Near Kaukaban, 2,900 m. (Defl. 628 !).

DISTRIB. : Endemic.

#### 19. *Orlaya* Hoffm.

1. *O. maritima* Koch Gen. Umbell. (1824) 79 ; Boiss. Fl. Or. ii, (1872) 1071 ; Post Fl. Syr. etc. (1896) 370 ; Musch. Fl. Eg. ii, (1912) 710.

HABITAT : I. Arabia Petraea (ex Musch.).

DISTRIB. : Mediterranean region.

#### 20. *Caucalis* L.

1. *C. melanantha* Benth. & Hook. f. Gen. Plant. i, 929 ; Oliv. Fl. Trop. Afr. iii, (1877) 26 ; Defl. Yemen (1889) 142.—*Daucus melananthos* Steud. in Herb. Schimp. Abyss. sec. II, n. 1145.—*Agrocharis melanantha* Hochst. in Flora (1844) 19.

HABITAT : II. Near Manakhah, alt. 2,500-2,900 m. (S. 1443 !).

FL. : Feb. 1889 (S.). FR. : Feb. 1889 (S.).

DISTRIB. : Upper Guinea, Abyssinia, Yaman.

2. *C. Stocksiana* Boiss. Diagn. Pl. Or. ser. 2, vi, 89 ; Fl. Or. ii, (1872) 1086.

HABITAT : IV. Masqat (Auch.-Eloy 4562 !).

DISTRIB. : Arabia, Persia, Baluchistan.

3. *C. tenella* Del. Illustr. Fl. d' Eg. (1813) 58, t. 21, f. 3 ; Boiss. Fl. Or. ii, (1872) 1084 ; Post Fl. Syr. etc. (1896) 375 ; Musch. Fl. Eg. ii, (1912) 715.

HABITAT : I. Arabia Petraea (ex Musch.).

DISTRIB. : Mediterranean region, Persia.

### LIII. CAPRIFOLIACEAE.

#### 1. *Sambucus* L.

1. *S. nigra* L. Sp. Pl. (1753) 269 ; Boiss. Fl. Or. iii, (1875) 3 ; Post Fl. Syr. etc. (1896) 378 ; Musch. Fl. Eg. ii, (1912) 925.

HABITAT : I. Arabia Petraea (ex Musch.).

DISTRIB. : Central and S. Europe to Caucasus, widely cultivated.

Vern. name : *bailasān*, *balasan* (Post).

Note : A tea, made of the blossoms, is used as a sudorific drink in fever (Post).

2. *Lonicera* L.

1. *L. Aucheri* Jaub. & Sp. III. Pl. Or. i, 137, t. 73 ; Boiss. Fl. Or. iii, (1875) 6.

HABITAT : IV. J. Akhdar (Auch.-Eloy 4640 !).

DISTRIB. : Arabia, Persia.

## LIII. RUBIACEAE.

1. *Adina* Salisb.

1. *A. microcephala* Hiern in Oliv. Fl. Trop. Afr. iii, (1877) 40 ; Havil. in Journ. Linn. Soc. Bot. xxxiii, (1897) 42.—*A. Galpini* Oliv. in Hook. Ic. Pl. t. 2386.—*A. spathellifera* Oliv. l. c.—*A. lasiantha* K. Schum. in Engl. Pfl. Ost. Afr., C. p. 378.—*Cephalanthus spathelliferus* Baker in Journ. Bot. (1882) 137.—*C. verticillatum* Boivin, fide Baill. in Adans. xii, 314.—*Nauclea microcephala* Del. Cantor. P. Mer. 67 n. 54 (1826).—*N. microcephala* DC. Prodr. v, 345.—*N. verticillata* Baill. in Adans. xii, 341 ; Defl. Yemen, 142.

HABITAT : Yaman : Wady Hawayat near Hajeilah, 600 m. (Defl. 186 !); in the mountains (Botta).

DISTRIB. : Africa, Nubia, Dar-Fertit, Angola, Mossamedes, Nyassaland, Shiré Highlands, Swaziland, Madagascar, Arabia.

Note : The wood is hard and said to resemble teak (Haviland).

2. *Wendlandia* Bartl.

1. *W. ? arabica* Defl. in Bull. Soc. Bot. France, xliii, (1896) 104.

HABITAT : II. Jebel Reyami (Defl. 559).

FL. : May (Defl.).

DISTRIB. : Endemic.

3. *Pentas* Benth. & Hook.

1. *P. carnea* Benth. in Bot. Mag. t. 4086 (1844) ; Hiern. in Oliv. Fl. Trop. Afr. iii, (1877) 46.—*Sipanea carnea* Hort. ex Hook. in Bot. Mag. l. c.—*Mussaenda luteola* Hochst. in Herb. Schimp. Abyss. iii, n. 1917 ; DC. Prodr. iv, 371, syn. sub. n. 9. (1830), non Del.—*Ophiorrhiza lanceolata* Forsk. Fl. Aeg.-Arab. (1775) CVI, n. 117 and p. 42, n. 39.—*Manettia lanceolata* Vahl Symb. i, 12 (1790).—*Neurocarpaea lanceolata* Br. in Salt Abyss. App. iv, p. LXIV, (1814).—*Vignaldia Quartiniana* A. Rich. Fl. Abyss. i, 357.—*P. Quartiniana* Oliv. in Trans. Linn. Soc. Lond. xxix, (1873) 82, t. 46.—*P. lanceolata* Defl. Yemen (1889) 142.—*Pentanisia nervosa*, *P. cymosa*, *P. suffruticosa* Klotzsch in Peters Mossamb. 287-288.—*Pentas Klotzschii* Vatke in Oesterr. Bot. Zeitschr. xxv, (1875) 232.

HABITAT : II. Yaman : Along the roads in the neighbourhood of Manakhah, 2,200-2,400 m. (Defl. 330, 337 !); in the mountains near Hadiyah (Forsk.).

DISTRIB. : Africa : Abyssinia, Somaliland, Angola, Kilimanjaro, Zanzibar Island, Comoro Islands, Arabia.

Vern. name : *La'ja* (S.).

Note : For medical uses see Forsk. l. c.

2. *P. Schweinfurthii* Scott Elliot Journ. Linn. Soc. xxxii, 432.

HABITAT : II. Manakhah, 2,200-2,500 m. (S. 1370 !); in an elevated valley of Hijaz (Figari ex Scott Elliot); neighbourhood of Aden (Hunter 4! 20! 8! 258!).

FL. : Mar. 1889 (S.). FR. : Mar. 1889 (S.).

DISTRIB. : Endemic.

Vern. name : Fuch (S.).

#### 4. *Oldenlandia* L.

1. *O. hedyotoides* Boiss. Fl. Or. iii, (1875) 11; Musch. Fl. Eg. ii, (1912) 917.—*Theyodis octodon* A. Rich. Fl. Abyss. i, (1847) 364.

HABITAT : I. Arabia Petraea (ex Musch.).

DISTRIB. : Abyssinia, Sennaar, Kordofan, Nubia, Egypt.

2. *O. retrorsa* Boiss. Fl. Or. iii, (1875) 12.

HABITAT : IV. Masqat (Auch.-Eloy 4678!).

DISTRIB. : Arabia, Sind.

3. *O. Schimperii* Anders. Fl. Aden. (1860) 21; Boiss. Fl. Or. iii, (1875) 11; Oliv. Fl. Trop. Afr. iii, (1877) 55; Baker in Kew Bull. (1894) 333; Blatt. Fl. Aden (1915) 220.—*Kohautia caespitosa* Schnizlein in Flora, xxv, Beibl. I, No. 10, p. 145.—*K. Schimperii* Hochst. et Steud. in Schimp. Pl. Abyss. No. 879.—*Hedyotis Schimperii* Presl. in Dredge Pl. Cap. exsicc., and Bot. Bem. (1844) 85; Kotschy in Sitzb. Kais. Akad. Wiss. lii, (1866) 7.—*H. spec. inc.* Edgew. Journ. As. Soc. Beng. xvi, 1216.—*K. arabica* Hochst.—*O. retrorsa* Boiss. l. c. 12.

HABITAT : I. In the granite region of Wady Hebran (Schimp. 186! 358!); Sinai (Auch.-Eloy 657!); Wady es Sle and Plain Raha (Kneuck.).

II. Jiddah (Schimp. 879! Fischer 45! Zohrab 65! 93! 221!); Jebel Bura, 1,000 m. (S. 502!); Yaman (Ehrenb.); Aden (Thoms.! Madden! Hook. 71! S. 23! Perry! Balfour! Anders.! Edgew.! Birdw.! Ellenb.)

III. Hadramaut : Between Ghafit and Sideh 600 ft. (Lunt 82!); Dhofar Mts. (Bent 146!).



FL. : Feb. 1869 (Lord), Mar. 1878 (Perry), Apr. 1861 (Thomson), Oct.—Feb. 1837 (Fischer), Nov. 1888 (S.), Nov. 1835 (Schimp.).

FR. : Jan. 1889 (S.), Feb. 1851 (Thomson), Mar. 1878 (Perry), Apr. 1835 (Schimp.), Nov. 1835 (Schimp.), Dec. 1847 (Hook.), Dec. 1893 (Lunt).

DISTRIB. : Nubia, Abyssinia, Kordofan, Kilimandjaro, Zanzibar, Socotra, Arabia, Baluchistan, Sind.

4. *O. stricta* L. Mant. (1781) 200; Hook. Fl. Brit. Ind. iii, 68; Trim. Fl. Ceyl. ii, 316; O. Kuntze Rev. Gen. Pl. i, 292.—*Hedyotis maritima* Wall. Cat. 6142 (*partim*); Moon Cat. 10; Thw. Enum. 144.—*H. graminifolia* Linn. f. Suppl. i, 119.—*O. graminifolia* DC. Prodr. iv, 425.

HABITAT : II. Aden (Kuntze).

DISTRIB. : Aden, S. India, Ceylon.

#### 5. *Pavetta* L.

1. *P. longiflora* Vahl Symb. iii, (1794) 12; Defl. Yemen (1889) 142.—*Ixora occidentalis* Forsk. Fl. Aeg.-Arab. (1775) CV, n. 90.

HABITAT : II. In valleys near Taz, 1,200-1,300 m. (Defl. 675, 684); Taz (Forsk.); Hille at foot of Jebel Bura (S. 715, 344!); Wulej at the foot of Jebel Milhan (S.); foot of Jebel el Aslah (Defl. 614!).

III. Ras Shirwen (Hirsch 122).

FL. : Apr. 1890 (Defl.).

FR. : Jan. 1889 (S.).

DISTRIB. : Endemic.

Vern. name : *schuaf* (Forsk.), *charfish* (Hirsch), *Ghorejèd*, *Schūiss*, *Sserr* (S.).

2. *P. villosa* Vahl Symb. iii, 12 (*non Heyne!*); Defl. Yemen (1889) 143.

HABITAT : II. Ad fauces montis Masar prope Attara, alt. 2,000 m. (Defl. 414!); Hille, Manakḥah, Wasil, Wulej (S.); Wulej, Jebel Milhan (S. 668!); Yaman (Forsk. ex Vahl).

FR. : Jan. 1889 (S.).

DISTRIB. : Endemic.

Vern. name : *Bunn-el-baqar*, *Bunn-er-robach*, *Fassele*, *Hkarmil*, *Sser*, *Ssar*, *Ssorä'r*, *Ssorrer* (S.).

#### 6. *Coffea* L.

1. *C. arabica* L. Sp. Pl. (1753) 172; Forsk. Fl. Aeg.-Arab. (1775) CVI, n. 128; Defl. Yemen (1889) 143; Sadebeck. in Jahrb. Hambourg Wiss. Anstalt, XIV (1896) Beih. III, 89.—*C. laurifolia* Salisb. Prodr. Stirp. Hort. Chapel Allert. 62 (1796) *non H. B. & K.*

HABITAT : II. Cultivated near Attara and in the mountains of Yaman throughout, 1,000-2,200 m. (Defl. 400 !); Manakhah, cultivated (S. 1616 !); neighbourhood of Aden (Hunter 198 !).

FL. : Feb. 1889 (S.).

FR. : Feb. 1889 (S.).

DISTRIB. : Africa : Upper Guinea, Abyssinia, Angola, Mozambique Coast.

Vern. name : *Bunn* (Forsk., S.).

### 7. *Psychotria* L.

1. *P. ? arabica* Kotschy in Sitzb. Kais. Akad. Wiss. lii, (1866) 7, t. 2.

HABITAT : II. Mountainous region between Asir and Yaman (ex Kotschy).

Note : Non vidi specimen. An *Pentas carnea* ?

### 8. *Anthospermum* L.

1. *A. hirtum* ? Cruse Rub. Cap. 11.—*A. hirsutum* DC. Prodr. iv, 580 ; Defl. Yemen (1889) 145.

HABITAT : II. Yaman : in the mountains (Botta ex Defl.).

DISTRIB. : S. Africa, Yaman ?

Note : Plant not seen.

2. *A. muriculatum* Hochst. in Herb. Schimp. Abyss. ii, n. 732 ; A. Rich. Fl. Abyss. i, (1847) 345 ; Oliv. Fl. Trop. Afr. iii, (1877) 229 ; Defl. Yemen (1889) 145.

HABITAT : II. Yaman : Ravines of Jebel Shibam 2,400-2,600 m. (Defl. 345); Jebel Shibam, Manakhah (S. 1427 !).

FL. : Feb. 1889 (S.).

DISTRIB. : Abyssinia, Adoa, Eritrea, Yaman.

### 9. *Gaillonia* A. Rich. :

1. *G. Aucheri* Jaub. & Sp. Ill. Pl. Or. i, 140 ; Boiss. Fl. Or. iii, (1875) 16.—*Jaubertia Aucheri* Guill. Ann. Sc. Nat. ser. 2, xv, 60.

HABITAT : IV. Masqat (Auch.-Eloy 4680 !).

DISTRIB. : Arabia, Afghanistan, Baluchistan.

2. *G. calycoptera* Jaub. & Sp. Ill. Pl. Or. i, 147, t. 89 ; Boiss. Fl. Or. iii, (1875) 15 ; Oliv. Fl. Trop. Afr. iii, (1877) 232 ; Musch. Fl. Eg. ii, (1912) 918.—*Spermacocce calycoptera* DCne. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 267.

HABITAT : I. Arabia Petraea : Garnabi (Schimp. 360 !); Sinai (Auch.-Eloy 656 ! Bové 208 ! Botta).

FL. : June 1835 (Schimp.).

DISTRIB. : Nubia, Egypt, Arabia Petraea.

Vern. name : *Hedene* (Bové).

3. *G. hymenostephana* Jaub. & Sp. III. Pl. Or. i, 146, t. 79 ; Boiss. Fl. Or. iii, (1875) 15.—*G. humifusa* Jaub. & Sp. I. c. 139.

HABITAT : IV. Masqat (Auch.-Eloy 4677 !).

DISTRIB. : Arabia, Baluchistan.

### 10. *Callipeltis* Stev.

1. *C. aperta* Boiss. & Buhse Aufzähl. (1856) 110 ; Fl. Or. iii, (1875) 84 ; DC. Prodr. v, 671 ; Post Fl. Syr. etc. (1896) 382 ; Musch. Fl. Eg. ii, (1912) 919.

HABITAT : I. Wady Feiran, W. Gennah and neighbourhood (Lord !); Et Tih (ex Post); cultivated ground of Sinai (Bové 212 !); Mt. Sinai (Schimp. 232 !); Arabia Petraea (Mc Donald !); Central Midian (Burton!).

FL. : Mar. 1877 (S.), Apr. 1835 (Schimp.), June 1832 (Bové), May 1868 (Lord).

FR. : May 1868 (Lord).

DISTRIB. : Egypt, Arabia Petraea, Persia.

Vern. name : *Eichrik* (Bové).

Note : Eaten by cattle (Burton).

2. *C. cucullaria* Stev. in Mém. Soc. Nat. Mosc. vii, (1829) 275 ; DC. Prodr. iv, 613 ; Dene. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 270 ; Boiss. Fl. Or. iii, (1875) 83 ; Kneuck. in Allg. Bot. Zeitsch. ix, (1903) 147.—*Valantia cucullaria* L. Amoen. iv, 295.

HABITAT : I. Cultivated ground of Mt. Sinai (Bové 212 ! Schimp. ! Boiss. !); Plain of Raha (Kneuck.).

DISTRIB. : Mediterranean region and Orient.

Vern. name : *eichrick* (Bové).

### 11. *Rubia* L.

1. *R. tinctorum* L. Sp. Pl. i, (1753) 109 ; Forsk. Fl. Aeg.-Arab. (1775) CV, n. 89 ; Boiss. Fl. Or. iii, (1875) 17 ; Reichb. Ic. XVII, t. 133, f. I—II ; Musch. Fl. Eg. ii, (1912) 919.

HABITAT : I. Arabia Petraea (ex Musch.).

II. Mountainous region of Yaman, cult. (Forsk.).

DISTRIB. : Italy, Greece, Asia Minor, Arabia, Syria, Persia. Naturalized everywhere in the Mediterranean region.

Vern. name : *Fua* (Forsk.), *Fūwah* (Post).

12. *Galium* L.

1. *G. aparine* L. Sp. Pl. (1753) 108; Oliv. Fl. Trop. Afr. iii, (1877) 245; Post Fl. Syr. etc. (1896) 386.

HABITAT: I. Arabia Petraea (ex Post).

DISTRIB.: N. temperate region, Syria, Palestine, Arabia Petraea, Abyssinia.

Vern. name: *dibbaiqah* (Post).

VAR. *hamatum* Hiern. in Oliv. Fl. Trop. Afr. iii, (1877) 246; Defl. Yemen (1889) 145.—*G. hamatum* Hochst. in Herb. Schimp. Abyss. ii, p. 675 (1842); A. Rich. Pl. Abyss. i, 345.

HABITAT: II. Jebel Kahil near Manakhah, 2,400 m. (Defl. 322!).

DISTRIB.: Abyssinia, Yaman.

2. *G. aparinoides* Forsk. Fl. Aeg.-Arab. (1775) CV, n. 87 and p. 30; Schweinf. Arab. Pflanzennamen (1912) 114.

HABITAT: II. Hadiyah (Forsk.).

DISTRIB.: Endemic.

Vern. name: *Schobodh bodha*, *schebette*, *Meschaerrcha* (Forsk.).

3. *G. ceratopodium* Boiss. Diagn. Pl. Or. ser. 1, iii, 45; Fl. Or. iii, (1875)-68.

HABITAT: IV. Masqat (Auch.-Eloy 4657!).

DISTRIB.: Arabia, Persia.

4. *G. Decaisnei* Boiss. Diagn. Pl. Or. ser 1, vi, 69; Fl. Or. iii, (1875) 77; Post Fl. Syr. etc. (1896) 389.—*G. capillare* Dene. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 269.

HABITAT: I. On rocks of Sinai (Bové 126!); Wady Feiran (Lord!); Wady Gennah and neighbourhood (Lord!); Mt. Sinai (Schimp. 235!); Wady Aleyat (Kneuck.); Central Midian (Burton!).

IV. Masqat (Auch.-Eloy 4660!).

FL.: May 1835 (Schimp.), May 1868 (Lord), June 1832 (Bové).

FR.: May 1835 (Schimp.), May 1868 (Lord), June 1832 (Bové).

DISTRIB.: Nubia, Arabia, Palestine, Syria, Persia.

Vern. name: *Bissensey* (Bové).

5. *G. Hierosolymitanum* L. Amoen. Acad. iv, 451; Post Fl. Syr. etc. (1896) 388.

HABITAT: I. Arabia Petraea (ex Post).

DISTRIB.: Arabia Petraea, Palestine, Syria.

**6. *G. kahelianum*** Defl. Yemen (1889) 145.

HABITAT: II. Jebel Kabel near Manakhah, 2,400—2,600 m. (Defl. 281, 364!); near Manakhah (S. 1397!).

DISTRIB.: Endemic.

**7. *G. murale*** Ali. Flor. Pedem. i, (1785) 8, t. 77, f. 1; Boiss. Fl. Or. iii, (1875) 78; Musch. Fl. Eg. ii, (1912) 922.

HABITAT: I. Arabia Petraea (ex Musch.).

DISTRIB.: Mediterranean region.

**8. *G. nigricans*** Boiss. Diagn. Pl. Or. ser. 1, fasc. iii, (1849) 48.

VAR. *brachychaetum* Boiss. Fl. Or. iii, (1875) 74; Musch. Fl. Eg. ii, (1912) 921.

HABITAT: I. Arabia Petraea: Near Nachl (Kotschy 510!).

DISTRIB.: Egypt, Arabia Petraea, Palestine, Syria.

**9. *G. sinaicum*** Boiss. Fl. Or. iii, (1875) 63; Post Fl. Syr. etc. (1896) 388; Kneuck. in Allg. Bot. Zeitsch. ix, (1903) 147.—*Asperula sinaica* Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 268.

HABITAT: I. Mt. Sinai (Bové 127! Ehrenb.! Auch.-Eloy 724! Schimp. 112! Boiss.); Convent of St. Catherine, Plain of Raha (Kneuck.).

FL.: May (ex Boiss.).

DISTRIB.: Endemic.

Vern. name: *bissensey* (Bové).

**10. *G. spurium*** L. Sp. Pl. i, (1753) 154; Boiss. Fl. Or. iii, (1875) 69; Musch. Fl. Eg. ii, (1912) 921.—VAR. *tenerum* Gr. et Godr.; Boiss. l. c.—*G. aparinoides* C. Koch in Linnaea, xvii, 33; Aschers.-Schweinf. Ill. Fl. d' Eg. Suppl. 759.—*G. tenerum* Gaud. Helv. i, 442; Kneuck. in Allg. Bot. Zeitsch. ix, (1903) 147.

HABITAT: I. Sinai (Schimp. 106! Boiss.); Mt. Catherine 1,850—1,900 m. (Kneuck.); Arabia Petraea (ex Musch.).

DISTRIB.: Greece, Egypt, Arabia Petraea, Syria, Persia.

**11. *G. tricornis*** With. Bot. Arrang. ed. 2, i, (1787-1793) 153; Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 270; Boiss. Fl. Or. iii, (1875) 67; Post Fl. Syr. etc. (1896) 386.

HABITAT: I. Mt. Sinai (Bové 128!); Arabia Petraea (ex Post).

DISTRIB.: Europe, N. Africa, Arabia, Palestine, Mesopotamia, Persia, Afghanistan, Baluchistan.

Vern. name: *Silesle* (Bové), *dibbaigaz* (Post).

12. *G. yemensense* Kotschy Sitzb. Kais. Akad. Wiss. lii, (1866) 257.

HABITAT: II. Yaman: Neighbourhood of el Areys (ex Kotschy).

DISTRIB.: Endemic.

### 13. *Crucianella* L.

1. *C. ciliata* Lam. Dict. ii, 217; Dene. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 268; Boiss. Fl. Or. iii, (1875) 23; Post Fl. Syr. etc. (1896) 393.

HABITAT: I. Mt. Sinai (Schimp. ! Bové!).

DISTRIB.: Arabia Petraea, Syria.

VAR. *hispidula* Boiss. l. c. 24; Post. l. c. 394.—*C. hispidula* Dene. l. c. 269.

HABITAT: Mt. Catherine (Schimp. 156!); near Mt. Sinai (Bové 129!); Central Midian (Burton!).

FL.: May 1835 (Schimp.). FR.: June 1832 (Bové).

DISTRIB.: Of var.: Endemic.

2. *C. maritima* L. Sp. Pl. (1753) 109; Forsk. Fl. Aeg.-Arab. (1775) LXI, n. 90; Boiss. Fl. Or. iii, (1875) 24; Post Fl. Syr. etc. (1896) 394.

HABITAT: I. Arabia Petraea (ex Post).

DISTRIB.: Mediterranean region.

3. *C. membranacea* Boiss. Diagn. Pl. Or. ser. 1, fasc. 3, (1849) 27; Fl. Or. iii, (1875) 23; Post Fl. Syr. etc. (1896) 393; Musch. Fl. Eg. ii, (1912) 923.

HABITAT: I. Wady Sewook and neighbourhood (Lord!); Mt. Sinai, on rocks (Schimp. 139!); Et Tih and southwards (ex Post); lower Wady es Shaikh (Kneuck.).

FL.: Apr. 1868 (Lord).

DISTRIB.: Egypt, Arabia Petraea, Palestine, Syria.

### 14. *Sherardia* L.

1. *S. arvensis* L. Sp. Pl. (1753) 102; Boiss. Fl. Or. iii, (1875) 19; Post Fl. Syr. etc. (1896) 394.

HABITAT: I. Arabia Petraea (ex Post).

DISTRIB.: Europe, Mediterranean region.

### 15. *Randia* Houst.

1. *R. sp.* ex Carter in Rec. Bot. Surv. Ind. vi, (1917) 202.

HABITAT: IV. Kuwait (Cox).

## LIV. VALERIANACEAE.

1. *Valerianella* Mœnch.

1. *V. coronata* DC. Fl. Fr. iv, 241; Boiss. Fl. Or. iii, (1875) 110; Post Fl. Syr. etc. (1896) 398.

HABITAT: I. Arabia Petraea (ex Post).

DISTRIB.: Europe, Mediterranean region, Transcaucasus, Persia.

2. *V. Szovitsiana* F. et M. Ind. Hort. Petrop. iii, (1823) 48; Boiss. Fl. Or. iii, (1875) 101; Post Fl. Syr. etc. (1896) 396.—*V. Aucheri* Boiss. Diagn. Pl. Or. ser. 1, iii, 58.

HABITAT: I. Sinai (Schimp. 451!); Et Tih (ex Post).

DISTRIB.: Mediterranean region, Persia, Afghanistan

3. *V. vesicaria* Mœnch Meth. 493; Boiss. Fl. Or. iii, (1875) 112; Post Fl. Syr. etc. (1896) 398.

HABITAT: I. Arabia Petraea (ex Post).

DISTRIB.: Mediterranean region, Persia.

## LV. DIPSACEAE.

1. *Cephalaria* Schrad.

1. *C. syriaca* Schrad. Cat. Sem. Goett. (1814) 316; Dene. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 266; Boiss. Fl. Or. iii, (1875) 120; Post Fl. Syr. etc. (1896) 400.

HABITAT: I. Arabia Petraea (Boiss.); cultivated ground of Sinai (Bové!).

Arabia (ubi?) (Kotschy!).

FL.: Apr. 1846 (Boiss.), June (Ehrenb.).

FR.: Apr. 1846 (Boiss.), June (Ehrenb.).

DISTRIB.: Mediterranean region, Mesopotamia, Persia, Baluchistan, Afghanistan.

VAR. *sesselis* Post l. c.

HABITAT: Bishere (Ehrenb.).

FL.: July (Ehrenb.). FR.: July (Ehrenb.).

2. *Scabiosa* L.

1. *S. arabica* nov. comb.—*Pterocephalus arabicus* Boiss. Diagn. Pl. Or. ser. 1, x, 78; Fl. Or. iii (1875) 152; Post Fl. Syr. etc. (1896) 404.

HABITAT : I. Tih escarpment (ex Post); Jebel et Tih below Rakineh, 4,000 ft. (Boiss.!).

FL. : May (Boiss.).

DISTRIB. : Endemic.

2. *S. arenaria* Forsk. Fl. Aeg.-Arab. (1775) LXI, n. 89; Boiss. Fl. Or. iii, (1875) 135; Post Fl. Syr. etc. (1896) 402; Musch. Fl. Eg. ii, (1912) 931.—*S. rhizantha* Viv. Fl. Libyc. 6, t. 3. f. 1, (1824).—*Asterocephalus arenarius* Vis. Pl. Aegypt. 6, t. 1, f. 1 (1836).—*S. leptopoda* Boiss. Diagn. Pl. Or. ser. 1, x, 78.

HABITAT : I. Borders of et Tih and southwards (ex Post); Arabia Petraea (Boiss.!).

DISTRIB. : Tunisia, Algeria, Egypt, Arabia Petraea.

3. *S. Aucheri* Boiss. Diagn. Pl. Or. ser. 1, fasc. 2, (1849) 111; Fl. Or. iii, (1875) 145; Post Fl. Syr. etc. (1896) 404; Musch. Fl. Eg. ii, (1912) 932.

HABITAT : I. Arabia Petraea (ex Musch.).

DISTRIB. : Egypt, Arabia Petraea, Syria.

4. *S. columbaria* L. Sp. Pl. (1753) 99; DC. Prodr. iv, 658; Boiss. Fl. Or. iii, (1875) 131; Oliv. Fl. Trop. Afr. iii, (1877) 252; Defl. Yemen (1889) 146.

HABITAT : II. Jebel Kahel near Manakhah, 2,500 m. (Defl. 306); Manakhah, 2,300-2,600 m. (S. 1374!).

FL. : Feb. 1889 (S.).

DISTRIB. : Abyssinia, Lower Guinea, widely scattered over Europe and the East.

Vern. name : *Gusar-w-rā'yä*, *Ward el hammam* (S.).

5. *S. eremophila* Boiss. Diagn. Pl. Or. ser. 1, fasc. x, (1849) 79; Fl. Or. iii, (1875) 135; Post Fl. Syr. etc. (1896) 402; Musch. Fl. Eg. ii, (1912) 931.

HABITAT : I. Borders of Et-Tih and southwards (ex Post); plain of Ramleh at foot of Jebel Tih (Boiss.).

DISTRIB. : Egypt, Arabia Petraea.

6. *S. frutescens* Hiern in Oliv. Fl. Trop. Afr. iii, (1877) 252.—*Pterocephalus frutescens* Hochst. in Herb. Schimp. Abyss. i, n. 235; A. Rich. Fl. Abyss. i, (1847) 369.—*P. Quartinianus* A. Rich. l. c.

VAR. *nunila* Defl. Yemen 146.

HABITAT : II. Yaman : Ravines of Jebel Hadhur near Yazil and Suq el-Khamiss, 2,400—2,800 m. (Defl. 569! 577!).

DISTRIB. : Of species : Abyssinia, Eritrea, Somaliland, Yaman.



7. *S. Olivieri* Coult. Dips. 36, t. 2, f. 10 ; Boiss. Fl. Or. iii, (1875) 141 ; Post Fl. Syr. etc. (1896) 403.

HABITAT : I. Deserts of Arabia Petraea (Schimp. 364 !); Et-Tih (ex Post).

DISTRIB. : Arabia Petraea, Mesopotamia, Persia, Afghanistan, Baluchistan.

8. *S. palaestina* Linn. Mant. 37 ; Del. Frag. Fl. Arab. Petr. (1833) n. 48 ; Boiss. Fl. Or. iii, (1875) 144 ; Post Fl. Syr. etc. (1896) 403.

HABITAT : I. Arabia Petraea (De Laborde).

DISTRIB. : Asia Minor, Arabia Petraea, Palestine, Syria, Mesopotamia, Persia.

9. *S. papposa* L. Sp. Pl. (1753) 101.—*S. involucrata* Sibth. et Sm. Prodr. i, (1806) 84 et Fl. Graec. ii, 11, t. 112.—*Pterocephalus papposus* Coult. Mém. Dips. 32 (1823).—*P. papposus* Hal. Consp. Fl. Graec. i, (1901) 762 ; Musch. Fl. Eg. ii, (1912) 930.—*P. involucratus* Spreng. Syst. i, (1825) 384 ; Boiss. Fl. Or. iii, (1875) 148.—*P. brevis* Coult. Mém. Dips. 32 (1823).—*P. Coulteri* Boiss. Diagn. Pl. Or. ser. 1, x, (1849) 77.

HABITAT : I. Desert Et-Tih (Boiss. !).

DISTRIB. : Greece, Creta, Egypt, Arabia Petraea, Palestine, Syria, Cyprus, Mesopotamia, Persia.

10. *S. plumosa* Sibth. Fl. Graec. ii, 11, t. 3.—*Pterocephalus plumosus* Coult. Dips. 31, t. 1, f. 15 ; Boiss. Fl. Or. iii, (1875) 147 ; Post Fl. Syr. etc. (1896) 404.

HABITAT : I. Arabia Petraea (ex Post).

II. Yaman (Ehrenb.).

DISTRIB. : Mediterranean region, Mesopotamia, Persia.

11. *S. sancta* nov. comb.—*Pterocephalus sanctus* Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 266 ; Boiss. Fl. Or. iii, (1875) 150 ; Post Fl. Syr. etc. (1896) 404.

HABITAT : I. Desert of Sinai (Bové 121 ! Ehrenb. !); Arabia Petraea (Schimp. 389 !); Mt. Catherine (Boiss. !).

Fl. : June 1835 (Schimp.). FR. : June 1835 (Schimp.).

DISTRIB. : Endemic.

Vern. name : *Samma* (Bové).

12. *S. rotata* Bieb. Fl. Taur. Cauc. iii, 102 ! Boiss. Fl. Or. iii, (1875) 145 ; Carter in Rec. Bot. Surv. Ind. vi, (1917) 202.

HABITAT : IV. Zor Hills (Cox 11).

DISTRIB. : Southern Persia and Caucasias.

Vern. name : *Tarbah* (Cox).

## LVI. COMPOSITAE.

### 1. *Vernonia* Schreb.

1. *V. abyssinica* Sch.-Bip. ex Hochst. in Flora, xxiv, Intell. I, 26; Oliv. Fl. Trop. Afr. iii, (1877) 288; Defl. Yemen (1889) 147.—*V. polymorpha* Vatke in Linnaea, xxxix, (1875) 476.

HABITAT : II. Wasil, 1,200 m. (S. 1173 !); near Mefhak, 1,800 m. (Defl. 604).

FL. : Feb. 1889 (S.). FR. : Feb. 1889 (S.).

DISTRIB. : Abyssinia, Eritrea, Yaman.

Note : The leaves are used as an efficacious purgative (Steudner).

2. *V. areysiana* Defl. in Bull. Soc. Bot. France, xliii, (1896) 194.

HABITAT : II. Jebel el Areys near Serrya (Defl. 987 !).

FL. : Apr. 1893 (Defl.). FR. : Apr. 1893 (Defl.).

DISTRIB. : Endemic.

3. *V. atriplicifolia* Jaub. & Sp. Ill. Pl. Or. iv, 94, t. 359 : Anders. Fl. Aden. (1860) 21; Boiss. Fl. Or. iii, (1875) 154; Oliv. Fl. Trop. Afr. iii, (1877) 270; Blatt. Fl. Aden (1915) 222.—*V. spathulata* Sch.-Bip. ex Aschers. in Schweinf. Beitr. Fl. Aethiop. 162 (*non* Hochst.).—*V. arabica* Dcne. ex Boiss. l. c.—*Chrysocoma spathulata* Forsk. Fl. Aeg.-Arab. (1775) CXIX, n. 487 and p. 147.

HABITAT : II. Yaman (ex Boiss.); Taz (Forsk.); Aden (Thomson 94! Wiesner! Hook. f. 74! S. 9! 10! Balfour! Perry! Birdw.! Anders.! Defl.! Edgew.!).

III. Hadramaut (Hirsch 6); Dhofar coast (Bent 51!); Merbat (Bent 3!).

IV. Masqat : J. Akhadhar (Auch.-Eloy 4791!); in rocky places of Masqat (Bornm. 396!).

FL. : Mar. 1878 (Perry).

FR. : Jan. 1872 (Thomson), Jan. 1893 (Bornm.), Feb. 1857 (Thomson), Mar. 1878 (Perry), Mar. 1881 (S.), Apr. 1861 (Thomson), Nov. 1888 (S.), Dec. 1847 (Hook.).

DISTRIB. : Nile Land, Somaliland, Arabia.

4. *V. Bottae* Jaub. & Sp. Ill. Pl. Or. t. 358.

HABITAT : II. Yaman (Botta).

DISTRIB. : Endemic.

5. *V. cinerascens* Sch.-Bip. in Schweinf. Fl. Aethiop. 162 ; Oliv. Fl. Trop. Afr. iii, (1877) 275 ; Defl. Yemen (1889) 146.—*V. spathulata* Hochst. in Herb. Schimp. Abyss. (1854) 2133 (*non Schultze*).

HABITAT : II. Near Hajeilah, 600 m. (Defl. 117); neighbourhood of Aden (Hunter 142!).

DISTRIB. : Abyssinia, Eritrea, Arabia, N. W. India.

6. *V. cinerea* Less. in Linnaea (1829) 291 ; DC. Prodr. v, (1836) 24 ; Oliv. Fl. Trop. Afr. iii, (1877) 275 ; Defl. Yemen (1889) 147 ; Baker in Kew Bull. (1894) 333.

HABITAT : II. Wady Djara (Ehrenb. !); Wady Fatimah (Fischer 32 !); addah (Zohrab 260 !).

III. Dhofar Mts. (Bent 233 !); Hafa (Bent 25 !); Derbat, 100 ft. (Bent 220 !); irrigation channels at Kilah, 3,000 ft. (Lunt 137 !).

IV. Masqat (Auch.-Eloy 4790 !).

FL. : Jan. 1894 (Lunt), Feb. (Fischer), Mar. 1869 (Lord).

FR. : Jan. 1894 (Lunt), Feb. (Fischer), Mar. (Lord).

DISTRIB. : Widely spread in tropical Africa and Asia.

VAR.  $\beta$ . *rotundifolia* DC. l.c. ; Defl. l.c.—*Crassocephalum fatmense* Hochst. et Steud. Herb. Schimp. Arab. n. 869.

HABITAT : II. near Hajeilah, 600—1,000 m. (Defl. 109, 233 !); in the mountains (Botta).

7. *V. inulaefolia* Steud. Nom. 755 ; Rich. Fl. Abyss. i, (1847) 375 ; Kotschy in Sitzb. Kais. Akad. Wiss. lii, (1866) 5 ; Oliv. Fl. Trop. Afr. iii, (1877) 286.—*V. Schimperi* Sch.-Bip. in Herb. Schimp. Abyss. i, 221 (*non DC.*).

HABITAT : II. Hijaz (ex Kotschy).

DISTRIB. : Abyssinia, Arabia.

8. *V. Schimperi* DC. Prodr. vii, 264.

HABITAT : II. Jebel Carā (Schimp. 568 type !).

FL. : Dec. 1837 (Schimp.).

FR. : Dec. 1837 (Schimp.).

DISTRIB. : Endemic.

## 2. *Dichrocephala* DC.

1. *D. chrysanthemifolia* DC. Prodr. v, (1836) 372 ; Oliv. Fl. Trop. Afr. iii, (1877) 303 ; Defl. Yemen (1889) 147.—*D. abyssinica* Sch.-Bip. in Herb. Schweinf. Abyss. i, n. 87 ; iii, n. 1847.—*D. macrocephala* Sch.-Bip. in Schweinf. Beitr. Fl. Aethiop. 145.

HABITAT : II. Manakhah, 2,200 m. (S. 1376 !); near Manakhah, 2,500 m. (Defl. 324).

FR. : Feb. 1889 (S.).

DISTRIB. : Upper Guinea, Abyssinia, Arabia, Madagascar, India.

### 3. Felicia Cass.

1. *F. abyssinica* Sch.-Bip. in Herb. Schimp. Abyss. sect. III, 1763 ; Rich. Fl. Abyss. i, (1847) 383 ; Oliv. Fl. Trop. Afr. iii, (1877) 306 ; Defl. Yemen (1889) 147.—*F. Schimperii* Hochst. et Steud. ; Jaub. and Sp. III. Pl. Or. t. 354.—*Pulicaria viscida* R. Br. in Salt, Abyss. App.—*Detris abyssinica* Chiov. in Pir. Fl. Eritr. (1904) 166, (1908) 457.? *Aster ericaefolius* Forsk. Fl. Aeg.-Arab. (1775) CXIX, n. 504 and p. 150.

HABITAT : II. Jebel Cara (Schimp. 858 !); Manakhah, 2,200 m. (S. 1514 !); near Manakhah (Defl. 383); near Sanah, 2,700 m. (Defl. 468 !).

FL. : Feb. 1889 (S.).

FR. : Feb. 1889 (S.), Dec. 1837 (Schimp.).

DISTRIB. : Abyssinia, Somaliland, Yaman.

2. *F. Richardi* Vatke in Linnaea, xxxix, (1875) 481 ; Oliv. Fl. Trop. Afr. iii, (1877) 306 ; Defl. Yemen (1899) 147.—*Agathaea abyssinica* Hochst. in Herb. Schimp. Abyss. sect. III, 1890.—*Aster abyssinicus* Hochst. l. c. sect. I, 37.—*Agathaea dentata* Rich. Fl. Abyss. i, (1847) 384.

HABITAT : II. Near Sanah, 2,800 m. (Defl. 488 !); in the mountains (Botta).

DISTRIB. : Abyssinia, Yaman.

### 4. Erigeron L.

1. *E. trilobum* Boiss. Fl. Or. iii, (1875) 168 ; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 122.—*Conyza triloba* DCne. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 261.

HABITAT : I. Sinai (Auch.-Eloy 3105 !); desert of Sinai (Bové 101 !); region of Sinai (Schimp. 339 !); Wady Tarfa (Kneuck.); El Arabah to Sinai (ex Post).

IV. Masqat (Auch.-Eloy 4732 !).

FR. : June 1832 (Bové).

DISTRIB. : Endemic.

Vern. name : *Nefflé* (Bové), *Qurad* (Post).

### 5. Conyza Less.

1. *C. aegyptiaca* Ait. Hort. Kew iii, 183.—*Erigeron aegyptiacum* L. Mant. 112 ; Boiss. Fl. Or. iii, (1875) 169 ; Post Fl. Syr. etc. (1896) 414.—*E. serratum* Forsk. Fl. Aeg.-Arab. (1775) LXXIII, n. 445 and p. 148.

HABITAT : III. Hadramaut (Hirsch 178).

DISTRIB. : Senegal, Abyssinia, Nubia, Mosambique, Arabia.

Vern. name : *Meschmū 'a* (Hirsch), *Dimsts nukkkhadh-ed-Dubbân* (Post).

2. *C. arabica* Willd. Sp. Pl. iii 1949.—*Laggera arabica* Deff. Yemen (1889) 149.—*Erigeron decurrens* Vahl. Symb. Bot. i, (1790) 72.—*C. caule alato* Forsk. Fl. Aeg.-Arab. (1775) CXIX, n. 495 ?

HABITAT: II. Round Sanah and Raudhah, 2,300 m. (Deff. 534!).

DISTRIB.: Endemic.

3. *C. Bovei* DC. in Ann. Sc. Nat. (1834) 261.—*Erigeron Bovei* Boiss. Fl. Or. iii, (1875) 168; Post Fl. Syr. etc. (1896) 413.

HABITAT: I. Damp places of Mt. Sinai (Bové 118!); Wady es Sle (Kneuck.); Wady Hebran (Schimp. 216! 361! Ehrenb.); Arabia Petraea (Auch.-Eloy 3106! McDonald!); S. Midian, El Wjih to Wady Haruz (Burton!).

II. Wasil, Wady Hejan, 1,200 m. (S. 1069!).

IV. Masqat (Auch.-Eloy 4727!).

FR.: Feb. 1889 (S.), Mar.-Apr. 1878 (Burton), Apr.-June 1835 (Schimp.), May 1832 (Bové), Sept. (Ehrenb.), Nov.-Feb. 1834 (Hart).

DISTRIB.: Egypt, Arabia.

Vern. name: *Gazani* (Bové), *Belleikh* (Post).

4. *C. cylindrica* Baker in Kew Bull. (1895) 317.

HABITAT: III. Hadramaut: Ras Shirwen (Hirsch 80!).

FR.: Apr. 1895 (Hirsch).

DISTRIB.: Endemic.

Vern. name: *Tabefet* (Hirsch).

5. *C. Dioscoridis* Desf. Tab. ed. 2, 114; Boiss. Fl. Or. iii, (1875) 217; Post Fl. Syr. etc. (1896) 414; Kotschy in Sitzb. Kais. Akad. Wiss. lii, (1866) 5; Musch. Verb. Bot. Ver. Prov. Brandenb. xlix, (1907) 122.—*Pluchea Dioscoridis* DC. Prodr. v, (1836) 450; Oliv. Fl. Tröp. Afr. iii, (1877) 329; Deff. Yemen (1889) 149; Baker in Kew Bull. (1894) 333.—*Baccharis aegyptiaca* Forsk. ex DC. l.c.

HABITAT: I. El Tor (Musch.).

II. Wady Mor (Ehrenb.); Wulej (S. 782!); Hijaz (ex Kotschy); near Hajeilah, 600 m. (Deff. 77); near Manakhah (Deff. 429); near Lahaj (Deff. 128! Busse); Wady Kebir (Ellenbeck).

III. Tokham near Mukalla, 200 ft. (Lunt 64!).

FL.: Jan. 1889 (S.).

FR.: Jan. 1889 (S.), Mar. (Ehrenb.), Dec. 1893 (Lunt).

DISTRIB.: Tropical and S. Africa, Egypt, Arabia, Palestine.

Vern. name: *Barnuf*, *Kusch* (S.).

VAR. *ovalifolia* Hausskn. et. Bornm.

HABITAT: IV. Island of Bahrein (Bornm. 400!).

FL. : Jan. 1893 (Bornm.).

FR. : Jan. 1893 (Bornm.).

6. *C. Hochstetteri* Sch.-Bip. in Herb. Schimp. Abyss. i, n. 162; Oliv. Fl. Trop. Afr. iii, (1877) 312; Defl. Yemen (1889) 148.—*Erigeron Hochstetteri* Sch. Bip. ex Schweinf. Fl. Aethiop. 147.

HABITAT : II. Near Shibam, Manakhah, 2,200—2,700 m. (S. 1447!); near Manakhah (Defl. 320).

FL. : Feb. 1889 (S.).

FR. : Feb. 1889 (S.).

DISTRIB. : Abyssinia, Arabia.

7. *C. incana* Willd. Sp. Pl. iii, 1937; Oliv. Fl. Trop. Afr. iii, (1877) 318; Defl. Yemen (1889) 148.—*Erigeron incanum* Vahl Symb. Bot. i, (1790) 72.—*C. leucophylla* Schultz; A Rich. Fl. Abyss. i, (1847) 386.

HABITAT : II. Near Sanah, 2,700 m. (Defl. 433!); between Taez and Hes (Botta).

DISTRIB. : Abyssinia, Arabia.

8. *C. nana* Sch.-Bip. in Herb. Schimp. Abyss. sect. ii, n. 1170; Oliv. Fl. Trop. Afr. iii, (1877) 315; Defl. Yemen (1889) 148.

HABITAT : II. Near Kaukaban, 2,800 m. (Defl. 626!).

DISTRIB. : Abyssinia, Arabia.

9. *C. pyrrhopappa* Sch.-Bip. in Herb. Schimp. Abyss. sect. i, 10; Oliv. Fl. Trop. Afr. iii, (1877) 318; Defl. Yemen (1889) 147.—*Erigeron pyrrhopappus* Sch.-Bip. ex Schweinf. Fl. Aethiop. 147.

HABITAT : II. Bilad Awari, Wady Dhabab (Defl. 529!); Wady Hejan, Wasil, 1,000 m. (S. 1277!); near Attara, 2,000 m. (Defl. 399); near Taez, 1,300 m. (Defl. 697); Jebel Maamara (Botta).

FL. : Feb. 1889 (S.).

FR. : Feb. 1889 (S.), Apr. 1890 (Defl.).

DISTRIB. : Abyssinia, Arabia.

Vern. name : *Gjubbusse* (S.).

Note : Hirsch's specimen No. 54 collected in Wady Randa near Sehut in Hadlmaut comes very near to this species.

Vern. name : *Dis*.

10. *C. stenodonta* Baker in Kew Bull. (1895) 316.

HABITAT : III. Hadramaut : Sel near Sehut (Hirsch 55!)

DISTRIB. : Endemic.

Vern. name : *Hatèke* (Hirsch).

11. *C. stricta* Willd. Sp. Pl. iii, 1922; Oliv. Fl. Trop. Afr. iii, (1877) 318; Defl. Yemen (1889) 148.

HABITAT: II. Mountains of Yaman. (Botta); near Manakhah, 2,300 m. (Defl. 262); above Manakhah, 2,400 m. (S. 1597!); Wady Hejan, Wasil (S. 1068!).

III. Dhofar: Wady Nahir, 300 ft. (Bent 196!).

FL.: Feb. 1889 (S.).

FR.: Feb. 1889 (S.).

DISTRIB.: Tropical Africa, Arabia, India.

### 6. *Psiadia* Jacq.

1. *P. punctulata* Vatke in Oesterr. Bot. Zeitsch. xxvii, (1877) 196.—*Nidorella punctulata* DC. Prodr. v; (1836) 323.—*P. arabica* Jaub. & Sp. III. Pl. Or. t. 352, 353; Oliv. Fl. Trop. Afr. iii, (1877) 319; Defl. Yemen (1889) 148.—*Baccharis resiniflua* Hochst. & Steud. ex DC. Prodr. vii, (1838) 282.

HABITAT: II. Hille, Jebel Bura (S. 304!); Bilad Hojeria, Ras el Negil (Defl. 611!); Tarfa (Schimp. 872!); neighbourhood of Aden (Hunter 229, 259!).

III. Hadramaut (Hirsch 167)

FL.: Apr. 1890 (Defl.).

FR.: Jan. 1889 (S.), Apr. 1890 (Defl.), Dec. 1835 (Schimp.).

DISTRIB.: Abyssinia, Somaliland, Zanzibar, S. Africa, Yaman.

Vern. name: *shedderet er roghba, pessach* (S.).

### 7. *Chrysocoma* L.

1. *C. ovata* Forsk. Fl. Aeg.-Arab. (1775) CXIX, n. 486 and p. 147.

HABITAT: II. Damp places of Surdud (Forsk.)

DISTRIB.: Endemic.

### 8. *Tarchonanthus* L.

1. *T. camphoratus* L. Sp. Pl. (1753) 842; Defl. Yemen (1889) 149.

HABITAT: II. Near Wasil, 1,000 m. (Defl. 251!).

DISTRIB.: Tropical Africa, Eritrea, Yaman.

NOTE:—The leaves fermented in urine are used as a medicinal drink or cattle (Schimp) ex Fiori 370.

### 9. *Blumea* DC.

1. *B. aurita* DC. Prodr. v, (1836) 449; Boiss. Fl. Or. iii, (1875) 216; Oliv. Fl. Trop. Afr. iii, (1877) 322; Defl. Yemen (1889) 149.—*Pluchea Kotschyi* et *Laggera aurita* Sch.-Bip. in Herb. Schimp. Abyss. exs.

HABITAT : II. Jebel Milhan, Wulej (S. 706 ! ) ; neighbourhood of Zeyda (Defl. 225 ! ) ; near Lahaj (Defl.).

FR. : Jan. 1889 (S.).

DISTRIB. : Senegambia, Sennaar, Nubia, Abyssinia, Egypt, Arabia, India.

2. **B. Jacquemonti** Hook. f. Fl. Brit. Ind. iii, (1881) 265.

HABITAT : III. Dhofar Mts. : Hafa (Bent 37 ! 9 ! *ex parte*).

DISTRIB. : Arabia, India.

### 10. *Laggera* Sch.-Bip.

1. **L. purpurascens** Sch.-Bip. ex Hochst. in Flora, xxiv, (1841) I. Intell. 26.—*L. pterodonta* Sch.-Bip. in Schweinf. Beitr. Fl. Aethiop. 151 ; Oliv. Fl. Trop. Afr. iii, (1877) 324.—*Serratula polygyma* Rich. Fl. Abyss. i, (1847) 457, t. 62.—*Blumea purpurascens* Rich. l. c. 395.

HABITAT : II. Wasil, 1,000 m. (S. 1115 !).

FL. : Feb. 1889 (S.).

FR. : Feb. 1889 (S.).

DISTRIB. : Sennaar, Abyssinia, Madagascar, Arabia, India.

Vern. name : *sisimme* (S.).

### 11. *Pluchea* Cass.

1. **P. indica** Less. in Linnaea (1831) 150 ; DC. Prodr. v, 451 ; Vatke in Oester. Bot. Zeitschr. (1875) 325 ; Hook. Fl. Brit. Ind. iii, (1881) 272 ; Blatt. Fl. Aden (1915) 223.

HABITAT : II. Near Shaikh Othman (Hildebr.).

FL. : June 1872 (Hildebr.).

DISTRIB. : Arabia, India, Malay Archipelago, China, Australia.

2. **P. laxa** Baker in Kew Bull. (1895) 182.

HABITAT : III. Coast of Merbat, foot of the Dhofar Mts. (Bent 7 !).

DISTRIB. : Endemic.

3. **P. mollis** Baker in Kew Bull. (1895) 182.

HABITAT : III. Dhofar : Hafa (Bent 9 ! *partim*).

DISTRIB. : Endemic.

### 12. *Blepharispermum* Wight.

1. **B. yemensense** Defl. in Bull. Soc. Bot. France, xliii, (1896) 105.

HABITAT . II. Jebel el Masana (Defl. 603 ! ) ; Wady Moaden (Defl. 1159).

FL. : May (Defl.).

FR. : May (Defl.).

DISTRIB. : Endemic.



2. *B. hirtum* Oliv. in Hook. Ic. Pl. t. 2435.

HABITAT: Arabia.

DISTRIB.: Endemic.

### 13. *Evax* Gaertn.

1. *E. anatolica* Boiss. & Heldr. Diagn. Pl. Or. ser. 1, xi, 2; Fl. Or. iii, (1875) 243; Post Fl. Syr. etc. (1896) 415; Musch. Fl. Eg. ii, (1912) 972.—*E. palaestina* Boiss. l. c.

HABITAT: I. Arabia Petraea (ex Musch.).

DISTRIB.: E. Mediterranean region.

2. *E. contracta* Boiss. Diagn. Pl. Or. ser. 1, xi, 3; Fl. Or. iii, (1875) 243; Post Fl. Syr. etc. (1896) 415.

HABITAT: I. Borders of Et-Tih (ex Post).

DISTRIB.: Mediterranean region, Persia.

### 14. *Filago* L.

1. *F. spathulata* Presl. Del. Prag. 93. VAR. *prostrata* Boiss. Fl. Or. iii, (1875) 246; Post Fl. Syr. etc. (1896) 416.

HABITAT: I. Arabia Petraea (Boiss.); desert of Et-Tih and southwards (ex Post).

DISTRIB.: Europe, Mediterranean region, Persia, India.

2. *F. germanica* L. Sp. Pl. ii, 1311; Boiss. Fl. Or. iii, (1875) 246; Carter in Rec. Bot. Surv. Ind. vi, (1918) 202.

HABITAT: IV. Zor Hills (Cox).

DISTRIB.: From Persia westwards to the Canaries, also in N. W. India.

Vern. name: *Kattain* (Cox).

Note: "This species grows in sandy soils and is common round Gishaniya but has not been observed further south." (Cox).

### 15. *Ifloga* Cass.

1. *I. spicata* Sch.-Bip. apud Webb Phyt. Canar. iii, (1875) 248; Carter in Rec. Bot. Surv. Ind. vi, (1918) 202.—*Chrysocoma spicata* Forsk. Fl. Aeg.-Arab. (1775) LXXIII, n. 433.—*Trichogyne cauliflora* DC.; Kotschy in Sitzb. Kais. Akad. Wiss. lii, (1866) 6.—*I. Fontanesii* Cass. Dict. xxxvii, 13; Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 265.—*Gnaphalium Ruppeltii* Fres. Mus. Senck. i, 79, t. 4, f. 1.

HABITAT: I. Arabia Petraea: Hauara (Schimp. 202!); Wady Nasb (Lord!); Wady Ghurundel and Ramleh (Lord!); desert of Sinai (Bové!); Wady Rim, 3,000 ft. (Rüppel!); coast of Sinai and southwards (ex Post);

Wady es Sle, Plain of Raha, Wady es Shaikh, Oasis Feiran, Wady Aleyat (Kneuck.); S. Midian (Burton!).

II. Jiddah (Fischer 9!); Hijaz (Schimp. 1036!).

IV. Zor Hills (Cox 63).

FL. : Feb. (Fischer).

FR. : Mar. 1835 (Schimp.), Apr. 1868 (Lord).

DISTRIB. : Spain, N. and S. Africa, Egypt, Arabia, Palestine, Syria, Afghanistan, Baluchistan, N. W. India.

Vern. name : *Kureishat-el-Judai* (Post), *Moscht* (Schimp.), *Hasach* (Cox).

VAR. *condensata* Boiss. Fl. Or. Suppl. (1888) 295.

HABITAT : I. Mt. Sinai (Schimp. 408!).

#### 16. *Lasiopogon* Cass.

1. *L. muscoides* DC. Prodr. vi, 246; Boiss. Fl. Or. iii, (1875) 224; Post Fl. Syr. etc. (1896) 417.

HABITAT : I. Arabia Petraea (McDonald! Pinard!); Wady Hebran (Schimp.!); foot of Mt. Horeb (Auch.-Eloy 3133!); foot of Mt. Sinai (Schimp. 182! Boiss.); plain of Raha, Wady es Shaikh, Convent St. Catherine (Kneuck.).

FL. : Apr. 1835; (Schimp.).

FR. : Apr. 1835 (Schimp.).

DISTRIB. : Mediterranean region, Cape.

#### 17. *Phagnalon* Cass.

1. *P. arabicum* Boiss. Fl. Or. iii, (1875) 223.—*arthemisia arabica* Boiss. Diagn. Pl. Or. ser. 1, vi, 74.

HABITAT : IV. Masqat (Auch.-Eloy 4729!).

DISTRIB. : Endemic.

2. *P. Harazianum* Defl. Yemen (1889) 150.

HABITAT : II. Jebel Shibam, Manakhah 2,700 m. (S. 1412!); the same locality, 2,200—2,600 m. (Defl. 274, 441).

FL. : Feb. 1889 (S.).

FR. : Feb. 1889 (S.).

DISTRIB. : Endemic

3. *P. hypoleucum* Sch.-Bip. Herb. Schimp. Abyss. sect. ii, n. 854; Oliv. Fl. Trop. Afr. iii, (1877) 338; Defl. Yemen (1889) 150.

HABITAT : II. Near Sanah, 2,500 m. (Defl. 479!); in the mountains (Botta).

DISTRIB. : Abyssinia, Yaman.

4. **P. nitidum** Fres. Mus. Senck. ii, (1837) 81, t. 4, f. 2; Dcne. Fl. Sin in Ann. Sc. Nat. ser. 2, ii, (1834) 262; Boiss. Fl. Or. iii, (1875) 220; Post Fl. Syr. etc. (1896) 417.

HABITAT: I. Arabia Petraea (McDonald!); Sinai (Auch.-Eloy 3080!); Mt. Sinai (Bové 120! Schimp. 334!); Wady es Shaikh (Hart!); Wady Arbain, 5,000 ft. (Rüppell!); plain of Raha, Wady Aleyat (Kneuck.).

FL.: Apr. 1877 (S.), May 1835 (Schimp.), June 1832 (Bové).

FR.: Apr. 1877 (S.), May 1835 (Schimp.), June 1832 (Bové).

DISTRIB.: Abyssinia, Arabia, Persia, Afghanistan, Baluchistan.

Vern. name: *Honet-el-naghi* (Bové), *Khamánat-en-Na'jeh* (Post).

5. **P. rupestre** DC. Prodr. v, 396; Boiss. Fl. Or. iii, (1875) 220; Post Fl. Syr. etc. (1896) 418.—*Conyza tomentosa* Forsk. Fl. Aeg.-Arab. (1775) LXXIII, n. 444, CXIX, n. 496 and p. 148.

HABITAT: I. Arabia Petraea (Boiss.).

II. Hadiyah (Forsk.).

DISTRIB.: Mediterranean region, Persia.

Vern. name: *tom erneb, mottaej* (Forsk.).

6. **P. scalarum** Schweinf. MS. in Herb. Kew.

HABITAT: II. Wasil, on terraces, 1,400 m. (S. 1116!).

FL.: Feb. 1889 (S.).

FR.: Feb. 1889 (S.).

DISTRIB.: Endemic.

Vern. name: *Rendel Relb* (S.).

7. **P. viridifolium** Dcne. in Auch. Pl. exs.; Boiss. Fl. Or. iii, (1875) 220.

HABITAT: IV. Masqat (Auch.-Eloy 4774!).

DISTRIB.: Endemic.

#### 18. Achyrocline Less.

1. **A. glumacea** Oliv. et Hiern. in Oliv. Fl. Trop. Afr. iii, (1877) 340; Defl. Yemen (1889) 151.—*A. luzuloides* Vatke in Linnaea xxxix, (1875) 489.—*Gnaphalium luzuloides* Sch.-Bip. Herb. Schweinf. Nub. n. 347; Beitr. Fl. Aethiop. 149.

HABITAT: II. Near Mefhak, 2,000 m. (Defl. 595!).

DISTRIB.: Senegambia, Abyssinia, Arabia.

2. **A. Schimperii** Oliv. et Hiern. in Oliv. Fl. Trop. Afr. iii, (1877) 340; Defl. Yemen (1889) 151.—*Gnaphalium adoensis* Sch.-Bip. in Herb. Schimp. Abyss. sect. i, n. 41.—*G. Schimperii* Sch.-Bip. l. c. i, n. 393.

HABITAT: II. Wady Mazeb near Manakhah, 2,200 m. (Defl. 370).

DISTRIB.: Mozambique, Abyssinia, Arabia.

19. *Gnaphalium* L.

1. *G. indicum* L. Sp. Pl. (1753) 852; Boiss. Fl. Or. iii, (1875) 225; Baker in Kew Bull. (1894) 334.—*G. Niliacum* Raddi in Spreng. Syst. iii, 480.

HABITAT: III. Hadramaut: Sides of irrigation channels at Khailah, 3,000 ft. (Lunt 134!).

FR.: Jan. 1894 (Lunt).

DISTRIB.: Cosmopolitan in the tropics.

2. *G. luteo-album* L. Sp. Pl. (1753) 851; Boiss. Fl. Or. iii, (1875) 224; Defl. Yemen (1889) 151; Post Fl. Syr. etc. (1896) 418.

HABITAT: II. Near Sanah, 2,300 m. (Defl. 513).

III. Dhofar Mts. (Bent 190!).

IV. Masqat (Auch.-Eloy 4782!).

DISTRIB.: Cosmopolitan.

Vern. name: *Ra'ra'*, *Sabûn 'afrîr* (Post).

3. *G. pulvinatum* Del. Ill. Fl. d'Eg. (1813) 122, t. 44, f. 1; Boiss. Fl. Or. iii, (1875) 225; Kneuck. in Allg. Bot. Zeitsch. ix, (1903) 148.

HABITAT: I. Between Feiran and Maghara (Kneuck.).

DISTRIB.: Kordofan, Egypt, Arabia Petraea, Sind, India.

20. *Helichrysum* Gaertn.

1. *H. abyssinicum* Sch.-Bip. Herb. Schimp. Abyss. sect. i, n. 127; ii, n. 663; Rich. Fl. Abyss. i, (1847) 423; Oliv. Fl. Trop. Afr. iii, (1877) 351; Defl. Yemen (1889) 151.

HABITAT: II. Jebel Shibam, 2,600 m. (Defl. 354!).

DISTRIB.: Mozambique, Abyssinia, Arabia.

2. *H. Chrysocoma* Sch.-Bip. in Herb. Schimp. Abyss. sect. ii, n. 836, 979; Rich. Fl. Abyss. i, (1847) 424.—*Gnaphalium fruticosum* Forsk. Fl. Aeg.-Arab. (1775) CXIX, n. 491 and p. 218.—*H. cymosum* O. & H. in Oliv. Fl. Trop. Afr. iii, (1877) 353; Defl. Yemen (1889) 151 (*non Less.*).

HABITAT: II. Bara, Kurma (Forsk.); near Attara, 2,000 m. (Defl. 423!); Jebel Shibam (Defl. 355).

DISTRIB.: Upper Guinea, Abyssinia, Mozambique, S. Africa, Arabia.

Vern. name: *Synde*, *Scheratat* (Forsk.).

3. *H. conglobatum* Steud. Nom. Bot. i, (1840) 738; Musch. Fl. Eg. ii, (1912) 981.—*H. siculum* Boiss. Fl. Or. iii, (1875) 229; Post Fl. Syr. etc. (1896) 418.

HABITAT : I. Arabia Petraea (ex Musch.).

DISTRIB. : E. Mediterranean region.

Vern. name :—*Bezáz-el-'adhrá*, (Post).

4. *H. globosum* Sch.-Bip. in Herb. Schimp. Abyss. ii, n. 988 ; Oliv. Fl. Trop. Afr. iii, (1877) 354 ; Defl. Yemen (1889) 151.

HABITAT : II. J. Shibam, 2,700 m. (S. 1666 ! Defl. 340) ; J. Masar near Attara, 2,000 m. (Defl. 421).

FL. : Mar. 1889 (S.). FR. : Mar. 1889 (S.).

DISTRIB. : Upper Guinea, Abyssinia, Arabia.

5. *H. orientale* Gaertn. Fruct. ii, t. 166 ; Boiss. Fl. Or. iii, (1875) 230.—*Gnaphalium orientale* Forsk. Fl. Aeg.-Arab. (1775) CXIX, n. 490 and p. 218.

HABITAT : II. Hadiyah (Forsk.).

DISTRIB. : Asia Minor, Arabia.

Vern. name : *Adhaun-el-keleb* (Forsk.).

## 21. *Leyssera* L.

1. *L. capillifolia* DC. Prodr. vi, 279 ; Schenk Sp. Pl. it. Aeg. Arab. & Syr. (1840) n. 182 ; Boiss. Fl. Or. iii, (1875) 240 ; Post Fl. Syr. etc. (1896) 420.—*L. discoidea* Spreng. Pl. Pug. 78.

HABITAT : I. Wady Nasb (Drake 62 ! ) ; Sinai (Auch.-Eloy 3243 ! ) ; Wady Feiran and neighbourhood (Lord ! ) ; Wady Sewook and neighbourhood (Lord ! ) ; Sinai (Rüppell) ; south end of Dead Sea (ex Post) ; Arabia Petraea (Pinard ! McDonald ! Boiss. ! ) ; Wady Hebran (Schimp. 221 ! ).

FL. : May (Rüppell).

FR. : Apr. 1835 (Schimp.), Apr.-May 1868 (Lord).

DISTRIB. : Spain, N. Africa, Nubia, Egypt, Arabia Petraea, Palestine.

Vern. name : *Simsum*, *Mashruhah* (Post).

## 22. *Inula* L.

1. *I. crithmoides* L. Sp. Pl. (1753) 883 ; Boiss. Fl. Or. iii, (1875) 195 ; Post Fl. Syr. etc. (1896) 421 ; Musch. Fl. Eg. ii, (1912) 982.

HABITAT : I. Arabia Petraea (ex Musch.).

DISTRIB. : Europe, Mediterranean region.

Vern. name : *katab-zeiti* (Post).

2. *I. grantioides* Boiss. Diagn. Pl. Or. ser. 2, iii, 14 ; Fl. Or. iii, (1875) 195 ; Cooke Fl. Bomb. ii, 31.

HABITAT : III. Dhofar Mts. : Coast Merbat (Bent 81 ! ).

DISTRIB. : Arabia, Wazaristan, Baluchistan, Sind, Kutch.

3. **I. viscosa** Ait. Hort. Kew iii, (1811) 223 ; Boiss. Fl. Or. iii, (1875) 198 ; Post Fl. Syr. etc. (1896) 421 ; Musch. Fl. Eg. ii, (1912) 983.—*Erigeron viscosum* L. Sp. Pl. (1753) 863.

HABITAT : I. Arabia Petraea (ex Musch.).

DISTRIB. : Canaries, Mediterranean Region.

Vern. name : 'urq-et-tayyûm (Post).

### 23. **Grantia** Boiss.

1. **G. senecionoides** Baker in Kew Bull. (1895) 317.

HABITAT : III. Hadramaut (Hirsch 14).

DISTRIB. : Endemic.

2 **G. flabellata** S. Moore in Journ. Bot. (1900) 158.

HABITAT : Oman.

DISTRIB. : Arabia.

### 24. **Hirschia** Baker.

1. **H. anthemidifolia** Baker in Kew Bull. (1895) 317.

HABITAT : III. Hadramaut (Hirsch 35).

DISTRIB. : Endemic.

### 25. **Iphiona** Cass.

1. **I. horrida** Boiss. Diagn. Pl. Or. ser. 1, vi, 80 ; Fl. Or. iii, (1875) 211.

HABITAT : IV. Masqat (Auch.-Eloy 4725 !).

DISTRIB. : Endemic.

2. **I. mucronata** Aschers.-Schweinf. in Aschers.-Schweinf. Ill. Fl. Eg. (1887) 86.—*I. juniperifolia* Cass. Dict. xxiii, 610 ; Dene. Fl. Sin. in Ann. Sc. Nat. ser. 2. ii, (1834) 263 ; Boiss. Fl. Or. iii, (1875) 210 ; Post. Fl. Syr. etc. (1896) 422.—*Chrysocoma mucronata* Forsk. Fl. Aeg.-Arab. (1775) LXXIII, n. 432 and p.147.—*Stachelina spinosa* Vahl Symb. Bot. i, (1790) 69.

HABITAT : I. Desert of Sinai (Bové 95 ! ) ; Wady es Shaikh (Drake 98 ! ) ; Mt. Sinai (Bové 100 ! ) ; Mt. Horeb (Auch.-Eloy 3111 ! ) ; Wady Hebran (Schimp. 362 ! Rüppell).

FR. : June 1832 (Bové), June 1835 (Schimp.).

DISTRIB. : Egypt, Arabia, Palestine, Syria.

Vern. name : *Daffara* (Bové), *Zifrah Zufrah* (Post).

3. **I. scabra** Dene. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 263 ; DC. Prodr. vi, 475 ; Anders. Fl. Aden. (1860) 22 ; Boiss. Fl. Or. iii, (1875)

210 ; Oliv. Fl. Trop. Afr. iii, (1877) 360 ; Post Fl. Syr. etc. (1896) 422 ; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 122 ; Blatt. Fl. Aden (1915) 224.

HABITAT : I. Dead Sea to Sinai and Egypt (ex Post) ; Hamme (Schimp. 188 !) ; Sinai (Holland ! Auch.-Eloy 3075) ; desert between Suez and Tor (Bove 104 !) ; S. Midian (Burton !).

II. Aden (S. S. ! Thomson ! Perry ! Birdw. ! Lunt ! Anders. ! Hook. f., Deff!).

III. Sel near Sehut, Wady Raida (Hirsch 45, 183).

IV. Masqat : Mt. Chebek (Auch.-Eloy 4726!).

FL. : 1863 (Ol. & Cl.), Feb. 1851 (Thomson), Mar. 1850 (Madden), Apr. 1861 (Thomson), June 1872 (Hildebr.), Nov. 1888 (S.) Dec. 1889 (Deff.).

FR. : Jan. 1863 (Ol. & Cl.), Mar. 1835 (Schimp.), Mar. 1850 (Madden) Mar. 1878 (Perry), Mar. 1888 (S.), Apr. 1861 (Thomson), June 1872 (Hildebr.), Nov. 1888 (S.), Dec. 1889 (Deff.).

DISTRIB.: Egypt, Nubia, Eritrea, Arabia.

Vern. name : *Saffara* (Bové), *Tezfét* (Hirsch), *Dafra* (Musch.).

Note : Eaten by camels (Burton).

VAR.: *pinnatifida* Boiss. Diagn. Pl. Or. ser. 1, vi, 80 ; Fl. Or. iii, (1875) 211.

HABITAT : IV. Masqat : Jebel Chebek (Auch.-Eloy 4726 !)

DISTRIB.: Endemic.

4. *T. subulata* Baker in Kew Bull. (1894) 333.

HABITAT : III. Shari Burrock, Mukalla, 200—300 ft. growing on stony hillsides (Lunt !)

DISTRIB.: Endemic.

## 26. *Varthemia* DC.

1. *V. candicans* Boiss. Fl. Or. iii, (1875) 212 ; Post Fl. Syr. etc. (1896) 422.

HABITAT : I. Arabia Petraea (ex Post).

DISTRIB.: Tripolitania, Egypt, Arabia Petraea.

2. *V. montana* Boiss. Fl. Or. iii, (1875) 212 ; Post Fl. Syr. etc. (1896) 422.—*Chrysocoma montana* Vahl Symb. Bot. i, (1790) 70.—*V. conyzoides* Boiss. Diagn. Pl. Or. ser. 2, iii, 10.

HABITAT : I. Foot of Mt. Sinai (Schimp. 257 !) ; Wady Bavak (Hart !).

FR.: Aug. 1835 (Schimp.).

DISTRIB.: Egypt, Arabia Petraea, Palestine, Syria.

Vern. name: *hanede* (ex Boiss.), *Huneideh* (Post).

Note: Used in medicine against Diarrhoea.

### 27. *Pegolettia* Cass.

1. *P. senegalensis* Cass. Dict. xxxviii, 230; DC. Prodr. v, 481; Jaub. & Sp. III. Pl. Or. iv, 63, t. 341; Oliv. Fl. Trop. Afr. iii, (1877) 361; Blatt. Fl. Aden (1915) 225.—*Kuhnia arabica* Hochst. et Steud. in Herb. Schimp. Arab. Fel. n. 863; DC. Prodr. vii, 267.

HABITAT: II. Mt. Sidr and Kesser (Fischer 40!); Wady Fatimah (Schimp. 863!); Wasil, 1,000 m. (S. 1194!); Aden (Lunt!).

FL.: Mar. (Fischer), Apr. 1894 (Lunt).

FR.: Feb. 1836 (Schimp.), Feb. 1889 (S.), Apr. 1894 (Lunt).

DISTRIB.: Senegambia, Kouka, Nubia, Abyssinia, Cape Verde Islands, Tropical Arabia, Rajputana.

(Oliver and Hiern in Fl. Trop. Afr. mention also Sind, but Cooke has not included this species in his Flora of the Bombay Presidency. We have seen this plant in Jodhpur and Jaisalmer).

### 28. *Pulicaria* Gaertn.

1. *P. adenensis* Schweinf. ex O. Kuntze Rev. Gen. Pl. i, 358 et in Sched. Herb. Kew.; Blatt. Fl. Aden (1915) 227.—*P. iphionoides* O. K. ex O. Kuntze l. c.—*Varthemia arabica* T. Anders. Fl. Aden. (1860) 22 (*non* Boiss.).—*Iphiona arabica* B. Hgp. ex O. Kuntze l. c.

HABITAT: II. Neighbourhood of Zeyda (Defl. 219!); Aden (Perry! S. 26! Balfour! Hook. f.! Anders.! Thomson! Birdw.!).

FL.: Jan. 1872 (Thomson), Mar. 1878 (Perry), Apr. 1861 (Thomson), Nov. 1888 (S.), Dec. 1847 (Hook.).

FR.: Jan. 1872 (Thomson), Mar. 1878 (Perry), Apr. 1861 (Thomson), Nov. 1888 (S.), Dec. 1889 (Defl.).

DISTRIB.: Endemic.

2. *P. arabica* Cass. Dict. xlv, 94; Dene. Fl. Sin. in Ann. Sc. Nat. ser. 2. ii, (1834) 263; Boiss. Fl. Or. iii, (1875) 205; Defl. Yemen (1889) 151; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 123.—*Inula arabica* L. Mant. 114?

HABITAT: I. Oasis Feiran (Kneuck.); Jebel Hammam-Sidna-Musa (Musch.); Mt. Sinai (Schimp. 317!); cult. ground of Mt. Sinai (Bové!); Arabia Petraea (Mc Donald!).

II. Near Raudha, 2,300 m. (Defl. 494).

III. Dhofar Mts.: Derbat (Bent 228!).

FR.: May 1835 (Schimp.).



DISTRIB. : Europe, Mediterranean region, N. E. Africa, Arabia, Persia.  
Vern. name : *ra' rá-ajúb, saghlíl. abú-áin-safra* (Musch.).

3. *P. argyrophylla* Franch. in Revoil, Comali, 38.

HABITAT : II. Yaman : El'Hami (S. 188!).

FL. : Apr. 1881 (S.).

FR. : Apr. 1881 (S.).

DISTRIB. : Tropical Africa, Arabia.

4. *P. crispa* Benth. & Hook. Gen. Pl. ii, (1873) 336; Oliv. Fl. Trop. Afr. iii, (1877) 366; Defl. Yemen (1889) 152.—*Francoeuria crispa* Cass. Dict. xxxiv, 44; Boiss. Fl. Or. iii, (1875) 206.—*Aster crispus* Forsk. Fl. Aeg.-Arab. (1775) lxxiii, n. 449 and p. 150.

HABITAT : I. Wady Bedr (Kaiser 44!); Sinai (Holland! Schimp. 293!); Desert of Sinai (Bové 110!); Arabia Petraea (McDonald!).

II. Near Attara, 200 m. (Defl. 418); Hijaz (Kotschy); Wasil, 1,300 m. (S. 1148!); Jiddah (Zohrab 100!).

III. Hadramaut (Hirsch 155); Khailah, 3,000 ft. (Lunt 139!).

IV. Masqat : Nezue (Auch.-Eloy 4738!).

FL. : Jan. 1894 (Lunt), Feb. 1889 (S.), Apr. 1877 (S.), June 1832 (Bové), Dec. 1891 (Kaiser).

FR. : Jan. 1894 (Lunt), Feb. 1889 (S.), Apr. 1877 (S.), June 1832 (Bové), July 1835 (Schimp.), Dec. 1891 (Kaiser).

DISTRIB. : N. and Tropical Africa, Egypt, Arabia, Persia, N. India.

Vern. name : *Desdis* (Bové). *Dchded* (Kaiser), *Qutqát, Sabút, Ra'rá, Tajár, Kanáf, Afrakh, Dithdáth, Karwán* (Post).

5. *P. Ehrenbergiana* Schultz ex Herb. Schweinf. Aethiop.; Defl. Yemen (1889) 152.

HABITAT : II. Jiddah (Zohrab 71!); Wady Djara and Isl. of Ketumbat (Ehrenb.).

DISTRIB. : Aethiopia, Yaman.

6. *P. grandidentata* Jaub. & Sp. Ill. Pl. Or. t. 345.

HABITAT : II. Yaman (Botta).

FL. : Nov. 1837 (Botta).

FR. : Nov. 1837 (Botta).

DISTRIB. : Endemic.

7. *P. glutinosa* Jaub. & Sp. Ill. Pl. Or. t. 348; Blatt. Fl. Aden (1915) 227.—*Platychaete glutinosa* Boiss. Diagn. Pl. Or. ser. 1, xi, 5; Fl. Or. iii (1875) 208.

HABITAT: II. Aden (Hildebrandt, Ellenb.).

IV. Masqat (Auch.-Eloy 4728!).

DISTRIB.: Endemic.

8. *P. inuloides* DC. Prodr. v, 480.—*P. longifolia* Boiss. Diagn. Pl. Or. ser. 2, iii, 16; Fl. Or. iii, (1875) 202; Post Fl. Syr. etc. (1896) 423.—*P. arabica* et *Conyza Borei* Schimp. Pl. exs. Arab. (*non Boiss.*).

HABITAT: I. Sinai to Egypt (ex Post); Mt. Sinai (Schimp. 216! 317!).

II. Wady Nahemi above Attara, 1,800 m. (S. 1774!).

FL.: Mar. 1889 (S.).

FR.: Mar. 1889 (S.).

DISTRIB.: N. Africa, Egypt, Arabia, Palestine, Syria.

9. *P. leucophylla* Baker in Kew Bull. (1894) 333; Defl. in Bull. Soc. Bot. France, xliii, (1896) 108.—*P. areysiana* Defl. MS. ex Defl. i. c.

HABITAT: II. Jebel el Areys (Defl. 393! 400; 861, 913, 986, 1015).

III. Hadramaut: Between Tokham and Ghafit, 200 ft. (Lunt 67!); Wady Gerzid, 500 ft. (Bent 171!).

FL.: Apr. and May (Defl.), Dec. 1893 (Lunt).

FR.: Dec. 1893 (Lunt).

DISTRIB.: Endemic.

Vern. name: *kharla* (Defl.).

10. *P. menachensis* Schweinf. MS. in Herb. Kew.

HABITAT: II. El Ejan on Jebel Shibam (S. 1586!); above Manakhah (S.!).

FL.: Feb. 1889 (S.).

FR.: Feb. 1889 (S.).

DISTRIB.: Endemic.

NOTE: Very near *P. petiolaris* Jaub. & Sp.

11. *P. orientalis* Jaub. & Sp. Ill. Pl. Or. t. 342; Boiss. Fl. Or. iii, (1875) 203; Defl. Yemen (1889) 152.

HABITAT: II. Jebel Damer near Bajil (S. 660!); Mor (Ehrenb.); between Sanah and Raudha (Defl. 498); round Hes and Taez (Botta).

IV. Masqat (Auch.-Eloy 4739!).

FL.: Jan. 1889 (S.).

FR.: Jan. 1889 (S.).

DISTRIB.: Abyssinia, Arabia.

Vern. name: *monass* (S.).

**12. *P. petiolaris*** Jaub. & Sp. Ill. Pl. Or. t. 344; Oliv. Fl. Trop. Afr. iii, (1877) 364; Defl. Yemen (1889) 151.—*P. chrysopsioides* Sch.-Bip. ex Aschers. & Schweinf. Enum. 286; Kotschy in Sitzb. Kais. Akad. Wiss. lii, (1866) 5.

HABITAT: II. Hijaz (ex Kotschy); round Hes and Taez (Botta); Wasil, 1,300 m. (S. 1132!), near Wasil, 900 m. (Defl. 223); near Manakhah 2,500 m. (Defl. 307); near Sanah, 2,600 m. (Defl. 464, 478!).

FL.: Feb. 1889 (S.).

FR.: Feb. 1889 (S.).

DISTRIB.: Abyssinia, Nubia, Sennaar, Arabia.

**13. *P. Schimperii*** DC. Prodr. vii, 285.

HABITAT: II. Jiddah (Fischer 35! Zohrab 68! 141!).

FL.: Nov.-Feb. 1837 (Fischer).

DISTRIB.: Endemic.

**14. *P. sicula*** Moris Fl. Sard. ii, 363; Boiss. Fl. Or. iii, (1875) 205.—*Jasomia sicula* DC. ex Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 261.

HABITAT: I. Damp places near Mt. Sinai (Bové 111!).

DISTRIB.: S. Europe, Sinai.

**15. *P. undulata*** DC. Prodr. v, 479; Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 263; Pl. Arab. Heur. in Ann. Sc. Nat. ser. 2, iv, (1835) 79; Schenk Sp. Pl. it. Aeg.-Arab. & Syr. (1840) n. 172; Boiss. Fl. Or. iii, (1875) 202; Oliv. Fl. Trop. Afr. iii, (1877) 365; Defl. Yemen (1889) 151; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 122.—*Inula odora* Forsk. Fl. Aeg.-Arab. (1775) CXIX, n. 505 and p. 150.—*P. desertorum* DC. Prodr. v, 478; Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 263.

HABITAT: I. Desert of Sinai (Auch.-Eloy 3845! Bové 109!); Sinai (Holland!); Wady Gemah and neighbourhood (Lord); Desert of Suez and Tor (Bové 117!); Wady Hebran (Schimp. 227!); Arabia Petraea (McDonald!); Dead Sea to Sinai (ex Post); Wady Zewerah (Hayne!); Wady Arbain, 5,000 ft. (Rüppell); Jebel Hammam-Sidna-Musa (Musch.); Wady es Sle, Wady Tarfa, Oasis Feiran (Kneuck.); N. Midian (Burton!).

II. Oasis of Lanaj (Defl. 124!); Jiddah (Schimp. 908!); Wady Mor, Lohaja, Surdud (Forsk.).

FL.: Jan. 1837 (Schimp.).

FR.: Jan. 1837 (Schimp.), Apr. 1835 (Schimp.), Apr. 1877 (S.), May 1868 (Lord), June 1832 (Bové), Dec. 1889 (Defl.).

DISTRIB. : Senegal, Nubia, Egypt, Arabia, Syria.

Vern. name : *Dansís, ra'rá* (Aschers.), *Desdas* (Bové), *Munis, Neschusch, chaa* (Forsk.), *Rabur Rabbul* (Post).

16. *P. gnaphalodes* Boiss. Diagn. Pl. Or. ser. 1, vi, 76 ; Fl. Or. iii, 203 ; Carter in Rec. Bot. Surv. Ind. vi, (1918) 203.—*Strabonia gnaphalodes* DC. Prodr. v, 481.

HABITAT : IV. Principality of Kuwait (Cox).

DISTRIB. : W. Tibet, Turkestan, Afghanistan, Persia, Arabia.

Vern. name : *Nafeej* (Cox).

### 29. *Geigeria* Griessel.

1. *G. alata* Benth. & Hook. f. Gen. Pl. ii, 337 ; Oliv. Fl. Trop. Afr. iii, (1877) 368 ; Baker in Kew Bull. (1894) 333.—*Cichorium alatum* Hochst. et Steud. ex DC. Prodr. vii, 75.

HABITAT : II. Sandy plain near Bakaram, Mt. Sidr and Kesser (Fischer 33 !); Wady Fatimah (Schimp. 853 !).

III. Cultivated ground at Katan, 1,100 ft. (Lunt 153 !).

FL. : Jan. 1894 (Lunt), Feb. 1836 (Schimp.), Feb. 1837 (Fischer).

FR. : Jan. 1894 (Lunt), Feb. 1836 (Schimp.).

DISTRIB. : Tropical Africa, Arabia.

### 30. *Gymnarrhena* Desf.

1. *G. micrantha* Desf. Mem. Mus. Paris, iv, 1, t. 1 ; Boiss. Fl. Or. iii, (1875) 240 ; Post Fl. Syr. etc. (1896) 424.—*Frankia Schimperii* Hochst. et Steud. in Schimp. Pl. Arab.—*Cryptadia euphratensis* Chesney Narr. Euph. 441, t. 95.

HABITAT : I. Between Suez and El Tor (Schimp. 899 !); Arabia Petraea (Boiss.) ; Sinai to Dead Sea (ex Post).

FR. : May 1835 (Schimp.).

DISTRIB. : Spain, N. Africa, Egypt, Arabia Petraea, Palestine, Syria, Mesopotamia, Persia, Afghanistan, Baluchistan.

See Steudel, neber ein neues Pflanzengenus, Medicinisches Correspondenzblatt, Württemberg. ärztlichen Ver. vol. vi, no. 50, p. 394.

### 31. *Rhanterium* Desf.

1. *R. epapposum* Oliv. Ic. Pl. 1367.

HABITAT : IV. Central Arabia (Pelly !).

DISTRIB. : Arabia, Baluchistan.

NOTE : The brushwood of this portion of the desert.

The bushes branch from the ground. They are about one foot and a half high and from 2-5 ft. in circumference and where abundant from 3-6 ft. apart. The root is club-shaped and easily dragged from the ground (Pelly).

32. *Anvillea* DC.

1. *A. Garcini* DC. Prodr. v, 487; Boiss. Fl. Or. iii, (1875) 181; Post Fl. Syr. etc. (1896) 424.—*Buphthalmum arabicum* Del. Frag. Fl. Arab. Petr. (1833) n. 46, f. 4.

HABITAT: I. Egypt to Sinai (ex Post); Arabia Petraea (De Laborde); Central Midian (Burton!).

IV. Central Arabia: Shallow valleys and hollows (Pelly).

Fl.: Feb. (Pelly).

DISTRIB.: Egypt, Arabia, Palestine, Syria, Mesopotamia, Persia.

Vern. name: *Nu'Kud* (Burton).

33. *Odontospermum* Neck.

1. *O. graveolens* Sch.-Bip. in Webb et Berth. Phyt. Canar. ii, 232; Oliv. Fl. Trop. Afr. iii, (1877) 370; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 123.—*Buphthalmum graveolens* Forsk. Fl. Aeg.-Arab. (1775) 151.—*Asteriscus graveolens* DC. Prodr. v, 486; Boiss. Fl. Or. iii, (1875) 179; Post Fl. Syr. etc. (1896) 425.

HABITAT: I. Wady el Ain (Hart!); Wady Nasb (Lord!); Sinai (Drake 103! Auch.-Eloy 3083!); desert of Suez and Sinai (Bové 116!); Wadies about Dead Sea to Sinai (ex Post); Jebel Nakus (Musch.); Wady Sewook and neighbourhood (Lord!); Arabia Petraea (McDonald! Boiss.); Wady Barek and W. Lebweh (Hart!).

FL.: Mar. 1846 (Boiss.), Apr. 1868 (Lord), June 1832 (Bové).

FR.: Mar. 1846 (Boiss.), Apr. 1868 (Lord), June 1832 (Bové).

DISTRIB.: N. Africa, Egypt, Arabia Petraea.

Vern. name: *nimwdr*, *qassaikah*, *buheineh*, *nuqd* (Post).

Camels very fond of this plant (Lord).

2. *O. pygmaeum* Benth. & Hook. ex Aschers.-Schweinf. Ill. Fl. d'Eg. Suppl. (1889) 760; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 123.—*Asteriscus pygmaeus* Coss. et Dur. Sert. Thunet. 26; Boiss. Fl. Or. iii, (1875) 179; Post Fl. Syr. etc. (1896) 425.—*A. aquaticus* VAR. *pygmaeus* DC. Prodr. vii, 287 (quoad pl. arabicam).

HABITAT: I. Wady Ghurundel (Hart!); Oasis Feiran, Maghara (Kneuck.); Wady Gennah and neighbourhood (Lord!); Sinai (Auch.-Eloy 3094!); Wady Hebran (Schimp. 336!); Jebel Hammam—Sidna—Musa, Jebel Nakus, desert of Ka'a (Musch.); S. Midian: El Wjih to Wady Hami (Burton!).

FL.: Apr. 1835 (Schimp.).

FR.: May 1868 (Lord).

DISTRIB.: N. Africa, Arabia Petraea, Palestine, Persia, Baluchistan.

Vern. name: *nuqad* (Post).

3. **O. Schimperi** Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 124.—*Asteriscus Schimperi* Boiss. Fl. Or. iii, (1875) 180; Post Fl. Syr. etc. (1896) 425.

HABITAT: I. Arabia Petraea: Used (Schimp. 719!); Sinai (ex Post).  
DISTRIB.: Endemic.

### 34. *Pallenis* Cass.

1. **P. spinosa** Cass. in Dict. Sc. Nat. xxxvii, (1825) 275; Boiss. Fl. Or. iii, (1875) 180; Post Fl. Syr. etc. (1896) 425; Musch. Fl. Eg. ii, (1912) 989.—*Buphthalmum spinosum* L. Sp. Pl. (1753) 903.

HABITAT: I. Arabia Petraea (ex Musch.).  
DISTRIB.: Mediterranean region.  
Vern. name: *Bakhār Mariam* (Post).

### 35. *Ambrosea* L.

1. **A. maritima** L. Sp. Pl. (1753) 988; Boiss. Fl. Or. iii, (1875) 252; Post Fl. Syr. etc. (1896) 426; Musch. Fl. Eg. ii, (1912) 992.

HABITAT: I. Arabia Petraea (ex Musch.).  
DISTRIB.: Mediterranean region, Senegambia, Nubia.  
Vern. name: 'Anbarīyeh, 'Useirah, Ghubeirah, Demstis (Post).

### 36. *Xanthium* L.

1. **X. spinosum** L. Sp. Pl. (1753) 987; Boiss. Fl. Or. iii, (1875) 252; Post Fl. Syr. etc. (1896) 427; Musch. Fl. Eg. ii, (1912) 993.

HABITAT: I. Arabia Petraea (ex Musch.).  
II. Wady el Kebir near Zeyda (Defl. 201!).  
FL.: Dec. 1889 (Defl.).

DISTRIB.: S. Europe, Egypt, Arabia, Syria.  
Vern. name: *Badhinjān-teriāqi* (Post).

### 37. *Eclipta* L.

1. **E. erecta** L. Mant. ii, 286; Krause in Engl. Bot. Jahrb. xxxv, (1905) 737.—*E. alba* Hassk. Pl. Jav. Rar. 528; Oliv. Fl. Trop. Afr. iii, (1877) 373; Defl. Yemen (1889) 152.—*Micrelidium tolak* Forsk. Fl. Aeg.-Arab. (1775) CXX, n. 511 and p. 153.

HABITAT: II. Near Hajeilah, 500-600 m. (Defl. 162, 170); Aggara, Hajeilah (S. 1031!); Wady Fatimah (Fischer 60!); Wady el Kebir in neighbourhood of Zeyda (Defl. 222!); Wady<sup>2</sup> Kebir near Heathalim (Ellenb.); Hadiyah (Forsk.).

III. Dhofar Mts.: River bed at Derbat (Bent 223!); common in stream beds, foot of Dhofar Mts. (Bent 158!).

FL. : Jan. 1890 (Defl.), Feb. 1837 (Fischer), Feb. 1889 (S.).

FR. : Jan. 1890 (Defl.), Feb. 1889 (S.).

DISTRIB. : Cosmopolitan in warm countries.

Vern. name : *tolak* (Forsk.).

### 38. *Sclerocarpus* Jacq.

1. *S. africanus* Jacq. Ic. Pl. Rar. ii, 17, t. 176 ; Oliv. Fl. Trop. Afr. iii, (1877) 374 ; Defl. Yemen (1889) 152.

HABITAT : II. Near Wasil, 1,000 m. (Defl. 240 !).

DISTRIB. : Upper Guinea, Kordofan, Abyssinia, Mosambique, Arabia, India.

### 39. *Blainvillea* Cass.

1. *B. Gayana* Cass. in Dict. xlvii, 190 ; Oliv. Fl. Trop. Afr. iii, (1877) 375.

HABITAT : II. Wasil, 1,000 m. (S. 1193 !); Wady Djara near Gunfude in fields (Ehrenb.).

FL. : Feb. 1889 (S.).

FR. : Feb. 1889 (S.), Feb. (Ehrenb.).

DISTRIB. : Senegambia, Abyssinia, Arabia.

2. *B. latifolia* DC. in Wight Contrib. 17 ; Prodr. v, (1836) 492 ; Hook. f. Fl. Brit. Ind. iii, (1881) 305.—*B. rhomboidea* Cass. Dict. Sc. Nat. xxix, 494 ; Oliv. Fl. Trop. Afr. iii, (1877) 375.

HABITAT : II. Trop. Arabia (ex Oliver).

DISTRIB. : Kordofan, Abyssinia, Zambesi, Arabia, Tropical Asia, Australia, America.

### 40. *Wedelia* Jacq.

1. *W. abyssinica* Vatke in Oesterr. Bot. Zeitschr. (1875) 327 ; Oliv. Fl. Trop. Afr. iii, (1877) 377 ; Defl. Yemen (1889) 153.

HABITAT : II. Near Ibb, 1,800 m. (Defl. 660 !).

DISTRIB. : Abyssinia, Arabia.

### 41. *Bidens* L.

1. *B. pilosa* L. Sp. Pl. (1753) 832 ; Oliv. Fl. Trop. Afr. iii, (1877) 392 ; Defl. Yemen (1889) 153.—*B. abyssinica* Sch.-Bip. in Walp. Rep. vi, 167.

HABITAT : II. Near Wasil, 1,000 m. (Defl. 231 !); near Manakhah, 2,200 m. (Defl. 428).

DISTRIB. : Cosmopolitan in hot countries.

42. *Chrysanthellum* Rich.

1. *C. sp.*—*Bidens apiifolia* Forsk. Fl. Aeg.-Arab. (1775) CXIX, n. 481.

HABITAT : II. Hadiyah (Forsk.).

Vern. name : *sis* (Forsk.).

43. *Anacyclus* L.

1. *A. alexandrinus* Willd. Sp. Pl. iii, 2173 ; Boiss. Fl. Or. iii, (1875) 322 ; Musch. Fl. Eg. ii, (1912) 1005.—*Santolina terrestris* Forsk. Fl. Aeg.-Arab. (1775) LXXIII, n. 435 and p. 147.

HABITAT : I. Arabia Petraea (ex Musch.).

DISTRIB. : N. Africa, Arabia Petraea.

44. *Achillea* L.

1. *A. arabica* Kotschy in Sitzb. Kais. Akad. Wiss. lii, (1866) 5, t. I. B.

HABITAT : II. Between Jiddah and the boundaries of Asyr (ex Kotschy).

DISTRIB. : Endemic.

2. *A. auriculata* Willd. Sp. Pl. iii, 2203.—*A. semipectinata* Desf. Cat. Herb. Par. (1829) 403 ; DC. Prodr. vi, 27 ; Schenk Sp. Pl. it. Aeg. Arab. & Syr. (1840) n. 176.—*A. aegyptiaca* Hort.

HABITAT : I. Desert of Sinai (ex Schenk).

DISTRIB. : Orient.

3. *A. fragrantissima* Sch.-Bip. in Flora, xxxviii, 13 ; Boiss. Fl. Or. iii, (1875) 272 ; Post Fl. Syr. etc. (1896) 430.—*Santolina fragrantissima* Forsk. Fl. Aeg.-Arab. (1775) LXXIII, n. 436 and p. 147 .

HABITAT : I. Foot of Mt. Sinai (Bové 105 ! Schimp. 382 ! ex Boiss.) ; Sinai to Coelesyria (ex Post).

DISTRIB. : Egypt, Arabia Petraea, Palestine, Syria, Mesopotamia.

Vern. name : *Keysum*, *Babouneg*, *Gjasum* (ex Boiss.), *Gazoum* (Bové), *Keisum gebeli* (Forsk.), *Qaisán*, *Babúniy*, *Bu'aiterán* (Post).

NOTE : For medical uses see Forsk. l. c.

4. *A. Santolina* L. Sp. Pl. (1753) 896 ; Del. Frag. Fl. Arab. Petr. (1833) n. 45 ; Dene. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 264 ; Boiss. Fl. Or. iii, (1875) 266.

HABITAT : I. Cultiv. ground near St. Catherine (Bové 99 !); Arabia Petraea (De Laborde).

FL. : June 1832 (Bové).

DISTRIB. : N. Africa, Egypt, Arabia Petraea, Palestine, Syria, Asia Minor, Persia.

Vern. name : *Rebey-el-ghebel* (Bové).



45. *Diotis* Desf.

1. *D. maritima* Smith Engl. Fl. iii, 403; Boiss. Fl. Or. iii, (1875) 253; Post Fl. Syr. etc. (1896) 430; Musch. Fl. Eg. ii, (1912) 1007.

HABITAT : I. Arabia Petraea (ex Musch.).

DISTRIB. : Europe, Mediterranean region.

Vern. name : *Hashishat-er-Rih* (Post).

46. *Anthemis* L.

1. *A. Chia* L. Sp. Pl. (1753) 894; Boiss. Fl. Or. iii, (1875) 311 Post Fl. Syr. etc. (1896) 435; Musch. Fl. Eg. ii, (1912) 1003.

HABITAT : I. Arabia Petraea (ex Musch.).

DISTRIB. : Italy, Greece, Egypt, Arabia Petraea, Syria, Asia Minor.

2. *A. Cotula* L. Sp. Pl. (1753) 894; Boiss. Fl. Or. iii, (1875) 315; Post Fl. Syr. etc. (1896) 435.

HABITAT : I. Arabia Petraea (ex Post).

II. Jiddah (Zohrab 70 !).

DISTRIB. : Europe, Mediterranean region, Arabia, Caucasus, Siberia.

Vern. name : *Fuss-el-kiláb, Qahwán* (Post).

3. *A. deserta* Boiss. Fl. Or. iii, (1875) 305; Post. Fl. Syr. etc. (1896) 434; Kneuck. in Allg. Bot. Zeitsch. ix, (1903) 148; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 124.—*A. peregrina* DCne. Fl. Sin. in Ann. Sc. Nat. ser. 2 ii, (1834) 264 (*non L.*).

HABITAT : I. Arabia Petr.: Ras Hamam (Schimp. 399!); Wady Ramleh, between Tor and Mt. Sinai (ex nota in H. K. !); Wady Ramleh (Bové 102!); Wady es Shaikh (Kneuck.); N., Central and S. Midian (Burton!).

FL. : Mar. 1835 (Schimp.), June 1832 (Bové).

FR. : Mar. 1835 (Schimp.), June 1832 (Bové).

DISTRIB. : Egypt, Arabia.

Vern. name : *Rébégan* (Bové), *Qurbayan* (Post), *Erebeijan* (Schimp.).

NOTE : Eaten by camels (Burton).

4. *A. melampodina* Del. Fl. d' Eg. 351, t. 45, f. 1; Boiss. Fl. Or. iii, (1875) 309; Post Fl. Syr. etc., (1896) 434.

HABITAT : I. Arabia Petraea (McDonald ! Pinard !); Sinai (Auch.-Eloy 3264 !); Sinai to Egypt (ex Post).

IV. In the neighbourhood of Kuwait (Pelly !).

Fl. : Feb. (Pelly).

DISTRIB. : Egypt, Arabia, Palestine.

Vern. name : *Qurbayán* (Post).

5. *A. microsperma* Boiss. & Kotschy Diagn. Pl. Or. ser. 2, v, 108 ; Fl. Or. iii, (1875) 298 ; Post Fl. Syr. etc. (1896) 433.

HABITAT : I. Arabia Petraea (ex Post).

DISTRIB. : Egypt, Arabia Petraea.

6. *A. philistea* Boiss. Fl. Or. iii, (1875) 302 ; Post Fl. Syr. etc. (1896) 433.

HABITAT : I. Arabia Petraea (ex Post).

DISTRIB. : Arabia Petraea, Palestine.

7. *A. retusa* Del. Ill. Fl. d'Eg. (1813) 105 (*non Link*).—*A. Kahurica* Vis. Pl. Aeg. p. 36, t. 6 ; Boiss. Fl. Or. iii, (1875) 316 ; Post Fl. Syr. etc. (1896) 436.

HABITAT : I. Convent of St. Catherine (Boiss. !).

DISTRIB. : Egypt, Arabia Petraea.

8. *A. rotata* Boiss. Fl. Or. iii, (1875) 318 ; Post Fl. Syr. etc. (1896) 436.—*A. arvensis* VAR. *incrassata* Aschers.-Schweinf. in Aschers.-Schweinf. Ill. Fl. Eg. 90, n. 560 (*non Boiss.*).

HABITAT : I. Arabia Petraea (Boiss.); Sinai to Egypt (ex Post).

DISTRIB. : Cyrenaica, Egypt, Arabia Petraea, Cyprus.

9. *A. odontostephana* Boiss. Diagn. Pl. Or. ser. 1, vi, 85 ; Fl. Or. iii, (1875) 319 ; Carter in Rec. Bot. Surv. Ind. vi, (1918) 203.

HABITAT : IV. Zor Hills (Cox 37).

DISTRIB. : Sind, Punjab, Baluchistan, Afghanistan, Persia, Arabia.

Vern. name : *Chahwiyān* (Cox).

"It is common especially in the sand hills but grows everywhere out of the swamps. Grazing animals feed on it but not very freely". (Cox).

#### 47. *Chrysanthemum* L.

1. *C. coronarium* L. Sp. Pl. (1753) 890 ; Boiss. Fl. Or. iii, (1875) 336 ; Post Fl. Syr. etc. (1896) 438.

HABITAT : I. Wady Raphidim (Schimp. 96!).

DISTRIB. : Mediterranean region.

Vern. name : *Adharyān* (Post).

#### 48. *Pyrethrum* Gaertn.

1. *P. santolinoides* DC. in Dene. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 264 ; Boiss. Fl. Or. iii, (1875) 353 ; Post Fl. Syr. etc. (1896) 439.—*Santolina sinaitica* Fres. Mus. Senck. 83.—*Tanacetum sinaicum* Del. ex Dene. l. c.

HABITAT: I. Desert of Sinai (Bové 96! Schimp. 315! Botta); Sinai 6,500 ft. (Rüppell).

FL.: May (ex Post).

DISTRIB.: Endemic.

Vern. name: *Meur* (ex Boiss.), *Murr* (Post).

#### 49. *Matricaria* L.

1. *M. aurea* Boiss. Fl. Or. iii, (1875) 324; Post Fl. Syr. etc. (1896) 440.—*Cotula aurea* L. Sp. Pl. (1762) 1257.

HABITAT: I. Arabia Petraea (Boiss.! Pinard).

FL.: Mar. 1846 (Boiss.).

FR.: Mar. 1846 (Boiss.).

DISTRIB.: Mediterranean region, Mesopotamia, Persia.

Vern. name: *Bdbānij* (Post).

2. *M. auriculata* Musch. Fl. Eg. ii, (1912) 1011.—*Chamaemelum auriculatum* Boiss. Diagn. Pl. Or. ser. 1, xi. 23; Fl. Or. iii, (1875) 327; Post Fl. Syr. etc. (1896) 437.

HABITAT: I. Arabia Petraea (Boiss.!); Et-Tih (ex Post).

DISTRIB.: Egypt, Arabia Petraea, Palestine.

3. *M. sp.* ex Carter in Rec. Bot. Surv. Ind. vi, (1918) 203.

HABITAT: IV. Zor Hills (Cox 7).

Vern. name: *Gargas*, *Garais* (Cox).

For uses see Carter l. c.

#### 50. *Cotula* L.

1. *C. cinerea* Del. Ill. Fl. d'Eg. (1813) 131, t. 47, f. 4; Dene. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 255.—*Brocchia cinerea* Vis. Pl. Aeg. 35; Boiss. Fl. Or. iii, (1875) 358; Post Fl. Syr. etc. (1896) 440; Musch. Verb. Bot. Ver. Prov. Brandent. xlix, (1907) 124.

HABITAT: I. Wady Nasb (Lord!); Et Tih to Sinai (ex Post); Wady Ghurundel (Hart!); Desert of Tor (Bové 103!); Arabia Petraea (Boiss.!); Jebel Hammam-Sidna-Musa, Jebel Nakus, Desert Ka'a (Musch.).

FL.: Apr. 1868 (Lord), June 1832 (Bové).

FR.: Apr. 1868 (Lord), June 1832 (Bové).

DISTRIB.: N. Africa, Nubia, Egypt, Arabia Petraea.

Vern. name: *rubian* (ex Boiss.), *Afrach*, *Sekrán*, *Qurbayán* *Qurbiyán* (Post).

#### 51. *Artemisia* L.

1. *A. Abrotanum* L. Sp. Pl. (1753) 845; Defl. Yemen (1889) 153.

HABITAT: II. Between Sanah and Raudha, 2,300 m. (Defl. 499).

DISTRIB.: Europe, temperate Asia.

2. *A. abyssinica* Sch.-Bip. in Herb. Schimp. Abyss. sect. III, n. 1862; Rich. Fl. Abyss. i, (1847) 420; Oliv. Fl. Trop. Afr. iii, (1877) 400. — *A. pontica* Forsk. Fl. Aeg.-Arab. (1775) CXIX, n. 489.

HABITAT: II. Cultivated in the plains and mountains of Yaman (Forsk.).

DISTRIB.: Abyssinia, Yaman.

Vern. name: *Baetran*, *Ghobaejre*, *Rand* (Forsk.).

3. *A. arborescens* L. Sp. Pl. (1762) 1188; Boiss. Fl. Or. iii, (1875) 372; Post Fl. Syr. etc. (1896) 441; Krause in Engl. Bot. Jahrb. xxxv, (1905) 737.

HABITAT: II. Near Lahaj (Busse).

DISTRIB.: Mediterranean region, Arabia.

Vern. name: *athalán*, *ibser* (Ellenbeck).

4. *A. Herba alba* Asso. Syn. Stirp. Arag. (1779) 117, t. 8, f. 1; Boiss. Fl. Or. iii, (1875) 365; Post Fl. Syr. etc. (1896) 440; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 125.

HABITAT: I. Wady er-Raha (Holland!); Wady Barak and Wady Lebweh (Hart!); Wady es Sle, Wady Hebran, Jebel Hammam-Sidna-Musa (Musch.).

DISTRIB.: Canaries, N. Africa, Arabia Petraea, Palestine, Syria, Persia, Afghanistan.

Vern. name: *ghorérad* (Musch.), *shih*, *ghureirah* (Post).

5. *A. judaica* L. Amoen. ii, (1756) 463; Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 265; Schenk Sp. Pl. it. Aeg. Arab. & Syr. (1840) n. 180; Boiss. Fl. Or. iii, (1875) 371; Post Fl. Syr. etc. (1896) 441; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 124.

HABITAT: I. Sinai: Om Shomer (Drake 38!); Desert of Suez and Sinai (Bové 98!); Wady Shaikh (Schimp. 128! Rüppell); Sinai to Egypt (ex Post); Arabia Petraea (Pinard! McDonald!); Desert of Ka'a (Musch.); all over the Sinai Peninsula (Kneuck.).

FL.: Mar. 1877 (S.), Apr. 1835 (Schimp.), June 1832 (Bové).

FR.: Mar. 1877 (S.), Apr. 1835 (Schimp.), June 1832 (Bové).

DISTRIB.: Egypt, Arabia Petraea.

Vern. name: *Berterann*, *Baskarann* ou *chejh* (Bové), *Bu'laiterán* (Post).

*Baätheran* (Schimp.), "*schyh*" of Genes. II, 5—XXI, 5, the "*schib*" of Holy Abbas and of Avicenna (Musch.).

Note: The Bedouins put branches of this plant into the nose of the camel in order to prevent the camel-fly from laying its eggs in the nostrils of the animal (Kneuck.).

Arabian wormwood from whence worm powder.

6. *A. monosperma* Del. Fl. Eg. 120, t. 43, f. 1; Boiss. Fl. Or. iii, (1875) 368; Post Fl. Syr. etc. (1896) 440; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 124.—*A. Delileiana* Bess. Suppl. 39.—*Oligosporus monospermus* Dcne. Pl. Bov. n. 172.

HABITAT: I. Coast of Et-Tih and Sinai (ex Post); in the neighbourhood of Tor (Bové 108!).

FL.: Dec. 1832 (Bové).

FR.: Dec. 1832 (Bové).

DISTRIB.: Egypt, Arabia Petraea, Palestine, Syria.

Vern. name: *adeh* (Bové), *lallel* (Musch.), *adah* (Post).

### 52. *Cineraria* L.

1. *C. abyssinica* Sch.-Bip. in Herb. Schimp. Abyss. i, n. 335; Rich. Fl. Abyss. i, (1847) 433; Oliv. Fl. Trop. Afr. iii, (1877) 404; Defl. Yemen (1889) 153.

HABITAT: II. Near Yerim, 2,500 m. (Defl.); round Taez (Botta).

DISTRIB.: Abyssinia, Arabia.

2. *C. Schimperii* Sch.-Bip. in Herb. Schimp. Abyss. i, n. 184; Oliv. Fl. Trop. Afr. iii, (1877) 404; Defl. Yemen (1889) 153.—*Senecio lyratipartitus* Schultz l.c. iii, n. 1843; Rich. Fl. Abyss. i, (1847) 439.

HABITAT: II. Wasil, 1,400 m. (S.1131!); near Manakhah 2,000 m. (Defl. 431!); round Hes and Taez (Botta).

FL.: Feb. 1889 (S.).

FR.: Feb. 1889 (S.).

DISTRIB.: Abyssinia, Arabia.

### 53. *Emilia* Cass.

1. *E. sonchifolia* DC. Prodr. vi, 302; Oliv. Fl. Trop. Afr. iii, (1877) 405.—*Cacalia sonchifolia* L. Sp. Pl. (1753) 835; Forsk. Fl. Aeg.-Arab. (1775) CXIX; n. 485.

HABITAT: II. Hadiyah (Forsk.).

DISTRIB.: Asia and tropical Africa, Arabia.

Vern. name: *Saela*, *Oud el kârah* (Forsk.).

### 54. *Notonia* DC.

1. *N. obesa* Defl. in Bull. Soc. Bot. France, xliii, (1896) 108.

HABITAT: II. Top of Jebel el Areys (Defl.!).

DISTRIB.: Endemic.

2. *N. semperviva* Aschers. in Schweinf. Beitr. Fl. Aethiop. 152, n. 792; Defl. Yemen (1889) 153.—*Cacalia semperviva* Forsk. Fl. Aeg.-Arab.

(1775) CXIX, n. 484 and p. 146.—*C. sempervirens* Vahl Symb. Bot. iii, (1794) 92.—*N. trachycarpa* Kotschy in Pl. Binder (1866) 21, t. 8; Oliv. Fl. Trop. Afr. iii, (1877) 408.

HABITAT: II. Near Sanah, 2,400—2,600 m. (Defl. 475!); near Boka (Forsk.).

DISTRIB.: Abyssinia, Arabia.

#### 55. *Senecio* L.

1. *S. auriculatus* Vahl. Symb. Bot. i, (1790) 72, t. 18.—*S. lyratus* Forsk. Fl. Aeg.-Arab. (1775) CXIX, n. 497 and p. 148 (*non L. neque DC.*).

HABITAT: II. Hadiyah, Barah (Forsk.).

DISTRIB.: Endemic.

Vern. name: *Mekatkat, horimrim* (Forsk.).

2. *S. biflorus* Vahl Symb. Bot. i, (1790) 72.—*S. linifolius* Forsk. Fl. Aeg.-Arab. (1775) CXIX, n. 502.

HABITAT: II. Djobba (Forsk.).

DISTRIB.: Endemic.

3. *S. bipartitus* Sch.-Bip. ex Defl. Yemen (1889) 155, nomen.

HABITAT: II. Between Hes and Taez (Botta).

DISTRIB.: Arabia.

4. *S. coronopifolius* Desf. Flor. Atlant. ii, (1798) 273; Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 266; Boiss. Fl. Or. iii, (1875) 390; Carter in Rec. Bot. Surv. India vi, (1918) 203.—*S. squalidus* Forsk. Fl. Aeg.-Arab. (1775) LXXIII, n. 447 (*non L.*).

HABITAT: I. Foot of Mt. Sinai (Schimp.); neighbourhood of Tor (Bové!); Wady es Sle, Oasis Feiran, between Feiran and Mahara (Kneuck.).

IV. Zor Hills (Cox 25); common on the sand hills near Ras Sandlafa (Cox).

DISTRIB.: Mediterranean region, Siberia, Tibet, Western Himalayas.

Vern. name: *Qurdi, jerfir, murier* (Post), zimloog (Cox).

5. *S. flavus* Sch.-Bip. in Webb & Benth. Phyt. Canar. iii, (1847) 317.—*S. Decaisnei* DC. Prodr. iii, 342; Boiss. Fl. Or. iii, (1875) 386; Post Fl. Syr. etc. (1896) 442; Kneuck. in Allg. Bot. Zeitsch. ix, (1903) 148.—*Crassocephalum flavum* Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 266.

HABITAT: I. Desert of Sinai (Bové!); Dead Sea to Sinai and Egypt (ex Post); Wady Shaikh, Wady Mokatteb, Wady Feiran (Schimp. 994! Boiss.); Desert Ka'a, Wady es Sle, Wady Tarfa, Wady es Shaikh, between Feiran and Mahara (Kneuck.).

DISTRIB. : Canaries, Algeria, Egypt, Arabia Petraea, Palestine, Persia, Afghanistan, Baluchistan.

Vern. name : *Richoub* (Bové), *Hammád-Baháyim*, *Murárah*, *a'ábi'el—' arús* (Post).

*f. subsimplex* Bornm. in Kneuck. l. c.

HABITAT : Kneucker found it in the same localities where he noted the type.

DISTRIB. : Endemic.

6. *S. hadiensis* Forsk. Fl. Aeg.-Arab. (1775) CXIX, n. 498 and p. 149, t. XIX ; Defl. Yemen (1889) 153.

HABITAT : II. Wasil 1,400 m. (S. 1218 !); round Hes and Taz (Botta) ; Jebel Masar 1,800—2,000m. (Defl. 396 !); near Yerim, 2,600 m. (Defl. 655) ; Hadiyah (Forsk.).

FL. : Feb. 1889 (S.).

FR. : Feb. 1889 (S.).

DISTRIB. : Endemic.

Vern. name : *Saela abjad*, *chodrab*, *Saela el bakar* (Forsk.), *Chosla*, *vel chàrrua* (S.).

7. *S. harazianus* Defl. Yemen (1889) 154.

HABITAT : II. Jebel Shibam, Wady Shurfa (S. 1574 !); Jebel Masar and Jebel Shibam, 2,400 m. (Defl. 329, 426 !).

FL. : Feb. 1889 (S.).

FR. : Feb. 1889 (S.).

DISTRIB. : Endemic.

8. *S. kleinioides* ? Oliv. & Hiern in Oliv. Fl. Trop. Afr. iii, (1877) 421.

HABITAT : III. Mukalla (Hirsch 60).

DISTRIB. : Abyssinia, Arabia ?

Note : Specimen incomplete.

9. *S. odoratus* Defl. Yemen (1889) 155.—*Cacalia odora* Forsk. Fl. Aeg.-Arab. (1775) CXIX, n. 483 and p. 146 ; A. Berger in Monatschr. Kakt. (1905) 38.—*S. Scottii* Balf. f. in Proc. Roy. Soc. Edin. xi, (1882) 841, t. XL.—*Kleinia odora* DC. Prodr. vi, 339.—*S. Forskalii* Baill. Hist. Pl. viii, 308.

HABITAT : II. Near Sanah, 2,300 m. (Defl. 543) ; near Wasil, 1,000—1,200 m. (Defl. 241) ; Wasil, 1,300 m. (S. 1100 !); round Taz (Botta) ; Hadiyah (Forsk.).

III. Hadramaut (Hirsch 13).

FL. : Feb. 1889 (S.).

FR. : Feb. 1889 (S.).

DISTRIB. : Arabia, Socotra.....

Vern. name : *Edcher* (Forsk.), *Kéressab*, alias *Kohamm* (S.).

**10. *S. pendulus*** Defl. Yemen (1889) 155.—*Cacalia pendula* Forsk. Fl. Aeg.-Arab. (1775) CXIX, n. 482 and p. 145 ; Vahl Symb. Bot. iii, (1794) 90.—*Kleinia pendula* DC. Prodr. vi, 339.

HABITAT : II. Between Hes and Taez (Botta) ; Hadiyah (Forsk.).

DISTRIB. : Endemic.

Vern. name : *Kaad* (Forsk.).

NOTE : For medical uses see Forsk. l. c.

**11. *S. Schimperi*** Sch.-Bip. in Herb. Schimp. Abyss. sect. I, n. 144 et sect. II, n. 1880 ; Rich. Fl. Abyss. i, (1847) 435 ; Oliv. Fl. Trop. Afr. iii, (1877) 412.

HABITAT : II. Wasil, 1,300 m. (S. 1106 !) ; between Hes and Taez (Botta).

FL. : Feb. 1889 (S.).

FR. : Feb. 1889 (S.).

DISTRIB. : Abyssinia, Arabia.

Vern. name : *gúrrere* (S.).

**12. *S. subscandens*** Hochst. Herb. Schimp. Abyss. sect. III, n. 1926 ; Rich. Fl. Abyss. i, (1847) 434 ; Oliv. Fl. Trop. Afr. iii, (1877) 421.

HABITAT : II. Wasil, Wady Hejan, 1,000 m. (S. 1266 !) ; between Hes and Taez (Botta).

FL. : Feb. 1889 (S.).

FR. : Feb. 1889 (S.).

DISTRIB. : Mozambique, Abyssinia, Yaman.

Vern. name : *Charrua* (S.).

**13. *S. Sumarae*** Defl. Yemen (1889) 154.

HABITAT : II. Jebel el Sumara, 2,500 m. (Defl. 648).

DISTRIB. : Endemic.

**14. *S. vernalis*** Waldst. & Kit. Pl. Rar. Hung. i, 23, t. 24 ; Boiss. Fl. Or. iii, (1875) 389 ; Post Fl. Syr. etc. (1896) 442.

HABITAT : I. Arabia Petraea (ex Post).

DISTRIB. : Europe, N. Africa, E. Mediterranean region, Persia.

#### 56. *Euryops* Cass.

**1. *E. arabicus*** Steud in Schimp. Pl. n. 852 ; Jaub. & Sp. Ill. Pl. Or. t. 355 ; Kotschy in Sitzb. Kais. Akad. Wiss. lii, (1866) 6 ; Boiss. Fl. Or.



iii, (1875) 415 ; Defl. Yemen (1889) 156.—*Caraea pinifolia* Hochst. ex Oliv. Fl. Trop. Afr. iii, (1877) 423.

HABITAT : II. Jebel Cara and near Tayfa (Schimp. 852!) ; near Sanah 2,700 m. (Defl. 471!) ; near Beytadran, 2,500 m. (Defl. 567) ; near Dhamar, 2,400 m. (Defl. 636) ; Hijaz (ex Kotschy) ; neighbourhood of Aden (Hunter 262!).

IV. Masqat : Jebel Akhadhar (Auch.-Eloy 4712!).

FL. : Dec. 1835 (Schimp.).

FR. : Dec. 1835 (Schimp.).

DISTRIB. : Endemic.

NOTE : For iconomic uses see Defl. 156.

### 57. *Calendula* L.

1. *C. aegyptiaca* Desf. Cat. Hort. Paris (1804) 100 ; Boiss. Fl. Or. iii, (1875) 419 ; Post Fl. Syr. etc. (1896) 444 ; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 125.

HABITAT : I. Arabia Petraea (McDonald ! Boiss.!) ; N. & C. Midian (Burton!).

II. Manakhah, in lucerne, 2,500 m. (S. 1474!).

IV. Neighbourhood of Kuwait (Pelly!).

FL. : Feb. 1889 (S., Pelly).

FR. : Feb. 1889 (S.).

DISTRIB. : Mediterranean region.

Vern. name : *tobb' ainy*, *muttén*, *aïn esch-schems* (Aschers.), *Kableh* (Post).

2. *C. arvensis* L. Sp. Pl. (1762) 1303 ; Del. Frag. Fl. Arab. Petr. (1833) n. 43 ; Boiss. Fl. Or. iii, (1875) 418 ; Post Fl. Syr. etc. (1896) 444 ; Carter in Rec. Bot. Serv. Ind. vi, (1918) 204.

HABITAT : I. Between Akaba and Suez (Milne!) ; Arabia Petraea (McDonald ! De Laborde!).

IV. Neighbourhood of Kuwait (Pelly!) ; Zor Hills (Cox 6), grows everywhere except in the swamps (Cox).

FL. : Jan. 1874 (Milne).

FR. : Jan. 1874 (Milne).

DISTRIB. : Europe, Canaries, N. Africa, Arabia, Palestine, Syria, Persia

Vern. name : *Hanwa* (Cox).

Camels feed on it, but the Bedouins believe that it is fatal to camels to eat much of this plant (Cox).

3. *C. persica* C. A. Mey. Enum. 72 ; Boiss. Fl. Or. iii, (1875) 418 ; Post Fl. Syr. etc. (1896) 444.—*C. arvensis* M. B. Taur. Cauc. iii, 596 (*non L.*).

HABITAT : I. S. and W. borders of Et Tih (ex Post).

DISTRIB. : N. Africa, Egypt, Arabia Petraea, Palestine, Syria, Persia, Afghanistan.

### 58. *Tripteris* Less.

1. *T. Vaillantii* Dene. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 260; Kotschy in Sitzb. Kais. Akad. Wiss. lii, (1866) 6; Boiss. Fl. Or. iii, (1875) 420; Oliv. Fl. Trop. Afr. iii, (1877) 424; Defl. Yemen (1889) 157; Post Fl. Syr. etc. (1896) 445.—*T. cheiranthifolia* Sch.-Bip. in Herb. Schimp. Abyss. i, n. 345 and iii, n. 1480.

HABITAT : I. Nakkeb (Schimp. 384!); Mt. Hor and Petra (Hart!); Mt. Sinai (Bové).

II. Manakhah, 2,300-2,500 m. (S. 1415!); Wasil, 1,400 m. (S. 1346!); near Manakhah, 2,300 m. (Defl. 276, 376); Asyr (ex Kotschy).

FL. : Feb. 1889 (S.), June 1835 (Schimp.).

FR. : Feb. 1889 (S.), June 1835 (Schimp.).

DISTRIB. : Abyssinia, Somaliland, Arabia.

Vern. name : *Jahdab, Marrar* (S.).

### 59. *Gundelia* L.

1. *G. Tournefortii* L. Sp. Pl. (1753) 814; Boiss. Fl. Or. iii, (1875) 421; Post Fl. Syr. etc. (1896) 445; Musch. Fl. Eg. ii, (1912) 1020.

HABITAT : I. Arabia Petraea (ex Musch.).

DISTRIB. : Eastern Mediterranean, Persia.

Vern. name : *'akkáb, Ka'áb, Ku'aib* (Post).

### 60. *Echinops* L.

1. *E. glaberrimus* DC. ex Dene. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 260; Boiss. Fl. Or. iii, (1875) 427; Post Fl. Syr. etc. (1896) 446.—*E. spinosus* Bové exs. (*non* L.).

HABITAT : I. Mt. Sinai (Lord!); Wady Feiran (Lord!); Desert of Sinai (Bové 112!); Arabia Petraea (McDonald! Schimp. 267!); Et Tih (ex Post).

FR. : May 1868 (Lord), June 1832 (Bové).

DISTRIB. : Egypt, Arabia Petraea.

Vern. name : *Khashir* (Post).

NOTE : The only plant growing on the boulders of granite (Lord).

2. *E. spinosus* L. Mant. i, (1767) 119; Boiss. Fl. Or. iii, (1875) 429; Oliv. Fl. Trop. Afr. iii, (1877) 431; Defl. Yemen (1889) 157; Post Fl. Syr. etc. (1896) 446.—*Echinops* Forsk. Fl. Aeg.-Arab. (1775) CXIX, n. 480.

HABITAT : I. Central and S. Midian (Burton !).

II. Manakhah, 2,000 m. (S. 1533 ! 1733 ! Defl. 379) ; round Sanab, Kaukaban, Amran (Defl.).

III. Dhofar Mts., 2,000 ft. (Bent 188 !).

FL. : Feb. 1889 (S.).

FR. : Feb. 1889 (S.), Apr. 1878 (S.).

DISTRIB. : Abyssinia, Egypt, Arabia, Syria.

Vern. name : *diirdama* (Forsk.), *Shauk-el-Jemâl* (Post).

NOTE : Eaten by camels, sheep and asses (Burton).

### 61. *Atractylis* L.

1. *A. cancellata* L. Sp. Pl. (1753) 830 ; Boiss. Fl. Or. iii, (1875) 452 ; Post Fl. Syr. etc. (1896) 450.

HABITAT : II. Top of Mt. Sidr (Fischer 30 ! Schimp. 979 !).

FL. : Mar. (Fischer).

FR. : Mar. 1836 (Schimp.).

DISTRIB. : E. Mediterranean region, Arabia, Persia.

2. *A. flava* Desf. Fl. Atlant. ii, 254 ; Boiss. Fl. Or. iii, (1875) 452 ; Post Fl. Syr. etc. (1896) 450. — *Centaurea Carduus* Forsk. Fl. Aeg.-Arab. (1775) LXXIV, n. 467 and p. 152.

HABITAT : I. Ain Musa (Hart !); Desert of Sinai (Auch.-Eloy 3399 !); Wady Ghurundel (Boiss.) ; El Araba to Sinai and Egypt (ex Post) ; Wady Werdan (Kneuck.).

DISTRIB. : N. Africa, Arabia Petraea, Baluchistan.

Vern. name : *akeish*, *khosheráf* (Post).

VAR. *citrina* Musch Fl. Eg. ii, (1912) 1024. — *A. flava* VAR. *glabrescens* Boiss. l.c. ; Post l.c. — *A. citrina* Coss. & Kral. in Bull. Soc. Bot. France, iv, (1857) 361.

HABITAT : I. Arabia Petraea (Boiss. !); Wady Aleyat, ca. 650-750 m. (Kneuck.).

DISTRIB. : Egypt, Arabia Petraea.

3. *A. prolifera* Boiss. Diagn. Pl. Or. ser. 1, x, 96 ; Fl. Or. iii, (1875) 452 ; Post Fl. Syr. etc. (1896) 450.

HABITAT : I. Arabia Petraea (Boiss. !); N. borders of Et-Tih (ex Post).

FL. : Apr. (Boiss.).

FR. : Apr. (Boiss.).

DISTRIB. : N. Africa, Arabia Petraea, Palestine.

4. *A. serratuloides* Sieb. ex Cass. Dict. 1, 58; Boiss. Fl. Or. iii, (1875) 453; Post Fl. Syr. etc. (1896) 450.—*Acarua serratuloides* Spreng. Syst. iii, 379; Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 259.

HABITAT: I. Neighbourhood of Sinai (Bové!).

DISTRIB.: N. Africa, Sinai, Palestine.

### 62. *Carduus* L.

1. *C. argentatus* L. Mant. 280; Boiss. Fl. Or. iii, (1875) 522; Post Fl. Syr. etc. (1896) 452; Musch. Fl. Eg. ii, (1912) 1026.

HABITAT: I. Arabia Petraea (ex Musch.).

DISTRIB.: Greece, Asia Minor, Syria, Palestine, Arabia Petraea, Egypt, Mesopotamia.

2. *C. pycnocephalus* Jacq. Hort. Vind. i, 17, t. 44; Boiss. Fl. Or. iii, (1875) 520; Post Fl. Syr. etc. (1896) 453; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 126.

VAR. *arabicus* Boiss. l. c.; Post l. c.—*C. arabicus* Jacq. Coll. i, 56, t. 166.

HABITAT: I. Cultiv. ground of Sinai (Bové 106!); Wady Arbain, 5,000 ft. (Rüppell); Arabia Petraea (Schimp. 130! Boiss.).

FR.: June 1832 (Bové).

DISTRIB.: Of species: Mediterranean region.

Vern. name: *Hossiref* (Bové).

### 63. *Cnicus* L.

1. *C. lanceolatus* Willd. Fl. Berol. Prodr. (1787) 259; Oliv. Fl. Trop. Afr. iii, (1877) 435; Defl. Yemen (1889) 157.—*Cirsium abyssinicum* Sch.-Bip. Herb. Schimp. Abyss. ii, n. 1321; Rich. Fl. Abyss. i, (1847) 456.

HABITAT: II. Round Sanah and Raudha, 2,300 m. (Defl. 501!).

DISTRIB.: Europe, N. Africa, Abyssinia, Arabia, temperate Asia.

### 64. *Onopordon* L.

1. *O. ambiguum* Fres. Mus. Senck. i, (1833) 85; Boiss. Fl. Or. iii, (1875) 562; Post Fl. Syr. etc. (1896) 457.—*O. elongatum* Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 259 (*non DC.*).

HABITAT: I. Sinai Desert (Schimp. 356! Bové 113!); Sinai (Auch.-Eloy 3486! Holland!); Jebel Musa (Drake!); Wady Rim (Rüppell); Arabia Petraea (McDonald!).

FL.: May (Rüppell).

FR.: May 1835 (Schimp.), June 1832 (Bové).

DISTRIB.: Egypt, Arabia Petraea, Palestine, Syria.

Vern. name: *Hogeref* (Bové).

2. *O. Sibthorpiatum* Boiss. et Heldr. in Pl. Graec. exs.; Fl. Or. iii, (1875) 561; Defl. Yemen (1889) 157.

HABITAT: II. Round Sanah and Raudha, 2,300 m. (Defl. 496 ! 526).

DISTRIB.: E. Mediterranean region, Arabia.

VAR. *Alexandrinum* Boiss. l. c. 562; Post Fl. Syr. etc. (1896) 457.—

O. *Alexandrinum* Boiss. Diagn. Pl. Or. ser. 1, x, 93.

HABITAT: I. N. coast of Arabia Petraea (ex Post).

DISTRIB.: Egypt, Arabia Petraea, Palestine.

### 65. *Cynara* L.

1. *C. Cardunculus* L. Sp. Pl. (1753) 827; Boiss. Fl. Or. iii, (1875) 557; Musch. Fl. Eg. ii, (1912) 1028.

HABITAT: I. Arabia Petraea (ex Musch.).

DISTRIB.: Mediterranean region.

2. *C. Scolymus* L. Sp. Pl. (1753) 827; Defl. Yemen (1889) 225; Post Fl. Syr. etc. (1896) 458.

HABITAT: I. Arabia Petraea (ex Musch.).

II. Yaman, cultivated (Defl.).

DISTRIB.: Mediterranean region, cultivated elsewhere.

Vern. name: *ardi-shauki* (Post).

3. *C. Sibthorpiana* Boiss. & Heldr. Diagn. Pl. Or. ser. 1, x, 94; Fl. Or. iii, (1875) 557; Musch. Fl. Eg. ii, (1912) 1028.

HABITAT: I. Arabia Petraea (ex Musch.).

DISTRIB.: Egypt, Arabia Petraea, Greece.

### 66. *Silybum* Gaertn.

1. *S. Marianum* Gaertn. Fruct. ii, 378, t. 162, f. 2; Boiss. Fl. Or. iii, (1875) 556; Post Fl. Syr. etc. (1896) 458; Musch. Fl. Eg. ii, (1912) 1029.

HABITAT: I. Arabia Petraea (ex Musch.).

DISTRIB.: Europe, Canaries, N. Africa, Egypt, Arabia Petraea, Syria, Palestine, Mesopotamia, Persia.

### 67. *Crupina* Cass.

1. *C. crupinastrum* Vis. Fl. Dalmat. ii, 42, t. 51, f. 3; Boiss. Fl. Or. iii, (1875) 699; Post Fl. Syr. etc. (1896) 461.

HABITAT: I. Arabia Petraea (ex Post).

DISTRIB.: Mediterranean region.

68. *Volutarella* Cass.

1. *V. albicaulis* Defl. in Bull. Soc. Bot. France, xliii, (1896) 109.

HABITAT: II. Jebel el Areys, near Serrya (Defl. 860!).

FL.: Apr. 1893 (Defl.).

FR.: Apr. 1893 (Defl.).

DISTRIB.: Endemic.

69. *Zoegea* L.

1. *Z. purpurea* Fres. Mus. Senck. i, (1833) 86; Boiss. Fl. Or. iii, (1875) 698; Post Fl. Syr. etc. (1896) 461; Kneuck. in Allg. Bot. Zeitsch. ix, (1903) 148.

HABITAT: I. Arabia Petraea: Near Abu Mawad (Schimp. 109!); Arabia Petraea (McDonald! Boiss.); Wady Feiran (Lord!); Sinai Desert (Auch.-Eloy 3181!); Wady Aleyat (Kneuck.); Central Midian (Burton!).

FL.: May 1835 (Schimp.), May 1868 (Lord).

FR.: May 1835 (Schimp.), May 1868 (Lord).

DISTRIB.: Egypt, Arabia Petraea, Persia, Afghanistan, Baluchistan.

Uses: Eaten by cattle (Burton).

70. *Centaurea* L.

1. *C. aegyptiaca* L. Mant. 118; Boiss. Fl. Or. iii, (1875) 687; Post Fl. Syr. etc. (1896) 469.—*C. eriophora* Forsk. Fl. Aeg.-Arab. (1775) LXXIV, n. 465.

HABITAT: I. Wady Nasb (Drake! Lord!); Desert Tih (Boiss.); Arabia Petraea to Egypt and southward (ex Post).

IV. Desert of Masqat (Auch.-Eloy 4848!).

FL.: Apr. 1868 (Lord), May (ex Post).

FR.: Mar. 1846 (Boiss.), Apr. 1868 (Lord).

DISTRIB.: Egypt, Arabia, Palestine, Syria.

Vern. name: *Yamrūr* (Post).

2. *C. ammocyamus* Boiss. Diagn. Pl. Or. Ser. 1, x, 110; Fl. Or. iii, (1875) 640; Post Fl. Syr. etc. (1896) 464.

HABITAT: I. Arabia Petraea (Boiss.); N. borders of Et Tih (ex Post).

FL.: Apr. (Boiss.).

DISTRIB.: Arabia Petraea, Palestine.

3. *C. araneosa* Boiss. Diagn. Pl. Or. ser. 1, x, 121; Fl. Or. iii, (1875) 691; Post Fl. Syr. etc. (1896) 470.

HABITAT: I. Arabia Petraea (ex Post); Wady Aleyat (Kneuck.).

DISTRIB.: Arabia Petraea, Palestine, Syria.

4. *C. crupinoides* Desf. Flor. Atlant. ii, (1798) 293.—*Amberboa crupinoides* DC. Prodr. vi, 557; Boiss. Fl. Or. iii, (1875) 606; Post Fl. Syr. etc. (1896) 461.—*A. sinaica* DC. l. c. 559.

HABITAT : I. Sinai (Auch.-Eloy 3158!).

DISTRIB. : N. Africa, Nubia, Arabia Petraea, Palestine.

5. *C. dhofarica* Baker in Kew Bull. (1895) 192.

HABITAT : III. Hadramaut : Hafa (Bent 35!).

DISTRIB. : Endemic.

6. *C. dimorpha* Viv. Fl. Libyc. (1824) 58, t. 24, f. 3; Boiss. Fl. Or. iii, (1875) 692; Musch. Fl. Eg. ii, (1912) 1039.

HABITAT : I. Arabia Petraea (ex Musch.).

DISTRIB. : N. Africa, Egypt, Arabia Petraea.

7. *C. eryngioides* Lam. Dict. i, 675; Dene. Fl. Sin. in Ann. Sc. Nat. Ser. 2, ii, (1834) 259; Boiss. Fl. Or. iii, (1875) 659; Post Fl. Syr. etc. (1896) 465.—*Centaurea* Del. Frag. Fl. Arab. Petr. (1833) n. 42.—*Carduus eryngioides* P. Alpin. Exot. 158.

HABITAT : I. On the rocks of Sinai (Bové 107!); Wady Nasb (Drake 52!); near Senned (Drake!); Sinai (Auch.-Eloy 3149! Schimp. 327!); Mt. Sinai to Tor (Lord!); Arabia Petraea (Mc Donald!).

FL. : June 1832 (Bové), June 1868 (Lord).

FR. : Apr. 1877 (S.), May 1835 (Schimp.), June 1832 (Bové), June 1868 (Lord).

DISTRIB. : Egypt, Arabia Petraea, Palestine, Syria.

8. *C. Hochstetteri* Oliv. et Hiern Fl. Trop. Afr. iii, (1877) 438; Defl. Yemen (1889) 159.—*Amberboa abyssinica* Rich. Fl. Abyss. i, (1847) 453.

HABITAT : II. Jebel Nuqum and round Sanah, 2,400-2,600 m. (Defl. 473, 536).

DISTRIB. : Abyssinia, Yaman.

9. *C. Lippii* L. Sp. Pl. (1753) 910; Forsk. Fl. Aeg.-Arab. (1775) LXXIV, n. 464.—*Volutarella Lippii* Cass. in Dict. Sc. Nat. XLIV, (1826) 39.—*Amberboa Lippii* DC. Prodr. vi, 559; Boiss. Fl. Or. iii, (1875) 606; Post Fl. Syr. etc. (1896) 461.

HABITAT : I. Arabia Petraea (McDonald); Wady Hamme (Schimp. 211!); Desert of Suez (Bové 114!); Wady Gennah and neighbourhood (Lord!).

FL. : Mar. 1877 (S.), May 1868 (Lord)

FR. : Mar. 1835 (Schimp.), Mar. 1877 (S.), May 1868 (Lord), June 1832 (Bové).

DISTRIB. : Mediterranean region, Persia.

10. *C. maxima* Forsk. Fl. Aeg.-Arab. (1775) CXX, n. 512 and p. 152; Defl. Yemen (1889) 157.

HABITAT : II. Near Attara, 2,000 m. (Defl. 411 !); near Bauan, 2,800 m. (Defl.); top of Jebel Shibam, 2,800 m. (Defl. 338); Manakhah, 2,400—2,700 m. (S. 1422 !); Barah (Forsk.).

FL. : Feb. 1889 (S.).

FR. : Feb. 1889 (S.).

DISTRIB. : Endemic.

Vern. name : *Bogad*, *baejud*, *baeruad*, *mokar*, (Forsk.), *Ssenjam* (S.).

11. *C. pallescens* Del. Fl. Eg. 370, t. 49, f. 1; Boiss. Fl. Or. iii, (1875) 690; Defl. Yemen (1889) 158; Post Fl. Syr. etc. (1896) 470; Musch. Fl. Eg. ii, (1912) 1037.

HABITAT : I. Arabia Petraea (ex Musch.).

II. Jebel Nuqum, 2,400 m. (Defl. 454); round Sanah and Raudha, 2,300 m. (Defl. 535 !).

DISTRIB. : Egypt, Arabia, Palestine, Syria, Mesopotamia.

12. *C. Schimperii* DC. Prodr. vi, 596.

HABITAT : II. Yaman : Tayfa (Schimp. 829!).

FL. : Dec. 1835 (Schimp.).

FR. : Dec. 1835 (Schimp.).

DISTRIB. : Endemic.

13. *C. scoparia* DC. Prodr. vi, 596; Dene. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 259.—*Phaeopappus scoparius* Boiss. Fl. Or. iii, (1875) 602; Post Fl. Syr. etc. (1896) 472.

HABITAT : I. Arabia Petraea (McDonald !); Sinai (Lord ! Auch.-Eloy 3160 !); Desert of Sinai (Bové 94 !); foot of Mt. Sinai (Schimp. 417 ! 386 !); Mt. Sinai (Lord !).

FR. : Mar. 1876, 1877 (S.), May 1868 (Lord); June 1832 (Bové), July 1835 (Schimp.).

DISTRIB. : Egypt, Arabia Petraea.

Vern. name : *Bircan* (Bové), *Birkán* (Post).

14. *C. sinaica* DC. Prodr. vi, 592; Boiss. Fl. Or. iii, (1875) 687; Post Fl. Syr. etc. (1896) 469.

HABITAT : I. Sinai (Auch.-Eloy 3139 !); Sinai region (Schimp. 319 !); Dead Sea to Sinai (ex Post); N. and S. Midian (Burton !).



FL. : May 1835 (Schimp.).

FR. : May 1835 (Schimp.).

DISTRIB. : Arabia Petraea, Palestine.

Vern. name : *Yemrar* (Burton), *Mour* (Schimp.).

Note : Eaten by sheep, asses, etc. (Burton).

**15. C. solstitialis** L. Sp. Pl. (1753) 917 ; Boiss. Fl. Or. iii, (1875) 685 ; Post Fl. Syr. etc. (1896) 469.

HABITAT : I. Wady Feiran and neighbourhood (Lord !) ; Wady Gennah and neighbourhood (Lord !).

FR. : May 1868 (Lord).

DISTRIB. : Europe, Mediterranean region, Mesopotamia, Persia.

**16. C. virgata** Lam. Dict. i, 670 ; Boiss. Fl. Or. iii, (1875) 651.

HABITAT : Arabia (Forster in H. K. !).

DISTRIB. : E. Mediterranean region, Persia, Afghanistan.

## 71. *Carthamus* L.

**1. C. lanatus** L. Sp. Pl. (1753) 830 ; Boiss. Fl. Or. iii, (1875) 706 ; Post Fl. Syr. etc. (1896) 473 ; Musch. Fl. Eg. ii, (1912) 1040.

HABITAT : I. Arabia Petraea (ex Musch.).

DISTRIB. : Europe, Mediterranean region, Abyssinia.

Vern. name : *Qurtum* (Post).

**2. C. tinctorius** L. Sp. Pl. (1753) 830 ; Boiss. Fl. Or. iii, (1875) 709 ; Post Fl. Syr. etc. (1896) 474 ; Musch. Fl. Eg. ii, (1912) 1042.

HABITAT : I. Arabia Petraea (ex Post).

DISTRIB. : Cultivated in many countries.

Vern. name : *'Usfur*, *Za'farán* (Post).

NOTE : Cultivated everywhere for its flowerets, which are used as a dye in cooking (Post).

## 72. *Carduncellus* Adans.

**1. C. eriocephalus** Boiss. Diagn. Pl. Or. ser. 1, x, 100 ; Fl. Or. iii, (1875) 711 ; Post Fl. Syr. etc. (1896) 474 ; Kneuck. in Allg. Bot. Zeitsch. ix, (1903) 148.

HABITAT : I. Ghazah to Egypt (ex Post) ; Wady Werdan (Kneuck.).

DISTRIB. : N. Africa, Arabia Petraea, Palestine.

**2. C. kentrophylloides** Baker in Kew Bull. (1895) 182.

HABITAT : III. Dhofar Mts., 2,600 ft. (Bent 192 !).

DISTRIB. : Endemic.

73. *Dicoma* Cass.

1. *D. Schimperi* O. Hoffm. in Engl. Prantl. Natürl. Pflanzenfam. iv, 5, 339 ; Blatt. Fl. Aden (1915) 230.—*Hochstetteria Schimperi* DC. Coll. Mem. ix, 23, t. 6 ; Prodr. vii, 287 ; Boiss. Fl. Or. iii, (1875) 219 ; Oliv. Fl. Trop. Afr. iii, (1877) 444 ; Post Fl. Syr. etc. (1896) 474.

HABITAT : I. Arabia Petraea (ex Post).

II. Jiddah (Zohrab 147!) ; Wady Fatimah (Schimp. 864!) ; Mt. Sidr and Kesser (Fischer 36!) ; Aden (S. 52! Defl. 93! Hook. 76! Thomson!).

FL. : Feb. (Fischer), Feb. 1837 (Schimp.), Nov. 1889 (S.), Dec. 1847 (Hook.).

FR. : Feb. (Fischer), Feb. 1837 (Schimp.), Nov. 1889 (S.), Dec. 1847 (Hook.).

DISTRIB. : Nubia, Arabia, Baluchistan, Sind.

74. *Gerbera* Gronov.

1. *G. piloselloides* Cass. Dict. Sc. Nat. xviii, 461 ; Oliv. Fl. Trop. Afr. iii, (1877) 445.—*G. Schimperi* Sch.-Bip. in Herb. Schimp. Abyss. i, n. 185 ; Rich. Fl. Abyss. i, (1847) 458.

HABITAT : II. Above Manakhah, 2,500 m. (S. 1631!).

FL. : Mar. 1888 (S.).

DISTRIB. : Tropical and S. Africa, Arabia, India, China.

VAR. *yemensis* Defl. Yemen (1889) 159.—? *Arnica hirsuta* Forsk. Fl. Aeg.-Arab. (1775) CXX, n. 506 and 151.

HABITAT : II. Jebel Shibam, 2,600—2,800 m. (Defl. 310, 339!) ; round Hes and Taez (Botta).

DISTRIB. : Endemic.

75. *Scolymus* L.

1. *S. hispanicus* L. Sp. Pl. (1753) 813 ; Boiss. Fl. Or. iii, (1875) 713 ; Post Fl. Syr. etc. (1896) 475 ; Musch. Fl. Eg. ii, (1912) 1045.

HABITAT : I. Arabia Petraea (ex Musch.).

DISTRIB. : Canaries, Mediterranean region.

2. *S. maculatus* L. Sp. Pl. (1753) 813 ; Boiss. Fl. Or. iii, (1875) 713 ; Post Fl. Syr. etc. (1896) 474 ; Musch. Fl. Eg. ii, (1912) 1044.

HABITAT : I. Arabia Petraea (ex Musch.).

DISTRIB. : Mediterranean region, Kordofan, Nubia.

**76. Cichorium L.**

1. *C. Bottae* Defl. Yemen (1889) 159.

HABITAT: II. Round Sanah and Metne, 2,300—5,000 m. (Defl. 539!); district of Taifa (Botta).

DISTRIB.: Endemic.

2. *C. endivia* L. Sp. Pl. (1753) 813; Forsk. Fl. Aeg.-Arab. (1775) LXXII, n. 421; Defl. Yemen (1889) 225; Musch. Fl. Eg. ii, (1912) 1046.

HABITAT: I. Arabia Petraea (ex Musch.).

II. Yaman, cultivated (Defl.).

DISTRIB.: Europe, Mediterranean region, spontaneous and often cultivated.

3. *C. pumilum* Jacq. Observ. Bot. iv, 3, t. 80; Musch. Fl. Eg. ii, (1912) 1046.—*C. divaricatum* Schousb. Mar. 197; Boiss. Fl. Or. iii, (1875) 716; Post Fl. Syr. etc. (1896) 475.

HABITAT: I. Arabia Petraea (ex Post).

DISTRIB.: Mediterranean region.

Vern. name: *maqđ*, *Shikúrtyeh* (Post).

**77. Hyoseris L.**

1. *H. lucida* L. Mant. 103; Boiss. Fl. Or. iii, (1875) 718; Musch. Fl. Eg. ii, (1912) 1047.—*Lapsana taraxacoides* Forsk. Fl. Aeg.-Arab. (1775) LXXII, n. 419 and p. 145.

HABITAT: I. Arabia Petraea (ex Musch.).

DISTRIB.: Cyrenaica, Marinarica, Egypt, Arabia Petraea.

**78. Koelpinia Pall.**

1. *K. linearis* Pall. Itin. iii, App. (1776) 755; Boiss. Fl. Or. iii, (1875) 721; Post Fl. Syr. etc. (1896) 477; Carter in Rec. Bot. Surv. Ind. vi, (1918) 204.

HABITAT: I. Arabia Petraea (Schimp. 194! Boiss.); Sinai (ex Post); Wady Shaikh, between Feiran and Maghara (Kneuck.).

IV. Zor Hills (Cox 12).

DISTRIB.: Mediterranean region, Persia, Afghanistan, Baluchistan, W. India.

Vern. name: *Th'ilug*, *Lahyat ultais* (Cox).

**79. Rhagadiolus Juss.**

1. *R. stellatus* Willd. Sp. Pl. iii, 1625; Boiss. Fl. Or. iii, (1875) 722; Musch. Fl. Eg. ii, (1912) 1048.

HABITAT : I. Arabia Petraea (ex Musch.)

DISTRIB. : Mediterranean region.

### 80. *Hedypnois* Schreb.

1. *H. rhagadioloides* Willd. Sp. Pl. iii, 1617 ; Musch. Fl. Eg. ii, (1912) 1049.

HABITAT : I. Arabia Petraea (ex Musch.).

DISTRIB. : Mediterranean region.

### 81. *Picris* L.

1. *P. cyanocarpa* Boiss. Diagn. Pl. Or. ser. 1, xi, 37 ; Fl. Or. iii, (1875) 739 ; Post Fl. Syr. etc. (1896) 479.

HABITAT : I. Wady Mokatteb (Boiss. !) ; valleys of Sinai (ex Post) ; Central Midian (Burton !).

FL. : Mar.-Apr. (ex Post).

DISTRIB. : Endemic.

Vern. name : *haudhan* (Post).

2. *P. echioides* L. Sp. Pl. (1753) 792 ; Musch. Fl. Eg. ii, (1912) 1053. — *Helminthia echioides* Gaertn. De Fruct. ii, 368 ; Boiss. Fl. Or. iii (1875) 742 ; Post Fl. Syr. etc. (1896) 480.

HABITAT : I. Arabia Petraea (ex Musch.).

DISTRIB. : Europe, Canaries, N. Africa, Arabia Petraea.

3. *P. radicata* Less. Syn. 134 ; Boiss. Fl. Or. iii, (1875) 740 ; Post Fl. Syr. etc. (1896) 479. — *P. coronopifolia* DC. Prodr. vii, 131. — *Crepis radicata* Forsk. Fl. Aeg.-Arab. (1775) LXXII, n. 410 ; CXVIII, n. 479 and p. 145.

HABITAT : I. Arabia Petraea (Boiss. !) ; foot of Mt. Sinai (Schimp. 409 !).

FL. : Mar. 1846 (Boiss.), Apr. 1835 (Schimp.).

FR. : Mar. 1846 (Boiss.).

DISTRIB. : Egypt, Arabia Petraea, Palestine.

4. *P. Saharæ* Batt. in Batt. & Trab. Fl. de l'Alger. (1890) 545. — *Spitzelia Saharæ* Cass. & Kral. in Bull. Soc. Bot. France, iv, (1857) 367.

HABITAT : I. Wady Nasb (Drake 46 !); S. Midian : Wady Hami (Burton !).

FL. : Apr. 1878 (Burton).

FR. : Apr. 1878 (Burton).

DISTRIB. : N. Africa, Arabia.

5. *P. scabra* Forsk. Fl. Aeg.-Arab. (1775) CXVIII, n. 472 and p. 143.

HABITAT : II. Jebel Chadra (Forsk.).

DISTRIB. : Endemic.

Vern. name : *Myrrejr, murreir* (Forsk.).

6. *P. Sprengeriana* Lam. Dict. v, 310 ; Boiss. Fl. Or. iii, (1875) 738 ; Post Fl. Syr. etc. (1896) 479 ; Musch. Fl. Eg. ii, (1912) 1052.

HABITAT : I. Arabia Petraea (ex Musch.).

DISTRIB. : E. Mediterranean region, Mesopotamia.

VAR. *altissima* Aschers. & Schweinf. in Aschers. & Schweinf. Ill. Fl. d'Eg. (1887) 98, n. 635 ; Musch. l. c.

HABITAT : I. Arabia Petraea (ex Musch.).

DISTRIB. : Mediterranean region.

7. *P. strigosa* M. B. Flor. Taur. Cauc. ii, 250 ; Boiss. Fl. Or. iii, (1875) 736 ; Post Fl. Syr. etc. (1896) 478 ; Musch. Fl. Eg. ii, (1912) 1052.

HABITAT : I. Arabia Petraea (ex Musch.).

DISTRIB. : E. Mediterranean region, Persia.

8. *P. sulphurea* Del. Fl. Eg. 114, t. 40, f. 2 ; Boiss. Fl. Or. iii, (1875) 739 ; Post Fl. Syr. etc. (1896) 479.

HABITAT : I. Arabia Petraea (Boiss.) ; Sinai to Egypt (ex Post).

FL. : Feb.-Apr. (ex Post).

DISTRIB. : Egypt, Arabia Petraea.

## 82. *Crepis* L.

1. *C. arabica* Boiss. Fl. Or. iii, (1875) 853 ; Post Fl. Syr. etc. (1896) 482.  
—*Psammoseris arabica* Boiss. et Reut. Diagn. Pl. Or. ser. 1, xi, 52.

HABITAT : I. Arabia Petraea (Boiss.) ; Et-Tih (ex Post).

FL. : Apr. (ex Boiss.).

DISTRIB. : Endemic.

2. *C. aspera* L. Sp. Pl. (1753) 805 ; Boiss. Fl. Or. iii, (1875) 857 ; Post Fl. Syr. etc. (1896) 482.

HABITAT : I. Arabia Petraea (Boiss. !).

DISTRIB. : Arabia, Palestine, Syria, Mesopotamia.

3. *C. bifida* Musch. Fl. Eg. ii, (1912) 1068.—*Lagoseris bifida* Boiss. Fl. Or. iii, (1875) 881 ; Post Fl. Syr. etc. (1896) 482.

HABITAT : I. Arabia Petraea (Schimp. 409 ! Boiss., McDonald !); Wady Nasb (Drake 49 !); N. and Central Midian (Burton !).

FL. : Apr. 1835 (Schimp.).

FR. : Apr. 1835 (Schimp.).

DISTRIB. : Egypt, Arabia Petraea, Palestine, Syria, Asia Minor, Greece.

Vern. name : *haláwi* (Post).

4. *C. bulbosa* Tausch. Flora (1828) Erg. 78; Boiss. Fl. Or. iii, (1875) 833; Post Fl. Syr. etc. (1896) 480; Musch. Fl. Eg. ii, (1912) 1066.

HABITAT: I. Arabia Petraea (ex Musch.).

DISTRIB.: Europe, Mediterranean region.

5. *C. parviflora* Desf. Cat. ed. 1, 88; Boiss. Fl. Or. iii, (1875) 849; Post Fl. Syr. etc. (1896) 481; Musch. Fl. Eg. ii, (1912) 1067.

HABITAT: I. Arabia Petraea (ex Musch.).

DISTRIB.: E. Mediterranean region, Persia.

Vern. name: *kalāwi* (Post).

6. *C. Ruppellii* Sch.-Bip. Mus. Senck. iii, 57; Oliv. Fl. Trop. Afr. iii, (1877) 450.—*C. adenothrix* Sch.-Bip. in Herb. Schimp. Abyss. i, n. 217.—*Barkhausia adenothrix* A. Rich. Fl. Abyss. i. (1847) 465.

HABITAT: II. Wasil, 1,400 m. (S. 1140!); above and below Manakhab, 2,000-2,500 m. (S. 1417!).

FL.: Feb. 1889 (S.).

FR.: Feb. 1889 (S.).

DISTRIB.: Abyssinia, Yaman.

### 83. LEONTODON L.

1. *L. arabicum* Boiss. Fl. Or. iii, (1875) 728; Post Fl. Syr. etc. (1896) 484.

HABITAT: I. Northern borders of Et-Tih (ex Post); Arabia Petraea (Boiss.!).

FL.: Apr. (ex Boiss.).

DISTRIB.: Arabia Petraea, Palestine, Syria.

2. *L. hispidulum* Boiss. Fl. Or. iii, (1875) 727; Post Fl. Syr. etc. (1896) 484.—*Kalbfussia orientalis* Jaub. & Sp. Ill. Pl. Or. iii, 117, t. 283.—*Fidelia kalbfussioides* Sch.-Bip. Flora (1834) 482.

HABITAT: I. Arabia Petraea (Boiss.!) ; Et-Tih to Egypt (ex Post).

FL.: Mar. 1846 (Boiss.).

FR.: Mar. 1846 (Boiss.).

DISTRIB.: Egypt, Arabia Petraea, Syria, Mesopotamia, Persia.

3. *L. tuberosum* L. Sp. Pl. (1753) 799; Musch. Fl. Eg. ii, (1912) 1051.—*Thrinicia tuberosa* DC. Fl. France, iv, 52; Boiss. Fl. Or. iii, (1875) 726; Post Fl. Syr. etc. (1896) 485.

HABITAT : I. Arabia Petraea (ex Musch.).

DISTRIB.: Mediterranean region.

#### 84. LACTUCA L.

1. *L. arabica* Jaub. & Sp. Ill. Pl. Or. t. 282; Defl. Yemen (1889) 160.

HABITAT : II. Near Hajeilah, 800 m. (Defl. 255 !); in the mountains of Yaman (Botta).

DISTRIB.: Endemic?

2. *L. auriculata* DC. Prodr. vii, 140; Boiss. Fl. Or. iii, (1875) 814. —

*L. Stocksii* Boiss. Diagn. Pl. Or. ser. 2, iii, 96.

HABITAT : IV. Region of Masqat (Auch.-Eloy 4879!).

DISTRIB.: Arabia, Baluchistan, W. Himalaya, Nepal.

3. *L. capensis* Thunb. Fl. Cap. ed. Schultes 614; Oliv. Fl. Trop. Afr. iii, (1877) 452. — *L. Hochstetteri* Sch.-Bip. in Herb. Schimp. Abyss. sect. I, n. 128; Oliv. l. c. 453; Defl. Yemen (1889) 160. — *Pyrrhopappus Hochstetteri* Rich. Fl. Abyss. i, (1847) 463.

HABITAT : II. Kahil near Manakhah, 2,500 m. (S. 1455!); Wady Hejan near Wasil, 1,500 m. (S. 1801!); near Lahaj (Defl.).

FL.: Feb. 1889 (S.).

FR.: Feb. 1889 (S.).

DISTRIB.: Trop. and S. Africa, Arabia.

NOTE: Schweinfurth's plants show violaceous as well as lilac flowers.

4. *L. cretica* Desf. Cor. Tourn. 44, t. 34; Boiss. Fl. Or. iii, (1875) 805; Post Fl. Syr. etc. (1896) 487.

HABITAT : III. Dhofar Mts.: Derbat, near coast (Bent 233!).

DISTRIB.: Mediterranean region.

5. *L. goracensis* Sch.-Bip. in Flora (1842) 422; Oliv. Fl. Trop. Afr. iii, (1877) 452; Blatt. Fl. Aden (1915) 231. — *Microrhynchus octophyllus* Hochst. in Herb. Kotsch, Nub. n. 406. — *L. octophylla* Sch.-Bip. in Linnaea, xv, (1841) 725. — *L. nubica* Sch.-Bip. l. c. — *M. Hochstetteri* Sch.-Bip. ex Hochst. in Herb. Schimp. Abyss. iii, n. 1448. — *L. Petitiana* A. Rich. Fl. Abyss. i, (1847) 462. — *Sonchus Hochstetteri* Sch.-Bip. in Schweinf. Beitr. Fl. Aethiop. p. 160.

HABITAT : II. Aden (S!).

DISTRIB.: Yaman, Eritrea, Abyssinia, Kordofan; Upper Guinea, Mozambique.

6. *L. inermis* Forsk. Fl. Aeg.-Arab. (1775) CXVIII, n. 475 and p. 114.  
 HABITAT: II. Kurme (Forsk.).  
 DISTRIB.: Endemic.  
 Vern. name : *kat er raejan* (Forsk.).
7. *L. orientalis* Boiss. Fl. Or. iii, (1875) 819; Post Fl. Syr. etc. (1896) 488.—*Phenopus orientalis* Boiss. Voy. Esp. 390.  
 HABITAT; I. Foot of Mt. Sinai (Schimp. 259!); Wady Lebweh to Wady es Shaikh (Hart!)  
 III. Dhofar Mts. on the coast (Bent 235!).  
 FR.: Aug. 1835 (Schimp.).  
 DISTRIB.: Egypt, Arabia, Palestine, Syria, Persia, Afghanistan, Tibet.
8. *L. remotiflora* DC. in Wight Contrib. (1834) 26; Cooke Fl. Bomb. ii. 60.—*L. Schimperii* Jaub. & Sp. Ill. Pl. Or. t. 281.  
 HABITAT: II. Near Mekka (Schimp. 156!).  
 DISTRIB.: Arabia, India.
9. *L. saligna* L. Sp. Pl. (1753) 796; Boiss. Fl. Or. iii, (1875) 810; Post Fl. Syr. etc. (1896) 487; Musch. Fl. Eg. ii, (1912) 1064.—*L. caucasica* C. Koch in Linnaea, xvii, 275.  
 HABITAT: I. Arabia Petraea (ex Musch.).  
 DISTRIB.: Europe, Mediterranean region, Mesopotamia, Persia.  
 Vern. name : *sibbein-esh-sheikh* (Post).
10. *L. sativa* L. Sp. Pl. (1753) 795; Forsk. Fl. Aeg.-Arab. (1775) CXVIII, n. 474.  
 HABITAT: II. Yaman, cultiv. (Defl.); cultivated in the mountains (Forsk.).  
 DISTRIB.: Europe, Orient.
11. *L. Scariola* L. Sp. Pl. (1762) 1119; Boiss. Fl. Or. iii, (1875) 809; Post Fl. Syr. etc. (1896) 487.  
 HABITAT: I. Mt. Sinai (Schimp. 262!).  
 II. Jiddah (Zohrab 255!).  
 FL.: Aug. 1835 (Schimp.).  
 FR.: Aug. 1835 (Schimp.).  
 DISTRIB.: Europe, N. Africa, Abyssinia, Arabia.
12. *S. undulata* Ledeb. Fl. Act. iv, 156; Boiss. Fl. Or. iii, (1875) 813; Post Fl. Syr. etc. (1896) 487.



HABITAT: I. Mt. Sinai: Bestan (Schimp. 138!); Wady es Shaikh (Auch.-Eloy 3372!).

FL.: May 1835 (Schimp.).

FR.: May 1835 (Schimp.).

DISTRIB.: Arabia Petraea, Armenia, Persia, Baluchistan, Siberia.

13. *S. yemensis* Defl. Yemen (1889) 160.

HABITAT: II. Jebel Shibam, 2,400—2,600 m. (Defl. 301, 321, 357!); near Attara round Hes and Taez (Botta).

DISTRIB.: Endemic.

### 85. PICRIDIMUM Desf.

1. *P. tingitanum* Desf. Fl. Atlant. ii, 220; Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 259; Del. Frag. Fl. Arab. Petr. (1833) n. 39; Post Fl. Syr. etc. (1896) 488; Musch. Verb. Bot. Ver. Prov. Brandenb. xlix, (1907) 126.—*Reichardia tingitana* Roth. Bot. Abh. (1787) 35.—*Scorzonera orientalis* L. (*partim*); Forsk. Fl. Aeg.-Arab. (1775) LXXII, n. 404 and p. 143.—*S. ciliata* Forsk. l. c. n. 405 and p. 143.

HABITAT: I. Arabia Petraea (McDonald!); Wady Nasb (Drake 59!); Sinai (Schimp. 330!); neighbourhood of Tor (Bové); N., S. and Central Midian (Burton!).

II. Jiddah (Zohrab 282! 45!); Wady Fatimah (Fischer 37! Schimp. 833!); neighbourhood of Aden (Hunter 110!).

IV. Masqat (Auch.-Eloy 4869!).

FL.: Feb. 1836 (Schimp.), Feb. 1837 (Fischer).

FR.: Feb. 1836 (Schimp.), Apr. 1835 (Schimp.).

DISTRIB.: Canaries, Mediterranean region, Abyssinia, Arabia, W. India.

Vern. name: *Huwwah*, *Murár*, *Shedíd*, *Nuqd*, *Libbein*, *'Udeid*, *Durdá* (Post).

NOTE: Eaten by man and beast (Burton).

VAR. *minus* Boiss. Fl. Or. iii, (1875) 828.

HABITAT: I. Arabia Petraea (Boiss.! Kotschy 87!).

DISTRIB.: From Egypt to Afghanistan.

VAR. *subintegrum* Boiss. Fl. Or. iii, (1875) 828.—*P. arabicum* Hochst. et Steud. in Herb. Schimp. Arab. n. 833.

HABITAT: II. Yaman (Schimp.!); Bilad Hojeria, neighbourhood of Haifan, garden of the Sultan (Defl. 546!); Okeber, Jebel Milhan, 1,300 m. (S. 819!); near Hajeilah, 600—800 m. (Defl. 217, 237, 238); near Raudha, 2,300 m. (Defl. 568).

FL. : Jan. 1889 (S.), Apr. 1890 (Defl.).

FR. : Jan. 1889 (S.), Apr. 1890 (Defl.).

DISTRIB. : Endemic ?

Vern. name : *Murra* (S.).

**2. P. vulgare** Desf. Fl. Atlant. ii, 221 ; Boiss. Fl. Or. iii, (1875) 828 ; Post Fl. Syr. etc. (1896) 489.—*Reichardia picroides* Roth. Bot. Abh. (1787) 35.—*Sonchus chondrilloides* Sibth. & Smith Fl. Graec. viii, 67, t. 791 ; Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 259.

HABITAT : I. Arabia Petraea (ex Musch.) ; neighbourhood of Tor (Bové).

DISTRIB. : Mediterranean region.

### 86. SONCHUS L.

**1. S. glaucescens** Jordan. Observat. Bot. v, (1847) 75, t. 5 ; Boiss. Fl. Or. iii, (1875) 796 ; Post Fl. Syr. etc. (1896) 489 ; Musch. Fl. Eg. ii, (1912) 1062.

HABITAT : I. Arabia Petraea (ex Musch.).

DISTRIB. : Mediterranean region, Persia.

**2. S. melanolepis** Fres. in Mus. Senck. iii, (1839) 76 ; A. Rich. Fl. Abyss. i, (1847) 467 ; Oliv. Fl. Trop. Afr. iii, (1877) 460.

HABITAT : II. Wasil, 1,400 m. (S. 1316 !).

FL. : Feb. 1889 (S.).

FR. : Feb. 1889 (S.).

DISTRIB. : Abyssinia, Yaman.

**3. S. oleraceus** L. Sp. Pl. (1753) 794 ; Forsk. Fl. Aeg.-Arab. (1775) CXVIII, n. 473 ; Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 259 ; Boiss. Fl. Or. iii, (1875) 795 ; Post Fl. Syr. etc. (1896) 489.

HABITAT : I. Cultiv. ground of Mt. Sinai (Bové).

II. Uahfad (Forsk.).

DISTRIB. : Cosmopolitan.

Vern. name : *myrrejir*.

### 87. LAUNAEA Cass.

**1. L. angustifolia** Musch. Fl. Eg. ii, (1912) 1059.—*Zollikoferia angustifolia* Coss. & Dur. in Bull. Soc. Bot. France, ii, 254.—*Z. arabica* Boiss. Diagn. Pl. Or. ser. 1, vii, 12 ; Fl. Or. iii, (1875) 823 ; Post Fl. Syr. etc. (1896) 490.

HABITAT : I. Arabia Petraea (Schimp. 208!) ; Wady es Shaikh (Boiss.) ; Sinai and Et-Tih (ex Post) ; between Wady Ghurundel and Wady Werdan (Kneuck.).

FL. : Mar. 1835 (Schimp.).

FR. : Mar. 1835 (Schimp.).

DISTRIB. : Algeria, Tunisia, Tripolitania, Egypt, Arabia Petraea.

Vern. name : *Haudhán Yamrár*, 'Udehd, *Mureir* (Post).

2. *L. Cassiniana* Musch. Fl. Eg. ii, (1912) 1058.—*Zollikoferia Cassiniana* Boiss. Fl. Or. iii, (1875) 822.—*Sonchus Cassinianus* Jaub. & Sp. Ill. Pl. Or. t. 280.

HABITAT : II. Jiddah (Schimp.); Hijaz (Botta).

DISTRIB. : Egypt, Arabia, Baluchistan, N. W. India.

3. *L. fallax* Musch. Fl. Eg. ii, (1912) 1060.—*Zollikoferia fallax* Boiss. Fl. Or. iii, (1875) 824; Post Fl. Syr. etc. (1896) 490.—*Microrrhynchus arabicus* Jaub. & Sp. Pl. Or. t. 277.

HABITAT : I. Sinai and eastwards (ex Post); near Tor (Botta).

IV. Near Masqat (Auch.-Eloy 4885!).

FL. : Feb.-Apr. (ex Post).

DISTRIB. : Egypt, Arabia, Persia, Afghanistan, N. India.

Vern. name : *Marárah Huwwah* (Post).

4. *L. glomerata* Hook. f. Fl. Brit. Ind. iii, (1881) 417.—*Zollikoferia glomerata* Boiss. Fl. Or. iii, (1875) 826; Post Fl. Syr. etc. (1896) 491.—*Microrrhynchus glomeratus* Jaub. & Sp. Ill. Pl. Or. t. 275.

HABITAT : I. Wady Mokatteb (Boiss.); between Maghara and Shellah (Kneuck.); Sinai and eastwards (ex Post); Jebel Catherine (Schimp.).

II. Jiddah (Zobrab 102!); Wady Fatimah (Fischer 34!).

FL. : Feb. 1837 (Fischer), Mar., Apr. (ex Post).

FR. : Feb. 1837 (Fischer).

DISTRIB. : N. Africa, Egypt, Arabia, Persia, Sind, Punjab.

Vern. name : *Haláwat-el-Ghazlán*, *Húwwah*, *Húwwat-el-Kiláb*, *Hufeifah* (Post).

5. *L. massavensis* Musch. Fl. Eg. ii, (1912) 1060.—*L. lactuoides* O. Hoffm. in Engl.-Prantl Pflanzenf. iv, 5, 370; Blatt. Fl. Aden (1915) 232.—*Heterachaena massavensis* Fres. in Mus. Senckenb. iii, 74; Oliv. Fl. Trop. Afr. iii, (1877) 455.—*Brachyramphus lactuoides* Anders. Fl. Aden. (1860) 23.—*Lactuca massaviensis* Sch.-Bip. in Herb. Schimp. Abyss. ii, n. 1045; iii, n. 1462.—*Sonchus massaviensis* Sch.-Bip. in Schweinf. Beitr. Fl. Aethiop. p. 160.—*Zollikoferia massavensis* Boiss. Fl. Or. iii, (1875) 825; Post Fl. Syr. etc. (1896) 491.

HABITAT : I. Arabia Petraea (ex Post).

II. Wasil (S. 1302!); Wady Fatimah (Fischer 178!); Aden (Hook. f. ! Defl. ! Birdw. ! Busse ! Thomson !).

FL. : Feb. 1837 (Fischer), Feb. 1889 (S.), Apr. (ex Post).

FR. : Feb. 1837 (Fischer), Feb. 1889 (S.).

DISTRIB. : Algeria, Egypt, Nubia, Abyssinia, Somaliland, Arabia, Socotra.

6. *L. mucronata* Musch. Fl. Eg. ii, (1912) 1057.—*Zollikoferia mucronata* Boiss. Diagn. Pl. Or. ser. 1, vii, 12; Fl. Or. iii, (1875) 822; Post Fl. Syr. etc. (1896) 490.—*Sonchus Candolleanus* Jaub. & Sp. III. Pl. Or. t. 279.—*Leontodon mucronatum* Forsk. Fl. Aeg.-Arab. (1775) LXXII, n. 415 and p. 144.—*Launaea chondrilloides* Hook. f. Fl. Brit. Ind. iii, (1881) 415.

HABITAT : I. Et Tih (ex Post) ; between Nuckl and Ghazah (Boiss!).

DISTRIB. : Algeria, Tunisia, Tripolitania, Arabia Petraea, Palestine, Mesopotamia, Persia, Sind, Punjab.

7. *L. nudicaulis* Hook. f. Fl. Brit. Ind. iii, (1881) 416; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 126; Blatt. Fl. Aden (1915) 233; Carter in Rec. Bot. Surv. Ind. vi, (1918) 205.—*Zollikoferia nudicaulis* Boiss. Fl. Or. iii, (1875) 824; Defl. Yemen (1889) 160; Post Fl. Syr. etc. (1896) 490.—*Microrhynchus nudicaulis* Less. Syn. 139 (partim); Schenk Sp. Pl. it. Aeg. Arab. & Syr. (1840) n. 185; Kotschy in Sitzb. Kais. Akad. Wiss. lii, (1866) 6.—*Lactuca flava* Forsk. Fl. Aeg.-Arab. (1775) CXVIII, n. 476 and p. 143.—*Sonchus divaricatus* Desf.; Jaub. & Sp. III. Pl. Or. t. 278.

HABITAT. I. Wady Sewook (Lord !); Mt. Sinai (ex Schenk; ex Post); Jebel Catherine (Drake 24!); Arabia Petraea (Pinard); Wady Hamme (Schimp. 430!); Wady es Sle, Wady Tarfa, Plain of, Raha, Jebel Catherine, 2,450 m., Wady Ghurundel (Kneuck.); Nu'aman Isl. in Red Sea (Burton !); Central and Southern Midian (Burton!).

II. Jiddah (Zohrab 240!); Wady Fatimah (Fischer 38! 41! Schimp. 856! 992!); Hijaz (ex Kotschy); near Sanah, 2,300-2,400 m. (Defl. 456); Surdud (Forsk.); Aden (Birdw. Hildebr. Ellenbeck).

III. Dhofar Mts. : Hafa (Bent 40!).

IV. Masqat (Auch.-Eloy 1885!); Zor Hills (Cox 48).

FL. : Feb. 1836 (Schimp.), Feb. 1837 (Fischer), Mar. 1835 (Schimp.), Apr. 1868 (Lord).

FR. : Feb. 1836 (Schimp.), Mar. 1835 (Schimp.).

DISTRIB. : S. Spain, Canaries, N. Africa, Arabia. Sind, Punjab, Afghanistan, N. W. India, Deccan.

Vern. name : *Hindibe* (Forsk.); *Hua* (Cox).

Uses : It is eaten by Bedouins and also by townsmen. All grazing animals devour it freely (Cox).







REG. No. 2952, E 19

Emery Walker sc.  
HELIO. S. I. O., CALCUTTA.

**BOTANICAL REGIONS OF ARABIA.**

- I. The Extra-Tropical West.
- II. The Tropical West.
- III. The Tropics East.
- IV. The Extra-Tropical East.

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**8. *L. spinosa*** Sch.-Bip. in Webb & Berth. Canar. ii, (1847) 428.—*Zollikoferia spinosa* Boiss. Fl. Or. iii, (1875) 826; Post Fl. Syr. etc. (1896) 491.—*Prenanthes spinosa* Forsk. Fl. Aeg.-Arab. (1775) LXXII, n. 409 and p 144.—*Lactuca spinosa* Lam. Dict. iii, 408; Baker in Kew Bull. (1894) 334

HABITAT: I. Mt. Sinai (Bové 100!); Wady es Shaikh (Drake!); Wady Hebran (Schimp. 387!); Wady Lebweh to Wady es Shaikh (Hart!); Wady es Sle (Kneuck.).

III. Hills at Disbeh 4,000 ft. (Lunt 203!); Hadramaut (Hirsch 33).

FL.: Feb.-Apr. (ex Post), Apr. 1876, 1877 (S.).

FR.: Apr. 1876, 1877 (S.).

DISTRIB.: Canaries, Morocco, Spain, Egypt, Arabia, Palestine.

Vern. name: *Cabbass* (Bové), *Kebádeh*, *Zagweh* (Post).

**9. *L. tenuiloba*** Musch. Fl. Eg. ii, (1912) 1058.—*Zollikoferia tenuiloba* Boiss. Diagn. Pl. Or. ser. 1, xi, 50; Fl. Or. iii, (1875) 822; Post Fl. Syr. etc. (1896) 490.

HABITAT: I: Arabia Petraea (Boiss., S. 273!); Et Tih (ex Post).

FL.: Apr. 1846 (Boiss.).

FR.: Apr. 1846 (Boiss.).

DISTRIB.: Egypt, Arabia Petraea, Palestine.

Vern. name: *ya'dīd* (Post).

### 88. *Tragopogon* L.

**1. *S. collinum*** DC. Prodr. vii, 115; Boiss. Fl. Or. iii, (1875) 746.

HABITAT: I. Top of Mt. Sinai (Schimp. 349!).

DISTRIB.: Sinai, Persia, Transcaucasus.

**2. *T. glaber*** Benth. & Hook. Gen. Pl. ii, 618; Musch. Fl. Eg. ii, (1912) 1054.—*Geropogon glaber* L. Sp. Pl. (1762) 1109; Boiss. Fl. Or. iii, (1875) 744; Post Fl. Syr. etc. (1896) 492.

HABITAT: I. Arabia Petraea (ex Musch.).

DISTRIB.: Mediterranean region.

**3. *T. longirostre*** Bisch. in Webb Phyt. Canar. ii, 469; Boiss. Fl. Or. iii, (1875) 745.—*T. majus* Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 259.

HABITAT: I. Desert of Sinai (Bové 115!).

DISTRIB.: E. Mediterranean region.

Vern. name: *Rahhah* (Bové).

### 89. *Urospermum* Scop.

**1. *U. picroides*** F. W. Scham. Samml. phys. oek. Aufs. i, (1795) 275; Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 259.

HABITAT: I. Mt. Sinai (Bove 119 !); Arabia Petraea (McDonald !); N. Midian (Burton !).

FL.: June 1832 (Bové).

FR.: June 1832 (Bové).

DISTRIB.: Mediterranean region, Persia.

Vern. name: *Mourron-el-ghebel* (Bové).

#### 90. *Scorzonera* L.

1. *S. lanata* M. B. Taur. Cauc. ii, 237; Boiss. Fl. Or. iii, (1875) 776; Post Fl. Syr. etc. (1896) 494.

HABITAT: I. Et-Tih (ex Post)

DISTRIB.: Greece, Asia Minor, Syria, Palestine, Arabia Petraea, Mesopotamia, Persia.

Vern. name: *mussah, dhebahlil* (Post).

2. *S. mollis* M. B. Taur. Cauc. iii, 522; Boiss. Fl. Or. iii, (1875) 761; Post Fl. Syr. etc. (1896) 493.—*S. undulata* Vahl Symb. Bot. ii, (1791) 86 (*artim*).

HABITAT: I. Mt. Sinai (Schimp. 129 !).

FL.: Apr. 1835 (Schimp.).

DISTRIB.: Mediterranean region to Persia.

Vern. name: *Dal halil* (Schimp.).

VAR. *glabrata* Bornm. ex Kneuck. in Allg. Bot. Zeitsch. ix, (1903) 148.

HABITAT: I. Towards top of Jebel Catherine, 2,450 m. (Kneuck.).

DISTRIB.: Endemic.

3. *S. papposa* DC. Prodr. vii, 119; Boiss. Fl. Or. iii, (1875) 765; Post Fl. Syr. etc. (1896) 493.—*S. Kurdica* Boiss. et Noë Diagn. Pl. Or. ser 2, iii, 93.

HABITAT: I. Arabia Petraea (Boiss.!).

FL.: Apr. 1846 (Boiss.).

FR.: Apr. 1846 (Boiss.).

DISTRIB.: Arabia Petraea, Palestine, Syria, Mesopotamia, Persia.

#### *Species dubiae.*

1. *Scorzonera dubia*? Forsk. Fl. Aeg.-Arab. (1775) CXVIII, n. 470  
*Launaea* sp.

HABITAT: II. Mountainous region of Yaman (Forsk.).

Vern. name: *myrr* (Forsk.).

2. *S. orientalis* Forsk. l. c. CXVIII, n. 471—*Launaea* sp.

HABITAT: II. Hadiyah (Forsk.).

Vern. name: *myrrejir* (Forsk.).

## LVII. CAMPANULACEAE.

### 1. *Campanula* L.

1. *C. dimorphantha* Schweinf. Beitr. Fl. Aethiop. 140; Boiss. Fl. Or. iii, (1875) 932; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 122.

HABITAT: I. El-Tor (Musch.)

DISTRIB.: Egypt, Nubia, Sinai.

2. *C. dulcis* Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 258; Kotschy in Sitzb. Kais. Akad. Wiss. lii, (1866) 7; Boiss. Fl. Or. iii, (1875) 911; Post Fl. Syr. etc. (1896) 503.

HABITAT: I. Sinai (Schimp. 338! Bové 211! Lord!); Mt. Horeb (Auch.-Eloy 1848!); Arabia Petraea (McDonald!).

II. Hijaz (ex Kotschy).

FL.: May 1835 (Schimp.), May 1868 (Lord), June 1832 (Bové).

DISTRIB.: Endemic.

Vern. name: *Scarmur* (Bové).

3. *C. edulis* Forsk. Fl. Aeg.-Arab. (1775) CVI, n. 127 and p. 44.

HABITAT: II. Manakhah, 2,300 m. (S. 1418!); Kurma, Hadiyah (Forsk.).

FL.: Feb. 1889 (S).

DISTRIB.: Endemic.

Vern. name: *chobs el okab, riam* (Forsk.).

Note: The root eaten by children (Forsk.).

4. *C. Erinus* L. Sp. Pl. (1753) 169; Boiss. Fl. Or. iii, (1875) 932; Post Fl. Syr. etc. (1896) 505; Musch. Fl. Eg. ii, (1912) 945.

HABITAT: I. Arabia Petraea (ex Musch.).

DISTRIB.: Canaries, Mediterranean region.

5. *C. rigidipila* Hochst. & Steud. Herb. Schimp. Abyss. sect. I. n. 167; Oliv. Fl. Trop. Afr. iii, (1877) 482; Defl. Yemen (1889) 161.—*C. sarmentosa* Hochst. l. c. sect. II, n. 1380.—*C. Schimperii* Vatke in Linnaea, xxxviii, 712.

HABITAT: II. Sanah, 2,300 m. (Defl. 551); near Yerim, 2,600 m. (Defl. 649); round Hes and Taz (Botta).

DISTRIB.: Abyssinia, Yaman.

6. *C. sulphurea* Boiss. Diagn. Pl. Or. ser. 1, xi, 64; Fl. Or. iii, (1875) 330; Post Fl. Syr. etc. (1896) 505; Musch. Fl. Eg. ii, (1912) 945.

HABITAT: I. Arabia Petraea (ex Musch.).

DISTRIB.: Egypt, Arabia Petraea, Palestine, Syria.

### 2. *Specularia* Heist.

1. *S. speculum* A. DC. Monogr. Camp. (1830) 346; Boiss. Fl. Or. ii, (1875) 958; Musch. Fl. Eg. ii, (1912) 945.

HABITAT: I. Arabia Petraea (ex Musch.).

DISTRIB.: Europe, N. Africa, Egypt, Arabia Petraea, Syria.

3. *Podanthum* Boiss.

1. *P. lanceolatum* Willd. Sp. Pl. i, 924; Boiss. Fl. Or. iii, (1875) 951.

VAR. *alpinum* Boiss. l. c. 952; Post Fl. Syr. etc. (1896) 507 — *Campanula leptopetala* Ehrenb. MS. ex Boiss. — *Phyteuma Sinai* A. DC. Prodr. vii, 455.

HABITAT: I. Mt Sinai (Auch.-Eloy).

DISTRIB.: Of species: Sinai, Palestine, Syria, Asia Minor.

## LVIII. ERICACEAE.

1. *Arbutus* L.

1. *A. Unedo* L. Sp. Pl. (1753) 395; Boiss. Fl. Or. iii, (1875) 966; Post Fl. Syr. etc (1896) 508; Musch. Fl. Eg. ii, (1912) 718.

HABITAT: I. Arabia Petraea (ex Musch.).

DISTRIB.: Europe, N. Africa, Arabia Petraea, Palestine, Syria.

## LIX. PLUMBAGINACEAE.

1. *Statice* L.

1. *S. arabica* Jaub. & Sp. Ill. Pl. Or. t. 85; Boiss. Fl. Or. iv, (1879) 868.

HABITAT: IV. Masqat (Auch.-Eloy 5243).

DISTRIB.: Endemic.

2. *S. axillaris* Forsk. Fl. Aeg.-Arab. (1775) CIX, n. 225 and p. 58; Anders. Fl. Aden. (1860) 29; Boiss. Fl. Or. iv, (1879) 868; Oliv. Fl. Trop. Afr. iii, (1877) 486; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 112; Blatt. Fl. Aden (1915) 234. — *S. Bovei* Jaub. & Sp. Ill. Pl. Or. i, 157, t. 86. — *S. lanceolata* Edgw. Journ. As. Soc. Beng. xvi, 1218.

HABITAT: I. Red Sea: Perim Is. (H. K. !); Red Sea: Is. of Negman (Bové 241 !); W. Hebrau, Umm-Saad (Musch.); N. and S. Midiau (Burton!).

II. Lohaja (Forsk.); Adon (Madden 14! S. 9! Thomson! Hook.! Defl. 80! Edgew.! Anders.! Birdw.!).

III. Dhofar: All along the coast (Bent 13!).

IV. Salt region of Masqat (Auch.-Eloy 5243!).

? Arabia (Wellsted!).

FL.: Feb. 1837 (Thomson), Mar. 1850 (Madden), Apr. 1861 (Thomson), Nov. 1888 (S.), Dec. 1847 (Hook.), Dec. 1889 (Defl.).

FR.: Feb. 1837 (Thomson), Mar. 1850 (Madden), Apr. 1861 (Thomson), Nov. 1888 (S.), Dec. 1832 (Bové), Dec. 1847 (Hook.), Dec. 1889 (Defl.).

DISTRIB.: Egypt, Eritrea, Nubia, Somaliland, Arabia, Socotra.

Vern. name: *Annum* (Burton).

Note: Camels eat (Burton).

3. *S. cylindrifolia* Forsk. Fl. Aeg.-Arab. (1775) CIX, n. 226 and p. 59; Vahl Symb. Bot. i, (1790) 26 t. 10; Blatt. Fl. Aden (1915) 235.

HABITAT : II. W Schiqu near Bolhaf (S. 146 !); Mokha (Forsk.); Aden (Hildebr., S. ! Defl.!).

III: Hadramaut : Coast (Hirsch 29).

FL. : Mar. 1881 (S.).

FR. : Mar. 1881 (S.).

DISTRIB. : Eritrea, Arabia, Socotra.

Vern. name: *Tissumm* (S.).

4. *S. Limonium* L. Sp. Pl. (1753) 274; Boiss. Fl. Or. iv, (1879) 858; Post Fl. Syr. etc. (1896) 512.

HABITAT : I. Arabia Petraea (ex Post).

DISTRIB. : Europe, Mediterranean region, W. Asia, California, S. America.

5. *S. pruinosa* L. Mant. (1767) 59; Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 246; Boiss. Fl. Or. iv, (1879) 865; Post Fl. Syr. etc. (1896) 513; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 112.—*S. aphylla* Forsk. Fl. Aeg. Arab. (1775) LXV, n. 191 and p. 60 (*non Poir.*).

HABITAT : I. Arabia Petraea (McDonald! Boiss.); Desert of Tor, near Faraoun (Bové 240 !); Desert of Suez to Ghazah (Bové 51 !).

FL. : Mar. 1846 (Boiss.), June-July 1832 (Bové).

DISTRIB. : N. Africa, Egypt, Arabia Petraea, Palestine.

Vern. name: *aryal*, *milleih* (Post).

6. *S. spicata* Willd. Sp. Pl. i, 1533; Boiss. Fl. Or. iv, (1879) 871; Post Fl. Syr. etc. (1896) 513.

HABITAT : I. Arabia Petraea (ex Post).

DISTRIB. : Arabia Petraea, Palestine, Syria, Mesopotamia, Persia, Transcaucasus, Afghanistan, Baluchistan, Siberia.

7. *S. suffruticosa* L. Sp. Pl. (1753) 276; Boiss. Fl. Or. iv, (1879) 867; Carter in Rec. Bot. Surv. Ind. vi, (1917) 198.

HABITAT : IV. Without locality or number (Cox).

DISTRIB. : Afghanistan, Caucasia, N. Turkestan, S. Russia and Siberia.

Vern. name: *Kataf* (Cox).

8. *S. teretifolia* Baker in Kew Bull. (1894) 334

HABITAT : III. Found between Tokham and Gahfit, 600 ft. (Lunt 75 !); Hadramaut : Sibeh and Chail-ba-Wazir, 250 and 750 ft. (Lunt 98! 235 !).

FL. : Dec. 1893 (Lunt).

FR. : Dec. 1893 (Lunt).

DISTRIB. : Endemic.

*S. Thouini* Viv. Cat. Hort. Negro (1802) 34; Boiss. Fl. Or. iv, (1879) 858; Post Fl. Syr. etc. (1896) 512.—*S. aegyptiaca* Pers. Syn. i, 334.

HABITAT : I. Arabia Petraea (Auch.-Eloy; Boiss.); Arabia Petraea : El Ghor (Löwne !); Desert of Suez to Ghazah (Bové 50 !).

FR. : July 1832 (Bové).

DISTRIB. : Mediterranean region to Persia.

2. *Limoniastrum* Moench.

1. *L. monopetalum* Boiss. ap. DC. Prodr. xii, 689; Fl. Or. iv, (1879) 874; Post Fl. Syr. etc. (1896) 514; Musch. Fl. Eg. ii, (1912) 726.

HABITAT: I. Arabia Petraea (ex Musch.).

DISTRIB.: Mediterranean region.

Vern. name: *Zeiteh* (Post).

3. *Plumbago* L.

1. *P. europaea* L. Sp. Pl. (1753) 151; Boiss. Fl. Or. iv, (1879) 875; Post Fl. Syr. etc. (1896) 584.

HABITAT: I. Arabia Petraea (ex Post).

DISTRIB.: Europe, N. Africa, Arabia Petraea, Palestine, Syria.

2. *P. zeylanica* L. Sp. Pl. (1753) 151; Forsk. Fl. Aeg.-Arab. (1775) CVI, n. 118; Boiss. Fl. Or. iv, (1879) 875; Defl. Yemen (1889) 161.—*P. auriculata* Hochst. Herb. Abyss. sect. I, n. 385, 763; sect. II, n. 1354, 1407.

HABITAT: II Near Suq-el-Khamiss, 2,300 m. (Defl. 582); Hadiyah (Forsk.).

DISTRIB.: Tropics of the Old World.

Vern. name: *hamsched* (Forsk.).

NOTE: For medical uses see Fiori 288.

4. *Vogelia* Lam.

1. *V. indica* Gibs. ex Wight in Calc. Journ. Nat. Hist. vii, 17, t. 1075; Boiss. Fl. Or. iv, (1879) 876.—*V. arabica* Boiss. in DC. Prodr. xii, 696.

HABITAT: III. Dhofar, general all over (Bent 97!).

IV. Masqat (Auch.-Eloy 5285!).

DISTRIB.: Arabia, Socotra, India.

## LX. PRIMULACEAE.

1. *Primula* L.

1. *P. Aucheri* Jaub. & Sp. Ill. Pl. Or. t. 49; Boiss. Fl. Or. iv, (1879) 23.

HABITAT: IV. J. Akhdhar (Auch.-Eloy 5236).

DISTRIB.: Endemic.

2. *P. Boveana* Dene. in DC. Prodr. viii, 35; Jaub. & Sp. Ill. Pl. Or. t. 439; Boiss. Fl. Or. iv, (1879) 23.—*P. verticillata* Dene. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 246 (*non* Forsk.).

HABITAT: I. Mt. Catherine (Bové 52); Mt. Sinai (Boiss.); Raphidim (Ehrenb., Schimp.).

FL.: May (ex Boiss.).

DISTRIB.: Endemic.

3. *P. verticillata* Forsk. Fl. Aeg.-Arab. (1775) CVI, n. 115 and p. 42; Oliv. Fl. Trop. Afr. iii, (1877) 488; Defl. Yemen (1889) 161.—*P. simensis* Hochst. in Herb. Schimp. Abyss.; Jaub & Sp. Ill. Pl. Or. t. 440.

HABITAT : II. Near Yazil, 2,700 m. (Defl. 571) ; J. Shibam, 2,400—2,600 m. (Defl. 326, 360) ; Manakhah, 2,300 m. (S. 1395 !) ; Wady Tehm, Wasil, 1,500 m. (S. 1241 !) ; J. Kurma (Forsk.) ; neighbourhood of Aden (Hunter 43 ! 16 ! 107 !).

IV. Masqat (Auch.-Eloy 5236 !).

FL. : Feb. 1889 (S.).

FR. : Feb. 1889 (S.).

DISTRIB. : Abyssinia, Yaman.

Vern. name : *heinam* (S.)

## 2. *Asterolinum* Link & Hoffm.

1. *A. stellatum* Hoffm. & Link Fl. Portug. i, (1809) 332 Boiss. Fl. Or. iv, (1879) 10.—*A. Linum stellatum* Post Fl. Syr. etc. (1896) 517

HABITAT : I. Arabia Petraea (ex Musch.).

DISTRIB. : Mediterranean.

## 3. *Anagallis* L.

1. *A. arvensis* L. Sp. Pl. (1753) 148 ; Del. Frag. Fl. Arab. Petr. (1833) n. 18 ; Dene. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 246 ; Boiss. Fl. Or. iv, (1879) 6 ; Carter in Rec. Bot. Surv. Ind. vi, (1917) 197.—*A. phoenicea* Lam. Fl. Fr. ii, 285.

HABITAT : I. Arabia Petraea (De Laborde) ; cultivated ground of Mt. Sinai (Bové).

II. W. Fatimah (Fischer 112 !) ; Jiddah (Zohrab 222 ! 285 !).

IV. Masqat (Auch.-Eloy 5228 !) ; Zor Hills (Cox 68).

FL. : Feb. 1837 (Fischer).

FR. : Feb. 1837 (Fischer).

DISTRIB. : Cosmopolitan.

2. *A. latifolia* L. Sp. Pl. (1753) 149 ; Boiss. Fl. Or. iv, (1879) 6 ; Defl Yemen (1889) 161.—*A. arvensis* var. *latifolia* Post Fl. Syr. etc. (1896) 517.

HABITAT : I. Arabia Petraea (Boiss.).

II. Manakhah, 2,300-2,600 m. (S. 1388 !) ; J. Shibam, 2,600 m. (Defl. 342) ; round Hes and Taez (Botta).

IV. Masqat (Auch.-Eloy 5228 !).

FL. : Feb. 1889 (S.).

FR. : Feb. 1889 (S.).

DISTRIB. : Nearly Cosmopolitan.

## 4. *Samolus* L.

1. *S. Valerandi* L. Sp. Pl. (1753) 171 ; Boiss. Fl. Or. iv, (1879) 5 ; Baker in Kew Bull. (1894) 334 ; Post Fl. Syr. etc. (1896) 518.

HABITAT : I. Arabia Petraea (ex Post).

III. Sides of irrigation channels Kailha, 3,000 ft. (Lunt).

DISTRIB. : Cosmopolitan.

Vern. name : '*Arideh*, *Sábún*'-Arab, *Semniā*-Setein (Post).

## LXI. MYRSINEAE.

1. *Maesa* Forsk.

1. *M. lanceolata* Forsk. Fl. Aeg.-Arab. (1775) CVI, n. 129 and p. 66.—  
*M. picta* Hochst. (1841) ex Fiori.

HABITAT: Mountainous region, everywhere (Forsk.).

DISTRIB.: Guinea. Cameroons, Natal, Kilimandjaro, Abyssinia, Eritrea, Arabia.

Vern. name: *Maas, arar* (Forsk.).

NOTE: For economic uses see Forsk. 67 and Fiori 288.

2. *Monothecca* A. DC.

1. *M. mascatensis* A. DC. in Deless. Ic. Select. v; Prodr. vii, 152; Boiss. Fl. Or. iv, (1879) 32.

HABITAT: IV. Masqat (Auch.-Eloy 4916, 4917).

DISTRIB.: Endemic.

## LXII. SAPOTACEAE.

1. *Mimusops* L.

1. *M. Schimperi* Hochst. in A. Rich. Fl. Abyss. ii, (1851) 22; Fiori Bose Piante legn. Eritrea (1909) 290.

HABITAT: II. Yaman (ex Fiori).

DISTRIB.: Abyssinia, Eritrea, Yaman.

## LXIII. EBENACEAE.

1. *Euclea* J.

1. *E. Forskalei* Schweinf. Arab. Pflanzennamen (1912) 108.—*Nakus* Forsk. Fl. Aeg.-Arab. (1775) 197, n. XXIX.

HABITAT: II. Kurma (Forsk.).

DISTRIB.: Endemic.

Vern. name: *nakus* (Forsk.).

2. *E. Kellau* Hochst. in Flora, xxvi, (1843) 83; Oliv. Fl. Trop. Afr. iii, (1877) 514.—*Myrsine Kellau* Hochst. in Herb. Schimp. Abyss. sect. I. n. 159.—*Kellaua Schimperi* A. DC. in Ann. Sc. Nat. ser. 2, xvi, (1841) 96.

HABITAT: II. Yaman (ex Fiori).

DISTRIB.: Abyssinia, Eritrea, Yaman.

2. *Diospyros* L.

1. *D. mespiliformis* Hochst. ex DC. Prodr. viii, (1844) 672; Oliv. Fl. Trop. Afr. iii, (1877) 518.—? *Bsuss* Forsk. Fl. Aeg.-Arab. (1775) 196, n. XXII (cf. Journ. Bot. (1877) 98).



HABITAT : II. Wulej, J. Milhan (S. 644!).

FR. : Jan. 1889 (S.).

DISTRIB. : Tropical Africa, Yaman.

Vern. name : *Bissess* (S.).

NOTE : For economic uses see Fiori 294.

## LXIV. OLEACFAE.

### 1. *Jasminum* L.

1. *J. mauritianum* Bojer Hort. Maurit. (1837) 204; This.-Dyer Fl. Trop. Afr. iv, 10.—*J. gratissimum* Defl. Yemen (1889) 162.—*J. abyssinicum* var. *gratissimum* Di Capua in Pir Fl. Eritr. (1904) 207.

HABITAT : II. J. Bura, Hille, 1,000 m. (S. 271!); near Hajeilah and Wasil, 800—1,200 m. (Defl. 212, 228).

DISTRIB. : Tropical Africa, Mauritius, Seychelles, Yaman.

Vern. name : *qujan* (S.).

2. *J. officinale* L. Sp. Pl. (1753) 9; Forsk. Fl. Aeg.-Arab. (1775) CII, n. 10; Boiss. Fl. Or. iv, (1879) 43; Defl. Yemen (1889) 161.

HABITAT : II. Near Attara, 1,800 m. (Defl. 420); Hadiyah and Uahfad (Forsk.); Manakhah, 2,200 m. (S. 160!); near Wasil, 1,000 m. (Defl. 221).

III. Hadramaut : All over the Dhofar Mts. (Bent 106!).

FL. : Feb. 1889 (S.).

FR. : Feb. 1889 (S.).

DISTRIB. : Himalayan region, cultivated in many countries.

Vern. name : *kaejan*, *saes* (Forsk.), *scherchat* (S.).

3. *J. Sambac* Ait. Hort. Kew. ed. 1, i, 8; Defl. Yemen (1889) 161; Krause in Engl. Bot. Jahrb. xxxv, (1905) 736.

HABITAT : II. Heathalim (Ellenb.); cultivated at Mantar (Defl. 20).

DISTRIB. : Tropical Asia, widely cultivated.

Vern. name : *fell* (Ellenbeck).

### 2. *Olea* L.

1. *O. chrysophylla* Lam. Encycl. i, (1791) 29; Defl. Yemen (1889) 162; This.-Dyer Fl. Trop. Afr. iv, 18.

HABITAT : II. Near Wasil, 1,000 m. (Defl. 246); Manakhah, 2,300 m. (S. 1687!); Hille, J. Bura (S. 411!).

III. Hadramaut (Hirsch 27).

FR. : Mar. 1889 (S.).

DISTRIB. : Tropical Africa, Madagascar, Bourbon, Mauritius, Arabia.

Vern. name : *atumm* (S.).

2. *O. europaea* L. Sp. Pl. (1753) 8; Boiss. Fl. Or. iv, (1878) 36; Post Fl. Syr. etc. (18:6) 521.

HABITAT : I. Arabia Petraea (ex Post).

IV. Masqat : J. Akhdhar (Auch.-Eloy 4918 !)

DISTRIB. : Mediterranean region, Nubia, Arabia.

Vern. name : *Zeitân* (Post).

## LXV. SALVADORACEAE.

### 1. *Dobera* Juss.

1. *D. glabra* DC. Prodr. xvii, (1873) 31; Defl. Yemen (1889) 162; Blatt. Fl. Aden (1915) 239.—*Tomex glabra* Forsk. Fl. Aeg.-Arab. (1775) CV, n. 97 and p. 32.—*D. Roxburghii* Planch. in Ann. Sc. Nat. ser. 3, x, 191; This.-Dyer Fl. Trop. Afr. iv, 21.—*Schizocalyx coriaceus* Hochst. in Flora (1844) Beil. 2.

HABITAT : II. Chalife (S. 215 !); Surdud (Forsk.); between Taez and Hes, 800-1,200 m. (Defl. 703); near Badjil and Hajeilah, 200—600 m. (Defl. 45); Little Aden (Defl.).

FR. : Dec. 1888 (S.).

DISTRIB. : German and British E. Africa, Kordofan, Abyssinia, Eritrea, Arabia, India.

Vern. name : *dober* (Forsk.), *dabber* (S.).

### 2. *Salvadora* L.

1. *S. oleoides* Dcne. in Jacquem. Voy. Bot. (1844) 140, t. 144; Boiss. Fl. Or. Suppl. (1888) 343; Blatt. Fl. Aden (1915) 238.—*S. persica* T. Anders. Fl. Aden. (1860) 29 (*non Garcin*).

HABITAT : II. Aden (Balfour ! Thomson ! Hook. 38 !).

DISTRIB. : Aden, Sind, Punjab, Rajputana, Gujarat.

2. *S. persica* Garcin ex L. Sp. Pl. (1753) 122; Vahl Symb. Bot. i, (1790) 12, t. 4; Del. Frag. Fl. Arab. Petr. (1833) n. 10; Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, iii, (1834) 245; Boiss. Fl. Or. iv, (1879) 43; Defl. Yemen (1889) 162; Baker in Kew Bull. (1894) 334; This.-Dyer Fl. Trop. Afr. iv, 23; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 113; Blatt. Fl. Aden (1915) 237.—*Cissus arborea* Forsk. Fl. Aeg.-Arab. (1775) CV, n. 95 and p. 32.—*S. crassinervia* Hochst. in Schimp. Fl. Abyss. n. 2218.

HABITAT : I. Arabia Petraea (DeLaborde); El Tor (Musch.); Desert of Sinai (Bové); N. and S. Midian (Burton).

II. Near Hajeilah, 600 m. (Defl. 118); near Taez and Hes (Defl.); Surdud, Dahhi (Forsk.); Aden (Perry ! S. 16 ! Defl.).

III. Hadramaut : Near Shibam, 1,000 ft. (Lunt 175 !); Plain of Dhofar (Bent 141 !); near Shibam (Hirsch 40).

IV. Masqat (Auch.-Eloy 5255 !).

FL. : Jan. 1894 (Lunt), Mar. 1878 (Perry), Apr. 1877 (S.). Apr. 1878 (Burton).

FR. : Apr 1877 (S) Nov 1888 (S.).

DISTRIB.: N. and tropical Africa, Arabia, Palestine, Syria, Persia, Sind, Punjab, Ceylon.

Vern. name: *redif* (Forsk.), *rak*, *rhag*, *rakkar*, *lishlich*, *arak*, (Musch.), *khardal* (Post).

NOTE: Differs from the E. Indian plant by the flowers almost sessile.

Uses: The natives of Aden eat the berries and use the woody branches for cleaning the teeth. In Yemen the plant is used for other purposes. Forskahl writes: "In magno est pretio. Fructus maturus edulis. Folia contusa imponuntur tumoribus Uarm dictis et bubonibus Rihl. Sed vis antitoxica adeo famosa, ut carmine quoque celebretur." (Fl. Aeg.-Arab. p. 32).

### 3. *Azima* Lam.

1. *A. tetracantha* Lam.; A. DC. in DC. Prodr. xvii, 29; This.-Dyer Fl. Trop. Afr. iv, 22.

HABITAT: III. Dhofar Mts.: General all over (Bent 104!).

DISTRIB.: Trop. and S. Africa, Mascarene Islands, Trop. Asia.

## LXVI. APOCYNACEAE.

### 1. *Carissa* L.

1. *C. edulis* Vahl Symb. Bot. i, (1790) 22; Jaub. & Sp. III. Pl. Or. t. 459; Defl. Yemen (1889) 163; This.-Dyer Fl. Trop. Afr. iv, 8.—*C. Candolleana* Jaub. & Sp. l. c. t. 497.—*C. cornifolia* Jaub. & Sp. l. c. t. 498.—*C. Richardiana* Jaub. & Sp. l. c. t. 496.—*C. Schimperi* Balf. f. in Trans. Roy. Soc. Edin. xxxi, 157 (non A. DC.).—*Antura* Forsk. Fl. Aeg.-Arab. (1775) CVI, n. 137 and p. 63.—*A. hadiensis* G. & Gmel. Syst. 405.

HABITAT: II. Hadayah, Djobla (Forsk.); Hille, J. Bura (S. 335!); near Attara, 1,800—2,000 m. (Defl. 401, 404); between Dhamar and Ycrim, 2,500 m. (Defl. 642); round Hes and Taez (Botta).

FR.: JAN. 1889 (S.).

DISTRIB.: Tropical Africa, Socotra, Arabia.

Vern. name: *antur*, *emir jasir*, *arm* (Forsk.), *la'dh*, *la'h* (S.).

### 2. *Acokanthera* G. Don.

1. *A. Schimperi* Schweinf. in Boll. Soc. Afr. Italia x, (1891) n. XI- XII, 12; This.-Dyer Fl. Trop. Afr. iv, 93.—*A. abyssinica* K. Schum. in Engl. & Prantl Pflanzenf. iv, ii, 124.—*Carissa abyssinica* R. Br. in Salt Abyss. App. iv.—*C. Schimperi* A. DC. Prodr. viii, 675; Defl. Yemen (1889) 163.—*C. Mepte* Hochst. in Flora (1844) 101.—*Strychnos absysinica* Hochst. ex DC. l. c.

HABITAT: II. Near Hajeilah, 500-600 m. (Defl. 150); near Taez, 1,400 m. (Defl. 696); 60 miles N of Aden (Hunter!).

DISTRIB.: Eritrea, Abyssinia, Somaliland, Brit. E. Africa, Trop. Arabia.

NOTE: For economic uses see Stapf in This.-Dyer Fl. Trop. Afr. iv, 94, and Defl. l. c. Vogtherr in Köhler Mediz. Pf. III. text to t. 64

VAR. *Deflersii* Stapf in This.-Dyer l. c. 94.—*A. Deflersii* Schweinf. ex Lewin neEngl. Jahrb. xvii, Beibl. 41, 46; L. Planchon Prod. Apocyn. 250.

HABITAT: II. Wady Madfar near Hajeilah. 600 m. (S. 928 !); Agara near Hajeilah, 600 m. (S. 917!).

FL.: Jan., Feb. 1889 (S.).

DISTRIB.: Eritrea, Somaliland, Brit. E. Africa, Yaman.

Vern. name: *Athber*, *Thebir* (S.).

NOTE: Con. tube 9 mm., anthers and stigma exactly as in *A. Schimperii*.

### 3. *Rhazya* DCNE.

1. *R. stricta* DCNE. Pl. l'Arab. Heur. in Ann. Sc. Nat. ser. 2, iv, (1835) 81; Kotschy in Sitzb. Kais. Akad. Wiss. lii, (1866) 8; Baker in Kew Bull. (1894) 334.

HABITAT: I. N. Midian (Burton!).

II. Hijaz (ex Kotschy); Jiddah and W. Bachara (Fischer 97!); Jiddah (Zohrab! Schimp. 812! Ehrenb. 269!).

III. Hadramaut: Sandy or stony beds of the valley between Tokham and Ghafit, 200 ft (Lunt 73!); Sel near Sehut (Hirsch 47).

IV. Neighbourhood of Regat in Central Arabia (Pelly!).

FL.: Mar. 1865 (Pelly), Dec. 1835 (Schimp.), Dec. 1893 (Lunt).

FR.: Mar. 1865 (Pelly), Dec. 1835 (Schimp.).

DISTRIB.: Arabia, Afghanistan, Sind.

Vern. name: *Hérmel*, *adfir* (Hirsch).

NOTE: Named so after Rhazy an Arab physician who wrote on Botany. Voy. Tourn. Inst. Isag. Spr. Hist. rei Herb.

### 4. *Vinca* L.

1. *V. herbacea* W. K. Pl. Rar. Hung. 8, t. 9; Boiss. Fl. Or. iv, (1879) 45; Post Fl. Syr. (1896) 522.

HABITAT: I. Arabia Petraea (ex Boiss ex Pcst).

DISTRIB.: Europe, E. Mediterranean region.

### 5. *Nerium* L.

1. *N. mascatense* A. DC. Prodr. viii, 421; Boiss. Fl. Or. iv, (1879) 48.

HABITAT: IV. Masqat (Auch.-Elcy 4925).

DISTRIB.: Arabia, Persia.

2. *N. Oleander* L. Sp. Pl. (1753) 209; Boiss. Fl. Or. iv, (1879) 47; Hook. f. Fl. Brit. Ind. iii, 655; Carter in Rec. Bot. Surv. Ind. vi, (1917) 198.

HABITAT: IV. Koweit, without number (Cox).

DISTRIB.: Asia Minor to the Mediterranean region. In India found occasionally as a garden plant.

Vern. name: Arab. "*daflak*" or "*dafa*". Pers. "*Khar zahara*", the latter word meaning the "asses' bane" which agrees with the name the Italians give to Oleander, viz. "*Amnaya d'assino*." Muschler corroborates the Arabic name while both are quoted in Watt's. D. E. P.

6. *Adenium* R. et S.

1. *A. arabicum* Balf. f. Trans. Roy. Soc. Edinb. xxx, 162.— *A. Honghel* Bot. Reg. xxxii, t. 54 (Ic. tantum, non descript.) non DC. Prodr. viii, 412; Blatt. Fl. Aden (1915) 240.— *A. obesum* Anders. Fl. Aden. (1860) 23 (syn. partim excl.) non Roem. et Schult.— *A. obesum* Hook. Bot. Mag. t. 5918 (Ic. tantum, non descript.).

HABITAT: II. Aden (S. 69! Birdw. 86! Beevor 67! T. Anders.! Thomson! Hook. 103! Playfair! Defl.! Balfour!).

FL.: Mar. 1862 (Playfair), May 1859 (Anders.), Dec. (S.).

FR.: Mar. 1862 (Playfair).

DISTRIB.: Endemic.

Vern. name: *Aden, Dobbiana* (S.).

NOTE: According to Schumann (Symb. Phys. Pars Bot. 1900, p. 5) another species of *Adenium* would occur at Aden, viz.:—

*Adenium obesum* (Forsk.) Roem. et Schult. Syst. Veg. iv, 411, of which he gives the following synonyms:

*Adenium Honghel* A. DC. in DC. Prodr. viii, 412.

*Nerium obesum* Forsk. Fl. Aeg.-Arab. 205.

*Cameraria obesa* Sprengel Syst. i, 641.

*Pachypodium obesum* G. Don Gen. Syst. iv, 80.

*Adenium arborescens* Ehrenberg.

In addition he wishes to be included: *Adenium multiflorum* Kl. and *A. Boehmianum* Schinz.

I doubt whether there are two species of *Adenium* at Aden. The specimens I have been able to examine do certainly not belong to *Adenium obesum* Roem. et Schult., but to *A. arabicum* Balf. The genus requires careful revision, and as its representatives are very variable, there is no hope of deciding the numerous doubtful points without detailed observations *in loco*.

*Cf. etiam* Balfour in his Botany of Socotra and Stapf' diagnoses.

2. *A. micranthum* Stapf in Kew Bull. (1894) 334.

HABITAT: III. Hadramaut: Near Dobaibah 4,000 ft. (Lunt 215); Shari Burrock valley, Mukalla 200 ft. (Lunt 48).

FL.: Feb. 1894 (Lunt).

DISTRIB.: Endemic.

3. *A. obesum* Roem. & Schult. Syst. Veg. iv, 411; Defl. Yemen (1889) 163; C. Schumann Symb. Phys. Bot. (1900) 5. t. IV.— *A. arboreum* Ehrenb. ex Schum. l. c.— *Nerium obesum* Forsk. Fl. Aeg.-Arab. (1775) CVII, n. 173 and p. 205.

HABITAT: II. W. Ujara and Kara (ex Schum.); Hille, J. Bura (S. 291!); Chalife (S. 183!); Milhan, Surdud, Hadiyah (Forsk.); W. Bilad Lisan, plentiful, 300-500 m. (Defl. 43); Wulej and Wasil (S.).

FL.: Dec. 1888 (S.).

FR.: Dec. 1888 (S.).

DISTRIB.: Arabia, Tropical Africa.

Vern. name: *Aden, Oddaejn* (Forsk.), *Udein* (ex Schum.).

4. *Adenium* sp.

HABITAT: II. W. el Neqil (Defl. 233!).

FL.: Jan. 1890 (Defl.).

NOTE: Certainly a new species. Another specimen of Dhofar Mts. coming very near.

## LXVII. ASCLEPIDACEAE.

1. *Periploca* L.

1. *P. aphylla* Dcne. in Jacq. Voy. Bot. 109, t. 116; Boiss. Fl. Or. iv, (1879) 50; Post Fl. Syr. (1896) 524; This.-Dyer Fl. Trop. Afr. iv, 257.

HABITAT: I. Sinai (Auch.-Eloy 1502!); Desert of Sinai (Bové).

? Central Arabia: Ravine passed on Mar. 2nd (Pelly!).

DISTRIB.: Nubia, Egypt, Arabia, Persia, N.-W. India.

Vern. name: *Murch* (Pelly), *Halab* (Post).

NOTE: Eaten abundantly (Pelly).

2. *Steinheiler* Dcne.

1. *S. radians* Dcne. in Ann. Sc. Nat. ser. 2, ix, 339; Anders. Fl. Aden. (1860) 24; Defl. Yemen (1889) 163; Mém. Inst. Eg. (1896) 256; Blatt. Fl. Aden (1915) 247. — *Asclepias radians* Forsk. Fl. Aeg.-Arab. (1775) CVIII, n. 182 and p. 49.

HABITAT: I. N. Midian (Burton!).

II. Hijaz: Mt. Cara (Schimp. 1028!); Beit el Fakih (Forsk.); Hes (Defl.); Jiddah (Zohrab 92!); Shuqra (S. 74! Defl.); Aden (Perry! Hildebr. 76 8b! Balfour, Lunt 346! Anders. Thomson! Ol. & Cl. Defl! S.!) ; neighbourhood of Aden (Hunter 99!).

III. Hadramaut: High Plateau (Hirsch 19).

FL.: Jan. 1880 (Balfour), Mar. 1881 (S.), Apr. 1894 (Lunt), May 1873 (Hildebr.), June 1872 (Hildebr.).

FR.: June 1872 (Hildebr.).

DISTRIB.: Arabia, Somaliland.

Vern. name: *Faka'* (Burton).

NOTE: The unripe follicles are edible (Hildebr.).

3. *Glossonema* Dcne.

1. *G. arabicum* Defl. in Mém. Inst. Eg. (1896) 257.

HABITAT: II. J. Nakhai (Defl. 522).

FL.: Mar. & Apr. 1890 (Defl.).

DISTRIB.: Endemic.

2. *G. Boveanum* Dcne. in Ann. Sc. Nat. ser. 2, ix, 335, t. 12, f. D; Boiss. Fl.-Or. iv, (1879) 61; This.-Dyer Fl. Trop. Afr. iv, 292; Blatt. Fl. Aden (1915) 243.—*Cynanchum Boveanum* Dcne. Pl. l'Arab. Heur. in Ann. Sc. Nat. ser. 2, iv, (1835) 82.—*G. affine* N. E. Br. in Kew Bull. (1895) 249.—*Petalostemma Chenopodii* R. Br. in Salt, Abyss. App.—*Gomphocarpus pauciflorus* Hochst. et Steud. in Schimp. Pl. Abyss. n. 20.

HABITAT: II. Yaman: Near Ferihe (Schimp. 920!); Jiddah (Ehrenb. Zohrab 134! 158! Fischer 198!); Aden (Thomson! Lunt 338! Boycott! Edgew. Birdw. Defl. S.); Red Sea: Perim Is. (Farmer!).

III. Hadramaut (Hirsch 21a)

FL.: Apr. 1894 (Lunt), Dec.—Jan. (Fischer).

FR.: Feb. 1836 (Schimp.).

DISTRIB.: Egypt, Nubia, Eritrea, Abyssinia, Arabia.

**3. *G. edule*** N. E. Br. in Kew Bull. (1895) 183.

HABITAT : III. Foot of Dhofar Mts. (Bent 175 ! ) ; Hadramaut (Hirsch 21 b).

DISTRIB. : Endemic.

Note : Eaten as salad (Bent)

**4. *Solenostemma*** Hayne.

1. *S. Argel* Hayne, *Arzneyk. Gewächse* ix, 38 ; *Boiss. Fl. Or.* iv, (1879) 56 ; *Post Fl. Syr.* (1896) 525 ; *This.-Dyer Fl. Trop. Afr.* iv, 402.—*Cynanchum Argel* Del. in *Mém. Eg.* iii, 319.—*Argelia Delilii* Dcne. in *Ann. Sc. Nat.* ser. 2, ix, 331, t. 11, f. G.

HABITAT : I. Arabia Petraea : Wady Gurra (Schimp. 376 ! 437 ! ) ; Sinai Peninsula (Holland ! ) ; Wadies S. of Dead Sea and southward (ex Post).

FL. : July 1835 (Schimp.).

DISTRIB. : Nubia, Kordofan, Egypt, Arabia Petraea.

Vern. name : 'Arjel (Post).

**5. *Oxystelma*** R. Br.

1. *O. esculentum* R. Br. var. *Alpini*. N. E. Br. in *This.-Dyer Fl. Trop. Afr.* iv, 382.—*O. Alpini* Dcne. in *DC. Prodr.* viii, 543 ; *Post Fl. Syr. etc.* (1896) 525.—*O. ægypticum* Dcne. l. c. 504.—*Periploca Secamone* Del. *Fl. Aeg.* III. 56 (*non L.*).

HABITAT : I. S. of Dead Sea and southward (ex Post)

DISTRIB. : Abyssinia, Egypt, Arabia Petraea, Syria.

Vern. name : Libbein (Post).

**6. *Calotropis*** R. Br.

1. *C. procera* R. Br. in *Hort. Kew.* ed. 2, 78 ; *Del. Frag. Fl. Arab. Petr.* (1833) n. 38 ; *Boiss. Fl. Or.* iv, (1879) 57 ; *Defl. Yemen* (1889) 164 ; *Mém. Inst. Eg.* (1896) 258 ; *Baker in Kew Bull.* (1894) 334 ; *Post. Fl. Syr.* (1896) 526 ; *This.-Dyer Fl. Trop. Afr.* iv, 294 ; *Musch. Verh. Bot. Ver. Prov. Brandenb.* xlix, (1907) 113 ; *Blatt. Fl. Aden* (1915) 244.—*Asclepias gigantea* Forsk. *Fl. Aeg.-Arab.* (1775) CVIII, n. 184.—*A. procera* Willd. *Sp. Pl.* i, 1263.

HABITAT : I. Sinai to Tor (Lor<sup>d</sup> ! ) ; Sinai (Holland ! ) ; from Dead Sea to Sinai and Egypt (ex Post) ; Wady es Sle (Kneuck.) ; Arabia Petraea (De Laborde) ; Desert Ka'a (Musch.) ; Wady Hebran (Schimp. 412).

II. Jiddah (Fischer 155 ! ) ; near Ydiz and Mefhak, 1,800 m. (Defl.) ; near Taez, 1,300 m. (Defl.) ; near Hodeidah and Merawa (Defl.) ; Aden (Lunt 326 ! Perry ! Defl. ! S. ! Birdw. ! ).

III. Hadramaut : Between Sibeh and Tahiyeh, 1,300 ft. (Lunt 113 ! ) ; Hadramaut : Everywhere (Hirsch 99).

FL. : Feb. &amp; Mar. 1837 (Fischer), Mar.-Apr. 1878 (Perry), Apr. 1894 (Lunt), June 1868 (Lord), Dec. 1893 (Lunt).

FR. : Mar. &amp; Apr. 1878 (Perry), Apr. 1894 (Lunt), Dec. 1893 (Lunt).

DISTRIB. : Tropical Africa, Egypt, Arabia, Persia, Afghanistan.

Vern. name : 'Oscher (Hirsch) 'Ushr, 'ushâr, Mantaneh (Post).

Name of fruit : *beid-el 'ushâr*.

7. *Asclepias* L.

1. *A. Forskalii* Roem. & Shultz S 8 vi, 85; Defl. in Mém. Inst. Eg. (1896) 258.—*A. nivea* Forsk. Fl. Aeg.-Arab. (1775) CVIII, n. 183 and p. 51.

HABITAT : II. Lohaja (Forsk.).

DISTRIB. : Endemic.

Vern. name : *Ghaschoe* (Forsk.).

2. *A. fruticosa* L. Sp. Pl. (1 53) 216; This.-Dyer Fl. Trop. Afr. iv, 330.—*Gomphocarpus fruticosus* R. Br. in Mem. Wern. Soc. i, 38; Boiss. Fl. Or. iv, (1879) 61; Defl. Yemen (1889) 163.

HABITAT : I. Wadies S. of Dead Sea (Tristram).

II. Near Manakhah, 2,400 m. (Defl. 261); near Sanah, 2,300 m. (Defl. 552); near Taz (Defl.); near Hayfan and Serrya (Defl.).

DISTRIB. : S. Europe, Africa, Mascarene Islands, Arabia.

Vern. name : 'Arjel (Post).

3. *A. setosa* Forsk. Fl. Aeg.-Arab. (1775) CVIII, n. 181 and p. 51.—*Gomphocarpus setosus* R. Br. in Mem. Wern. Soc. i, 38; Kotschy Sitzb. Kais. Akad. Wiss. lii, (1866) 8; Defl. Yemen (1889) 164; Mém. Inst. Eg. (1896) 258; Baker in Kew Bull (1894) 335.

HABITAT : II. Round Hes and Taz (Botta); near Attara, 1,800—2,000 m. (Defl. 267), near Taz, 1,300 m. (Defl. 679); Okeber, J. Milhan (S. 810 !); Hijaz (ex Kotschy); near Hadiyah and Zebid (Forsk.).

III. Hadramaut : near Bir-Bachban, 3,500 ft. (Lunt 197 !).

FL. : Jan. 1889 (S.), Feb. 1894 (Lunt).

FR. : Feb. 1894 (Lunt).

DISTRIB. : Endemic.

Vern. name : *Sabia*, *dhraeba* (Forsk.), *soubbah*, *sibbah*, *Kusche* (S.).

4. *A. sinaica* Musch. Fl. Eg. ii, (1912) 753.—*Gomphocarpus sinaicus* Boiss. Diagn. Pl. Or. ser. 1, xi, 80; Fl. Or. iv, (1879) 61.—*G. fruticosus* Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 258.

HABITAT : I. Sinai (Holland ! Drake 29 ! Ehreub. ; Auch.-Eloy 1511); Sinai Peninsula : W. Gennah and neighbourhood (Lord !); Desert of Sinai (Bové 93 ! Schimp. 379 !); Dead Sea to Sinai (ex Post); Arabia Petraea (McDonald !); Arabia Petraea : W. Feiran (Boiss. !); W. es Sheikh (Hart !); W. Tarfa, W. es Sebâ 'yie and W. Schu'aib (Kneuck.).

II. Taifa (Botta); Hijaz (Schimp. 1029 !); Yaman (Defl. 620 !).

FL. : Mar. 1846 (Boiss.), May 1868 (Lord), June 1832 (Bové), June (Schimp.).

FR. : Mar. 1846 (Boiss.), May 1868 (Lord), June 1835 (Schimp.)

DISTRIB. : Egypt, Arabia, Palestine.

Vern. name : *Aryel* (Bové), 'Argel Gheil, *Ghalqat-ed-D'ib* (Post), *Herke* (Schimp.).

8. *Kanahia* R. Br.

1. *K. laniflora* R. Br. in Mem. Wern. Soc. i, 40; This.-Dyer, Fl. Trop. Afr. iv, 296; Blatt. Fl. Aden (1915) 252.—*Asclepias laniflora* Forsk. Fl. Aeg.-



Arab. (1775) CVIII, n. 180 and p. 51; Vahl Symb. Bot. i, (1790) 23, t. 7.—*K. Delilei* Dene. in Ann. Sc. Nat. ser. 2, ix, 330.—*K. Forskalii* Defl. Yemen (1889) 164; Mém. Inst. Eg. (1896) 258.

HABITAT: II. Djobla (Forsk.); near Hajeilah, 700 m. (Defl. 177); near Attara, 2,000 m. (Defl. 416); Wulej, J. Milhan (S. 754!); J. Maamara (Botta); neighbourhood of Aden (Hunter 77! 135!).

III. S. Arabia (Hirsch 32!).

FL.: Jan. 1889 (S.).

FR.: Jan. 1889 (S.).

DISTRIB.: Eritrea, Abyssinia, Somaliland, German E. Africa, Arabia.

Vern. name: *Gourreh* (Dell.), *kanah* (Forsk.), *gurr* (S.).

### 9. *Cynanchum* L.

1. *C. acutum* L. Sp. Pl. (1753) 212. Boiss. Fl. Or. iv, (1879) 60; Post Fl. Syr. (1896) 526.

HABITAT: I. El'Araba (ex Post).

DISTRIB.: Mediterranean region, Transcaucasus, Altai.

### 10. *Sarcostemma* R. Br.

1. *S. Forskalianum* Schult. Syst. vi, 117; Defl. in Mém. Inst. Eg. (1896) 259.—*Asclepias aphylla* Forsk. Fl. Aeg.-Arab. (1775) CVIII, n. 186 and p. 50.—*A. contorta* Forsk. l. c. n. 188.

HABITAT: II. Surlud, Hadiyah, J. Milhan (Forsk.).

DISTRIB.: Endemic.

Vern. name: *dagabis*, *hönned*, *milaeb*, *ockas*, *rodaa* (Forsk.).

NOTE: Eaten by cattle (Forsk.).

2. *S. stipitaceum* R. Br. in Mem. Wern. Soc. i, 50; Defl. Yemen (1889) 164; Mém. Inst. Eg. (1896) 258; Baker in Kew Bull. (1894) 335.—*Asclepias stipitacea* Forsk. Fl. Aeg.-Arab. (1775) CVIII, n. 187 and p. 50.

HABITAT: II. Yaman: everywhere (Forsk.); near Hajeilah, 500 m. (Defl. 133); J. Menif, near Sheikh Saïd, near Serrya (Defl.).

III. Hadramaut: Sibeh, 750 ft. (Lunt 101!).

DISTRIB.: Endemic.

Vern. name: *Rideh* (Forsk.), *Redd*, *ridd* (S.).

NOTE: For economic uses see Forsk. 51.

3. *S. viminale* R. Br. in Mem. Wern. Soc. i, (1809) 51; Defl. Yemen (1889) 164.—*S. aphyllum* Hochst. Herb. Schimp. Abyss. ii, n. 1186.—*Cynanchum viminale* L. Syst. Veg. 257.—*Euphorbia viminalis* L. Sp. Pl. (1753) 452.

HABITAT: II. Near Hajeilah, 500 m. (Defl. 143).

DISTRIB.: Trop. and S. Africa, Yaman.

### 11. *Pentatropis* R. Br.

1. *P. spiralis* Dene. Ann. Sc. Nat. ser. 2, ix, 327, t. 2E; Boiss. Fl. Or. iv, (1879) 58; Defl. Yemen (1889) 164; Mém. Inst. Eg. (1896) 259; Post Fl. Syr. (1896) 527.—*P. cynanchoides* R. Br. in Salt Abyss. App. 64; Kotschy in Sitzb. Kais. Akad. Wiss. lii, (1866) 8; This.-Dyer Fl. Trop. Afr. iv, 380; Blatt. Fl.

Aden (1915) 246.—*Asclepias spiralis* Forsk. Fl. Aeg.-Arab. (1775) CVIII, n. 179 and p. 49.

HABITAT: II. Near Zebid and Beit-el-Fakih (Defl. 718); near Hajeilah, 500 m. (Defl. 142); J. Bura (S.); Shuqra (Defl.); Shaikh Othman (S. 120! Defl. !); J. Dola near Vuma (Lunz 32!); near Lohaja (Forsk.); Hijaz (ex Kotschy); Jiddah (Fischer 172! Zohrab 297! Schimp. 989!).

III. Dhofar Mts. (Bent 230!).

IV. Masqat (Auch.-Eloy 4026!).

FL.: Jan. 1837 (Fischer), Dec. 1835 (Schimp.), Dec. 1888 (S.).

FR.: Dec. 1888 (S.)

DISTRIB.: Senegambia, Nubia, Eritrea, Abyssinia, Arabia, India.

Vern. name: *schuntob* (Forsk.), *'orgäss* (Forsk.).

### 12. *Strobopetalum* N. E. Br.

1. *S. carnosum* N. E. Br. in Kew Bull. (1894) 390.

HABITAT: II. El Hami (S. 180).

FL.: Apr. 1881 (S.).

DISTRIB.: Endemic.

2. *S. Benti* N. E. Br. in Kew Bull. (1894) 336.

HABITAT: III. Hadramaut: From rocky sides of the dry bed of a stream at Chail-ba-Wazir, 250 ft. (Lunt 229).

DISTRIB.: Endemic.

### 13. *Daemia* R. Br.

1. *D. cordata* R. Br. in Mem. Wern. Soc. i, 50; Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 258; Schenk Sp. Pl. it. Aeg. Arab. & Syr. (1840) n. 167; Kotschy in Sitzb. Kais. Akad. Wiss. lii, (1866) 8; Boiss. Fl. Or. iv. (1879) 59; Defl. Yemen (1889) 165; Mém. Inst. Eg. (1896) 259; Blatt. Fl. Aden (1915) 248.—*Pergularia tomentosa* L. Mant. p. 53.—*Asclepias cordata* Forsk. Fl. Aeg.-Arab. (1775) CVIII, n. 178 and p. 49.—*D. incana* Dcne. in Ann. Sc. Nat. ser. 2, ii, (1834) 336.—*D. tomentosa* Pomel. Nouv. Mat. Fl. Atl. 82; Musch. Verh. Bot. Ver. Prov. Brandenb. xix, (1907) 114.

HABITAT: I. J. Hammam-Sidna-Musa, Desert Ka'a (Musch.); Arabia Petraea: W. Hebran (Schimp. 342!); Dead Sea to Sinai and Egypt (ex Post); Desert of Sinai (Bové 92!); Sinai (Holland!); Sinai Valley (Boiss. !); Central Midian (Burton!).

II. Tihamah: Badjil (S. 548!); Wasil, 1,400 m. (S. 1311!); near Sanah (Defl. 544); near Taz (Forsk.); J. Menif, J. el Areys (Defl.); Hijaz (ex Kotschy); Little Aden (Defl.).

III. Ras Schirwen (Hirsch 92).

IV. Masqat (Bent 71! Bornmüller 504!).

FL.: Jan. & Feb. 1889 (S.), Mar. 1846 (Boiss.), Apr. 1835 (Schimp.), June 1832 (Bové).

FR.: Feb. 1889 (S.), June 1832 (Bové).

DISTRIB. : N. Africa, Nubia, Egypt, Arabia, Syria, Baluchistan, Persia.

Vern. name : *Leben-el-homar* (Bové), *dasmia* (Forsk.), *Irem* (Hirsch), *Lebben-el-hamdrah* 'atmah, *ghalqah* (Post), *Ralke* (Schimp.).

2. *D. extensa* R. Br. in Mem. Wern. Soc. i, 50; Defl. Yemen (1889) 165; Mém. Inst. Eg. (1896) 260; This.-Dyer Fl. Trop. Afr. iv, 387.—*D. Forskalii* Schult. Syst. vi, 113.

HABITAT : II. Near Taez, 1,300—1,400 m. (Defl. 682, 692); near Hajeilah, 600 m. (Defl. 68, 193); near Suq-el-Khamiss, 2,200 m. (Defl. 589); Marrhal (Ehrenb.!).

III. Dhofar Mts. : W. Derbat, 300 ft. (Bent 140!).

DISTRIB. : Trop. and S. Africa, Madagascar, Arabia, India.

3. *D. glabra* Schult. Syst. vi, 113; Defl. in Mém. Inst. Eg. (1896) 260.—*Asclepias glabra* Forsk. Fl. Aeg.-Arab (1775) CVIII, n. 185 and p. 51.

HABITAT : II. Taez (Forsk.).

DISTRIB. : Endemic.

#### 14. *Tylophoropsis* N. E. Br.

1. *T. yemensis* N. E. Br. Gard. Chron. ii, (1894) 244.—*Tylophora yemensis* Defl. Yemen (1889) 165; Mém. Inst. Eg. (1896) 260.

HABITAT : II. Near Manakhah, 2,500 m. (Defl. 331); near Shibarr, 2,600—2,800 m. (Defl. 620).

DISTRIB. : Endemic.

#### 15. *Marsdenia* R. Br.

1. ? *M. Schimperii* Dcne. in DC. Prodr. vii, 616; Defl. in Mém. Inst. Eg. (1896) 260.

HABITAT : II. Foot of J. el Areys near Serrya, 500 m. (Defl.).

FR. : Apr. 1893 (Defl.).

DISTRIB. : Abyssinia, Yaman.

#### 16. *Leptadenia* R. Br.

1. *L. arborea* Schweinf. Arab Pflanzenn. (1912) 167.—*L. heterophylla* Dcne. in Ann. Sc. Nat. ser. 2, ix, (1838) 270; Boiss. Fl. Or. iv, (1879) 1197; Defl. in Mém. Inst. Eg. (1896) 261; This.-Dyer Fl. Trop. Afr. iv, 431.—*L. Forskalii* Dcne. l. c. 269, t. 10, f. B.—*L. abyssinica* Dcne. in DC. Prodr. viii, 628.—*L. Delile* Dcne. in DC. l. c.—*Cynanchum arboreum* Forsk. Fl. Aeg.-Arab. (1775) CVII, n. 177 and p. 53.

HABITAT : II. Lonaja, Surdud (Forsk.); near Hes (Botta); near Hille (S.); Tihamah : Chalife (S. 198!); Badjil (S. 584!); Mor (Ehrenb. 142!); Lahaj : W. el Kebir (Defl. 168!).

FL. : Jan. 1889 (S.), Mar. (Ehrenb.), Dec. 1888 (S.), Dec. 1889 (Defl.).

FR. : Jan. 1889 (S.), Mar. (Ehrenb.), Dec. 1888 (S.), Dec. 1889 (Defl.).

DISTRIB. : Abyssinia, Eritrea, Sennaar, White Nile, Somaliland, Arabia.

Vern. name : *torah*, *kerenna*, *kesch*, *dali* (Forsk.), *qorena*, *qarinne* (S.).

Note : For iconomic uses see Forsk. l. c.

2. *L. ephedriiformis* Defl. Yemen (1889) 166.—*Periploca ephedriiformis* Schweinf. ex Defl. in Mém. Inst. Eg. (1896) 256.—*Socotora aphylla* Balf. f. Proc. Roy. Soc. Edimb. xii, (1883) 77.

HABITAT: II. Near Wasil, 1,400 m. (S. 1231!); Hille, J. Bura (S. 310!); near Attara, 200 m (Defl.); J el Areys, 500 m., W. Moaden (Defl.).

FL.: Feb. 1889 (S.).

FR.: Feb. 1889 (S.).

DISTRIB.: Arabia, Socotra.

Vern. name: *march, defess, wodhomm, meslat nimr* (S.).

Note: Said to have tanning properties (Edgell).

3. *L. pyrotechnica* Dcne. in Ann. Sc. Nat. ser. 2, ix, (1838) 269; Boiss. Fl. Or. iv, (1879) 62; Defl. Yemen (1889) 166; Post Fl. Syr. (1896) 527.—*Oynanckum pyrotechnicum* Forsk. Fl. Aeg.-Arab. (1775) CVIII, n. 176 and p 53.—*Periploca pyrotechnicum* Spr. Del. Herb. Aeg., Dcne. Fl. Sin. in Ann. Sc. Nat. ser 2, ii. (1834) 258.—*L. Spartium* Wight Contrib. Bot. Ind. 48; This. Dyer, Fl. Trop. Afr. iv, 432.

HABITAT: I. Arabia Petraea: Marcha (Schimp. 722!); Mt. Sinai (Bové); Dead Sea to Sinai and Egypt (ex Post).

II. Yaman (Bové 256!); Jiddah (Zobrab 227!); between Zebid and Beit el Fakih (Defl. 716); W. Mor (Forsk.); near el Hauta, near Bir Ahmed, near el Dhala (Defl.); W. Saylet near de Beyt el Amir (Defl. 244!).

FR.: Mar. 1831 (Bové).

DISTRIB.: Senegal, Kanem, Nubia, Kordofan, Somaliland, Arabia, India.

Vern. name: *March* (Forsk.), *Markh* (Post).

Note: For medical uses see Forsk. l. c. For iconomic uses see Fiori, 312.

### 17. *Ceropegia* L.

1. *C. boerhaaviifolia* Defl. in Mém. Inst. Eg. (1896) 264. Bull. Soc. Bot. France, xliii, (1896) 112.

HABITAT: II. J. el Areys near Serrya, 300-400 m. (Defl. 412).

FL.: Mar. 1890 (Defl.).

DISTRIB.: Endemic.

Vern. name: *Seneinah* (Defl.).

2. *C. rupicola* Defl. Yemen (1889) 167; Mém. Inst. Eg. (1896) 264.

HABITAT: II. Near Attara, 1,800-2,000 m. (Defl. 405); J. el Kayami (Defl.).

FL.: May (Defl.).

DISTRIB.: Endemic.

3. *C. sepium* Defl. Yemen (1889) 167; Mém. Inst. Eg. (1896) 264.

HABITAT: II. Near Manakhah, 2,000 m. (Defl. 382).

Fl.: May (Defl.).

DISTRIB.: Endemic.

4. *C. squamulata* Dcne. in Ann. Sc. Nat. ser. 2, ix, (1838) 263, t. IX; Defl. Mém. Inst. Eg. (1896) 265.

HABITAT: II. Near Tuez in W. Sina (Botta).

DISTRIB.: Endemic.

5. *C. tubulifera* Defl. in Mém. Inst. Eg. (1896) 262; Bull. Soc. Bot. France xliii, (1896) 111.

HABITAT: II. J. el Areys near Serrya, 200-300 m. (Defl. 799).

FL.: Mar. 1893 (Defl.).

DISTRIB.: Endemic.

6. *C. variegata* Dcne. in Ann. Sc. Nat. ser. 2, ix, (1838) 262.

HABITAT: H. Yaman: Wulej, Hill of Mashaba (S. 738!); Yaman (Botta)!

FR.: Jan. 1889 (S.).

DISTRIB.: Endemic.

*Ceropegia* sp. Defl. Yemen (1889) 168.

HABITAT: II. W. Schaba near Hajeilah, 500-600 m. (Defl. 142).

### 18. *Echidnopsis* H. f.

1. *E. Bentii* N. E. Br. in Kew Bull. (1901) 141.

HABITAT: S. Arabia (Bent).

DISTRIB.: Endemic.

2. *E. cereiformis* Hook. f. Bot. Mag. t. 5930; Defl. in Mém. Inst. Eg. (1896) 265; This.-Dyer Fl. Trop. Afr. iv, 475.

HABITAT: II. J. el Areys, 500-800 m. (Defl.); Wasil, 1,400 m. (S. 1324).

DISTRIB.: Eritrea, Abyssinia, Somaliland, Yaman.

3. *E. nubica* N. E. Br. in Kew Bull. (1895) 263; This.-Dyer Fl. Trop. Afr. iv, 475; Schweinf. Arab. Pflanzennamen (1912) 116.—*Stapelia multangula* Forsk. Fl. Aeg.-Arab. (1775) CVIII, n. 192 and p. 52.—*E. Dammaniana* Schweinf. in Gartenfl. (1895) 633—637, f. 124, 125.

HABITAT: II. Mountains of Yaman (S.); Uahfad (Forsk.).

DISTRIB.: Nubia, Eritrea Yaman.

Vern. name: *sak el ghorab* (Forsk.).

4. *E. scutellata* Berger Stapelieen und Kleinien (1910) 26.—*Caralluma scutellata* Defl. in Mém. Inst. Eg. (1896) 268; Bull. Soc. Bot. France xliii, (1896) 114.

HABITAT: II. W. Moaden, 300 m. (Defl. 1167).

FL.: May 1894 (Defl.).

FR.: May 1894 (Defl.).

DISTRIB.: Endemic.

### 19. *Caralluma* B. Br.

1. *C. aaronis* N. E. Br. in Gard. Chron. xii, (1892) 369.—*Boucerosia aaronis* Hart in Trans. Roy. Irish Acad. xxviii, (1885) 436; Post Fl. Syr. (1896) 528.

HABITAT: I. J. Hor (Hart).

DISTRIB.: Arabia Petraea, Palestine.

2. *C. adenensis* K. Schum. in Engl.-Prantl Pflanzenfam. iv, 2, 277; Blatt. Fl Aden (1915) 250.—*Boucerosia adenensis* Defl. in Mém. Inst. Eg. iii, 270; Bull. Soc. Bot. France, xliii, (1896) 115.

HABITAT: II. Near Shuqra, J. Nakhai near Massana (Defl.); Aden (Defl. ! S! Thomson!).

FL.: Dec. 1888 (S.).

FR.: Apr. 1861 (Thomson).

DISTRIB.: Endemic.

NOTE: Deflers says that the flowers are sometimes quite inodorous, and that at other times, they exhale an offensive odour of decaying flesh. Carnivorous flies are attracted by the smell and deposit their larvae in the Corolla-tube. It is probable that, by doing so, they are the agents of pollination, carrying the pollinia of one plant to another.

3. *C. anemoniflora* Berger Stapelien und Kleinien (1910) 125.—*Stapelia anemoniflora* Defl. in Mém. Inst. Eg. (1896) 276; Bull. Soc. Bot. France, xliii, (1896) 118.

HABITAT: II. J. el Areys near Serrya, 150-200 m. (Defl. 387).

FL.: Mar. (Defl.).

DISTRIB.: Endemic.

4. *C. arabica* N. E. Br. in Kew Bull. (1895) 318; Defl. in Mém. Inst. Eg. (1896) 270.

HABITAT: III. S. Arabia: W. Raida, near Sehut (Hirsch 28a!).

DISTRIB.: Endemic.

5. *C. Aucheriana* N. E. Br. in Gard. Chron. xii, (1892) 369.—*Boucerosia Aucheriana* D C. Prodr. viii, 649; ? Defl. Yemen (1889) 169.

HABITAT: II. Mt. Sidr (Fischer 102!); Hijaz: mountains near Tayfa (Schimp. 1033!); Aden (Balfour! Thomson!).

IV. Masqat (Auch.-Eloy).

FR.: Apr. 1861 (Thomson).

DISTRIB.: Endemic.

Note: For this genus cf. N. E. Br. in Gard. Chron. (1892) xii, 369.

6. *C. Awdeliana* Berger Stapelien und Kleinien (1910) 81.—*Boucerosia Awdeliana* Defl. in Mém. Inst. Eg. (1896) 272; Bull. Soc. Bot. France, xliii (1896) 116.

HABITAT: II. Yaman: J. Nakhai, 700 m. (Defl. 485).

FL.: Mar. (Defl.).

DISTRIB.: Endemic.

7. *C. chrysostephana* Berger Stapelien und Kleinien (1910) 115.—*Stapelia chrysostephana* Defl. in Mém. Inst. Eg. (1896) 274; Bull. Soc. Bot. France, xliii, (1896) 117.

HABITAT : II. J. el Areys, 500-600 m. (Defl. 1071).

FL. : Apr. 1893 (Defl.).

FR. : Apr. 1893 (Defl.).

DISTRIB. : Endemic.

8. *C. cicatricosa* N. E. Br. in Gard. Chron. xii, (1892) 369.—*Boucerosia cicatricosa* Defl. Yemen (1889) 170.—*B. Forskalii* Dene. in DC. Prodr. viii, 648 (partim); Defl. l. c. 169.—*Desmidorchis* Ehrenb. Linnaea (1829) 24.—*U. Forskalii* K. Schum. in Engl.-Prantl Pflanzenfam. iv, 2, 277; Blatt. Fl. Aden (1915) 251.

HABITAT : II. Manakhah, 2,000 m. (S. 1618!); Wulej, J. Milhan (S. 692!); J. Sabor (Botta); near Manakhah, 2,000 m. (Defl. 435) Aden (Defl. Balfour!).

FL. : Feb. 1889 (S.).

FR. : Jan. 1889 (S.).

DISTRIB. : Endemic.

Vern. name : *kusma, draet el Kelbe* (S.).

9. *C. commutata* Berger Stapelieen und Kleinien (1910) 105.

HABITAT : II. Manakhah (S. ex Berger).

DISTRIB. : Endemic.

10. *C. dentata* nov. comb.—*Boucerosia dentata* Defl. in Mém. Inst. Eg. (1896) 273.—*Stapelia dentata* Forsk. Fl. Aeg.-Arab. (1775) CVIII, n. 191.—*Huernia multangula* Schweinf. Arab. Pflanzennamen (1912) 143.

HABITAT : II. Hadiyah, Surdud (Forsk.).

DISTRIB. : Endemic.

Vern. name : *Djadmél, draat el kelb* (Forsk.).

11. *C. flava* N. E. Br. in Kew Bull. (1894) 335; Defl. in Mém. Inst. Eg. (1896) 269.

HABITAT : III. Hadramaut : W. Hadiea, 2,000 ft. (Lunt 184!); Wady Rada near Sehut (Hirsch 28!).

DISTRIB. : Endemic.

12. *C. Luntii* N. E. Br. in Kew Bull. (1894) 335; Defl. in Mém. Inst. Eg. (1896) 270.

HABITAT : III. S. Arabia : Hills near Dobaibah, 4,000 ft. (Lunt 209!).

DISTRIB. : Endemic.

13. *C. penicillata* N. E. Br. in Gard. Chron. xii, (1892) 370.—*Boucerosia penicillata* Defl. Yemen (1889) 169.—*Echidnopsis Golathi* Schweinf. ex Defl. in Mém. Inst. Eg. (1896) 267.—*E. penicillata* Schweinf. Arab. Pflanzennamen (1912) 164.—*C. robusta* N. E. Br. in This. Dyer Fl. Trop. Afr. iv, i, 482.

HABITAT : II. Near Mefhak, 1,800 m. (Defl. 597); Hille, Wasil (S.); Hajeilah (S. 938!); Wulej, J. Milhan (S. 693!).

FR. : Jan. 1889 (S.).

DISTRIB. : Eritrea, Arabia.

Vern. name : *gholathi, ghaleth, ghalath, ghalaf* (S.).

14. *C. quadrangula* N. E. Br. in Gard. Chron. xii, (1892) 369.—*Boucerosia quadrangula* Dcne. ex Ind. Kew. i, 327.—*Echidnopsis quadrangula* Defl. in Mém. Inst. Eg. (1896) 265 ; Bull. Soc. Bot. France, xliii, (1896) 113.—*Stapelia quadrangula* Forsk. Fl. Aeg.-Arab. (1775) CVIII, n. 190 and p. 52, t. VI.—*S. quadrangula ramosa* Forsk. l. c. n. 194.—*B. Forskalii* Dcne. in DC. Prodr. viii, 648 (*partim*).

HABITAT : II. Surdud (Forsk.) ; J. Nakhai, 700 m. (Defl. 505).

II. and III. From the lower and middle mountainous region of Yaman to the Western borders of Hadramaut.

FL. : Apr. (Defl.).

FR. : Apr. (Defl.).

DISTRIB. : Endemic.

Vern. name : *Gholef, gholaes, gholak* (Forsk.).

15. *C. sinaica* Berger Stapelieen und Kleinien (1910) 55.—*Boucerosia sinaica* Dcne. in DC. Prodr. viii, 649 ; Boiss. Fl. Or. iv, (1879) 63 ; Post Fl. Syr (1896) 528.

HABITAT : I. Mt. Sinai (Auch.-Eloy 2850).

DISTRIB. : Endemic.

16. *C. subulata* Dcne. in Ann. So. Nat. ser. 2, ix, 267 ; Baker in Kew Bull. (1894) 335 ; Defl. in Mém. Inst. Eg. (1896) 268.—*Stapelia subulata* Forsk. Fl. Aeg.-Arab. (1775) CVIII, n. 193.

HABITAT : II. Gumfuda (Ehrenb. ! ) ; near Shuqra (Defl.) ; middle mountainous region (Forsk.).

III. Hadramaut : Sibeh, 750 ft. (Lunt 103 !).

FL. : Dec. 1893 (Lunt).

DISTRIB. : Endemic.

17. *C. torta* N. E. Br. in Kew Bull. (1901) 142.

HABITAT : S. Arabia or Socotra (Bent).

DISTRIB. : Endemic.

18. *Caralluma* sp.-*Boucerosia* sp. in Mém. Inst. Eg. (1896) 274.

HABITAT : II. Between Hes and Taz, 900 m. (Defl. 707) ; near Manakhah, 2,000 m. (Defl. 445).

## 20. *Duvalia* Haw.

1. *D. sulcata* N. E. Br. in Kew Bull. (1910) 193.

HABITAT : III. Hadramaut (Bent).

DISTRIB. : Endemic.



21. *Huernia* R. Br.

1. *H. arabica* N. E. Br. in Kew Bull. (1895) 265.—*H. Penzigii* N. E. Br. in Gard. Chron. (1892) 719; This.-Dyer Fl. Trop. Afr. iv, i, 496. var. *arabica* Berger Stapelieen Kleinien (1910) 133.

HABITAT: II. Hille, J. Bura (S. 374!); Wulej (S. 722).

FL.: Jan. 1889 (S.).

DISTRIB.: Endemic.

Vern. name: *draet-el-Kelbe, ketab* (S.).

## LXVIII. LOGANIACEAE.

1. *Nuxia* Lam.

1. *N. dentata* R. Br. in Salt Abyss. (1814) App. 62; This.-Dyer Fl. Trop. Afr. iv, i, 513.—*Lachnopylis oppositifolia* Hochst.; A. DC. Prodr. ix, 23.

HABITAT: II. Wasil, 1,400 m. (S. 1331!).

FL.: Feb. 1889 (S.).

DISTRIB.: Tropical Africa, Arabia.

Vern. name: *rumma* (S.).

2. *Buddleia* L.

1. *B. polystachya* Fres. in Flora xxi, (1838) 605; Defl. Yemen (1889) 170; This.-Dyer Fl. Trop. Afr. iv, i, 515.—*B. acuminata* et *B. foliata* R. Br. in Salt Abyss. App. 62.

HABITAT: II. Manakhah, Kahil, 2,500 m. (S. 1467!); near Manakhah, 2,500 m. (Defl. 332).

FL.: Feb. 1889 (S.).

DISTRIB.: Abyssinia, Eritrea, Arabia.

Vern. name: *ashâr* (S.).

## LXIX. GENTIANACEAE.

1. *Erythraea* DC.

1. *E. Centaurium* Pers. Syn. i, (1805) 283; Boiss. Fl. Or. iv, (1879) 68; Post Fl. Syr. (1896) 529; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1079) 113.

HABITAT: I. W. es Sle (Musch.).

DISTRIB.: Europe, N. Africa, Arabia Petraea. Palestine.

2. *E. latifolia* Smith Engl. Fl. i, (1824) 321; Boiss. Fl. Or. iv, (1879) 67; Musch. Fl. Eg. ii, (1912) 732.

HABITAT: I. Arabia Petraea (ex Musch.).

DISTRIB.: Europe, Mediterranean region, Persia.

3. *E. maritima* Pers. Syn. i, (1805) 283; Boiss. Fl. Or. iv, (1879) 68; Post Fl. Syr. (1896) 529; Musch. Fl. Eg. ii, (1912) 733.

HABITAT: I. Arabia Petraea (ex Musch.).

DISTRIB.: Europe, N. Africa, Arabia Petraea, Syria.

4. *E. ramosissima* Pers. Syn. i, (1805) 283; Boiss. Fl. Or. iv, (1879) 67; Post Fl. Syr. (1896) 529.—*E. pulchella* Fries Nov. 74.

HABITAT: I. Sinai Peninsula: W. Feiran and neighbourhood (Lord!); W Feiran (Kneuck. !); Mt. Sinai (Lord!).

IV. Masqat (Auch.-Eloy 4961!).

FL.: May 1868 (Lord), June 1832 (Bové).

FR.: May 1868, (Lord), June 1832 (Bové).

DISTRIB.: Europe, Mediterranean region.

Vern. name: *Qantariyân, qantariyân* (Post).

5. *E. spicata* Pers. Syn. i, (1805) 283; Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 258; Boiss. Fl. Or. iv, (1879) 69.—*E. Babylonica* Griseb. in DC. Prodr. ix, 60.

HABITAT: I. Desert of Sinai (Bové 90!).

DISTRIB.: Europe, N. Africa, Arabia Petraea, Mesopotamia, Persia, Transcaucasus, Afghanistan.

Vern. name: *Semoum* (Bové).

## 2. *Swertia* L.

1. *S. decumbens* Vahl Symb. Bot. i, (1790) 24; Jaub. & Sp. Ill. Pl. Or. t. 437; Defl. Yomen (1839) 171.—*Parnassia polynectaria* Forsk. Fl. Aeg.-Arab. (1775) CIX, n. 224.

HABITAT: II. Manakhah, 2,300 m. (S. 1379!); near Manakhah, 2,500 m. (Defl. 297); rear Hadiyah (Forsk.).

FL.: Feb. 1889 (S.).

FR.: Feb. 1889 (S.).

DISTRIB.: Endemic.

Vern. name: *kosam* (S.).

## LXX. BORAGINACEÆ.

### 1. *Cordia* L.

1. *C. abyssinica* R. Br. in Salt Abyss. (1814) App. 65; This.-Dyer Fl. Trop. Afr. iv, ii, 8. — ? *Tenuab* Forsk. Fl. Aeg.-Arab. (1775) 197, n. XXXII.

HABITAT: II. Hajeilah, W. Madfar (S. 924!).

FL.: Jan. 1889 (S.).

FR.: Jan. 1889 (S.).

DISTRIB.: Tropical Africa, Arabia.

Vern. name: *Tenneb* (S.).

2. *C. Gharaf* Ehrenb. ex Aschers. in Sitzber. Naturf. Fr. Berlin (1879) 46. — *C. Rothii* R. & Sch. Syst. Veg. iv, 798; Boiss Fl. Or. Suppl. (1888) 350; This.-Dyer Fl. Trop. Afr. iv, ii, 18.—*O. subopposita* DC. Prodr. ix 480; Rich.

Fl. Abyss. ii, 81.—*Cornus Gharaf* Forsk. Fl. Aeg.-Arab. (1775) XCV —*Cornus sanguinea* Forsk. l. c. CV, n. 96 and p. 33 (*non L.*).

HABITAT: II. Lohaja, Surdud, Hadiyah, everywhere in Yaman (Forsk.); Jiddah (Zohrab 207!).

III. Dhofar Mts. (Bent 126!).

-DISTRIB.: Tropical Africa, Arabia, India.

Vern. name: *Gharaf*, *orneb*, *anneb*, *eschell*, *sehæli* (Forsk.).

Note: For iconomic uses see Forsk. p. 33.

3. *C. Myxa* L. Sp. Pl. (1753) 190; Boiss. Fl. Or. iv, (1879) 124; Post Fl. Syr. (1896) 532; This.-Dyer Fl. Trop. Afr. iv, ii, 14.—*C. Sebestena* Forsk. Fl. Aeg. Arab. (1775) LXIII, n. 136 (*non Alii*).

HABITAT: IV. Masqat, cultivated (Auch.-Eloy 4965!).

DISTRIB.: Tropical Africa, Madagascar, Egypt, Arabia, tropical Asia, Queensland.

Vern. name: *Mochajet* (Forsk.), *Dibq* (Post).

Note: For iconomic uses see Post l. c.

4. *C. ovalis* Hochst. Pl. Abyss. Schimp. n. 1218; Defl. Yemen (1889) 171; This.-Dyer Fl. Trop. Afr. iv, ii, 15.—*C. rubra* Hochst. ex Rich. Fl. Abyss. ii, (1851) 82.—*C. Myxa* Rich. l. c. (*partim, non L.*).

HABITAT: II. Near Wasil, 1,000 m. (Defl. 229).

DISTRIB.: Angola, British E. Africa, Darfur, Abyssinia, Eritrea, Arabia.

## 2. *Ehretia* L.

1. *E. abyssinica* R. Br. in Salt. Abyss. App. 64; Rich. Fl. Abyss. ii, (1851) 82; Defl. Yemen (1889) 171; This.-Dyer Fl. Trop. Afr. iv, ii, 23.

HABITAT: II. Agara, Hajeilah (S. 1019!); Hajeilah, W. Madfar (S. 922!); Bilad Hodgeria, J. Yabdur (Defl. 579!); Hajeilah, 600–800 m. (Defl. 84, 189).

FL.: Jan. 1889 (S.).

FR.: Jan. 1889 (S.), Apr. 1890 (Defl.).

DISTRIB.: Abyssinia, Eritrea, Arabia.

Vern. name: *mgeif* (S.).

2. *E. obtusifolia* Hochst. ex DC. Prodr. ix, 507; Defl. Yemen (1889) 171; This.-Dyer Fl. Trop. Afr. iv, ii, 25.—*E. obovata* R. Br. in Salt. Abyss. App. 64.

HABITAT: II. W. Ssarif, Manakhah, 2,200 m. (S. 1696!); near Hajeilah, 600 m. (Defl. 108, 119); between Hes and Taz, 600 m. (Defl. 709).

FL.: Mar. 1889 (S.).

FR.: Mar. 1889 (S.).

DISTRIB.: Abyssinia, Eritrea, Angola, Arabia, Socotra, Sind, Punjab.

## 3. *Heliotropium* L.

1. *H. adenense* Gürke Herb. Berol. ex Krause in Engl. Bot. Jahrb. xxxv, Heft. 5, p. 51; Blatt. Fl. Aden (1915) 257.

HABITAT: II. On a rocky slope of the Shum Shum Range (Ellenb. 126). Endemic in Aden.

DISTRIB.: Endemic.

Note: "*H. adenense* Gürke is nearly allied to *H. strigosum* (Forsk.) Willd. and seems to approach *H. albo-hispidum* Baker in Kew Bull. 1895, p. 220 which occurs in Somaliland. Not long ago two species from Hadramaut have been described, viz. *H. congestum* Baker and *H. drepanophyllum* Baker, from which *H. adenense* is chiefly distinguished by its lax and erect inflorescence." Krause l. c.

We had no opportunity of seeing the type-specimen of this species, and the London herbaria do not contain any specimen corresponding to the above description.

2. *H. arbainense* Fres. Mus. Senck. i, 168; Dene. Fl. Sin. in Ann. Sc. Nat ser. 2, ii, (1834) 255; Schenk Sp. Pl. it. Aeg. Arab. & Syr. (1840) n. 145; Post Fl. Syr. (1896) 534; This.-Dyer Fl. Trop. Afr. iv, ii, 36; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 115.

HABITAT: I. W. es Sle, W. Tarfa (Kneuck.); Et Tih (ex Post); Desert of Tor (Bové 87! Musch.); Arabia Petraea (McDonald!); Sinai (Auch.-Éloy 2377!); W. Hebran (Schimp. 225!); W. Sheikh (Boiss.); W. Arbain, 5,000 ft. (Rüppell); N. and Central Midian (Burton!).

II. W. Fatimah (Schimp. 847!); Jiddah (Zohrab 105! Botta!).

FL.: Feb. 1836 (Schimp.), June 1832 (Bové).

FR.: Feb. 1836 (Schimp.), June 1832 (Bové).

DISTRIB.: Nubia, Egypt, Arabia, Syria, Afghanistan.

Vern. name: *Meséré* (Bové), *Raháh*, *Qurfah* (Post).

Note: Cattle eat (Burton).

3. *H. bacciferum* Forsk. Fl. Aeg.-Arab. (1775) CV, n. 106 and p. 38.

HABITAT: II. Lohaja (Forsk.).

DISTRIB.: Endemic.

Vern. name: *Hakhfa* (Forsk.).

4. *H. Bottæ* Defl. Yemen (1889) 172.

HABITAT: II. Near Sanah and Raudha, 2,300 m. (Defl. 5008); near Taer, 1,300 m. (Defl. 690); Yaman (Botta)

DISTRIB.: Endemic.

5. *H. cinerascens* Steud. ex DC. Prodr. ix, 534; This.-Dyer Fl. Trop. Afr. iv, ii, 39.

HABITAT: Tropical Arabia (ex This.-Dyer).

DISTRIB.: Abyssinia, Eritrea, Arabia.

6. *H. congestum* Baker in Kew Bull. (1894) 336.

HABITAT: III. Sandy plains between Ghafit and Sibeh, 600 ft. (Lunt 83!).

FL.: Dec. 1893 (Lunt).

FR.: Dec. 1893 (Lunt).

DISTRIB.: Endemic.

7. *H. curassavicum* L. Sp. Pl. (1753) 130; Forsk. Fl. Aeg.-Arab. (1775) CV, n. 109 and p. 38; This.-Dyer Fl. Trop. Afr. iv, ii, 35.

HABITAT: II. Yaman (Forsk.).

DISTRIB.: America, now found in many places of the Old World.

8. *H. drepanophyllum* Baker in Kew Bull. (1894) 336.  
 HABITAT: III. Hegwir (Hirsch 59); Dhofar Mts.: Merbat (Bent 12!)  
 between Tokham and Ghafit, 200 ft. (Lunt 69!).  
 FL.: Dec. 1893 (Lunt).  
 FR.: Dec. 1893 (Lunt).  
 DISTRIB.: Endemic.  
 Vern. name: *Sàlev* (Hirsch).
9. *H. Eichwaldi* Steud. Nom.; DC. Prodr. ix, 535; Boiss. Fl. Or. iv, (1879)  
 931; Baker in Kew Bull. (1894) 336.  
 HABITAT: III. Hajrain, 2,600 ft. (Lunt 144!).  
 FL.: Jan. 1894 (Lunt).  
 FR.: Jan. 1894 (Lunt).  
 DISTRIB.: Mediterranean region, Arabia, Persia, Afghanistan, Central Asia.
10. *H. eritrichioides* Kotschy in Sitzb. Kais. Akad. Wiss. lii, (1866) 9.  
 HABITAT: II. Asyr (ex Kotschy).  
 DISTRIB.: Endemic.
11. *H. europaeum* L. Sp. Pl. (1753) 130; Forsk. Fl. Aeg.-Arab. (1775) CV,  
 n. 108 and p. 38; Boiss. Fl. Or. iv, (1879) 130; Post Fl. Syr. (1896) 533.  
 HABITAT: II. Oasis of Lahaj (Defl. 108!); near Mecca (Fischer 1!) Jiddah  
 (Zohrab 142!); Mor (Forsk.).  
 FL.: Feb. 1837 (Fischer), Dec. 1889 (Defl.).  
 FR.: Dec. 1889 (Defl.).  
 DISTRIB.: Europe, Mediterranean region, Persia.  
 Vern. name: *Kerir*, *akrir* (Forsk.), *Sekran*, *'ufein* (Post).  
 Note: For medical uses cf. Forsk. 38.  
 VAR. *tenuiflorum* Boiss. l. c.; Post l. c.  
 HABITAT: I. Arabia Petraea (ex Post).  
 DISTRIB.: Mediterranean region to Persia.
12. *H. lasiocarpum* F. & M. Ind. Petrop. iv, 38; Boiss. Fl. Or. iv, (1879)  
 131.  
 HABITAT: II. Yaman (ex Boiss.).  
 IV Masqat (Auch.-Eloy 5005!).  
 DISTRIB.: Arabia, Turkestan, Persia, Afghanistan, N. W. India.
13. *H. lignosum* Vatke in Oester. Bot. Zeitschr. (1874) p. 167; This.-  
 Dyer Fl. Trop. Afr. iv, ii, p. 40; Blatt. Fl. Aden (1915) 257.—*Lithospermum*  
*lignosum* Schweinf. ex Vatke l. c.  
 HABITAT: II. Aden (S. 144!).  
 FL.: Dec. 1888 (S.).  
 FR.: Dec. 1888 (S.).  
 DISTRIB.: Nubia, Arabia, Persia.
14. *H. longiflorum* Hochst. & Steud. ex DC. Prodr. ix, 555; Jaub. & Sp.  
 Ill. Pl. Or. t. 360; Defl. Yemen (1889) 172; Baker in Kew Bull. (1894) 337

This.-Dyer Fl. Trop. Afr. iv, ii, 41.— *Heliophytum longiflorum* A. DC. in DC. Prodr. ix, 555.

HABITAT: II. Mor (Ehrenb. 163 ! 164 !); Shuqra (S. 82 Tihamah: Marrana (S. 172 !); Jiddah (Zohrab 236 !); S. of J. el Areys, 250 m. (Defl. 370 !); W. Jalut near Juma (Lunz 13 !); Mt. Sidr (Fischer 2 ! Schimp. 842 !); Lahaj (Defl. 159 !); Yaman (Botta); near Hajeilah, 600 m. (Defl. 60).

III. Palm garden at Alrail, 2,000 ft. (Lunt 125 !); Dhofar Mts. (Bent 121 !)

FL.: Feb. 1836 (Schimp.), Feb. 1837 (Fischer), Mar. 1881 (S.), Mar. 1890 (Defl.), Dec. 1888 (S.), Dec. 1889 (Defl.), Dec. 1893 (Lunt).

FR.: Feb. 1836 (Schimp.), Mar. 1881 (S.), Mar. 1890 (Defl.), Dec. 1888 (S.), Dec. 1889 (Defl.), Dec. 1893 (Lunt).

DISTRIB.: Tropical Africa, Arabia.

Vern. name: *choneira* (Lunz).

Note: Used as a purgative by Arabs (Lunz).

VAR. **lophocarpa** Jaub. & Sp. l. c. t. 361.

HABITAT: II. Tarfa (Botta).

DISTRIB.: Endemic.

15. **H. luteum** Poir. in Lam. Encyclop. Suppl. iii, 22; Kotschy in Sitzb. Kais. Akad. Wiss. lii, (1866) 9; Post Fl. Syr. (1896) 534.—*H. lineatum* Del. Ill. Fl. d' Eg. 37, t. 17 (*non Vahl*).—*Lithospermum digynum* Forsk. Fl. Aeg.-Arab. (1775) LXII, n. 108 and p. 40.

HABITAT: I. Arabia Petraea (Mc Donald !); near Tor (Bové); from Dead Sea to Sinai and Egypt (ex Post).

II. Hijaz (ex Kotschy).

DISTRIB.: Egypt, Arabia, Palestine, Syria.

Vern. name: *hismah, fureish, halamah, rehamah, rughl, natash* (Post).

16. **H. ophioglossum** Stocks ex Aitch. Cat. Pl. Punjab p. 94; Boiss. Fl. Or. iv, (1879) 145; Hook. Fl. Brit. Ind. iv, 149; Blatt. Fl. Aden (1915) 256.—*H. stylosum* Franch. Sert. Somal. in Miss. Revoil p. 45, tab. 4 (*non Philippi*).

HABITAT: II. Aden (S. 31 ! Beever 25 ! Perry ! Lunt ! Birdw. !).

FL.: Mar. 1878 (Perry), Mar. 1881 (S.).

FR.: Mar. 1878 (Perry), Mar. 1881 (S.).

DISTRIB.: Somaliland, Arabia, Persia, Baluchistan, Sind.

17. **H. ovalifolium** Forsk. Fl. Aeg.-Arab. (1775) CV, n. 110 and p. 38; This.-Dyer Trop. Afr. iv, ii, 34; Musch. Fl. Eg. ii, (1912) 784.—*H. apiculatum* E. Mey. in Drège Pflanzeng. Doc. 93.—*H. Kunzii* Lehm. Ic. & Desc. Stirp. 19, t. 29; Boiss. Fl. Or. iv, (1879) 130.—*H. cinereum* R. Br. in Salt Abyss. App. 63.

HABITAT: I. Arabia Petraea (ex Musch.).

II. El Hami (S. 163 !); Hadiyah (Forsk.); Agara, Hajeilah (S. 1020 !).

III. Dhofar Mts. (Bent 86 !).

FL.: Feb. 1889 (S.), Apr. 1881 (S.).

FR.: Apr. 1881 (S.).

DISTRIB.: Mediterranean region, Tropical and N. Africa, Arabia.

**18. *H. pallens*** Del. Cent. Plant. Afric. Caill. (1826) 69, t. 3, f. 4; Boiss. Fl. Or. iv, (1879) 132; This.-Dyer Fl. Trop. Afr. iv, ii, 33; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 114.

HABITAT: I. J. Hammam-Sidna-Musa, J. Nakus (Musch.).

DISTRIB.: Tropical Africa, Nubia, Egypt, Sinai.

**19. *H. paradoxum*** Vatke in Oesterr. Bot. Zeitschr. (1875) p. 167; Blatt. Fl. Aden (1915) 259.

HABITAT: II. Shaikh Othman (Hildebr. 769!).

FL.: June 1872 (Hildebr.).

FR.: June 1872 (Hildebr.).

DISTRIB.: Endemic.

**20. *H. pterocarpum*** Hochst. & Steud. Schimp. Pl. Abyss. n. 835; DC. Prodr. ix, 552; Kotschy in Sitzb. Kais. Akad. Wiss. lii, (1866) 9; Defl. Yemen (1889) 173; This.-Dyer Fl. Trop. Afr. iv, ii, 35; Blatt. Fl. Aden (1915) 256.—*Heliophytum pterocarpum* DC. l. c.

HABITAT: II. Shuqra (S. 107!); Tihamah, everywhere (Defl.); Hijaz and Asyr (ex Kotschy); Jiddah (Fischer 16! Schimp. 835! Zohrab 84!); Mor, Lohnjæ, Gumfuda (Ehrenb.!); Shaikh Othman (Defl.!); Aden (Ol. & Cl.! S.! Birdw.!); Yaman (Bové).

III. Hadramaut (Hirsch 38).

FL.: Jan. 1863 (Ol. & Cl.), Feb. 1836 (Schimp.), Mar. 1881 (S.).

FR.: Jan. 1863 (Ol. & Cl.), Feb. 1836 (Schimp.), Mar. 1881 (S.).

DISTRIB.: Eritrea, Somaliland, Socotra, Arabia.

Vern. name: *Hèbr* (Hirsch).

**21. *H. rotundifolium*** Sieb. exs.; Boiss. Fl. Or. iv, (1879) 144; Post Fl. Syr. (1896) 534.

HABITAT: I. Borders of Et-Tih (ex Post).

DISTRIB.: Arabia Petraea, Palestine, Syria.

**22. *H. somalense*** Vatke in Oesterr. Bot. Zeitschr. (1875) 166; This.-Dyer Fl. Trop. Afr. iv, ii, 43.

HABITAT: II. Above Manakhah, 2,500 m. (S. 1557!).

FR.: Feb. 1889 (S.).

DISTRIB.: British Somaliland, Yaman.

**23. *H. strigosum*** Willd. Sp. Pl. i, 743; Anders. Fl. Aden. (1860) 25; Boiss. Fl. Or. iv, (1879) 143; Defl. Yemen (1889) 172; Baker in Kew Bull. (1894) 337; This.-Dyer Fl. Trop. Afr. iv, ii, 41; Blatt. Fl. Aden (1915) 254.—*H. fruticosum* Forsk. Fl. Aeg.-Arab. (1775) CV, n. 107 and p. 3<sup>a</sup>.—*H. parvifolium* Edgew. Journ. As. Soc. Beng. xvi, 1216.—*H. bicolor* Hochst. & Steud. in Schimp. Pl. Abyss. n. 569.—*H. tenuifolium* R. Br. Prodr. 494.

HABITAT: I. Arabia Petraea: Mt. Sidr (Schimp. 848!).

II. Mor (Forsk.); W. Fatimah (Fischer 5!); Mor and W. Djarā (Ehrenb.); near Hajeilah, 500—600 m. (Defl. 159); Aden (S. 17! Perry! Thomson! Ol. & Cl! Defl! Edgew.! Hook!).

III. Hills near Sibeñ and Dobaibah, 600—3,000 ft. (Lant).

FL. : Jan. 1863 (Ol. & Cl.), Feb. (Fischer), Mar. 1878 (Perry), Nov. 1888 (S.), Dec. 1847 (Hook.).

FR. : Mar. 1878 (Perry), Nov. 1888 (S.), Dec. 1847 (Hook.).

DISTRIB. : Tropics of the old World.

Vern. name : *Haschfa* (Forsk.).

VAR. *cordofanum* Schweinf. MS.—*H. cordofanum* Hochst. & Steud ex DC. Prodr. ix, 546.

HABITAT : II. Tihamah : Chalifa (S. 228!).

FL. : Dec. 1888 (S.).

FR. : Dec. 1888 (S.).

24. *H. supinum* L. Sp. Pl. (1753) 130; Boiss. Fl. Or. iv, (1879) 127; Post Fl. Syr. (1896) 532; Musch. Fl. Eg. ii, (1912) 783.—*Lithospermum heliotropioides* Forsk. Fl. Aeg.-Arab. (1775) LXII, n. 109 and p. 39.

HABITAT : I. Arabia Petraea (ex Musch.).

H. Yaman (Ehrenb. 159!).

Central Arabia : On the 2nd March (Pelly!).

FL. : June (Ehrenb.).

FR. : June (Ehrenb.).

DISTRIB. : S. Europe, Canaries, Africa, Arabia, Syria, India.

Vern. name : *Ghubeirah* (Post).

25. *H. thymoides* Jaub. & Sp. IM. Pl. Or. t. 362.

HABITAT : II. Yaman (Botta).

DISTRIB. : Endemic.

Note : Very near *H. strigosum* Willd.

26. *H. undulatum* Vahl. Symb. Bot. i, (1790) 13; Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 255; Boiss. Fl. Or. iv, (1879) 147; Post Fl. Syr. (1896) 534; This.-Dyer Fl. Trop. Afr. iv, ii, 37, Blatt. Fl. Aden (1915) 258.—*H. ramosissimum* Sieber ex. Aegypt; DC. Prodr. ix, 536.—*H. eriocarpum* Del. in Lehm. Asper. 55; Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 255.—*H. nubicum* Bunge in Bull. Soc. Nat. Mosc. Vol. lli. 1, p. 330.—*H. pericum* Lam. Encycl. iii, 94; Boiss. Fl. Or. iv, (1879) 147; Defl. Yemen (1889) 172; Post Fl. Syr. (1896) 534; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 115.—*H. cressoides* Franch. Sert. Somal. 46.—*H. marocanum* Lehm. Asper. 56.—*Lithospermum hispidum* Forsk. Fl. Aeg.-Arab. (1775) LXII, n. 106, CV, n. 105 and p. 38.

HABITAT : I. Neighbourhood of El Tor (Bové); Et Tih (Bové 86!); W. es Sle, Plain of Raha, W. es Sheikh (Kneuck.); W. Sewook and neighbourhood (Lord!); Dead Sea to Sinai and Egypt (ex Post); Sinai : W. Kyd (Holland!); Sinai desert (Schimp. 726!); Sinai (Niebuhr); desert of Ka'a (Musch.).

II. Mor (Ehrenb.); near Sanah and Raudha, 2,300 m. (Defl. 524); S. W of J. Nakhai, 600-800 m. (Defl. 489); Aden (Defl. 53!); neighbourhood of Aden (Hunter!).



III. Dhofar Mts. : Merbat (Bent 1!); Wady Yidnut (Hirsch 78). Arabia (Wellsted!).

FL. Apr. 1868 (Lord), Aug. 1835 (Schimp.), Dec. (Defl.).

FR. : Apr. 1868 (Lord), Aug. 1835 (Schimp.).

DISTRIB. : Extends from the Cape Verde Islands through North Africa, Arabia, Socotra and Tropical Asia.

Vern. name : *Sgáa* (Forsk.), *Hábeg* (Hirsch).

27. *H. zeylanicum* Lam. Encycl. iii, 94 (*non Wall.*); This.-Dyer Fl. Trop. Afr. iv, ii, 31; Blatt. Fl. Aden (1915) 255.—*Tournefortia subulata* Hochst. ex DC. Prodr. ix, 528; Defl. Yemen (1889) 171.—*H. subulatum* Hochst. Nub. n. 163; DC. l. c. 523.—*T. Edgeworthii*, DC. l. c. 529.—*H. gracile* R. Br. in Salt Abyss. App. 63.

HABITAT : I. Arabia Petraea (ex Musch.).

II. Tihamah : W. Kalte (Lunz 16!); W. Hedjan, Wasil, 1,200 m. (S. 1262!); W. Seylet (Defl. 237!); Mor, Togadele, Guinfuda (Ehrenb.!); near Wasil, 1,000 m. (Defl. 254); near Taz, 1,300 m. (Defl. 687); Aden (Defl. Birdw.!).

FL. : Feb. 1889 (S.), Feb. (Ehrenb.).

FR. : Feb. 1889 (S.), Feb. (Ehrenb.).

DISTRIB. : Mediterranean region, tropical Africa, Orient, India.

#### 4. *Trichodesma* R. Br.

1. *T. africanum* R. Br. Prodr. 496; Dene. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 256; Boiss. Fl. Or. iv, (1879) 280; Defl. Yemen (1889) 173; Baker in Kew Bull. (1895) 184; Post Fl. Syr. (1896) 535; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 115. *Borago verrucosa* Forsk. Fl. Aeg.-Arab. (1775) LXII, n. 117 and p. 41.

HABITAT : I. Arabia Petraea (McDonald!); S. of Dead Sea (ex Post); W. Hebran (Schimp. 226!); Sinai (Auch.-Eloy 2339!); near Ferieh (Fischer 196!); W. Rim, 3,500 ft. (Rüppell), desert of Tor (Bové 80,81); J. Hammam-Sidus-Musa, J. Nakus, desert Ka'a (Musch.); W. es Sle, W. Tarfa, W. es Sheikh, W. Aleyat (Kneuck.).

II. Near Sanah, 2,300 m. (Defl. 537).

III. Dhofar Mts. (Bent).

IV. Masqat (Auch.-Eloy 5023!).

FL. : Apr. 1835 (Schimp.).

FR. : Apr. 1835 (Schimp.).

DISTRIB. : Cape Verde Islands, Africa, Arabia, Syria to Sind.

Vern. name : *lizzeig*, *Khudr*, *shauk-ed-dab'*, *hamimah*, *kurreisq* (Post).

2. *T. calathiforme* Hochst. in Flora (1844) 29; This.-Dyer Fl. Trop. Afr. iv, ii, 49.—*Friedrichsthalia trichodesmoides* Bunge, Delect. Sem. Hort. Darpat. (1848) 7.—*Streblanthera trichodesmoides* Steud. ex Hochst. in Flora (1844) 29; Rich. Fl. Abyss. ii, (1851) 92.

HABITAT : II. Yaman (Botta).

DISTRIB. : Abyssinia, Somaliland, Arabia.

**3. T. cardiosepalum** Oliv. Ic. Pl. 2436.

HABITAT : III. Foot of Dhofar Mts. (Bent 115!).

DISTRIB. : Endemic.

**4. T. Ehrenbergii** Schweinf. in Sched. Pl. Eg. 1857; Boiss. Fl. Or. iv, (1879) 281.—*T. africanum* R. Br. var. *Ehrenbergii* Post Fl. Syr. (1896) 535.—*Borrigo arabica* Ehrenb. MS.

HABITAT : I. Sinai (ex Post).

II. Jiddah (Ehrenb. 148!).

DISTRIB. : Egypt, Arabia.

**5. T. kissenioides** Defl. in Bull. Soc. Bot. France, xliii, (1896) 119.

HABITAT : II. J. el Areyh, 500-600 m. (Defl. 1076)

FL. : Apr. 1893 (Defl.).

FR. : Apr. 1893 (Defl.).

DISTRIB. : Endemic.

**6. T. Stocksii** Boiss. Diagn. Fl. Or. ser. 2, iii, 140; Fl. Or. iv, (1879) 282.

HABITAT : IV. Masqat (Auch.-Eloy 5025!).

DISTRIB. : Arabia, Baluchistan.

**5. Cynoglossum** L.**1. C. Bottae** Defl. Yemen (1889) 173.

HABITAT : II. J. Shibam, 2,400-2,800 m. (Defl. 300, 353).

DISTRIB. : Endemic.

**2. C. lanceolatum** Forsk. Fl. Aeg.-Arab. (1775) CV, n. 111 and p. 41; Defl. Yemen (1889) 173; This.-Dyer Fl. Trop. Afr. iv, ii, 54.

HABITAT : II. Near Manakhah, 2,500 m. (Defl. 353); near Attara, 2,000 m. (Defl. 406); near Bauan, 2,600 m. (Defl. 581); J. Shibam, Manakhah, 2,400—2,600 m. (S. 1752!); Hadiyah (Forsk.); between Hes and Taz (Botta).

FL. : Feb. 1889 (S.).

DISTRIB. : Africa, Orient, Arabia, India, China, Japan, Malaya.

Vern. name: *Schenaf* (Forsk.).

**3. C. pictum** Ait Kew. i, 179; Boiss. Fl. Or. iv, (1879) 265; Post Fl. Syr. (1896) 536.

HABITAT : I. Arabia Petraea (ex Post).

DISTRIB. : Mediterranean region.

Vern. name: *Lisán-eh-kebi* (Post).**6. Paracaryum** Boiss.

**1. P. micranthum** Boiss. Diagn. Pl. Or. ser. 1, xi, 129; Fl. Or. iv, (1879) 255; Post Fl. Syr. (1896) 538.—*Omphalodes intermedia* DCne. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 255; Schenk Sp. Pl. it. Aeg. Arab. & Syr. (1840) n. 159.—*Cynoglossum intermedium* Fres. Mus. Senck. i, (1833) 169.

HABITAT: I. Mt. Horeb (Auch.-Eloy 2288!); Arabia Petraea (Boiss.! McDonald! Pinard!); Mt. Sinai (Schimp. 123! Bové 88! 89! Drake 48; Holland!); Et Tih and Sinai (ex Post).

FL.: Mar. 1846 (Boiss.), Apr. 1835 (Schimp.), June 1832 (Bové).

FR.: Apr. 1835 (Schimp.), June 1832 (Bové).

DISTRIB.: Egypt, Arabia Petraea, Persia, Baluchistan.

Vern. name: *Sileslé* (Bové), *Suleisileh* (Post).

2. *P. microcarpum* Boiss. Diagn. Pl. Or. ser. 2, iii, 139; Fl. Or. iv, (1879) 255; Hook. f. Fl. Brit. Ind. iv, 162; Carter in Rec. Bot. Surv. Ind. vi, (1917) 199.

HABITAT: IV. Zor Hills (Cox 77).

DISTRIB.: Afghanistan. In India found in Kashmir and the sub-alpine Western Himalayas.

Vern. name: *Fakikah* (Cox).

NOTE: A plant resembling '*hamar*' in general appearance and growth. It has tiny blue flowers and grows on sandy plains.

3. *P. myosotoides* Boiss. Diagn. Pl. Or. ser. 1, xi, 130; Fl. Or. iv, (1879) 257; Post Fl. Syr. (1896) 538.—*Cynoglossum myosotoides* Labill. Decad. ii, 6, t. 2; Del. Frag. Fl. Arab. Petr. (1838) n. 36.

HABITAT: I. Arabia Petraea (De Laborde).

DISTRIB.: E Mediterranean region.

Vern. name: *Rabesché* (Schimp.).

4. *P. rugulosum* Boiss. Diagn. Pl. Or. ser. 1, xi, 129; Fl. Or. iv, (1879) 256; Post Fl. Syr. (1896) 538.—*P. persicum* Boiss. Diagn. l. c.—*Omphalodes myosotoides* Fres. Mus. Seuck. i, (1833) 170 (non Labill.).

HABITAT: I Mt. Horeb (Auch.-Eloy 2287! 2286!); Arabia Petraea (Mc. Donald! Pinard!); Sinai: W. Kyd (Holland!); Mt. Sinai (Schimp. 403! Boiss.); Et Tih and southward to Sinai (ex Post).

FL.: Apr. 1835 (Schimp.).

DISTRIB.: Egypt, Arabia, Persia, Afghanistan, Baluchistan.

Vern. name: *Um-l bbeid* (Post).

## 7. *Lappula* Mönch.

1. *L. sinaicum* Aschers.-Schweinf. in Aschers.-Schweinf. III. Fl. d'Eg. (1887) 111, n. 746.—*Echinosperrum sinaicum* DC. Prodr. x, 141; Boiss. Fl. Or. iv, (1879) 251; Post Fl. Syr. etc. (1896) 539.—*E. Kotschyi* Boiss. Diagn. ser. 1, iii, 29.

HABITAT: I. Arabia Petraea: In the garden of Mt. Sinai (Boiss.); Sinai (Auch.-Eloy 2289!).

FL.: Mar. 1846 (Boiss.).

DISTRIB.: Egypt, Arabia Petraea, Palestine, Syria, Persia, Afghanistan, Baluchistan.

**2. *L. spinocarpos*** Aschers. Verh. Bot. Ver. Prov. Brandenb. xvi, (1874) 88.—*Echinosperrnum Vahliauum* Lehm. Asp. n. 103; Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 255.—*E. spinocarpos* Boiss. Fl. Or. iv, (1879) 249.—*Anchusa spinocarpos* Forsk. Fl. Aeg.-Arab. (1775) LXXII, n. 115 and p. 41.—*Myosotis spinocarpos* Vahl. Symb. Bot. ii, (1791) 32.

HABITAT: I. Arabia Petraea (Boiss.); foot of Mt. Sinai (Schimp. 178!); desert of Sinai (Bové); Convent of St. Catherine, Plain of Raha and W. es Sheikh (Kneuck.).

FL.: Mar. 1846 (Boiss.), Apr. 1835 (Schimp.).

DISTRIB.: E. Mediterranean region, Persia, Afghanistan, Baluchistan.

Vern. name: *Kleiterai* (ex Boiss.).

### 8. *Echiochilon* Desf.

**1. *E. fruticosum*** Desf. Fl. Atl. i, 67, tab. 47, DC. Prodr. x, 27; Del. Frag. Fl. Arab. Petr. (1833) n. 31; Boiss. Fl. Or. iv, (1879) 211; Post Fl. Syr. (1896) 540; Blatt. Fl. Aden (1915) 261.—*Lithospermum divaricatum* Sieb. Herb. Palaest. Spreng. Syst. i, 543.

HABITAT: I. Arabia Petraea (Boiss.; DeLaborde); Et Tih, Sinai (ex Post).

II. Aden (Birdw.).

DISTRIB.: N. Africa, Egypt, Nubia, Arabia, Palestine, Syria.

Vern. name: *Mudheirá, Kakháleh* (Post).

**2. *E. longiflorum*** Benth. in Hook. Ic. Pl. t. 1277; Gürke in Engl. and Prantl Pflanzenf. iv, 3, 130; Blatt. Fl. Aden (1915) 261.

HABITAT: II. Aden (Perry 9! Beevor! Birdw.).

FL.: Feb. 1900 (Birdw.), Mar. 1878 (Perry).

FR.: Mar. 1878 (Perry).

DISTRIB.: Endemic.

NOTE: This species was discovered by Perry in March 1878. It seems to be very rare. Perry says in a letter to Sir J. D. Hooker, dated Aden, 20th April 1878: "During a month's rambling over the North and West sides of Aden, I have only seen one solitary specimen of this plant." Herb. Kew.

### 9. *Asperugo* L.

**1. *A. procumbens*** L. Sp. Pl. (1753) 138; Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 256; Schenk Sp. Pl. it. Aeg. Arab. and Syr. (1840) n. 161; Boiss. Fl. Or. iv, (1879) 275; Post Fl. Syr. (1896) 540.

HABITAT: I. Arabia Petraea (McDonald!); Sinai (Anch.-Eloy 2345! Bové).

FL.: Apr.-May (ex Post).

DISTRIB.: Europe, N. Africa, temperate Asia.

Vern. name: *Silesle* (Bové).

### 10. *Symphytum* L.

**1. *S. orientale*** L. Sp. Pl. (1753) 136; Boiss. Fl. Or. iv, (1879) 171; Post Syr. (1896) 541; Musch. Fl. Eg. (1912) 793.

HABITAT: I. Arabia Petraea (ex Musch.).

DISTRIB.: E. Mediterranean region.

### 11. *Achusa* L.

1. *A. aegyptiaca* DC. Prodr. x, 48; Jaub. & Sp. III. Pl. Or. t. 418; Boiss. Fl. Or. iv, (1879) 159; Post Fl. Syr. (1896) 543; Kneuck. in Allg. Bot. Zeitsch. ix, (1903) 149.—*A. flava* Forsk. Fl. Aeg.-Arab. (1775) LXII, n. 111 and p. 40.

HABITAT: I. W. Tarfa, W. es Sheikh, Oasis Feiran (Kneuck.).

DISTRIB.: N. Africa, Egypt, Arabia Petraea, Palestine, Syria to Persia.

Vern. name: *Shubeit*, *dabbân* (Post).

2. *A. aggregata* Lehm. Asp. 219, t. 47; Boiss. Fl. Or. iv, (1879) 157; Post Fl. Syr. (1896) 543.

HABITAT: I. Sinai: El Ghor (ex Post).

DISTRIB.: Sicily, E. Mediterranean region to Persia.

Vern. name: *Temaliq* (Post).

3. *A. hispida* Forsk. Fl. Aeg.-Arab. (1775) LXII, n. 114 and p. 40; Boiss. Fl. Or. iv, (1879) 158; Post Fl. Syr. (1896) 543; Carter in Rec. Bot. Surv. Ind. vi, (1917) 199.

HABITAT: I. Arabia Petraea (McDonald!); Arabia Petraea: between Tih and Nuckl (Boiss.); desert of Sinai (Auch.-Eloy 2332!); Hamme near El Tor (Schimp. 224!); foot of Mt. Sinai (Schimp. 428!); S. Midian (Burton!).

IV. Masqat (Auch.-Eloy 4998!); Zor Hills (Cox 31).

FR.: Mar. 1846 (Boiss.).

DISTRIB.: N. Africa, Nubia, Egypt, Arabia to Persia, Baluchistan.

Vern. name: *G. halle* (Schimp.).

NOTE: Camels eat (Burton).

4. *A. Milleri* Willd. Enum. i, 179; Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 256; Schenk Sp. Pl. it. Aeg. Arab. & Syr. (1840) n. 144, 159; Boiss. Fl. Or. iv, (1879) 159; Post Fl. Syr. (1896) 543.

HABITAT: I. Arabia Petraea (McDonald!); W. Gennah and neighbourhood (Lord!); cultivated ground of Sinai (Bové 83!); Sinai desert (Auch.-Eloy 2331!); valleys of Sinai (Boiss.!); Mt. Sinai (Schimp. 168!); W. Arbain, 5,000 ft. (Rüppell); borders of Et Tih and El Ghor (ex Post); Central Midian (Burton!).

FL.: Apr. 1835 (Schimp.), May 1868 (Lord), June 1832 (Bové).

FR.: Mar. 1846 (Boiss.), May 1868 (Lord), June 1832 (Bové).

DISTRIB.: Egypt, Arabia Petraea, Syria, Mesopotamia.

Vern. name: *Sann-el-Tor* (Bové), *Kahala turr* (Post).

5. *A. officinalis* L. Sp. Pl. (1753) 133; Boiss. Fl. Or. iv, (1879) 151; Post Fl. Syr. (1896) 541.

HABITAT: I. Arabia Petraea (ex Post).

DISTRIB.: Europe, Arabia Petraea, Palestine, Syria.

6. *A. strigosa* Labill. Syr. Dec. iii, 7, t. 4; Boiss. Fl. Or. iv, (1879) 155; Post Fl. Syr. (1896) 542.

HABITAT : I. Mt. Hor and Petra (Hart!).

DISTRIB. : Egypt, Arabia Petraea, Palestine, Syria, Mesopotamia, Persia.

Vern. name : *Hamham* (Post).

7. *A. undulata* L. Sp. Pl. (1753) 133; Boiss. Fl. Or. iv, (1879) 152; Post Fl. Syr. (1896) 542; Musch. Fl. Eg. ii, (1912) 795.

HABITAT : I. Arabia Petraea (ex Musch.).

DISTRIB. : Mediterranean region.

### 12. *Alkanna* Tausch.

1. *A. orientalis* Boiss. Diagn. Pl. Or. ser. 1, iv, 46; Fl. Or. iv, (1879) 227; Defl. Yemen (1889) 174; Post Fl. Syr. (1896) 546; Kneuck. in Allg. Bot. Zeitsch. ix, (1903) 149.—*Lithospermum orientale* L. Syst. 156; Dene. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 256; Schenk Sp. Pl. it. Aeg. Arab. & Syr. (1840) n. 153.

HABITAT : I. Arabia Petraea (McDonald!); Sinai (Bové 8! Holland 115! Schimp. 407! Ehrenb., Boiss.); Sinai Peninsula : W. Feiran (Lord!); J. Musa (Drake!); W. es Sle, W. Tarfa (Kneuck.); near Tor (ex Schenk).

II. Manakhah, 2,300 m. (S. 1436! Defl. 278)

FL. : Apr. 1835 (Schimp.), May 1868 (Lord), June 1832 (Bové).

FR. : Apr. 1835 (Schimp.), May 1868 (Lord), June 1832 (Bové).

DISTRIB. : E. Mediterranean region to Persia.

Vern. name : *libbeid* (Post), *Lebat* (Schimp.).

2. *A. tinctoria* Tausch in Flora (1824) 234; Boiss. Fl. Or. iv, (1879) 227; Post Fl. Syr. (1896) 546.—*Anchusa tuberculata* Forsk. Fl. Aeg.-Arab. (1775) LXII, n. 112 and p. 41.

HABITAT : I. Ramleh (Hart).

DISTRIB. : S. Europe, N. Africa, E. Mediterranean region.

### 13. *Myosotis* L.

1. *M. hispida* Schlecht. Mag. Nat. Ber. viii, 229; Boiss. Fl. Or. iv, (1879) 239; Post Fl. Syr. (1896) 547.

HABITAT : I. Sinai (ex Post).

DISTRIB. : Europe, N. Africa, E. Mediterranean region to Persia.

### 14. *Lithospermum* L.

1. *L. arvense* L. Sp. Pl. (1753) 132; Boiss. Fl. Or. iv, (1879) 216; Post Fl. Syr. (1896) 548.

HABITAT : I. Arabia Petraea (ex Post).

DISTRIB. : Europe, N. Africa, Orient, Siberia, Japan.

Vern. name : *Ghabashé* (Post).

2. *L. callosum* Vahl Symb. Bot. i, (1790) 14; Schenk Sp. Pl. it. Aeg. Arab. & Syr. (1840) n. 152; Boiss. Fl. Or. iv, (1879) 219; Post Fl. Syr. (1896) 549.—*L. angustifolium* Forsk. Fl. Aeg. Arab. (1775) LXII, n. 107 and p. 39.

HABITAT: I. Arabia Petraea (Pinard! Boiss.); near Horeb (Schimp. 730!); near el Araba (ex Schenk); desert of Suez (Bové 84!); W. Gennah, W. Gharande and Ramleh (Lord!); W. es Sheikh, between W. Feiran and Mokatteb. between V. Ghurundel and W. Werdan (Kneuck.); Et Tih and southward (ex Post); N. Midian (Burton!).

III. Dhofar Mts.: Merbat (Bent 21!).

FL: Apr. 1868 (Lord), June 1832 (Bové), Aug. 1835 (Schimp.).

FR.: Apr. 1868 (Lord), June 1832 (Bové).

DISTRIB.: N. Africa, Arabia, Palestine, Persia.

Vern. name: *Jureibi*, *Halameh* (Post).

3. *L. incrassatum* Guss. Prodr. Fl. Sic. i, 211; Boiss. Fl. Or. iv, (1879) 217; Post Fl. Syr. (1896) 548; Musch. Fl. Eg. ii, (1912) 799.

HABITAT: I. Arabia Petraea (ex Musch.).

DISTRIB.: Mediterranean region.

4. *L. tenuiflorum* L. f. Suppl. 130; Boiss. Fl. Or. iv, (1879) 217; Post Fl. Syr. (1896) 548; Musch. Fl. Eg. ii, (1912) 799.

HABITAT: I. Arabia Petraea (ex Musch.).

DISTRIB.: Mediterranean region to Persia.

### 15 *Sericostoma* Stocks.

1. *S. strigosa* Defl. in Bull. Soc. Bot. France, xlii, (1896) 120.

HABITAT: II. J. el Areys, 500-600 m. (Defl. 1075).

FL.: Apr. 1893 (Defl.).

FR.: Apr. 1893 (Defl.).

DISTRIB.: Endemic.

### 16. *Arnebia* Forsk.

1. *A. cornuta* F. & M. Ind. Petr. 1835; Boiss. Fl. Or. iv, (1879) 215; Post Fl. Syr. (1896) 550.—*Lithospermum cornutum* Ledeb. Pl. Alt. i, 175; Schenk Sp. Pl. it. Aeg. Arab. & Syr. (1840) n. 152.—*A. decumbens* Coss. & Kral. in Bull. Soc. Bot. France, iv, (1857) 402.

HABITAT: I. Desert Tih (Boiss.); J. Serbal (ex Schenk); W. Useit (Boiss.); W. es Sheikh (Kneuck.).

FR.: Mar. 1846 (Boiss.).

DISTRIB.: N. Africa, Arabia, Syria, Mesopotamia, Persia, Siberia.

Vern. name: *Kahâli* (Musch.).

2. *A. hispidissima* D. C. Prodr. x, 94; Janb. & Sp. Ill. Pl. Or. t. 363; Fl. Or. iv, (1879) 213; Defl. Yemen (1889) 174; Post Fl. Syr. (1896) 549; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 115; Blatt. Fl. Aden (1915) 260.—*Toxostigma lutesum* Rich. Fl. Alys. ii, (1851) 86.—*Anchusa asperrima* Del. Fl. d'Eg. Ill. 55.

HABITAT: I. Arabia Petraea (McDonald!) desert between Suez and Ghazah (Bové 85!); Et Tih and southward (ex Post); El Tor (Musch) W Hamme and W. Feiran (Schimp. 213); N. and Central Midian (Burton!).

II. W. Fatimah (Fischer 6!); near Sanah, 2,700 m. (Deff 467); Aden (Birdw Busse).

FL.: Feb. 1837 (Fischer), July 1832 (Bové).

DISTRIB.: Egypt, Nubia, Kordofan, Abyssinia, Eritrea, Arabia, Sind, Punjab, Upper Gangetic Plain, Rajputana.

Vern. name: *Fehna* (Musch.), *attahn* (Post).

3. *A. linearifolia* DC. Prodr. x, 95; Boiss. Fl. Or. iv, (1879) 214; Post Fl. Syr. (1896) 550—*A. flavescens* Boiss. Diagn Pl. Or. ser. i, xi, 117

HABITAT: I. Et-Tih (Boiss.); Hauara (Schimp. 398!).

IV. Neighbourhood of Kuwait (Pelly!).

DISTRIB.: Tripoli, Egypt, Arabia, Syria, Persia, Baluchistan.

Vern. name: *Kahalt*, *hind-el-ghal*, *tehaltq* (Post).

4. *A. tinctoria* Forsk. Fl. Aeg.-Arab. (1775) 63; Boiss. Fl. Or. iv, (1879) 214; Post Fl. Syr. (1896) 550.—*Lithospermum tinctorum* Vahl Symb. Bot. ii, (1791) 33, t. 28.—*L. Arnobia* Del. Ill. Fl. d'Eg n. 203; Frag. Fl. Arab. Petr. (1833) n. 32.

HABITAT: I. Arabia Petraea (McDonald! Boiss., DeLaborde); Arabia Petraea: Ras Hamam (Schimp. 396!) desert of Sinai (Auch.-Eloy 2368!); Et Tih and southward (ex Boiss.).

FL.: Mar. 1835 (Schimp.).

DISTRIB.: Egypt, Arabia Petraea.

Vern. name: *Shajarat-el-arnab* (Post), *Chenan Enaghi*, *noara sphaera* (Schimp.).

### 17. *Echium* L.

1. *E. glomeratum* Poir. Dict. viii, 670; Boiss. Fl. Or. iv, (1879) 206; Post Fl. Syr. (1896) 550.

HABITAT: I. Arabia Petraea (ex Post).

DISTRIB.: Arabia Petraea, Palestine, Syria.

2. *E. italicum* L. Sp. Pl. (1753) 139; Boiss. Fl. Or. iv, (1879) 205; Post Fl. Syr. (1896) 550; Musch. Fl. Eg. ii, (1912) 803.

HABITAT: I. Arabia Petraea (ex Musch.).

DISTRIB.: Europe, N. Africa, Arabia Petraea, Palestine, Syria.

3. *E. longifolium* Del. Ill. Fl. d'Eg. 192, t. 16, f. 3; Boiss. Fl. Or. iv, (1879) 208; Post Fl. Syr. (1896) 551.

HABITAT: I. Sinai (Auch.-Eloy 2401); Sinai to Egypt (ex Post)

DISTRIB.: Egypt, Nubia, Arabia Petraea.

VAR. *nanum* Post l. c.

HABITAT: I. Et Tih (ex Post).

DISTRIB.: Endemic.



4. *E. Rauwolfii* Del. Ill. Fl. d'Eg. 212, t. 19, f. 3; Dene. Fl. Sin. in Ann. Sc Nat. ser. 2, ii, (1834) 256; Boiss. Fl. Or. iv (1879) 208; Post Fl. Syr. (1896) 551; Musch Verh. Bot. Ver. Prov. Braudenb. xlix, (1907) 115.—*Lycopsis Dioscoridis* Rauwolf It. t. 22.

HABITAT: I. Arabia Petraea (McDonald!); neighbourhood of Tor (Bové). W. Rim, 3,000 ft. (Rüppell); W Hebran (Schimp.); S. end of Dead Sea to Sinai and Egypt (ex Post); desert of Ka'a (Musch.).

DISTRIB.: Nubia, Egypt, Arabia Petraea.

Vern. name: *keheielá*, *hiná-el-ghul*, *kúdah* (Post).

5. *E. sericeum* Vahl. Symb. Bot. ii, (1791) 35; Boiss. Fl. Or. iv, (1879) 207; Defl. Yemen (1889) 174; Post Fl. Syr. (1896) 551.—*E. rubrum* Forsk. Fl. Aeg.-Arab. (1775) LXII, n. 119 and p. 41.

HABITAT: I. W. Sewook, W. Nasb (Lord!); Et-Tih and southward (ex Post); desert between Egypt and Palestine (Boiss.); Central Midian (Burton!).

II. Near Sanah, 2,300 m. (Defl. 532)

FL.: Apr. 1868 (Lord), Oct.-May (ex Post).

FR.: Apr. 1868 (Lord).

DISTRIB.: Mediterranean region.

Vern. name: *Sáq-el-hamám*, *lisán-el-'ásal* (Post).

6. *E. setosum* Vahl. Symb. Bot. ii, (1791) 35; Boiss. Fl. Or. iv, (1879) 209; Dur. & Barr. Fl. Libyc. Prodr. (1910) 170.

HABITAT: I. Arabia Petraea (ex Dur. & Barr.).

DISTRIB.: Egypt, Arabia Petraea.

### 18. *Onosma* L.

1. *O. erectum* Sibth. Fl. Græc. t. 173; Schenk Sp. Pl. it. Aeg. Arab. & Syr. (1840) n. 149.—*O. stellulatum* W. K. VAR. *erectum* Boiss. Fl. Or. iv, (1879) 202.

HABITAT: I. Near el Araba (ex Schenk).

DISTRIB.: Greece, Arabia Petraea.

2. *O. frutescens* Lam. Ill. n. 1837; Boiss. Fl. Or. iv, (1879) 190; Post Fl. Syr. (1896) 553; Musch. Fl. Eg. ii, (1912) 805

HABITAT: I. Arabia Petraea (ex Musch.).

DISTRIB.: E. Mediterranean region.

### 19. *Podonosma* Boiss.

1. *P. syriacum* Boiss. Fl. Or. iv, (1879) 178; Post Fl. Syr. (1896) 555.

HABITAT: I. Arabia Petraea (ex Post).

DISTRIB.: Arabia Petraea, Palestine, Syria to Persia.

## LXXI. CONVULVACEÆ.

1. *Stictocardia* Hallier.

1. *S. tiliaefolia* Hallier f. in Bot. Jahrb. xviii, (1894) 159.—*Ipomoea punctata* Baker in Kew Bull. (1895) 184.—*Rivea tiliaefolia* Choisy in DC. Prodr. ix, 325.

HABITAT: III. Dhofar Mts.: Derbat (Bent 229!).

DISTRIB.: Cape Verde Islands, Mascarene Islands, Arabia, India, Malaya, Philippines, West Indies.

2. *Ipomœa* L.

1. *I. aquatica* Forsk. Fl. Aeg.-Arab. (1775) CVI, n. 124 and P. 44; This. Dyer Fl. Trop. Afr. iv, ii, 170.—*I. reptans* Poir. Encycl. Suppl. iii, 460.

HABITAT: II. Zebid (Forsk.).

DISTRIB.: Tropical Africa and Asia to N. Australia.

2. *I. Batatas* Lam. Encycl. vi, 14.

HABITAT: III. Dhofar Mts. (Bent!).

DISTRIB.: Widely cultivated in tropical and sub-tropical countries of both hemispheres.

3. *I. biloba* Forsk. Fl. Aeg.-Arab. (1775) CVI, n. 123 and p. 44; Blatt. Fl. Aden (1915) 266.—*I. pescaprae* Roth. Nov. Spec. p. 109.—*Convolvulus pescaprae* L. Sp. Pl. ed. 2, 226.

HABITAT: II. Cultivated at Shaikh Othman (Defl.); Zebid (Forsk.) Aden (Birdw.).

III. Dhofar Mts.: Coast of Hafa (Bent 61!); Hadramaut: Kischin (Hirsch 73).

DISTRIB.: Seashore of both hemispheres throughout the Tropics.

Vern. name: *Sokar* (Forsk.), *Hadhau* (Hirsch).

4. *I. calycina* C. B. Cl. in Hook. f. Fl. Brit. Ind. iv, 201; Cooke Fl. Bomb. Pres. ii, 242; Blatt. Fl. Aden (1915) 266.—*I. calycina* Benth. ex C. B. Cl. in Hook. f. Fl. Brit. Ind. v. 201.—*I. sagittata* Roxb. Ic. Med. (*non Desf.*).—*I. cardiosepala* Hochst. ex Choisy in DC. Prodr. ix, 429, 393; Vatke in Linnaea xliii, 508.

HABITAT: II. Jiddah (Zöhrab 62<sup>2</sup>!); Aden (Hildebr.).

III. Dhofar Mts: 2,600 ft. (Bent 125!).

FL.: Mar. 1873 (Hildebr.).

FR.: Mar. 1873 (Hildebr.).

DISTRIB.: Abyssinia, Arabia, India.

5. *I. eriocarpa* R. Br. Prodr. 484; This.-Dyer Fl. Trop. Afr. iv, ii, 136.—*I. sessiliflora* Roth. Nov. Sp. Pl. 116; Defl. Yemen (1889) 175.—*I. trematosperma* Hochst. ex Choisy in DC. Prodr. ix, 373.—*Convolvulus hispidus* Vahl Symb. Bot. iii, (1794) 29.—*I. hispida* Roem. & Schult. Syst. iv, (1819) 238; Hallier in Engl. Bot. Jahrb. xviii, 123.

HABITAT: II. Cultivated ground near Lahaj (Defl. 187!); Jiddah (Zohrab 130<sup>a</sup>).

FR.: Dec. 1889 (Defl.).

DISTRIB.: Tropical Africa, through tropical Asia to N. Australia.

**6. I. gossypina** Defl. Yemen (1889) 174; Hallier f. in Ann Istit. Bot. Roma ii, 231; This.-Dyer Fl. Trop. Afr. iv, ii, 187.

HABITAT: II. Agara, Hajeilah (S. 1005!); near Hajeilah, 500-600 m. (Defl. 130).

FR.: Feb. 1889 (S.).

DISTRIB.: Somaliland, Yaman.

**7. I. obscura** Ker in Bot. Reg. iii, (1817) t. 239; Defl. Yemen (1889) 175.—*I. triflora* Forsk. Fl. Aeg.-Arab. (1775) CVI, n. 125 and p. 44.—*Convolvulus gonatodes* Steud. Herb. Schimp. Abyss. n. 801, 985.—*C. pilosus* R. Br. in Salt Abyss. App. 64.

HABITAT: II. Yaman: In the mountains (Botta); near Attara, 2,000 m. (Defl. 391); Hadiyah, Surdud (Forsk.); Manakhah, 2,000 m. (S. 1695!).

III. Dhofar Mts. 500 ft. (Bent 144!).

IV. Masqat (Auch.-Eloy 4951!).

FL.: Mar. 1889 (S.).

FR.: Mar. 1889 (S.).

DISTRIB.: Tropical and S. Africa, Mascarene Islands, Arabia, Socotra, India, Malaya, Australia.

Vern. name: *Sotar, gaschre* (Forsk.).

**8. I. palmata** Forsk. Fl. Aeg.-Arab. (1775) LXIII, n. 125 and p. 43; Boiss. Fl. Or. iv, (1879) 113; Post Fl. Syr. (1806) 558; This.-Dyer Fl. Trop. Afr. iv, ii, 178.

HABITAT: III. Dhofar Mts. 2,600 ft. (Bent 119!).

DISTRIB.: Egypt, Syria, tropics of the Old World; widely cultivated.

Vern. name: *Sett-el-Hösch, Ollach* (Forsk.), *Sharq-faleq, Kuleik, Bint-el-basha, bint-el-Husn, Sitt-el-Husn* (Post).

**9. I. scabra** Forsk. Fl. Aeg.-Arab. (1775) CVI, n. 122 and p. 44.—*I. hederacea* Jacq. Collect. i, 124, t. 36; This.-Dyer Fl. Trop. Afr. iv, ii, 159.—*I. Nil* Roth Cat. Bot. i, 36; Hallier f. in Engl. Bot. Jahrb. xviii, 136.—*I. githaginea* Hochst. in Herb. un. itin. (1842) n. 784.—*Pharbitis hispida* Rich. Fl. Abyss. ii, (1851) 65 (*non Choisy*).

HABITAT: II. Hadiyah (Forsk.).

III. Dhofar Mts. (Bent 112!); Dhofar Mts.: Derbat (Bent 227!).

DISTRIB.: Cosmopolitan in the tropics.

Vern. name: *scherajedja* (Forsk.).

**10. I. verticillata** Forsk. Fl. Aeg.-Arab. (1775) CVI, n. 126 and p. 44; Vahl Symb. Bot. iii, (1794) 33; This.-Dyer Fl. Trop. Afr. iv, ii, 136.—*Convolvulus Forskalei* Spreng. Syst. i, 596.

HABITAT: II. Kudmie, Mor (Forsk.).

DISTRIB.: Angola, Senegambia, Sudan, Kordofan, Abyssinia, Eritrea, Arabia, Travancore.

Vern. name: *shell*, *toraeha* (Forsk.).

### 3. *Hewittia* W. & A.

1. *H. bicolor* Wight in Madr. Journ. Sci. v, 22; This.-Dyer Fl. Trop. Afr. iv, ii, 100.—*H. sublobata* O. Ktz. Rev. Gen. ii, 441; Hallier f. in Engl. Bot. Jahrb. xviii, 111.

HABITAT: II. Near Wulej (S. 773); near Hille (S. 366).

DISTRIB.: Tropical and S. Africa, tropical Asia to Philippines.

### 4. *Convolvulus* L.

1. *C. althaeoides* L. Sp. Pl. (1753) 156; Boiss. Fl. Or. iv, (1879) 106; Post Fl. Syr. (1896) 562; Musch. Fl. Eg. ii, (1912) 766.

HABITAT: I. S. of Ghazah (Boiss.); Arabia Petraea (ex Musch.).

DISTRIB.: Mediterranean region.

2. *C. arabicus* Hochst. in Schimp. exs. ii, (1843) 784; Hallier f. in Engl. Bot. Jahrb. xviii, 100.—*O. glomeratus* Choisy in DC. Prodr. ix, 401; Boiss. Fl. Or. iv, (1879) 102; Defl. Yemen (1889) 175; This.-Dyer Fl. Trop. Afr. iv, ii, 94; Blatt. Fl. Aden (1915) 263.—*Ipomaea auricoma* A. Rich. Fl. Abyss. ii, (1851) 67.—*O. congestus* R. Br. in Salt Abyss. 64.

HABITAT: I. Novehbe (Schimp. 731).

II. Tihamah (S. 116, 547); Shuqra (S. 80!); Jiddah (Schimp. 784! Fischer 21! Zohrab 64! 167! 268!); Mor (Ehrenb.!); near Zebid, 150 m. (Defl. 715); Aden (Lunt 327! Thomson! Balfour! Defl. 51! Perry! S. 43! Hook. 79! Edgew.! Birdw.! Ellenb.).

III. Dhofar Mts. (Bent 147!).

FL. Jan. 1837 (Schimp.), Jan. (Fischer), Feb. (Thomson), Mar. 1878 (Perry), Apr. 1874 (Lunt), Nov. 1888 (S.), Dec. 1847 (Hook.).

FR.: Jan. 1837 (Schimp.), Jan. 1880 (Balfour), Feb. (Thomson), Mar. (Ehrenb.), Mar. 1878 (Perry), Mar. 1881 (S.), Apr. 1894 (Lunt), Nov. 1888 (S.), Dec. 1847 (Hook.), Dec. 1889 (Defl.).

DISTRIB.: Abyssinia, Nubia, Eritrea, Socotra, S. Arabia, Baluchistan, Afghanistan, Sind, Punjab.

3. *C. arvensis* L. Sp. Pl. (1753) 153; Boiss. Fl. Or. iv, (1879) 108; Post Fl. Syr. (1896) 563.—? *C. biflorus* Forsk. Fl. Aeg.-Arab. (1775) LXII, n. 122 and p. 203.—*O. angustifolius* Vahl Symb. Bot. iii, (1794) 22 (*non Desr.*).—*O. cirrhosus* R. Br. in Salt Abyss. App. 64.

HABITAT: I. Mt. Sinai to Tor (Lord!); J. Catherine (Drake 30!); Raphidim (Schimp. 278).

II. Manakhah, Kahel, 2500 m. (S. 1461!)

III. Dhofar Mts.: Hafa (Bent 63!).

FL.: Feb. 1889 (S.), June 1868 (Lord).

FR.: Feb. 1889 (S.), June 1868 (Lord).

DISTRIB.: Tropical Africa, Arabia, temperate regions of both hemispheres.

Vern. name: *Halik* (Drake), *Middeid*, *'Ulleiq* (Post).

VAR. *auriculatus* Choisy in DC. Prodr. ix, 407; Defl. Yemen (1889) 175.

HABITAT: II. Near Manakhah, 2,400—2,600 m. (Defl. 299,365); near Baudha, 2,300 m. (Defl. 491).

4. *C. asyrensis* Kotschy in Sitzb. Kais. Akad. Wiss. lii, (1866) 10; Hallier f. in Engl. Bot. Jahrb. xviii, 99.

HABITAT: II. Asyr (ex Kotschy); Jiddah (Prinz Paul von Wurttemb).

DISTRIB.: Endemic.

5. *C. Cantabrica* L. Sp. Pl. (1753) 158; Boiss. Fl. Or. iv, (1879) 95; Post Fl. Syr. (1896) 560.

HABITAT: I. Arabia Petraea (ex Post).

DISTRIB.: Europe, Mediterranean region to Persia.

6. *C. Deserti* Hochst. et Steud. in Herb. un. itin. (1837) n. 783; This.-Dyer Fl. Trop. Afr. iv, ii, 92.

HABITAT: II. Jiddah (Schimp. 783, Fischer 22, Ehrenb., Zohrab).

DISTRIB.: Nubia, Arabia.

7. *C. Doryenium* L. Sp. Pl. (1762) 224; Boiss. Fl. Or. iv, (1879) 91; Post Fl. Syr. (1896) 560; Musch. Fl. Eg. ii, (1912) 764.

HABITAT: I. Arabia Petraea (ex Musch.).

DISTRIB.: Tunis, E. Mediterranean region to Persia.

8. *C. fatmensis* Kunze in Flora i, (1840) 172; Boiss. Fl. Or. iv, (1879) 107; This.-Dyer Fl. Trop. Afr. iv, ii, 98.

HABITAT: II. W. Fatimah: Unsert (Schimp. 839!); W. Fatimah (Fischer 20!).

FR.: Feb. 1836 (Schimp.), Feb. 1837 (Fischer).

FR.: Feb. 1836 (Schimp.).

DISTRIB.: Kordofan, N. Africa, Arabia.

9. *C. Hystrix* Vahl Symb. Bot. i, (1790) 16; Boiss. Fl. Or. iv, (1879) 88; Post Fl. Syr. (1896) 560; This.-Dyer Fl. Trop. Afr. iv, ii, 90.—*C. spinosus* Forsk. Fl. Aeg.-Arab. (1775) CVI, n. 121 (non Burm.).—*O. armatus* Del. Fl. d'Eg. 201, t. 18; Frag. Fl. Arab. Petr. (1833) n. 37.

HABITAT: I. Arabia Petraea (DeLaborde); Sinai (Auch-Eloy 1391! 33; Frauenfeld, Wellsted); W. Hebran (ex Post); S. Midian (Burton).

II. Yaman (Wellsted); Jiddah (Fischer 48! Zohrab 51! Schimp. 906! Hildebr. 133); Mecca (Spitzel) Dahhi (Forsk.).

III. Hadramaut: Högwir (Hirsch 137).

FL.: Feb. 1837 (Schimp.), Oct.-Jan. (Fischer).

FR.: Feb. 1837 (Schimp.).

DISTRIB.: Nubia, Egypt, Eritrea, Arabia, Syria.

Vern. name: *Fhilliw* (Hirsch), *Shibrim shibriq*, *shubruq* (Post)

NOTE: Animals eat upper part (Burton).

10. *C. lanatus* Vahl Symb. Bot. i, (1790) 16; Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 257. — *C. Cncorum* Forsk. Fl. Aeg.-Arab. (1775) LXIII, n. 124, CVI, n. 120 (*non L.*). — *C. Forskullii* Del. Fl. Eg. 203, t. 18; Dcne. l.c. 256.

HABITAT: I. Arabia Petraea (McDonald! Auch.-Eloy 1400!); between W. Werdan and Suez (Kneuck.); Sinai (Holland! Niebuhr); desert of Sinai (Bové 503! 91!); W. Nasb and W. Sarawat (Hart!); Arabia Petraea: near Nouehbe (Schimp. 727!); W. Atal (Schimp. 424!); W. Ghurundel and Ramleh (Lord!); Et Tih (ex Post).

FL.: Mar. 1835 (Schimp.), Apr. 1868 (Lord), June 1832 (Bové), Aug. 1837 (Schimp.).

FR.: June 1832 (Bové), Aug. 1837 (Schimp.).

DISTRIB.: Cyrenaica, Egypt, Arabia Petraea, Palestine, Syria.

Vern. name: *relkama* (Bové), *saead* (Forsk.), *rehamah*, *barhcimeh* (Post), *Brekema* (Schimp.).

NOTE: Favourite forage for camels and sheep (Post).

11. *C. microphyllus* Sieb. ex Spreng. Syst. i, 611; Boiss. Fl. Or. iv, (1879) 103; Defl. Yemen (1889) 175; Baker in Kew Bull. (1894) 337; This.-Dyer Fl. Trop. Afr. iv, ii, 91. — *C. Scindicus* Boiss. Diagn. Pl. Or. ser. 2, iii, 123 (*non Stocks*).

HABITAT: I. Sinai (Frauenfeld).

II. Near Merawa (Defl. 34); Jiddah (Ehrenb.! Zohrab 62! 107! 161! 187! 251! 137! Fischer 22! Schimp. 783).

III. Hadramaut: Katan, 1,100 ft. (Lunt 158!).

FL.: Jan. 1836 (Schimp.), Jan. 1894 (Lunt), Jan. & Feb. (Ehrenb.), Nov. Jan. (Fischer).

FR.: Jan. 1836 (Schimp.), Jan. 1894 (Lunt), Nov.-Jan. (Fischer).

DISTRIB.: Egypt, Nubia, Somaliland, Arabia, Sind.

12. *C. pilosellaefollus* Desr. in Lam. Encycl. iii, (1789) 551; Boiss. Fl. Or (1879) 103; Post Fl. Syr. (1896) 562.

HABITAT: I. El Ghor (ex Post).

II. Jiddah (Zohrab 60<sup>s</sup>!).

DISTRIB.: Egypt, Arabia, Syria, Mesopotamia, Persia, Afghanistan.

13. *C. rhyniospermus* Hochst. in exs. un. itin. (1841) 235; This.-Dyer Fl. Trop. Afr. iv, ii, 93.

HABITAT: II. Jiddah (Zohrab 156! 321!).

DISTRIB.: Nubia, Eritrea, Kordofan, Somaliland, Mozambique, Arabia, Sind

14. *C. sagittatus* var. *abyssinica* Hallier f. in Bull. Herb. Boiss. vi, 533; This.-Dyer Fl. Trop. Afr. iv; ii, 96.—*C. penicillatus* Rich. Fl. Abyss. ii; (1851) 74; Hallier f. in Engl. Bot. Jahrb. xviii, 103.

HABITAT: II. Near el Ejam, 2,700 m. (S. 1641).

DISTRIB.: Tropical Africa, Arabia.

15. *C. sagittatus* var. *subcordata* Hallier f. in Bull. Herb. Boiss. vi, 534.—*C. Steudneri* Engl. Hochgeb. Trop. Afr. 350; Hallier f. in Engl. Bot. Jahrb. xviii, 104.

HABITAT: II. Near Manakhah 2,850 m. (S. 1773).

DISTRIB.: Abyssinia, Arabia.

16. *C. scammonia* L. Sp. Pl. (1753) 153; Boiss. Fl. Or. iv, (1879) 108; Post Fl. Syr. (1896) 56'.

HABITAT: I. W. Berah (Lowne).

DISTRIB.: E. Mediterranean region.

Vern. name: *Scammony*, *makmudtyeh*, *soqmuntyeh* (Post).

NOTE: For medical uses see Post 563.

17. *C. Schimperii* Boiss. Diagn. Pl. Or. ser. 1, xi, 81; Fl. Or. iv, (1879) 101; Post Fl. Syr. (1896) 561; Hallier f. in Engl. Bot. Jahrb. xviii, 99.

HABITAT: I. Et Tih (ex Post); between Oasis Feiran and Maghara, between W. Ghurundel and W. Werdan (Kneuck.). Subtropical Arabia (Schimp. ex Boiss.).

DISTRIB.: Egypt, Arabia.

18. *C. secundus* Desr. Encycl. iii, 553 (*non R. P.*); Boiss. Fl. Or. iv, (1879) 100; Post Fl. Syr. (1896) 561; Musch. Fl. Eg. ii, (1912) 765.

HABITAT: I. Arabia Petraea (ex Musch.).

DISTRIB.: Egypt, Arabia Petraea, Palestine, Syria.

19. *C. sericophyllus* Anders. Journ. Linn. Soc. v, Suppl. p. 25; Hallier f. in Engl. Jahrb. xviii, 97; Blatt. Fl. Aden (1915) 264.—*C. somalensis* Franch. Sert. Somal. p. 43 (*non Vatke*).—*C. acicularis* Vatke in Linnaea, xliii, 518.

HABITAT: II. Aden (Defl. 32! Perry! S.99! Hook. 77! Thomson! Birdw!).

FL.: Dec. 1889 (Defl.).

FR.: Feb. 1837 (Thomson), Apr. 1878 (Perry), Dec. 1847 (Hook.), Dec. 1888 (S.).

DISTRIB.: Somaliland, Aden.

20. *C. siculus* L. Sp. Pl. (1753) 156; Boiss. Fl. Or. iv, (1879) 109; Musch. Fl. Eg. ii, (1912) 768.

HABITAT: I. Arabia Petraea (ex Musch.).

DISTRIB.: Mediterranean region.

21. *C. spicatus* Peter in Hallier f. Engl. Bot. Jahrb. xviii, 99.

HABITAT: I. Desert of Sinai (Bové 503!); Wady Feiran (ex Hallier).

DISTRIB.: Endemic.

22. *C. uliginus* Boiss. Diagn. Pl. Or. ser. 1, vii, 26; Fl. Or. iv, (1879) 89.

HABITAT: IV. Masqat (Auch.-Eloy 4936!).

DISTRIB.: Endemic.

23. *C. virgatus* VAR. *subaphyllus* Boiss. Fl. Or. iv, (1879) 89.—*C. mascatensis* Boiss. Diagn. Pl. Or. ser. 1, vii, 25.

HABITAT: IV. Masqat (Auch.-Eloy 4938!).

DISTRIB.: Endemic.

### 5. *Merremia* Dennst.

1. *M. pedata* Hallier f. in Engl. Bot. Jahrb. xvi, 552; xviii, 116; This.-Dyer Fl. Trop. Afr. iv, ii, 107.—*Ipomœa Psilophylla* Steud. Nom. ed. 2, i, 818.—*I. pedata* Steud. & Hochst. Pl. exs. n. 948 (*non Don*); Choisy in DC. Prodr. ix, 384.

HABITAT: II. Jiddah (Schimp. 948! Zohrab 90! Fischer 19! Ehrenb. 126!).

FL.: Jan. (Ehrenb.), Jan. & Feb. (Fischer).

FR.: Jan. (Ehrenb.).

DISTRIB.: Somaliland, British E. Africa, Arabia.

2. *M. somalensis* Hallier f. in Ann. Istit. Bot. Roma vii, 226; This. Dyer Fl. Trop. Afr. iv, ii, 109

= *Convolvulus hadramauticus* Baker in Kew Bull. (1894) 337.

= *C. crinigera* Oliv. in Hook. Ic. Pl. t. 2437 (1896)

—*C. somalensis* Vatke in Linnæa xliii, 517.

HABITAT: III. Hadramaut: Between Tokham and Ghafit, 200 ft. (Lunt 66!); Dhofar Mts. (Bent 55!).

FL.: Dec. 1893 (Lunt).

FR.: Dec. 1893 (Lunt).

DISTRIB.: Somaliland, Arabia.

### 6. *Evolvulus* L.

1. *E. alsinoides* L. Sp. Pl. (1762) 392. VAR. *procumbens* Schweinf. Fl. Aeth. (1867) 94.

HABITAT: II. Yaman (Ehrenb., S. 656).

DISTRIB.: Trop. and S. Africa, Madagascar, Arabia, widely distributed in the tropics.

2. *E. yemensis* Defl. Yemen (1889) 175.

HABITAT: II. Near Hajeilah, 500—600 m. (Defl. 144).

DISTRIB.: Endemic.

### 7. *Seddera* Hochst.

1. *S. arabica* Choisy in DC. Prodr. ix, 441; This.-Dyer Fl. Trop. Afr. iv, ii 76.—*Cressa arabica* Forsk. Fl. Ae Arab. CVIII, n. 206 and p. 54.—*Breweria*



*ozycarpa* Hochst. in exs. un. itin. (1842) n. 1115; Rich. Fl. Abyss. ii, (1851) 76.—*B. evolvuloides* R. Br. in Salt Abyss. App. 64 (*non Choisy*).—*S. Botta* Jaub. & Sp. Ill. Pl. Or. t. 371.

HABITAT: II. Taez (Forsk.); Wasil, 1,400 m. (S. 1215); Yaman (Botta).

DISTRIB.: Nubia, Abyssinia, Eritrea, Arabia.

2. *S. intermedia* Hochst. & Steud. in Flora (1844) Beil. 8; This.-Dyer Fl. Trop. Afr. iv, ii, 74.—*Breweria intermedia* Hochst. l. c.

HABITAT: II. Mt. Sidr (Schimp. 977! Fischer 109!).

FL.: Feb. 1835 (Schimp.), Feb. 1837 (Fischer).

FR.: Feb. 1835 (Schimp.).

DISTRIB.: Eritrea, Arabia.

3. *S. latifolia* Hochst. & Steud. in Flora (1844) Beil. 8, t. 5, f. B. & C.; This.-Dyer Fl. Trop. Afr. iv, ii, 75.—*Breweria evolvuloides* Vatke in Linnæa, xliii, 523 (*non Choisy*).—*B. latifolia* Hochst. l. c.; Blatt. Fl. Aden (1915) 264.—*Oressa latifolia* T. Anders. Fl. Aden. (1860) 25 (*excl. syn.*).

HABITAT: II. Yaman: Ferihe (Schimp. 884!); Mt. Sidr (Fischer 101); Aden (Hook.! Perry! S.! Birdw.! Hildebr.).

FR.: Feb. 1836 (Schimp.), Mar. 1878 (Perry).

DISTRIB.: Abyssinia, Eritrea, Socotra, Arabia, Sind, Baluchistan, Punjab.

NOTE: Anderson says that Wight's figure of *Seddera evolvuloides* (Icones t. 1369) is merely a glabrous state of our species, which Choisy referred to *Breweria*. *Breweria evolvuloides* Choisy (*Seddera evolvuloides* Wight), occurring at Tuticorin, resembles *B. latifolia* very much, but the leaves are nearly glabrous, the flowers often in twos or threes, on slender bracteolate pedicels  $\frac{1}{4}$  inch long. *B. latifolia* is a characteristic desert plant.

4. *S. secundiflora* Jaub. & Sp. Ill. Pl. Or. t. 372.

HABITAT: II. Yaman (Botta).

DISTRIB.: Endemic.

5. *S. virgata* Hochst. & Steud. in Flora (1844) Beil. 8, t. 5, f. 1—10; This.-Dyer Fl. Trop. Afr. iv, ii, 75.—*Breweria virgata* Vatke in Linnæa, xliii, 523.

HABITAT: II. Mt. Sidr and Kessr (Fischer 53!); Mt. Sidr (Schimp. 849!); J. Kora (Ehrenb.).

FL.: Feb. 1836 (Schimp.), Feb. 1837 (Fischer).

FR.: Feb. 1836 (Schimp.), Feb. 1837 (Fischer).

DISTRIB.: Nubia, Eritrea, Arabia.

### 8. *Cladostigma* Radlk.

1. *C. dioicum* Radlk. in Abhandl. Naturw. Ver. Bremen, viii, 412; This.-Dyer Fl. Trop. Afr. iv, ii, 71.—*Evolvulus lavae* Schweinf. in Herb. Erythr. n. 647, 1606; Defl. in Bull. Soc. Bot. France xliii, (1896) 121.—*Hippocrepietigma fruticosum* Defl. Herb. Arab. n. 1172.

HABITAT: II. W. Meaden (Defl. 1172).

FL.: May 1894 (Defl.).

DISTRIB.: Eritrea, Yaman.

9. *Dichondra* Forst.

1. *D. repens* Forst. Gen. (1776) 40, t. 20 · Hallier f. in Engl. Bot. Jahrb. xviii, 82; This.-Dyer Fl. Trop. Afr. iv, ii, 65.

HABITAT : II. Wasil, 1,400 m. (S. 1257); Yaman (S. 2151).

DISTRIB. : Cosmopolitan.

10. *Hildebrandtia* Vatke

1. *H. africana* Vatke in Monatsber. Acad. Berlin (1876) 865; Bot. Zeit. (1876) 361; This.-Dyer Fl. Trop. Afr. iv, ii, 69.

HABITAT : II. S. W. of J. Nakai, 800 m. (Defl. 374, 499).

FL. : Mar. 1890 (Defl.).

DISTRIB. : Somaliland, Yaman.

11. *Cressa* L.

1. *C. Cretica* L. Sp. Pl. (1753) 223; Forsk. Fl. Aeg.-Arab. (1775) CVIII, n. 205; Boiss. Fl. Or. iv, (1879) 114; Post Fl. Syr. (1896) 564; This Dyer Fl. Trop. Afr. iv, ii, 72; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 114.

HABITAT : I. Arabia Petraea (McDonald!); Ain Musa (Stender 941!); Et Tih (ex Post); S. of Philistine coast (ex Post); El Tor (Musch.).

II. Jiddah (Zohrab 85, 213!); Gurfuda (Forsk.).

III. Dhofar Mts. : Hafa (Bent 64!).

DISTRIB. : Cosmopolitan.

Vern name : *ghorara* (Forsk.), *nadiueh*, *abu-hosabah*, *mullégh*, *seboch* (Musch.).

Note : Anthyllion and Anthyllum of the Roncans (Plin. xxi, 103; xxvi, 51, Dioscor. III, CXLIII).

12. *Cuscuta* L.

1. *C. arabica* Fres. Mus. Senck. i, (1833) 165; Boiss. Fl. Or. iv, (1879) 120; Post Fl. Syr. (1896) 565; This.-Dyer Fl. Trop. Afr. iv, ii, 204.

HABITAT : I. Arabia Petraea (Rüppell, Bové); Raphidim (Schimp. 140!); Sinai (Holland!); Sinai Peninsula : W. Feiran and neighbourhood (Lord!); Dead Sea to Sinai and Egypt (ex Post).

II. Jiddah (Zohrab 224!).

FL. : May 1835 (Schimp.), May 1868 (Lord).

DISTRIB. : Eritrea, Abyssinia, Egypt, Arabia, Palestine, Syria.

Vern. name : *Dan el erneb* (Schimp.), *Khanig-el-kirsenneh* (Post).

2. *C. brevistyla* A. Br. ex Rich. Fl. Abyss. ii, (1851) 79; Boiss. Fl. Or. iv, (1879) 773; Post Fl. Syr. (1896) 565.

HABITAT : I. Sinai (ex Post); Mt. Sinai (Botta).

DISTRIB. : Abyssinia, Arabia-Petraea, Palestine, Syria, Persia, Afghanistan, Tibet.

3. *C. Epilinum* Weihe Prodr. Monast. (1824) 75; Boiss. Fl. Or. iv, (1879) 118; Post Fl. Syr. (1896) 565; Musch. Fl. Eg. ii, (1912) 773.

HABITAT : I. Arabia Petraea (ex Musch.).

DISTRIB. : Europe, Canaries, Egypt, Arabia Petraea, Palestine, Syria.

4. *C. pithyllum* L. Syst. ed Murr. 140; Dene. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii., (1834) 257 (excl. syn.); Boiss. Fl. Or. iv, (1879) 115; Post Fl. Syr. (1896) 564.

HABITAT: I. Neighbourhood of Mt. Sinai (Boyé); W. Arbain, 5,000 ft. (Rüppell).

DISTRIB.: Europe, N. Africa, E. Mediterranean region.

Vern. name: *Khaniq-el-Kirsennéh* (Post).

NOTE: Parasitic on *Artemisia monosperma* Del., *Genista*, *Labiatae*, *Poterium* etc.

5. *C. monogyna*, Vahl Symb. Bot. ii, (1791) 32; Boiss. Fl. Or. iv, (1879) 121; Post Fl. Syr. (1896) 565; Musch. Fl. Eg. ii, (1912) 774.

HABITAT: I. Arabia Petraea (ex Musch.).

DISTRIB.: S. Europe, Egypt, Arabia Petraea, Palestine, Syria, Persia, Afghanistan.

6. *C. planiflora* Ten. Fl. Nap. iii, 250; t. 220, f. 3; Boiss. Fl. Or. iv, (1879) 116; Post Fl. Syr. (1896) 564; Musch. Fl. Eg. ii, (1912) 773.

HABITAT: I. Arabia Petraea (ex Musch.).

DISTRIB.: Europe, Mediterranean region, Persia, Afghanistan, Baluchistan, W. Himalaya.

## LXXII. SOLANACEAE.

### 1. *Solanum* L.

1. *S. albicaule* Kotschy ex Dun. in DC. Prodr. xiii, i, (1852) 204; This. Dyer Fl. Trop. Afr. iv, ii, 225; Fiori Bos e Piante legn. Eritrea (1909) 335.

HABITAT: Trop. Arabia (ex Fiori).

DISTRIB.: Egypt, Nubia, Kordofan, Abyssinia, Somaliland, Arabia, Sind.

2. *S. armatum* Forsk. Fl. Aeg.-Arab. (1775) CVII, n. 150 and p. 47.—*S. arabicum* Dun. Sol. 240, n. 223; DC. Prodr. xiii, i, 374.

HABITAT: II. Hes, Zebid (Forsk.).

DISTRIB.: Endemic.

Vern. name: *Bockeme, bonkon* (Forsk.).

3. *S. bifurcum* Hochst. in Flora (1841) I. Intell.; This.-Dyer Fl. Trop. Afr. iv, ii, 213.—*S. bifurcatum* Rich. Fl. Abyss. ii, (1851) 98; Defl. Yemen (1889) 176.

HABITAT: II. Near Raudha, 2,300 m. (Defl. 527).

DISTRIB.: Trop. and S. Africa, Arabia.

4. *S. carense* Dun. in DC. Prodr. xiii, i, 105; This.-Dyer Fl. Trop. Afr. iv, ii, 219.

HABITAT: II. Yaman: Mt. Cara (Schimp. 838!); neighbourhood of Alen (Hunter 36! 184! 260! 263!).

FL.: Dec. 1835 (Schimp.).

DISTRIB.: Somaliland, Arabia.

Note: Wood used for making spoons (Wright in This.-Dyer, l. c.).

5. *S. cordatum* Forsk. Fl. Aeg.-Arab. (1775) CVII, n. 154 and p. 47; Dun. in DC. Prodr. xiii, i, 373.

HABITAT: II. Roboa (Forsk.).

DISTRIB.: Endemic.

Vern. name: *Hadak* (Forsk.).

Note: For iconomic uses see Forsk. l. c.

6. *S. dubium* Fres. Mus. Senck. i, (1833) 166; Kotschy in Sitzb. Kais. Akad. Wiss. lii, (1866) 10; This.-Dyer Fl. Trop. Afr. iv, ii, 285.

HABITAT: II. Jiddah (Zohrab 69! Fischer 23! Bottá, Schimp. 903); Mor (Ehrenb.); Hijaz (ex Kotschy).

III. W. Bagren (Hirsch 58).

FL.: Feb. (Fischer).

DISTRIB.: Nubia, Sudan, Kordofan, Darfur, Eritrea, Arabia.

Vern. name: *Qutub* (Hirsch).

VAR. *brevipetiolatum* Dun. in DC. Prodr. xiii, i, 333.

HABITAT: II. Jiddah (Schimp. 837! 974).

FL.: Jan. 1836 (Schimp.).

DISTRIB.: Endemic.

7. *S. Forskalii* Dun. Hist. Solan. 237; in DC. Prodr. xiii, i, 372. — *S. villosum* Forsk. Fl. Aeg.-Arab. (1775) CVII, n. 151 and p. 47 (non Lam.).

HABITAT: II. Surdud (Forsk.).

DISTRIB.: Endemic.

Vern. name: *Sokaeme* (Forsk.).

8. *S. gracilipes* DCne. in Jacq. Voy. 113, t. 119; Boiss. Fl. Or. iv, (1879) 286.

HABITAT: II. N. E. of J. Nakhai, 800 m. (Defl. 488!)

FR.: Mar. 1890 (Defl.).

DISTRIB.: Arabia, Socotra, Baluchistan, N. W. India.

9. *S. Hadag* Defl. in Bull. Soc. Bot. France xliii, (1896) 122.

HABITAT: II. S. of J. el Areys, 150 m. (Defl. 377!).

FL.: Mar. 1890 (Defl.).

FR.: Mar. 1890 (Defl.).

DISTRIB.: Endemic.

Vern. name: *Hadag* (Defl.).

10. *S. hirsutum* Dun. in DC. Prodr. xiii, i, 58; Defl. Yemen (1889) 176. — *S. nigrum hirsutum* Vahl Symb. Bot. ii, (1791) 40. — *S. aegypticum* b. Forsk. Fl. Aeg.-Arab. (1775) 46, n. 51.

HABITAT: II. Near Wasil, 1,000.—1,200 m. (Defl. 266); near Manakhah, 2,500 m. (Defl. 275).

DISTRIB.: Egypt, Arabia.

Vern. name: *Enab eddib* (Forsk.).

Note: For medical uses see Forsk. l. c.

11. *S. incanum* L. Sp. Pl. (1753) 188; Forsk. Fl. Aeg.-Arab. (1775) CVII, n. 148 and p. 46; This.-Dyer Fl. Trop. Afr. iv, ii, 238; Musch. Fl. Eg. ii, (1912) 843 (*insanum* per errorem). —*S. coagulans* Forsk. l.c. CVII, n. 149 and p. 47; Boiss. Fl. Or. iv, (1879) 286; Defl. Yemen (1889) 176; Baker in Kew Bull. (1894) 337; Post Fl. Syr. (1896) 567. —*S. sanctum* L. Sp. Pl. (1762) 269; Vahl Symb. Bot. ii, (1791) 41.

HABITAT: II. Mor; Musa, Hadiyah, Djehla, Uahfad, frequent in Yaman (Forsk.); W. el Kebir in the neighbourhood of Lahaj (Defl. 161!); near Hajeilah 600—800 m. (Defl. 64, 74); near Sanah, 2,400—2,600 m. (Defl. 486); near Suq-el-Khamiss, 2,300 m. (Defl. 584); Yaman (Botta).

III. Sehut and Kischin (Hirsch 142); Hadramaut: Alrail, 2,000 ft. (Lunt 129!).

FL.: Dec. 1893 (Lunt).

FR.: Dec. 1893 (Lunt).

DISTRIB.: Trop. and S. Africa, Egypt, Arabia, Palestine, Persia, Baluchistan, Sind, Punjab.

Vern. name: *Buqum*, *Hedget* (Hirsch), *Khâdak* (Post); *ernaema*, *aejn-el-bagar*, *ersaen bejkaman*, *soraaj sahan* (Forsk.).

Note: For economic uses see Forsk. ll. cc.

12. *S. incanum* L. VAR. *ochraceum* nov. comb. —*S. coagulans* Forsk. VAR. *ochraceum* Dun. in DC. Prodr. xiii, i, 369. —*S. coagulans* Vahl Symb. Bot. ii, (1791) 41.

HABITAT: II. W. Sel (Schimp. 786!).

FL.: Nov. 1835 (Schimp.).

DISTRIB.: Endemic.

13. *S. Lycopersicum* L.; Defl. Yemen (1889) 225.

HABITAT: II. Yaman, cult. (Defl.).

DISTRIB.: S. America.

Vern. name: *fumatum* (Defl.).

14. *S. melongena* L. Sp. Pl. (1753) 186; Forsk. Fl. Aeg.-Arab. (1775) LXIII, n. 133; CVII, n. 147; Baker in Kew Bull. (1894) 337.

VAR. *inerme* Hiern in Cat. Afr. Pl. Welw. i, 748.

HABITAT: II. Yaman, cult. (Defl.).

III. Hadramaut: cultivated at Katan, 1,150 ft. (Lunt 164!).

FL.: Jan. 1894 (Lunt).

DISTRIB.: Widely cultivated in the tropics.

Vern. name: *Badindjan* (Forsk.); *Yundahl* ? (Lunt); *Badkinjan*, *Beitinjan* (Post).

15. *S. Milleri* Jacq. Coll. iv, 209; Dun. in DC. Prodr. xiii, i, 286; Kotschy in Sitzb. Kais. Akad. Wiss. lii, (1866) 11.

HABITAT: II. Hijaz (ex Kotschy).

DISTRIB.: Cape.

16. *S. nigrum* L. Sp. Pl. (1753) 136; Forsk. Fl. Aeg.-Arab. (1775) CVII, n. 145 and p. 46; Del. Frag. Fl. Arab. Petr. (1833) n. 28; Kotschy in Sitzb. Kais. Akad. Wiss. lii, (1866) 10; Boiss. Fl. Or. iv, (1879) 284; Post Fl. Syr. etc. (1896) 567.

HABITAT: I. Mt. Sinai to Tor (Lord!); W. Tarfa (Kneuck.); Arabia Petraea (De Laborde).

II. Jiddah (Zohrab 57!); W. Fatimah (Fischer 26!); Hijaz (ex Kotschy); Hadayah (Forsk.).

FL.: Feb. (Fischer), June 1868 (Lord).

FR.: Feb. (Fischer), June 1868 (Lord).

DISTRIB.: Almost cosmopolitan.

Vern. name: 'Inab-ed-dib (Post), *mesaellaha* (Forsk.).

Note: For medical uses see Forsk. l. c.

VAR. *chlorocarpon* Spenn. ex Boiss. l. c.; Post Fl. Syr. (1896) 567.—*S. flavum* Kit.

HABITAT: I. Arabia Petraea (ex Post).

17. *S. palmetorum* Dun. in DC. Prodr. xiii, i, 282.

HABITAT: II. W. Fatimah (Fischer 24!); W. Fatimah, near Unsart (Schimp. 962!).

FL.: Feb. 1836 (Schimp.), Feb. 1837 (Fischer).

FR.: Feb. 1836 (Schimp.), Feb. 1837 (Fischer).

DISTRIB.: Endemic.

18. *S. platacanthum* Dun. in DC. Prodr. xiii, i, 285.

HABITAT: II. Manakhah, 2,200 m. (S. 1588!).

FR.: Feb. 1889 (S.).

DISTRIB.: Endemic.

19. *S. polianthemum* Hochst. ex Dun. in DC. Prodr. xiii, i, 94; Defl. Yemen (1889) 176.

HABITAT: II. Between Sanaah and Maber, 2,300-2,400 m. (Defl. 633).

DISTRIB.: Abyssinia, F. strea, Arabia.

20. *S. pubescens* Willd. Phyt. i, 5, t. 3; Dun. in DC. Prodr. xiii, i, 127; Hook. f. Fl. Brit. Ind. iv, 230.

HABITAT: III. Hadramaut: Near Gambra, 1,000 ft. (Lunt 220!).

FL.: Feb. 1894 (Lunt).

DISTRIB.: Arabia, India.

21. *S. Sabaeorum* Defl. in Bull. Soc. Bot. France, xliii, (1896) 122.

HABITAT: II. Lower and central mountainous region: J. Nakhai (Defl. 488).

FL.: Mar. (Defl.).

FR.: Mar. (Defl.).

DISTRIB.: Endemic.

23. *S. sepicula* Dun. in DC. Prodr. xiii, i, 283; Defl. Yemen (1889) 176; Baker in Kew Bull. (1894) 337; This. Dyer Fl. Trop. Afr. iv, ii, 227 (non syn.).—*S. bahamense* Forsk. Fl. Aeg.-Arab. (1775) CVII, n. 152 and p. 46.

VAR. *album* Forsk. l. c. n. 153.

HABITAT: II. Tayfa (Schimp. 943!); between Moglaf and Wulej (S. 603!); Mor (Ehrenb. 146!); W. el Kebir, in the neighbourhood of Lahaj (Defl. 166!); near Hajeilah, 600 m. (Defl. 62, 160); near Sanah and Raudha, 2,300 m. (Defl. 455, 493); Surdud, Uahfad, Mor (Forsk.); neighbourhood of Aden (Hunter 247!).

III. Furuth, 2,100 ft. (Lunt 149!).

FL.: Jan. 1889 (S.), Jan. 1894 (Lunt), Dec. 1835 (Schimp.), Dec. 1889 (Defl.).

FR.: Jan. 1889 (S.), Dec. 1835 (Schimp.), Dec. 1889 (Defl.).

DISTRIB.: Abyssinia, Somaliland, Arabia.

Vern. name: *Hadak* (Hunter), *Koresh*, *haddak* (S.), *melikaemi*, *homaesch*, *habak*, *boka* (Forsk.).

23. *S. sinaicum* Boiss. Diagn. Pl. Or. ser. 1, xi, 135; Fl. Or. iv, (1879) 285. Post. Fl. Syr. (1896) 567.

HABITAT: I. W. Shaikh (Boiss.); Sinai (ex Post).

FL.: Mar. 1848 (Boiss.).

FR.: Mar. 1848 (Boiss.).

DISTRIB.: Endemic.

24. *S. terminale* Forsk. Fl. Aeg.-Arab. (1775) CVII, n. 146 and p. 45; Vahl Symb. Bot. ii, (1791) 40; Dun. in DC. Prodr. xiii, i, 105; Kotschy in Sitzb. Kais. Akad. Wiss. lii, (1866) 11.

HABITAT: II. Mokha, higher mountains of Yaman (Forsk.); Hijaz (ex Kotschy).

DISTRIB.: Endemic.

25. *S. trilobatum* L. Sp. Pl. (1753) 270 (*partim*); Dun. in DC. Prodr. xiii, i, 287; Hook. f. Fl. Brit. Ind. iv, 236.—*S. acetosaefolium* Lam. Dict. iv, 306; Dun, Sol. 226; Dene. Pl. l'Arab. Heur. in Ann. Sc. Nat. ser. 2, iv, (1835) 80.

HABITAT: II. Yaman (ex Dene.).

DISTRIB.: Arabia, India, Malay Peninsula, Ceylon.

26. *S. tuberosum* L.; Defl. Yemen (1889) 225.

HABITAT: II. Sanah, cultivated (Defl.)

DISTRIB.: N. and S. America.

27. *S. villosum* Lam. Dict. iv: 289; Boiss. Fl. Or. iv, (1879) 285; Post Fl. Syr. (1896) 567.—*S. nigrum* VAR. *villosum* L. Sp. Pl. (1753) 136.

HABITAT: I. W. Nasb (Drake 44!); Sinai: W. Kyd (Holland!); Arabia Petraea (ex Boiss.).

IV. Masqat (Auch.-Eloy 5031!).

DISTRIB.: Central and S. Europe, N. Africa, Egypt, Arabia, Palestine, Syria, Persia.

Vern. name: *E'nib* (Drake), *'inab-ed-dib* (Post).

28. *S. Xanthocarpum* Schrad. & Wendl. Sert. Hanov. i, 8, t. 2. VAR. *Jacquini* Dun. in DC. Prodr. xiii, i, 303.

HABITAT: IV. Near Masqat (Bornm. 481).

FR.: Jan. 1893 (Bornm.).

DISTRIB.: Of species: Tropics of the old World.

## 2. *Capsicum* L.

1. *C. annuum* L. Sp. Pl. (1753) 188; Defl. Yemen (1889) 225; Baker in Kew Bull. (1894) 337; Blatt. Fl. Aden (1915) 269.

HABITAT: II. Yaman (Defl.); Aden (Defl.).

III. Cultivated at Kátan, 1,150 ft. (Lunt 165!).

FL.: Jan. 1894 (Lunt).

FR.: Jan. 1894 (Lunt).

DISTRIB.: Widely dispersed in the tropics, probably original from S. America.

Vern. name: *Busbas* (Lunt), *Fuleifleh* (Post).

Note: Deers is of opinion that *C. annuum* has been brought to Aden not very long ago. As a matter of fact, no botanist before Deflers has reported this plant as growing in Aden.

2. *C. frutescens* L. Sp. Pl. (1753) 189; Forsk. Fl. Aeg.-Arab. (1775) CVI, n. 135.

HABITAT: II. Beit el-Fakih (Forsk.).

DISTRIB.: Cultivated throughout the tropics.

Vern. name: *dar felfel* (Forsk.), *Guinea bird*, or *African pepper*.

## 3. *Withania* Pauq.

1. *W. somnifera* Dun. in DO. Prodr. xiii, i, 453; Boiss. Fl. Or. iv, (1879) 237; Defl. Yemen (1889) 177; Baker in Kew Bull. (1894) 337; Post Fl. Syr. (1896) 568; This.-Dyer Fl. Trop. Afr. iv, ii, 249; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 119.—*Physalis somnifera* Forsk. Fl. Aeg.-Arab. (1775) LXIII, n. 130; CVI, n. 133.

HABITAT: I. Arabia Petraea (ex Post); El Tor (Musch.); N. Midian (Burton!).

II. W. Fatimah (Fischer 25!); near Hajeilah, 600-800 m. (Defl. 81, 175); Mor, Surdud, Hadiyah, Beit el Fakih (Forsk.).

III. Alrail, 2,000 ft. (Lunt 118!); W. Yidnut (Hirsch 48).

FL.: Feb. 1837 (Fischer), Dec. 1893 (Lunt).

DISTRIB.: Mediterranean region, tropical and S. Africa, Arabia, Palestine, Persia, India.

Vern. name: *Barde*, *Öbab*, *Uarak esschefa*, *saekaran* (Forsk.), *Sharmah?*, *Batm. Ghaiyeshah?* (Palmer), *Sekrán*, *Merján*, *Semm-el-Fár*, *Khasraqút*, *Fuqqeish* (Post), *Ub'ub* (Post wrongly (?)).

Note: animals do not eat (Burton). cf. Plinius xxi, 105; Theophrast ix, ii, 5.



VAR. *communis* Dun. l. c. 454.

HABITAT: I. Sinai (Holland!); W. Hebran (Schimp. 167!).

II. Jiddah (Zohrab!)

IV. Masqat (Auch.-Eloy 5034!).

FL.: Apr. 1835 (Schimp.).

#### 4. *Lycium* L.

1. *L. persicum* Miers in Ann. et Mag. Nat. Hist. ser. 2, xiv, (1825) 12; This.-Dyer Fl. Trop. Afr. iv, ii, 254.—*L. arabicum* Schweinf. ex Boiss. Fl. Or. iv, (1879) 289; Post Fl. Syr. (1896) 568; Musch. Verh. Bot. Ver. Prov. Brandenb. xix, (1907) 119.—*L. europaeum* Forsk. Fl. Aeg.-Arab. (1775) LXIII, n. 138 CVI, n. 136; Andera. Fl. Aden. (1860) 26; Blatt. Fl. Aden (1915) 268 (*non* L.).

HABITAT: I. Ramleh in Et Tih, Siuai (ex Post); El Tor (Musch.); W. Hebran (Ehrenb.); Central and S. Midian (Burton!); W. Mokatteb, Ramleh (Boiss.); Oasis Feiran (Kneuck.).

II. Jiddah (Fischer 98! Schimp. 855! Zohrab 52! 175!); Taz (Forsk.); Aden (S. 94! Thomson! Hook. 80! Defl. 71! Beevor 59! Balfour! Anders.! Birdw.! Hildebr.).

III. Hegwir (Hirsch 83).

IV. Central Arabia (Pelly).

FL.: Oct.-Feb. (Fischer), Dec. 1835 (Schimp.), Dec. 1889 (Defl.).

FR.: Jan. 1880 (Balfour), Dec. 1888 (S.).

DISTRIB.: Tripoli, Egypt, Nubia, Eritrea, Somaliland, British East Africa, Arabia.

Vern. name: *Schirbit* (Hirsch), '*Ausaj* (Musch., Post, Forsk.), *sahanun* (Musch.).

Note: Animals eat (Burton).

2. *L. vulgare* Dun. in DC. Prodr. xiii, i, 509; Musch. Fl. Eg. ii, (1912) 850.—*L. Barbarum* VAR. *vulgare* Ait. Kew. ed. 2, ii, 3.

HABITAT: I. Arabia Petraea (ex Musch.).

DISTRIB.: Europe, Orient, Central Asia?

#### 5. *Datura* L.

1. *D. alba* Nees in Trans. Linn. Soc. xvii, 73; Baker in Kew Bull. (1894) 337.—*D. fastuosa* VAR. *alba* C. B. Clarke in Hook. f. Fl. Brit. Ind. iv, 243.

HABITAT: II. Yaman (Botta); Badjil (S.).

III. Alnail, 2,000 ft. (Lunt 114!).

FL.: Dec. 1893 (Lunt).

FR.: Dec. 1893 (Lunt).

DISTRIB.: Tropics.

Vern. name: *benge* (S.).

2. *D. fastuosa* L. Syst. ed. x, 932; Del. Frag. Fl. Arab. Petr. (1833) n. 27.—*D. aegyptia* Vesl. Pl. Aeg. 202.

HABITAT: I. Arabia Petraea (De Laborde).

III. Round Makalla (Hirsch 56).

## IV. Cultivated ground, Masqat (Auch.-Eloy 5038!).

DISTRIB. : Cosmopolitan in the tropics.

Vern. name: *Genegen* (Hirsch).

3. *D. metel* L. Sp. Pl. (1753) 179; Forsk. Fl. Aeg.-Arab. (1775) LXIII, n. 127; CVI, n. 131; Post Fl. Syr. (1896) 570; This.-Dyer Fl. Trop. Afr. iv, ii, 256.

HABITAT: II. Mor, Beit el Fakih, Djobla (Forsk.).

DISTRIB.: Cosmopolitan in the tropics.

Vern. name: *benđj*, *mandj mank* (Forsk.).

4. *D. Stramonium* L. Sp. Pl. (1753) 179; Boiss. Fl. Or. iv, (1879) 292; Defl. Yemen (1889) 177; Post Fl. Syr. (1896) 570.

HABITAT: II. Near Manakhah, 2,300 m. (Defl. 269).

DISTRIB.: Cosmopolitan.

6. *Hyoscyamus* L.

1. *H. albus* L. Sp. Pl. (1753) 180; Boiss. Fl. Or. iv, (1879) 295.

VAR. *desertorum* Aschers.; Boiss l. c. 296; Post Fl. Syr. (1896) 571.

HABITAT: I. Arabia Petraea (ex Post).

DISTRIB.: Of var.: Egypt, Arabia Petraea, Palestine.

VAR. *repandus* Post l. c.

HABITAT: I. Sinai (ex Post).

DISTRIB.: Endemic.

Vern. name: *Seikerân* (Post).

2. *H. aurens* L. Sp. Pl. (1753) 180; Del. Frag. Fl. Arab. Petr. (1833) n. 24; Boiss. Fl. Or. iv, (1879) 296; Post Fl. Syr. (1896) 571.

HABITAT: I. Arabia Petraea (DeLaborde).

DISTRIB.: E. Mediterranean region, Mesopotamia.

3. *H. Boveanus* Aschers.-Schweinf. Ill. Fl. d'Eg. 113, n. 765; Musch. Fl. Eg. ii, (1912) 854 — *Scopolia Boveana* Dun. in DC. Prodr. xiii, i, 553.

HABITAT: I. Arabia Petraea (ex Musch.).

DISTRIB.: Mediterranean region.

4. *H. flaccidus* Wright in Kew Bull. (1895) 184.

HABITAT: III. Dhofar Mts.: W. Gergio, 1,500 ft. (Bent 168!).

DISTRIB.: Endemic.

5. *H. muticus* L. Mant. 45; Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 255; Schenk Sp. Pl. it. Aeg. Arab. & Syr. (1840) n. 142; Boiss. Fl. Or. iv, (1879) 293; Post Fl. Syr. (1896) 570; This.-Dyer Fl. Trop. Afr. iv, ii, 258; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 119.—*H. Datora* Forsk. Fl. Aeg.-Arab. (1775) LXIII, n. 128 and p. 45; Del. Frag. Fl. Arab. Petr. (1833) n. 25.

HABITAT: I. Desert of Sinai (Bové 78!); Mt. Sinai (Lord!); Sinai (Holland!); Sinai to Egypt (ex Post); W. Gennah and neighbourhood (Lord!); W. Nasb (Drake 40!); Arabia Petraea (McDonald! DeLaborde); Desert of Ka'a (Musch.); W. es Sle, W. Ghurundel, W. Werdan (Kneuck.).

FL.: Apr. and May 1868 (Lord), June 1832 (Bové), Nov. 1870 (Holland).

DISTRIB.: Nubia, Egypt, Arabia, Palestine, Syria, Persia, Baluchistan.

Vern. name: *shedjeret-es-sakran* (Musch.); *Sekrán*, *se men-el-Fâr* (Post), *Datora* (Forsk.), *saikeeran* (id), *sakaran* (Bové), *sekkoran* (Drake).

NOTE: For medical uses see Muschler l. c.; Forsk. l. c.

**6. *H. pusillus*** L. Sp. Pl. (1753) 180; Del. Frag. Fl. Arab. Petr. (1833) n. 26; Dene. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 255; Schenk Sp. Pl. it. Aeg. Arab. & Syr. (1840) n. 141; Jaub. & Sp. Ill. Pl. Or. t. 414; Kotschy in Sitzb. Kais. Akad. Wiss. lii, (1866) 10; Boiss. Fl. Or. iv, (1879) 294; Post Fl. Syr. (1896) 570.

HABITAT: I. Arabia Petraea (Boiss.! McDonald! DeLaborde, Schimp.); Sinai (ex Post); cultivated ground of Mt. Sinai (Bové); El Araba (ex Schenk); W. es Sle, W. Tarfa, Plain of Raha, Oasis Feiran (Kneuck.); N. and Central Midian (Burton!).

II. Hijaz (ex Kotschy).

DISTRIB.: E. Mediterranean region, Persia, Baluchistan, temperate Asia.

Vern. name: *sufeirâ* (Post).

NOTE: Not eaten by animals (Burton).

## 7. *Nicotiana* L.

**1. *N. Tabacum*** L. Sp. Pl. (1753) 180; Forsk. Fl. Aeg.-Arab (1775) LXIII, n. 129. Baker in Kew Bull. (1894) 337.—*Nicotiana* Forsk. l. c. CVI, n. 132.

HABITAT: II. Cultivated in the mountains (Forsk.).

III. Cultivated at Chail-ba-Wazir, 250 ft. (Lunt 236!); Mukalla, cultivated (Hirsch 181).

FL.: Feb. 1894 (Lunt).

FR.: Feb. 1894 (Lunt).

DISTRIB.: Native of America.

Vern. name: *Buri* (Hirsch), *Ṭṭṭ* (Post).

## LXXIII. SCROPHULARIACEAE.

### 1. *Anticharis* Endl.

**1. *A. arabica*** Endl. Nov. Sp. Stirp. Dec. 23, et Iconogr. t. 93; Benth. in DC. Prodr. x, 347; Aschers. in Monatsber. Akad. Wiss. Berlin (1866) 881; Boiss. Fl. Or. iv, (1879) 422; Defl. Yemen (1889) 177; This.-Dyer Fl. Trop. Afr. iv, ii, 276; Blatt. Fl. Aden (1915) 276.—*A. glandulosa* var. *intermedia* Terraciano in Ann. Istit. Bot. Roma v, 103.—*A. Schimperii* Endl. Iconogr. xv, (nomen tantum).—*Capraria arabica* Steud. & Hochst. ex Benth. in DC. Prodr. x, 347.—*Distemon campanularis* Ehrenb. & Hempr. ex Aschers. l. c. 882.

HABITAT: I. Arabia Petraea (Schimp. 499!).

II. S. of J. Areys, 150 m. (Defl. 378!); everywhere in the Tehama down to Aden (Defl.); Jiddah (Fischer 17!); near Ferihe (Schimp. 748!); Aden (Lunt 291! Defl. 526!).

FL.: Feb. (Fischer), Feb. 1836 (Schimp.), Mar. 1890 (Defl.), Apr. 1890 (Defl.), Apr. 1894 (Lunt).

FR.: Feb. (Fischer), Feb. 1836 (Schimp.), Mar. 1890 (Defl.), Apr. 1894 (Lunt).

DISTRIB.: Nubia, Eritrea, Somaliland, Arabia, Socotra.

2. *A. glandulosa* Aschers. in Monatsber. Akad. Wiss. Berlin (1866) 880; Boiss. Fl. Or. iv, (1879) 423; Hook. Fl. Brit. Ind. iv, 244; This.-Dyer Fl. Trop. Afr. iv, ii, 277; Blatt. Fl. Aden (1915) 275.—*A. arabica* Anders. Journ. Linn. Soc. v, Suppl. p. 27.—*Distemon glandulosus* Ehrbg. & Hempr. ex Aschers. l. c. 881.—*Meisarrhena tomentosa* R. Br. in Salt Abyss. App. 63, nomen tantum.

HABITAT: II. Aden (Birdw. 773! Defl. S. Edgew. Hook. Marchesetti, Busse, Hildebr., Wichura).

III. W. Raide (Hirsch 70).

FL.: Aug. 1898 (Birdw.).

FR.: Aug. 1898 (Birdw.).

DISTRIB.: Upper Egypt, Nubia, Abyssinia, Eritrea, northern coast of Somaliland, Socotra, S. Arabia, Sind.

Vern. name: *Hatêke* (Hirsch).

NOTE: Sold in bazaars at Mutalla; women use it as soap for washing (Hirsch).

3. *A. linearis* Hochst. ex Aschers. in Monatsber. Akad. Wiss. Berlin (1866) 882; Vatke in Oest. Bot. Zeitschr. (1875) 9; Hook. Fl. Brit. Ind. iv, 250; Boiss. Fl. Or. iv, (1879) 423; This.-Dyer Fl. Trop. Afr. iv, ii, 276; Blatt. Fl. Aden (1915) 277.—*A. arabica* Hochst. ex Benth. in DC. Prodr. x, 347; A. Rich. Fl. Abyss. ii, 119 (*non* Endl.).—*Doranthera linearis* Benth. in DC. l. c.—*Distemon angustifolius* Ehrenb. & Hempr. ex Aschers. l. c. 883.

HABITAT: II. Mor, Gumfuda (Ehrenb. 298!); neighbourhood of Aden (Hunter 158!).

FL.: Feb. and Mar. (Ehrenb.).

FR.: Feb. and Mar. (Ehrenb.).

DISTRIB.: Tropical Africa, Cape Verde Islands, Egypt, Arabia, Sind, Punjab.

## 2. *Verbascum* L.

1. *V. longibracteatum* Defl. in Bull. Soc. Bot. France, xliii, (1896) 218.

HABITAT: II. Near Serrya, 250-300 m. (Defl. 441, 868).

FL.: Mar. (Defl.).

DISTRIB.: Endemic.

2. *V. Auntii* Baker in Kew Bull. (1894) 337.

HABITAT: III. Found at Alrail (Lunt 119!).

FR.: Dec. 1893 (Lunt).

DISTRIB.: Endemic.

3. *V. Schimperiana* Boiss. *Diagn. Pl. Or. ser. 1, xii, 11*; *Fl. Or. iv, (1879) 341*; *Post Fl. Syr. etc. (1896) 579*.—*V. crispum* Ehrenb. MS. ex Boiss.

HABITAT: I. Arabia Petraea (Schimp.); between Tor and Mt. Sinai (Ehrenb.); Sinai (ex Post).

DISTRIB.: Endemic.

4. *V. sinaiticum* Benth. in DC. *Prodr. x, 236*; Boiss. *Fl. Or. iv, (1879) 318*; *Post Fl. Syr. (1896) 576*; Kneuck. in *Allg. Bot. Zeitsch. ix, (1903) 149*

HABITAT: I. W. es Sheikh (Drake 90!); Sinai (Holland! Schimp. 577! Lord! Ehrenb., Boiss.); Desert between Suez and Ghazah (Bové 77!); W. Zolakah to W. el Ain (Hart!); Plain of Raha (Kneuck.); round Dead Sea (ex Post).

FL.: May 1835 (Schimp.), May 1868 (Lord).

FR.: May 1835 (Schimp.), May 1868 (Lord).

DISTRIB.: Egypt, Arabia Petraea, Palestine, Syria.

Vern. name: *Khermah* (Drake), *Kherma* (Post).

5. *V. sinuatum* L. *Sp. Pl. (1753) 178*; Boiss. *Fl. Or. iv, (1879) 322*; *Post Fl. Syr. (1896) 577*.

HABITAT: I. Desert between Suez and Ghazah (Auch.-Eloy 5048!); Akaba (Hart!).

DISTRIB.: Mediterranean, Persia.

6. *V. yemense* Defl. *Yemen (1889) 177*.

HABITAT: II. Near Raudah, 2,300 m. (Defl. 492).

DISTRIB.: Endemic.

### 3. *Celsia* L.

1. *C. Bottae* Defl. *Yemen (1889) 178*.

HABITAT: II. Above Manakhah, 2,500 m. (S. 1561!); near Bauan, 2,700 m. (Defl. 615); between Hcs and Taz (Botta).

FL.: Feb. 1859 (S.).

DISTRIB.: Endemic.

2. *C. parviflora* DC. *Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 254*; Boiss. *Fl. Or. iv, (1879) 354*; *Post Fl. Syr. (1896) 582*.

HABITAT: I. Desert of Sinai (Bové 70!); Mt. Catherine (Schimp. 282!); J. Musa, Mt. Sinai (Hart!).

FL.: July 1835 (Schimp.).

FR.: June 1832 (Bové), July 1835 (Schimp.).

DISTRIB.: Endemic.

Vern. name: *nefflé* (Bové), *neflak* (Boiss.).

4. *Linaria* Juss.

1. *L. ægyptiaca* (L.) Dum.-Cours Bot. Cult. ed. 1, ii, (1802) 92; Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 252; Schenk Sp. Pl. it. Aeg. Arab. & Syr. (1840) 130; Boiss. Fl. Or. iv, (1879) 369; Post Fl. Syr. (1896) 584; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 120.—*Antirrhinum ægypticum* L. Sp. Pl. (1753) 613; Forsk. Fl. Aeg.-Arab. (1775) LXVIII, n. 301 and p. 112.

HABITAT: I. Arabia Petraea (Boiss. ! McDonald ! Schimp. 729 !); W. Genuah and neighbourhood (Lord !); near Senned (Drake 76 !); El-Ghor, Dead Sea and southwards (ex Post); W. Hebran, 3,000 ft. (Rüppell); N. Midian (Burton !); Plain of Raha, W. es Sle, between Oasis Feiran and foot of J. Serbal (Kneuck.); desert of Sinai (Bové 76 !); W. Sahdi (ex Schenk); el Tor (Musch.).

FR.: May 1868 (Lord), Aug. 1835 (Schimp.).

DISTRIB.: E. N. Africa, Arabia Petraea, Palestine, Syria.

Vern. name: *Cigaha* (Bové), *Dahamer* (Drake), *Duwainet-el-Fâr*, *'Ushb-el-dîb*, *Dureishek Mujennineh*, *Rthah*, *Jawim* (Post).

2. *L. albifrons* Spreng. Syst. ii, 793; Boiss. Fl. Or. iv, (1879) 382; Post Fl. Syr. (1896) 586.

HABITAT: I. Arabia Petraea (Boiss.); Et Tih (ex Post).

DISTRIB.: N. Africa, Arabia Petraea, Palestine, Syria, Persia.

3. *L. alsinaefolia* Spreng. Syst. ii, 792; Benth. in DC. Prodr. x, 269 (*partim*).

HABITAT: II. Top of Mt. Sidr and Kesser (Fischer 204 !).

FL.: Feb. (Fischer).

DISTRIB.: Sardinia, Corsica, Arabia.

4. *L. ascalonica* Boiss. & Kotschy Diagn. Pl. Or. ser. 2, iii, 165; Fl. Or. iv, (1879) 382; Post Fl. Syr. (1896) 586.

HABITAT: I. Et Tih and southward to Sinai (ex Post).

DISTRIB.: Egypt, Arabia Petraea, Palestine.

5. *L. Elatine* Mill. Dict. n. 16; Boiss. Fl. Or. iv, (1879) 367; Defl. Yemen (1889) 179; Post Fl. Syr. (1896) 583.

HABITAT: II. Round Sanah, Raudha and Dhula, 2,300 m. (Defl. 506, 514).

IV. Masqat (Auch.-Eloy 5066 !).

DISTRIB.: Europe, N. and tropical Africa, Arabia, Persia.

6. *L. floribunda* Boiss. Diagn. Pl. Or. ser. 1, xii, 40; Fl. Or. iv, (1879) 365; Post Fl. Syr. (1896) 584.

HABITAT: I. Arabia Petraea (Boiss. !)

FL.: Mar. 1846 (Boiss.).

DISTRIB.: Egypt, Arabia Petraea, Palestine, Syria, Mesopotamia.

7. *L. haelava* Chav. Monogr. 164; Schenk. Sp. Pl. it. Aeg. Arab. & Syr. (1840) n. 134; Boiss. Fl. Or. iv, (1879) 381.—*Antirrhinum haelava* Forsk. Fl. Aeg.-Arab. (1775) LXVIII, n. 302 and p. 111.

HABITAT: I. Sinai (Post 512!); near el Araba (ex Schenk); borders of Et Tih and southwards (ex Post); N. Midian (Burton!); Arabia Petraea (Boiss.).

DISTRIB.: Tripoli, Egypt, Arabia Petraea, Palestine.

Vern name: *Nimwâr*, *Shugeirah*, *Sufeirah* (Post), *Haelava* (Forsk.).

8. *L. Kneuckeri* Bornm. in Allgem. Bot. Zeitschr. (1909) 130.

HABITAT: I. W. Timan, W. Mossagawet (Kneuck.).

FL.: Apr. 1904 (Kneuck.).

FR.: Apr. 1904 (Kneuck.).

DISTRIB.: Egypt, Sinai.

9. *L. macilenta* Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 252; Kotschy in Sitzb. Kais. Akad. Wiss. lii, (1866) 11; Boiss. Fl. Or. iv, (1879) 369; Post Fl. Syr. (1896) 584; Blatt. Fl. Ader (1915) 271.

HABITAT: I. Sinai (Auch.-Eloy 1901!); desert of Sinai (Bové 74! 75!); W. Hebran (Schimp. 147!); W. el Ain (Hart!); Central and S. Midian (Burton!).

II. Hijaz (ex Kotschy).

FR.: June 1832 (Bové), June 1835 (Schimp.).

DISTRIB.: Endemic.

Vern. name: *Degaiga*, *Roufaya*, (Bové), *Haláweh* (Post).

Note: Animals eat (Burton).

10. *L. micrantha* Spreng. Syst. ii, 794; Boiss. Fl. Or. iv, (1879) 375; Post Fl. Syr. (1896) 585.

HABITAT: I. Arabia Petraea: Arbain (Schimp. 119!).

FL.: Apr. 1835 (Schimp.).

FR.: Apr. 1835 (Schimp.).

DISTRIB.: Mediterranean region to Persia.

11. *L. sagittata* Hook. f. Bot. Mag. t. 6060; This.-Dyer Fl. Trop. Afr. iv, ii, 291.—*L. gracilis* R. Br. in Salt Abyss. App. 64.—*L. propinqua* R. Br. l. c.

HABITAT: II. Aden (S.! Defl.! Birdw.! Beavor!).

III. Dhofar Mts.: Merbat (Bent 2!).

DISTRIB.: Canaries, N. Africa, Nubia, Eritrea, Abyssinia, Somaliland, Arabia.

Note: It is evident that *L. sagittata* is very variable in habit, shape and size of the leaves, and the length of the peduncles. Hemsley and Skan found that many of the specimens cited by them in the "Flora of Tropical Africa" (vol. vi, part ii, page 291) had been named *L. macilenta* Dcne. instead of *L. sagittata* Hook. f. *L. macilenta* is different in habit, has much shorter peduncles, minute flowers and much smaller capsules.

12. *L. scalarum* Schweinf. MS. in Herb. Kew.

HABITAT: II. Wasil, on terraces 1,400 m. (S. 1149).

FL.: Feb. 1889 (S.).

FR.: Feb. 1889 (S.).

DISTRIB.: Endemic.

13. *L. simplex* DC. Fl. Fr. iii, 588; Kneuck. in Allg. Bot. Zeitschr. ix, (1903) 149.—*L. arvensis* Desf. VAR. *flaviflora* Boiss. Fl. Or. iv, (1879) 375; Post Fl. Syr. (1896) 585.

HABITAT: I. W. Sewook (Lord); W. Barak (Post 96); Arabia Petraea (McDonald); N. and Central Midian (Burton); W. Tarfa, Convent of St. Catherine, Plain of Raha (Kneuck.).

FL.: Apr. 1868 (Lord).

FR.: Apr. 1868 (Lord).

DISTRIB.: Mediterranean region to Persia.

14. *L. spuria* Mill. Dict. 15; Boiss. Fl. Or. iv, (1879) 366; Post Fl. Syr. (1896) 583.

HABITAT: I. Sinai (Holland!).

FR.: Nov. 1870 (Holland).

DISTRIB.: Europe, N. Africa, Canaries to Persia.

### 5. *Anarrhinum* Desf.

1. *A. fruticosum* Desf. Fl. Atl. ii, 52.

HABITAT: I. Arabia Petraea (McDonald!).

DISTRIB.: N. Africa, Arabia Petraea.

2. *A. orientale* Benth. in DC. Prodr. x, 289; Boiss. Fl. Or. iv, (1879) 362; Defl. Yemen (1889) 179; Post Fl. Syr. (1896) 587; This.-Dyer Fl. Trop. Afr. iv, ii, 292.—*A. abyssinicum* Jaub. & Sp. III. Pl. Or. t. 447-449.—*A. arabicum* Jaub. & Sp. l. c. t. 446.—*Simbuleta arabica* Poir. Encycl. vii, 194.—*S. Forskahlia* J. F. Gmel. Syst. 242.—*Simbuleata* Forsk. Fl. Aeg.-Arab. (1775) CXV, n. 389 and p. 115.

HABITAT: I. Arabia Petraea (Bové).

II. Manakhah, 2,300 m. (S. 1365!); near Manakhah, 2,300-2,600 m. (Defl. 260, 318); J. Kurma (Forsk.).

FL.: Feb. 1889 (S.).

FR.: Feb. 1889 (S.).

DISTRIB.: Eritrea, Abyssinia, Arabia, Palestine, Syria, Mesopotamia.

Vern. name: *Symbulet ennesem, susal* (Forsk.).

3. *A. pubescens* Fres. Mus. Senck. i, (1833) 89; Dene. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 253; Boiss. Fl. Or. iv, (1879) 363; Post Fl. Syr. (1896) 587.—*Cardiotheca pubescens* Ehr. MS.

HABITAT: I. Mt. Sinai, between boulders of granite (Bové 71!); Mt. Sinai (Traill!); desert of Sinai (Bové 74!); foot of Mt. Sinai (Schimp. 354! Ehrenb.); W. Shaikh, 4,000 ft. (Rüppell).

FL.: May 1835 (Schimp.).

FR.: June 1832 (Bové).

DISTRIB.: Endemic.

Vern. name: *Eynoub, Roufaya* (Bové); *Arphaije* (Schimp.), *Arphaiji* (Post).

### 6. *Schweinfurthia* A. Braun

1. *S. latifolia* Baker in Kew Bull. (1894) 338; Hook. Ic. Pl. 2362.

HABITAT: III. Shari Burrock valley, Mukalla, 200-300 ft. (Lunt 58!).

FL.: Dec. 1893 (Lunt).

DISTRIB.: Endemic.



2. *S. pedicellata* Benth. & Hook. f. Gen. Pl. ii, (1876) 934 (by error *pedicellaris*); Balf. Bot. Socotra, 201; Cooke Fl. Bomb. Pres. ii, 284; Blatt. Fl. Aden (1915) 272.—*Anarrhinum pedicellatum* T. Anders. Fl. Aden. (1860) 26.—*Antirrhinum apterum* Vatke in Oest. Bot. Zeitschr. (1875) 96.—*S. aptera* Vatke in Herb. Reg. Berol. ex Vatke l. c.; This.-Dyer Fl. Trop. Afr. iv, ii, 294.

HABITAT: II. Shuqra (S. 108!), Aden (Thomson! Defl. 24! S. 6! Hook. 87! Ol. & Cl.! Perry! Playfair! Birdw.! Lunt!).

FL.: Jan. 1863 (Ol. & Cl.), Feb. 1851 (Thomson), Mar. 1881 (S.), Apr. 1861 (Thomson), Nov. 1888 (S.), Dec. 1847 (Hook.).

FR.: Jan. 1863 (Ol. & Cl.), Feb. 1851 (Thomson), Mar. 1881 (S.), Apr. 1861 (Thomson), Nov. 1888 (S.), Dec. 1847 (Hook.), Dec. 1889 (Defl.).

DISTRIB.: S. Arabia, Socotra, Comoro Islands, Somaliland, Sind.

3. *S. pterosperma* A. Braun Bericht. Ac. Wiss. Berlin (1866) 872, t. 1; Defl. Yemen (1889) 179; This.-Dyer Fl. Trop. Afr. iv, ii, 293; Blatt. Fl. Aden (1915) 274.—*Onontium arabicum* Ehr. MS. ex Boiss.

HABITAT: II. Jiddah (Zohrab 43!); near Lahaj (Defl.); Aden (Busse, Ellenb.).

III. W. Bagren (Hirsch 64).

DISTRIB.: Nubia, Eritrea, Abyssinia, Somaliland, Arabia.

Note: In my former list of the plants of Aden I combined *Schweinfurthia pedicellata* Benth & Hook. with *S. pterosperma*; but there seems to be no doubt that these two names represent two distinct species. Vatke wrote in 1875 (*Plantae in tinere Africano ab J. M. Hildebrandt collectae, in Oesterr. Bot. Zeitschr. xxv. Jahrg. (1875) p. 96*): *Antirrhinum apterum* Vatke. [ *Schweinfurthia aptera* Vatke ] "ab affini *A. pterospermo* A. Rich. vel *Schweinfurthia* p. A. Br. seminibus eximie differt."

## 7. *Antirrhinum* L.

1. *A. orontium* L. Sp. Pl. (1753) 617; Boiss. Fl. Or. iv, (1879) 385; Post Fl. Syr. (1896) 587; This.-Dyer Fl. Trop. Afr. iv, ii, 294. — *A. orontium* VAR. *abyssinicum* Hochst. ex Rich. Fl. Abyss. ii, (1851) 114.

HABITAT: I. Siuai (ex Post).

II. W. Hedjan near Wasil, 1,200 m. (S. 1075!).

IV. Mascat (Auch.-Eloy 5073!).

FR.: Feb. 1889 (S.).

DISTRIB.: Europe, Canaries, N. Africa, Abyssinia, Nubia, Eritrea, S. Africa, Arabia to Himalaya.

Vern. name: *saisam* (Post), *qobur* (S.).

## 8. *Scrophularia* L.

1. *S. arguta* Soland in Ait. Kew. ed. 1, ii, 342; Boiss. Fl. Or. iv, (1879) 395; This.-Dyer Fl. Trop. Afr. iv, ii, 296.—*S. rostrata* Hochst. ex Boiss.

HABITAT: II. J. Bura, 1,000 m. (S. 419!).

IV. Mascat (Auch.-Eloy 5057!).

FL. Jan. 1889 (S.).

DISTRIB.: Europe, N. Africa, Canaries, Nubia, Abyssinia, Somaliland, Arabia, Socotra.

Vern. name: *melisse*, *melsah* (S.).

2. *S. canina* L. Sp. Pl. (1753) 621; Boiss. Fl. Or. iv, (1879) 419.

HABITAT: I. Arabia Petraea (McDonald).

DISTRIB.: Europe, Asia Minor, N. Africa, Arabia Petraea.

3. *S. deserti* Del. Ill. Fl. d' Eg. 96, t. 33 f. 1; Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 252; Boiss. Fl. Or. iv, (1879) 414; Post Fl. Syr. (1896) 591; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 120.—*S. sinaica* Benth. in DC. Prodr. x, 314.

HABITAT: I. Desert of Suez (Bové 72!); Desert of Sinai (Bové 73!); J. St. Catherine, 7,000 ft. (Rüppell); el Bustan, W. el Araba (ex Post); Desert of Ka'a (Musch.); Bestan (Schimp. 320); W. Shaikh (Boiss.).

FR.: June 1832 (Bové).

DISTRIB.: Egypt, Arabia Petraea to Persia.

Vern. name: *Monaseb*, *Glyelé* or *Zéret* (Bové) *Zéiteh* (Post).

4. *S. hypericifolia* Wydler Mon. 166, t. 5; Boiss. Fl. Or. iv, (1879) 421.—*S. syriaca* Benth. in DC. Prodr. x, 316; Boiss. l. c. 420; Post Fl. Syr. (1896) 592.

HABITAT: I. Sinai (Auch.-Eloy 1769!).

DISTRIB.: N. Africa, Egypt, Arabia Petraea, Palestine, Syria.

NOTE: Specimen collected by Pelly in Central Arabia seems to be aff. *S. syriace*.

5. *S. lucida* L. Syst. ed. x, 114; Boiss. Fl. Or. iv, (1879) 403; Hook. f. Fl. Brit. Ind. iv, 256; Carter in Rec. Bot. Surv. Ind. vi, 200.

HABITAT: IV. Zor Hills, without number or local name (Cox).

DISTRIB.: Asia Minor to Italy, W. Himalayas, Arabia.

6. *S. libanotica* Boiss. Diagn. Pl. Or. ser. i, xii, 36; Stiefelh. in Engl. Bot. Jahrb. xlv, (1910) 478.—*S. Urvilleana* Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 418 (*non Wyde.*)—*S. variegata* M.B. var. *libanotica* Boiss. Fl. Or. iv, (1879) 418; Post Fl. Syr. (1896) 592.

HABITAT: I. Desert of Sinai (Bové 69!); J. St. Catherine (Schimp. 350!); J. St. Catherine, 2,600 m. (Kneuck.).

FR.: May 1835 (Schimp.).

DISTRIB.: Sinai, Syria, Asia Minor, Armenia, Persia.

Vern. name: *Nefflé* (Bové), *'inabeh* (Post).

7. *S. xanthoglossa* Boiss. Diagn. Pl. Or. ser. 1, xii, 38; Fl. Or. iv, (1879) 413; Post Fl. Syr. (1896) 591; Musch. Fl. Eg. ii, (1912) 870.

HABITAT: I. Arabia Petraea (ex-Musch.)

DISTRIB.: Egypt, Arabia Petraea, Palestine, Syria to Persia.

VAR. *decipiens* Boiss. l. c.; Kneuck. in Allg. Bot. Zeitsch. ix, (1903) 149.—*S. aintabensis* Boiss. et Haussk.; *S. orientalis* Ehrenb. ex Boiss.

HABITAT: I. Foot of Ras es-Sapaf towards J. Musa, 1,600—1,650 m. (Kneuck.).

DISTRIB.: About the same as type.

9. *Sutera* Roth

1. *S. glandulosa* Roth Bot. Bemerk. 172; Boiss. Fl. Or. iv, (1879) 422; Cooke Fl. Bomb. ii, 285.—*Ocpraria dissecta* Del. Ill. Fl. d'Eg. 239, t. 32, f. 2.—*Jamesbrittenia dissecta* O. Ktze. Rev. Gen. Pl. iii, 461; This.-Dyer Fl. Trop. Afr. iv, ii, 298.

HABITAT : Arabia (ex Cooke; ex This.-Dyer).

DISTRIB. : Nubia, Egypt, Tropical Arabia, India.

10. *Lindenbergia* Lehm.

1. *L. abyssinica* Hochst. ex Benth in DC. Prodr. x, 377; Cooke Fl. Bomb. ii, 306; This.-Dyer Fl. Trop. Afr. iv, ii, 312.—*L. sinaica* Vatke in Linnæa xliii, 306 (non Benth.).—*L. sinaica* Benth. var. *abyssinica* Almagia in Ann. Istit. Bot. Roma viii, 140.

HABITAT : Tropical Arabia (ex Cooke).

DISTRIB. : Nubia, Eritrea, Abyssinia, Somaliland, Arabia, N. W. India.

2. *L. fruticosa* Benth. in DC. Prodr. x, 377; Boiss. Fl. Or. iv, (1879) 425.

HABITAT : III. Dhofar Mts. : Regat (Bent 76!).

IV. Masqat (Auch.-Eloy 5104!).

DISTRIB. : Endemic.

3. *L. sinaica* Boiss. in Scroph. Ind. 22; Schenk Sp. Pl. it. Aeg. Arab. & Syr. (1840) n. 128; This.-Dyer Fl. Trop. Afr. iv, ii, 312; Blatt. Fl. Aden (1915) 278.—*Bovea sinaica* Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, 1; (1834) 253.

HABITAT I. W. Feirau and neighbourhood (Lord!); Sinai (Auch.-Eloy 1694! Ehrenb.); desert of Sinai (Bové 64!); Arabia Petraea : W. Hebran (Schimp. 183!); near el Araba (ex Schenk); W. es Sle, W. Taifa (Kneuck.); S. Idian (Burton!).

II. Mt. Sidr and Kesser (Fischer 151!); Bilad Fodhli (Defl. 948!); Aden (Hook. 82! Perry! Thomson! S. 66! Anders.! Lunt! Birdw.! Hildebr.).

III. Hadramaut : High plateau (Hirsch 101, 102).

Fl. : Jan. 1872 (Thomson), Feb. (Fischer), Mar. 1878 (Perry), Apr. 1878 (Burton), Apr. 1893 (Defl.), May 1868 (Lord), Nov. 1888 (S.), Dec. 1847 (Hook.).

Fr. : Jan. 1872 (Thomson), Mar. 1878 (Perry), Apr. 1893 (Defl.), June 1832 (Bové), Nov. 1888 (S.), Dec. 1847 (Hook.).

DISTRIB. : Nubia, Abyssinia, Eritrea, Egypt, Somaliland, Arabia, Socotra.

Vern. name : *seffary* (Bové).

NOTE : Cattle eat (Burton).

11. *Herpestis* Gaertn. f

1. *H. Monniera* H. B. K. Nov. Gen. et Sp. ii, 366; Boiss. Fl. Or. iv, (1879) 427; Baker in Kew Bull. (1894) 338.—*Limosella calycina* Forsk. Fl. Aeg.-Arab. (1775) CXV, n. 375 and p. 112.

HABITAT : I. N. Midian (Burton!).

II. Near Wasil, 1, 500 m. (S. 1271!); W. Djara (Ehrenb. !); W. el Kebir (Defl. 207!); W. Fatimah (Fischer 110! Schimp. 904!); W. Zebid (Forsk.).

III. Sides of a brackish pool at Ghafit, 600 ft. (Lunt); W. Bagren (Hirsch 66).

IV. Masqat (Auch.-Eloy 5074!).

FL.: Mar. 1837 (Fischer); Dec. 1889 (Defl.).

DISTRIB.: Cosmopolitan in the tropics, Mesopotamia, Afghanistan.

Vern. name: 'Armat (Hirsch).

NOTE: Animals eat (Burtou).

### 12. *Craterostigma* Hochst.

1. *C. plantagineum* Hochst. in Flora (1841) 669; This.-Dyer Fl. Trop. Afr. iv, ii, 329.—*Dunalia acaulis* R. Br.; Rich. Fl. Abyss. ii, (1851) 121.

HABITAT: II. Neighbourhood of Aden (Hunter 58!).

DISTRIB.: Tropical Africa, extra tropical Transvaal, Arabia.

2. *C. pumilum* Hochst. in Flora (1841) 670; This.-Dyer Fl. Trop. Afr. iv, ii, 330.—*Dunalia acaulis* R. Br. in Salt Abyss. App. 64.—*Torenia pumila* Benth. in DC. Prodr. x, 411; Rich. Fl. Abyss. ii, (1851) 121; Defl. Yemen (1889) 179.

HABITAT: II. Between Dhamar and Yerim, 2,600 m. (Defl. 637).

DISTRIB.: Abyssinia, Somaliland, British and German E. Africa, Arabia.

### 13. *Campylanthus* Roth

1. *C. juncus* Edgew. Journ. Asiat. Soc. Beng. xvi, 1217; Anders. Fl. Aden (1850) 27; Blatt. Fl. Aden (1915) 279.

HABITAT: II. Aden (Defl. 63! S. 35! Perry! Hook. 86! 98! Madden 5! Balfour! T. Anders.! Thomson! Edgew.! Hildebr., Playfair!).

FL.: Jan. 1880 (Balfour), Feb. 1851 (Thomson), Mar. 1850 (Madden), May 1859 (Anders.), Dec. 1847 (Hook.), Dec. 1888 (S.), Dec. 1889 (Defl.).

FR.: Jan. 1880 (Balfour), Feb. 1851 (Thomson), Mar. 1850 (Madden), May 1859 (Anders.), Dec. 1847 (Hook.), Dec. 1888 (S.), Dec. 1889 (Defl.).

DISTRIB.: Endemic.

### 14. *Veronica* L.

1. *V. Anagallis* L. Sp. Pl. (1753) 12; Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 246; Boiss. Fl. Or. iv, (1879) 437; Post Fl. Syr. (1896) 594.

HABITAT: I. Sinai (Drake 54!); W. Feiran and neighbourhood (Lord!); W. Tarfa, ca. 1 100 m. (Kneuck.); damp places of Mt. Sinai (Bové).

FL.: May 1868 (Lord).

FR.: May 1868 (Lord).

DISTRIB.: Nearly all warm and temperate regions.

2. *V. anagalloides* Guss. Pl. Rar. 5, t. 3; Kotschy. in Sitzb. Kais. Akad. Wiss. lii, (1866) 11; Boiss. Fl. Or. iv, (1879) 437; Post Fl. Syr. (1896) 594.

HABITAT: I. Arabia Petraea (Bové).

II. Hijaz (ex Kotschy).

DISTRIB.: Mediterranean region, Persia, Afghanistan.

3. *V. biloba* L. Mant. 172; Vahl Symb. Bot. i, (1870) 1; Del. Frag. Fl. Arab. Petr. (1833) n. 19; Dene. Fl. Sin. in Ann. Sc. Nat. ser. 2, F, (1834) 246; Boiss. Fl. Or. iv, (1879) 464; Post Fl. Syr. (1896) 597.

HABITAT: I. Arabia Petraea (McDonald! De Laborde); Mt. Sinai (Bové).

DISTRIB.: E. Mediterranean region, Persia, Afghanistan, Himalaya, Siberia.

4. *V. Buxbaumii* Ten. Nap. i, 7, t. 1; Boiss. Fl. Or. iv, (1879) 465; Post Fl. Syr. (1896) 597; Musch. Fl. Eg. ii. (1912) 877.—*V. persica* Poir. Dict. viii, 542.

HABITAT: I. Arabia Petraea (ex Musch.).

II. Kahil above Manakhah, 2,500 m. (S. 1414!).

FL.: Feb. 1889 (S.).

DISTRIB.: Europe, Egypt, Arabia, Palestine, Syria.

5. *V. campylopoda* Boiss. Diagn. Pl. Or. ser. 1, iv, 80; Fl. Or. iv, (1879) 464; Post Fl. Syr. (1896) 597.

HABITAT: I. Top of Mt. Sinai (Schimp. 118, Boiss.).

DISTRIB.: E. Mediterranean region, Persia, Afghanistan, Baluchistan, Songaria.

6. *V. cymbalaria* Pod. Diss. 3; Boiss. Fl. Or. iv, (1879) 467; Post Fl. Syr. (1896) 598.

HABITAT: I. Arabia Petraea (ex Post).

DISTRIB.: Mediterranean region.

VAR. *cymbalarioides* Post l. c.—*V. cymbalarioides* Blanche ex Boiss. l. c. 468.

HABITAT: I. Arabia Petraea (ex Post).

DISTRIB.: Mediterranean region.

7. *V. didyma* Ten. Nap. Prodr. 6; Boiss. Fl. Or. iv, (1879) 466; Post Fl. Syr. (1896) 593.—*V. polita* Fries ex Boiss.

HABITAT: II. Kahil above Manakhah, 2,500 m. (S. 1416!); Agara near Hajeilah (S. 1016!).

FL.: Feb. 1889 (S.).

FR.: Feb. 1889 (S.).

DISTRIB.: Europe, N. Africa, Arabia, Persia, Afghanistan, Baluchistan.

8. *V. macropoda* Boiss. Diagn. Pl. Or. ser. 1, iv, 79; Fl. Or. iv, (1879) 465; Kneuck. in Allg. Bot. Zeitsch. ix, (1903) 149.

HABITAT: I. Near top of J. Catherine, 2,000—2,500 m. (Kneuck.).

DISTRIB.: Arabia Petraea, Persia.

15. *Alectra* Thunb.

1. *A. arabica* Defl. Yemen (1889) 179.

HABITAT : II. Between Ibb and Tæz, 2,200 m. (Defl. 669).

DISTRIB. : Endemic.

16. *Striga* Lour.

1. *S. hermonthica* Benth. in Hook. Comp. Bot. Mag. i, 365; Boiss. Fl. Or. iv, (1879) 469; This.-Dyer. Fl. Trop. Afr. iv, ii, 407.—*Buchnera hermonthica* Del. Fl. Eg. 309, t. 34.

HABITAT : II. E. of Marrana in Sorghum fields (S. 161!); Mor (Ehrenb.); between Hes and Tæz (Botta).

FL. : Dec. 1889 (S.).

DISTRIB. : Tropical Africa, Egypt, Arabia.

2. *S. lutea* Lour. Fl. Cochinch. 22; This.-Dyer Fl. Trop. Afr. iv, ii, 409; Cooke Fl. Bomb. ii, 303.—*S. hirsuta* Benth. in DC. Prodr. x, 502; Defl. Yemen (1889) 180.—*S. hirsuta* var. *perpusilla* Rich. Fl. Abyss. ii, (1851) 132.—*S. pusilla* Höchst. ex Benth. l. c. 503.—*Campuleia hirsuta* Rich. l. c.

HABITAT : II. Near Ibb, 2,000 m. (Defl. 662); between Hes and Tæz (Botta).

DISTRIB. : Tropical and S. Africa, Mascarene Islands, hotter parts of Asia.

3. *S. orobanchoides* Benth. in Hook. Comp. Bot. Mag. i, 361; Defl. Yemen (1889) 180; This.-Dyer Fl. Trop. Afr. iv, ii, 402.—*S. gesnerioides* Vatke in Oest. Bot. Zeitschr. (1875) 11.—*S. orchidea* Höchst. ex Benth. in DC. Prodr. x, 501.—*Buchnera orobanchoides* R. Br. in Salt Abyss. App. 64.

HABITAT : II. Above Manakhah, 2,500 m. (S. 1566!); near Manakhah, 1,200 m. (Defl. 366); Yaman (Botta).

FL. : Feb. 1889 (S.).

DISTRIB. : Cape Verde Islands, Tropical and S. Africa, Arabia, Socotra, India.

17. *Eufragia* Griseb.

1. *E. viscosa* Benth. in DC. Prodr. x, 543; Boiss. Fl. Or. iv, (1879) 474; Post Fl. Syr. (1896) 599; Musch. Fl. Eg. ii, (1912) 881.

HABITAT : I. Arabia Petraea (ex Musch.).

DISTRIB. : Europe, Mediterranean region, Canaries.

18. *Trixago* Stev.

1. *T. apula* Stev. Méém. Mosq. vi, 4; Boiss. Fl. Or. iv, (1879) 474; Post Fl. S. I. (1896) 599.

HABITAT : I. Arabia Petraea (ex Post).

DISTRIB. : Europe, Mediterranean region, Mesopotamia, Transcaucasus.

19. *Cycniopsis* Engl.

1. *C. humifusa* Engl. in Engl. Bot. Jahrb. xxxvi, 233; This.-Dyer Fl. Trop. Afr. iv, ii, 416.—*Browallia humifusa* Forsk. Fl. Aeg.-Arab. (1775) CXV, n. 374

and p. 112.—*Bichnera humifusa* Vahl Symb. Bot. iii, (1794) 81.—*Striga humilis* Hochst. in Flora (1844) 101; Rich. Fl. Abyss. ii, (1851) 131.—*Rhamphicarpa humilis* Hochst. l. c.—*Cycnium humifusum* Benth. & Hook. f. Gen. Pl. ii, 969 Defl. Yemen (1889) 180.

HABITAT: II. Boka, Hadiyah (Forsk.); near Ibb, 1,800 m. (Defl. 661)

DISTRIB.: Abyssinia, Arabia.

## LXXIV. OROBANCHACEAE.

### 1. Cistanche Hoffm. et Link

1. *C. lutea* Hoffm. et. Link Fl. Port. i, 319, t. 63; This.-Dyer Fl. Trop. Afr. iv, ii, 463; Blatt. Fl. Aden (1915) 281.—*Phelipaea lutea* Desf. Fl. Atlant. ii, 60, t. 146; Boiss. Fl. Or. iv, (1879) 500; Post Fl. Syr. (1896) 603.—*P. tinctoria* Walp. Rep. iii, 462; Defl. Yemen (1889) 181.—*P. tinctoria* Forsk. Fl. Aeg. Arab. (1775) CXV, n. 376 and p. 112.

HABITAT: I. Arabia Petraea: desert Tih (Boiss.); W. of Gulf Akaba (Milne!); El Ghor, Et-Tih (ex Post).

II. Jiddah (Zohrab 145!); chain of islands about 6 miles from Jiddah (Zohrab!); near Sanah, 2,300 m. (Defl. 550); near Mefhak, 1,800 m. (Defl. 605) Mor (Forsk.); Aden (Yerbury!); Yaman (Botta).

DISTRIB.: Spain, N. Africa, tropical Africa, Arabia, Palestine, Syria, through Orient to India.

Vern. name *Hoddar*, *khedar* (S.), *zybbalkaa* (Forsk) *Halûq*, *Danûn*, *barnûq*, *terathûk*, *turfâs* (Post).

NOTE: On roots of *Salvadora persica* (Yerbury). On *Chenopodiaceae* (Post).

2. *C. rosea* Baker in Hook. Ic. Pl. 2363; in Kew Bull (1894) 339

HABITAT: III. Tokham, 200 ft. (Lunt 62!).

DISTRIB.: Endemic.

NOTE: Parasitic on *Pluchea Dioscorides* (Lunt).

3. *C. tubulosa* Wight Ic. t. 1420 bis.—*Phelipaea tubulosa* Schenk Sp. Pl. it. Aeg. Arab. & Syr. (1840) n. 138; Boiss. Fl. Or. iv, (1879) 500; Post Fl. Syr. (1896) 603.

HABITAT: I. W. Useit (Boiss.); W. Nasb (Drake 65!); W. es Sle, W. es Shaikh (Kneuck.); between Suez and Tor (Roth & Erdl.); Sinai and Et-Tih (ex Post).

FL.: Feb. (Roth & Erdl.), Mar. 1846 (Boiss.).

DISTRIB. Arabia Petraea, Palestine, Socotra, Persia to India.

Vern. name *Zibatheekh* (Drake), *Therthur* (Post).

NOTE: Parasitic on *Tamarix* (Post, Kneuck.; Boiss.).

### 2. Orobanche L.

1. *O. aegyptiaca* Pers. Enchir. ii, (1807) 181; Beck Monogr. Orob. in Bibl. Bot. iv, 101; Musch. Fl. Eg. ii, (1912) 890.—*Phelipaea aegyptiaca* Walp. Repert. Bot. iii 463; Boiss. Fl. Or. iv, (1879) 499; Post Fl. Syr. (1896) 603.

HABITAT: I. Arabia Petraea (ex Musch.)

DISTRIB.: E Mediterranean region to Persia, Afghanistan, N. W. India.

2. *O. Cathae* Defl. in Bull. Soc. Bot. France xliii, (1896) 219.

HABITAT: II. El-Gelil (Defl. 281).

DISTRIB. Endemic.

NOTE: Parasitic on the roots of *Catha edulis* Forsk.

3. *O. cernua* Loeff. Iter. Hispan. (1758) 152. VAR. *desertorum* Beck Monogr. Orob. in Bibl. Bot. iv, 142, t. II, f. 33 (1); Boiss. Fl. Or. iv, (1879) 514; Baker in Kew Bull. (1894) 339; Post Fl. Syr. (1896) 604; This.-Dyer Fl. Trop. Afr. iv, ii, 466.

HABITAT: I. Arabia Petraea (Pinard! McDonald! Boiss.); Et-Tih (ex Post).

II. Yaman (ex Boiss.).

III. Dhofar Mts. (Bent 78!); Tokham, 200 ft. (Lunt 63!).

DISTRIB. N. Africa, Nubia, Arabia, Socotra, through the Orient to N. W. India.

NOTE: On roots of *Pluchea Dioscoridis* (Lunt).

4. *O. crenata* Forsk. Fl. Aeg.-Arab. (1775) LXVIII, n. 304 and p. 113; Musch. Fl. Eg. ii, (1912) 892.

HABITAT: I. Arabia Petraea (ex Musch.)

DISTRIB.: Mediterranean region to Persia and Transcaucasus.

5. *O. minor* Sutton in Trans. Linn. Soc. iv, 179; Beck Monogr. Orob. in Bibl. Bot. iv, 251, t. IV, f. 82; Boiss. Fl. Or. iv, (1879) 512; This.-Dyer Fl. Trop. Afr. iv, ii, 467. — *O. abyssinica* Rich. Fl. Abyss. ii, (1851) 137; Defl. Yemen (1889) 181.

HABITAT: II. Near Manakhah, 2,400 m (Defl. 286); Yaman (Botta).

DISTRIB.: Europe, Asia Minor, N. and tropical Africa, Socotra, Arabia.

6. *O. Mutelii* F. Schaltz in Mutel Fl. France ii, 353, t. 43, f. 314; Beck Monogr. Orob. in Bibl. Bot. iv, 95.—*Phelipaea Muteli* Reut. in DC. Prodr. xi, 8 (excl. syn. et var.  $\beta$ —*P. ramosa* VAR. *Muteli* Boiss. Fl. Or. iv, (1879) 499; Post Fl. Syr. (1896) 603.

HABITAT: I. Mt. Sinai (Schimp. 110!); Arabia Petraea (ex Post); J. Cara (ex Beck).

FL.: May 1835 (Schimp.).

DISTRIB.: Europe, Mediterranean region, Eritrea, Abyssinia, S. Africa, Arabia, Persia, Transcaucasus.

Vern. name: *Seb el dick* (Schimp.).

NOTE: On roots of *Prenanthes ramosissima* (Schimp.).

7. *O. nana* Nöe in Reichb. Herb. Norm. n. 1352; Beck Monogr. Orob. in Bibl. Bot. iv, 91.—*Phelipaea ramosa* VAR. *nana* Boiss. Fl. Or. iv, (1879) 499; Post Fl. Syr (1896) 603.



HABITAT: I. Arabia Petraea (McDonald!)

DISTRIB.: Mediterranean to Mesopotamia.

8. *O. ramosa* L. Sp. Pl. (1753) 633; This.-Dyer Fl. Trop. Afr. iv, ii, 465.—*Phelipaea ramosa* C. A. M. Pl. Cauc. (1831) 104; Rich. Fl. Abyss. ii, (1851) 136.

HABITAT: Arabia.

DISTRIB.: Central and S. Europe, Egypt, Eritrea, Abyssinia, Socotra, Arabia, S. Africa.

## LXXV. BIGNONIACEAE.

### Tecoma Juss.

#### 1. *Tecoma* sp.

HABITAT: II. Cultivated at Shaikh Othman (Defl.).

#### 2. *Tecomella* Seem.

1. *T. undulata* Seem. in Ann. & Mag. Nat. Hist. ser. 3, x, (1862) 30; Cooke Fl. Bomb. ii, (1905) 328.

HABITAT: Tropical Arabia (ex Cooke).

DISTRIB.: Arabia, Baluchistan, India.

NOTE: For iconomic products see Watt.

## LXXVI. ACANTHACEAE.

### 1. *Ruellia* L.

1. *R. adhaerens* Forsk. Fl. Aeg.-Arab. (1775) CXV, n. 388 and p. 114.

HABITAT: II. Hadiyah (Forsk.).

DISTRIB.: Endemic.

Vern. name: *hamsched* (Forsk.).

2. *R. aristata* Vahl Symb. Bot. ii, (1791) 73.

HABITAT: II. Yaman (Forsk.).

DISTRIB.: Apparently endemic.

3. *R. grandiflora* nov. comb. — *Camellia* (errore editoris) *grandiflora* Forsk. Fl. Aeg.-Arab. (1775) CXVII, n. 427 and p. 126.—*R. longiflora* Vahl Symb. Bot. i, (1790) 45 (per errorem).—*Dipteracanthus longiflorus* Nees in DC. Prodr. xi, 117.

HABITAT: II. Wasil, 1,300 m. (S. 1087!); Taz (Forsk.).

FR.: Feb. 1859 (S.).

DISTRIB.: Endemic.

Vern. name: *be' dah* (S.).

4. *R. guttata* Forsk. Fl. Aeg.-Arab. (1775) CXV, n. 385 and p. 11; Defl. Yemen (1889) 181. — *Dipteracanthus guttatus* Nees in DC. Prodr. xi, 140.

HABITAT: II. Djobla, J. Chadra (Forsk.); between Ibb and Taez, 2,000-2,200 m. (Defl. 671); near Taez, 1,300 m. (Defl. 681); near Hagnef (Botta).

DISTRIB.: Endemic.

Vern. name: *ghobire, kasr* (Forsk.).

5. *R. heterotricha* Defl. in Bull. Soc. Bot. France, xliii, (1896) 220.

HABITAT: II. Near Serrya, 400-500 m. (Defl. 426, 927, 951)

FL.: Mar., Apr. (Defl.).

FR.: Mar., Apr. (Defl.).

DISTRIB.: Endemic.

Vern. name: *samaran* (Defl.).

6. *R. hispida* Forsk. Fl. Aeg.-Arab (1775) CXV n. 387

HABITAT: II. Uahfad (Forsk.).

DISTRIB.: Endemic.

Vern. name: *chommah* (Forsk.).

7. *R. longicalyx* Defl. in Bull. Soc. Bot. France, xliii, (1896) 219.

HABITAT: II. Near Serrya, 400-500 m. (Defl. 896, 1032).

FL.: Apr. 1893 (Defl.).

FR.: Apr. 1893 (Defl.).

DISTRIB. Endemic.

8. *R. pallida* Vahl Symb. Bot. ii, (1791) 72 (*non Willd.*).—*R. strepens* Forsk. Fl. Aeg.-Arab. (1775) CXV, n. 383 and p. 114 (*non L.*).

HABITAT: II. Surdud (Forsk.).

DISTRIB.: Endemic.

Vern. name: *kosseif, ghobbar, mtaktka* (Forsk.).

VAR. *caerulea* nov. comb. — *R. strepens caerulea* Forsk. l. c. n. 384.

HABITAT: II. Surdud (Forsk.).

DISTRIB.: Endemic.

9. *R. patula* Jacq. Misc. Bot. ii, 358; Defl. Yemen (1889) 181; This.-Dyer Fl. Trop. Afr. v. (1900) 45; Blatt. Fl. Aden (1915) 235.—*R. matutina* Hochst. et Steud. ex Presl Bot. Bemerk. 94.—*Dipteracanthus patulus* Nees in Wall. Pl. Asiat. Rar. iii, 82.

HABITAT: II. Manakhah, Schigjeh, 1,900 m. (S. 1615!); Hille, J. Bura (S. 298!); W. Fatimah near Unsert (Schimp. 874!); W. Fatimah (Fischer 106!); near Hajeilah 500-700 m. (Defl. 67, 91, 112, 164); Aden (Beavor 99! Anders.! S.! Birdw.!); Yaman (Botta).

III. Dhofar Mts. 300 ft. (Bent 107!).

FL.: Jan. 1889 (S.), Feb. (Fischer)

FR.: Feb. 1836 (Schimp.), Feb. 1889 (S.).

DISTRIB.: Tropical Africa, Arabia, India, Ceylon.

Vern. name: *Usara* (S.).

NOTE: Called *R. matutina* Hochst. et Steud. because the flowers open in the morning and then fall off (Schimp.).

Hirsch's Plant n. 164 collected in Hadramant is nearly related to the above species according to Schweinf.).

10. *R. patula* Jacq. var. *villosa* Defl. in Bull. Soc. Bot. France xliii, (1896) 220.

HABITAT: II. Near Serrya (Defl. 417, 924, 952).

DISTRIB.: Endemic.

Vern. name: *refref* (Defl.).

## 2. *Phayloopsis* Willd.

1. *P. imbricata* nov. comb.—*Huellia imbricata* Forsk. Fl. Aeg.-Arab. (1775) CXV, n. 381 and p. 113; Vahl Symb. Bot. ii, (1791) 73.—*P. parviflora* Willd. Sp. Pl. iii, 342; This.-Dyer Fl. Trop. Afr. v, (1900) 83.

HABITAT: II. Boka (Forsk.).

DISTRIB.: Tropical Africa, Arabia, India.

## 3. *Blepharis* Juss.

1. *B. edulis* Pers. Syn. ii, 180; Defl. Yemen (1889) 181; Post Fl. Syr. (1896) 607; Blatt. Fl. Aden (1915) 284.—*Acanthus edulis* Forsk. Fl. Aeg.-Arab. (1775) CXV, n. 391 and p. 114; Vahl Symb. Bot. i, (1790) 48.—*A. imbricatus* Edgew. Journ. As. Soc. Beng. xvi, 1217.—*Acanthodium spicatum* Del. Fl. Eg. 97, t. 33, f. 2; Frag. Fl. Arab. Petr. (1833) n. 20; Dcne. Pl. l'Arab. Heur. in Ann. Sc. Nat. ser. 2, iv, (1835) 80.

HABITAT: I. From Dead Sea to Sinai and Egypt (ex Post); Sinai (Bové); Arabia Petraea: Nakkeb (Schimp. 367!); Arabia Petraea (McDonald! De Laborde); W. Gennah (Lord!); W. El Ain (Hart!); Sinai: W. Igne (Drake 105!); N. and S. Midian (Burton!).

II. Mt. Sidr (Fischer 113!); Jiddah (Zohrab 40! Fischer 148!); everywhere in the Tehama and near Sanah and Taz (Defl.); Lohaja, Mor (Forsk.); J. Maammara, J. Djennat (Botta); Aden (Perry! Ol. & Cl.! Lunt 311! Hook 84! Madden! Thomson! S.! Defl.! Anders.! Edgew.! Birdw.!); Yaman (Lunz!); Central Arabia (Pelly March 2nd 65!).

IV. Masqat (Auch.-Eloy 5221!).

FL.: Jan. 1863 (Ol. & Cl.), Feb. (Fischer), Mar. 1837 (Fischer), Apr.-May (Fischer), Apr. 1894 (Lunt), Dec. 1847 (Hook.).

FR.: Jan. 1863 (Ol. & Cl.), Mar. 1878 (Perry), Apr. 1861 (Thomson), Dec. 1847 (Hook.).

DISTRIB.: Egypt, tropical Africa, Arabia, Persia, Baluchistan.

Vern. name: *cháferah* (S.), *shauk-ed-dibb* (Post), *sogaf* (Forsk.).

NOTE: Camels fond of it (Burton).

VAR. *congesta* Rolfe in Kew Bull. (1894) 338.

HABITAT: II. Near Shibam 1,000 ft. (Lunt 176!).

FL.: Jan. 1894 (Lunt).

FR.: Jan. 1894 (Lunt).

DISTRIB.: Endemic.

2. *B. maderaspatensis* Heyne ex Roth Nov. Sp. 320.—*B. boerhaaviaefolia* Pers. Syn. ii, 180; This.-Dyer Fl. Trop. Afr. v, (1900) 96; Balfour Fl. Socotra 211.—*Acanthus maderaspatensis* Forsk. Fl. Aeg.-Arab. (1775) CXV, n. 390.

HABITAT: II. Surdud (Forsk.); tropical Arabia (ex Balfour).

DISTRIB.: Tropical Africa, Socotra, Arabia.

Vern. name: *saebak* (Forsk.).

### 3. *Blepharis* sp.

HABITAT: III. Dhofar Mts. 2,000 ft. (Bent 110!).

NOTE: Long stemmed. white flowered.

### 4. *Acanthus* L.

1. *A. arboreus* Forsk. Fl. Aeg.-Arab. (1775) CXV, n. 392 and p. 115; This Dyer Fl. Trop. Afr. v, (1900) 106.

HABITAT: II. Wasil, 1,000 m. (S. 1112!); Hadiyah, Kurma, Barah (Forsk.)

FL.: Feb. 1889 (S.).

FR.: Feb. 1889 (S.).

DISTRIB.: Tropical Africa, Arabia.

Vern. name: *sseenef* (S.), *senef* (Forsk.).

### 5. *Barleria* L.

1. *B. acanthoides* Vahl Symb. Bot. i, (1790) 47; Boiss. Fl. Or. iv, (1879) 524; Defl. Yemen (1889) 182.—*Wahabia longiflora* Fenzl ex Solms—Laub. in Schweinf. Beitr. Fl. Aethiop. 105.—*B. noctiflora* Hochst. ex Nees in DC. Prodr. xi, 240 (*non* L.).

HABITAT: II. Mt. Sidr (Fischer 113!); near Taz, 1,300-1,400 m. (Defl. 698); Jiddah (Fischer 148!); Aden (Beavor 84!) between Yaman and Asyr (Schimp. 745); Yaman (Botta).

III. Dhofar Mts. (Bent 87!).

FL.: Mar. (Fischer), Oct.-Feb. (Fischer).

DISTRIB.: E. tropical Africa, Arabia, Sind.

2. *B. arabica* Belang. ex Nees in DC. Prodr. xi, 725.

HABITAT: Arabia (L. Bouton ex Nees).

DISTRIB.: Endemic.

3. *B. Aucheriana* Nees in DC. Prodr. xi, 234; Boiss. Fl. Or. iv, (1879) 523.

HABITAT: IV Masqat: Mt. Chebek (Auch.-Eloy 5222!).

DISTRIB.: Endemic.

4. *B. bispinosa* Vahl Symb. Bot. i, (1790) 46.—*B. spinicyma* Nees in DC. Prodr. xi, 240; Defl. Yemen (1889) 182.—*Justicia bispinosa* Forsk. Fl. Aeg.-Arab. (1775) CII, n. 14 and p. 6.

HABITAT: II. J. Maammara (Botta); Wulej, J. Milhan (S. 625!); Hille, J. Bura (S. 287!); Hadiyah (Forsk.); near Wasil, 800-1,200 m. (Defl. 265); near Manakhah, 2,000 m. (Defl. 440); between Mefhak and Suq el Khamiss, 1,800-2,000 m. (Defl. 588); near Taz, 1,300 m. (Defl. 698).

FL.: Jan. 1889 (S.).

DISTRIB.: Endemic.

Vern. name: *Schuchass* (S.), *Schechadd*, *Kulibe* (Forsk.).

5. **B. Candida** Nees in DC. Prodr. xi, 240 ; Boiss. Fl. Or. iv, (1879) 524.  
 HABITAT : III. Sibeh, 750 ft. (Lunt 97 ! ) ; S. Arabia (Hirsch 160 ! ).  
 IV. Masqat (Auch.-Eloy 5223 ! ).  
 FR. : Dec. 1893 (Lunt).  
 DISTRIB. : Endemic.
6. **B. farinosa** Deff. in Bull. Soc. Bot. France xliii, (1896) 222. .  
 HABITAT : II. J. el Areys, 400-500 m. (Deff. 1034).  
 FL. : Apr. 1893 (Deff.).  
 DISTRIB. : Endemic.
7. **B. Hildebrandtii** S. Moore in Journ. Bot. xv, (1877) 69 ; Baker in Kew Bull. (1894) 338 ; Blatt. Fl. Aden (1915) 286.  
 HABITAT : II. Aden (ex Kew Bull.) ; neighbourhood of Aden (Hunter 207 ! ).  
 III. Near Dobalbah, 4,000 ft. (Lunt 216 ! ).  
 FL. : Feb. 1894 (Lunt).  
 DISTRIB. : Somaliland, Arabia.
8. **B. Hochstetteri** Nees in DC. Prodr. xi, 231 ; Boiss. Fl. Or. iv, (1879) 523.  
 —*B. diandra* Hochst. et Steud. in Schimp. Pl. Arab. Fel. ex Boiss.  
 HABITAT : II. Mt. Sidr and Kesser (Fischer 114 ! ).  
 III. Dhofar Mts. (Bent 96 ! ).  
 FL. : Feb. (Fischer).  
 DISTRIB. : Nubia, Kordofan, Abyssinia, Eritrea, Somaliland, Arabia, Baluchistan, Sind.
9. **B. noctiflora** L. f. Suppl. 290 ; Vahl Symb. Bot. i, (1790) 46.—*Justicia lanceata* Forsk. Fl. Aeg.-Arab. (1775) CII, n. 12 and p. 6.  
 HABITAT : II. Surdud (Forsk.).  
 DISTRIB. : Arabia, India.  
 Vern. name : *Sokaejt* (Forsk.).
10. **B. Prionitis** L. Sp. Pl. (1753) 636 ; Vahl Symb. Bot. ; (1790) 43 ; This.-Dyer Fl. Trop. Afr. v, (1900) 144.—*Justicia appressa* Forsk. Fl. Aeg.-Arab. (1775) CII, n. 15 and p. 6.  
 HABITAT : II. Taz and Hes (Forsk.).  
 DISTRIB. : Tropical Africa and Asia.  
 Vern. name : *schechadh* (Forsk.).
11. **B. Smithii** Rendle in Journ. Bot. (1896) 396 ; This.-Dyer Fl. Trop. Afr. iv, ii, 17.  
 HABITAT : II. Neighbourhood of Aden (Hunter 218 ! ).  
 DISTRIB. : Somaliland, Arabia.  
 Vern. name : *Ha'l* (Hunter).
12. **B. triacantha** Hochst. ex Nees in DC. Prodr. xi, 240 ; Baker in Kew Bull. (1894) 338 ; This.-Dyer Fl. Trop. Afr. v, (1900) 148.

HABITAT : III. Sibeh 750 ft. (Lunt).

DISTRIB. : Abyssinia, Eritrea, Somaliland, Arabia.

13. *B. trispinosa* Vahl Symb. Bot. i, (1790) 46.—*Justicia trispinosa* Forsk. Fl. Aeg.-Arab. (1775) CII, n. 13 and p. 6.—*B. macracantha* R. Br. in Salt Abyss. App. 64.

HABITAT : II. Hille, J. Bura (S. 303 ! ) ; J. Milhan, Hadiyah, Surdud (Forsk.).

FL. : Jan. 1889 (S.).

DISTRIB. : Abyssinia, Eritrea, Arabia.

Vern. name : *gjerôm* (S.), *Schechar*, *wzal*, *kullibae*, *wsar* (Forsk.).

VAR. *microphylla* Nees in DC. Prodr. xi, 238.

HABITAT : II. J. Maammara (Botta).

DISTRIB. : Endemic.

#### 14. *Barleria* sp.

HABITAT : III. Dhofar Mts. (Bent 95 !).

### 6. *Neuracanthus* Nees

1. *N. Robecchii* C. B. Clarke in This.-Dyer Fl. Trop. Afr. v, (1900) 140.—*Leucobacteria* R. Lindau in Ann. Ist. Bot. Roma vi, (1896) 78.

HABITAT : III. S. Arabia (Hirsch 171 ! ) ; Dhofar Mts. (Bent 100 !).

DISTRIB. : Somaliland, Arabia.

2. *N. spinosus* Defl. in Bull. Soc. Bot. France, xliii, (1896) 222.

HABITAT : II. J. el Areys, 200—300 m. (Defl. 383, 496).

FL. : Mar. (Defl.).

FR. : Mar. (Defl.).

DISTRIB. : Endemic.

#### 3. *Neuracanthus* sp.

HABITAT : III. Dhofar Mts. (Bent !).

NOTE : Near *N. Robecchii* C. B. Clarke.

### 7. *Crossandra* Salisb.

1. *C. infundibuliformis* Nees in DC. Prodr. xi, 280 ; Defl. Yemen (1889) 182.

HABITAT : II. Regma near Hajeilah, 800 m. (S. 976 ! ) ; W. Mawad near Hajeilah, 600 m. (Defl. 123) ; J. Maammara (Botta).

FL. : Jan. 1889 (S.).

FR. : Jan. 1889 (S.).

DISTRIB. : Arabia, India.

### 8. *Asystasia* Blume

1. *A. gangetica* T. Anders. in Thw. Enum. Pl. Zeyl. 235.—*Justicia gangetica* L. AMOEL. Acad. iv, 299.—*Ruellia intrusa* Forsk. Fl. Aeg.-Arab. (1775) CXV

n. 382 and p. 113; Vahl Symb. Bot. i, (1790) 45.—*A. coromandeliana* Nees in Vahl Pl. As. Rar. iii, 89; This.-Dyer Fl. Trop. Afr. v, (1900) 131.

HABITAT: II. Hadiyah (Forsk.); Regma near Hajeilah, 800 m. (S. 972!)

FL.: Jan. 1889 (S.).

FR.: Jan. 1889 (S.).

DISTRIB.: Tropics of the Old World.

Vern. name: *soudvud* (Forsk.).

2. *A. petalidioides* Defl. in Bull. Soc. Bot. France, xliii, (1896) 223

HABITAT: II. W. Dhabab near Haifan (Defl. 537, 556).

FL.: May (Defl.).

DISTRIB.: Endemic.

Vern. name: *khouladh* (Defl.).

### 9. *Justicia* L.

1. *J. areysiana* Defl. in Bull. Soc. Bot. France, xliii, (1896) 225.

HABITAT: II. J. el Areys, 400—500 m. (Defl. 956).

FL.: Apr. (Defl.).

FR.: Apr. (Defl.).

DISTRIB.: Endemic.

2. *J. caerulea* Forsk. Fl. Aeg.-Arab. (1775) CII, n. 21 and p. 5.

HABITAT: II. Milhan (Forsk.).

DISTRIB.: Endemic.

Vern. name: *vasar* (Forsk.).

3. *J. calyculata* Defl. in Bull. Soc. Bot. France, xliii, (1896) 224

HABITAT: II. Haifan (Defl. 548).

FL.: May (Defl.).

DISTRIB.: Endemic.

4. *J. dubia* Forsk. Fl. Aeg.-Arab. (1775) CII, n. 23.—*J. violaceae* Vahl Symb. Bot. ii, (1791) 15.—*Monechma violaceae* Nees in DC. Prodr. xi, 411 (*partim*).

HABITAT: II. Milhan (Forsk.); J. Ras (Botta 211, *partim*)

DISTRIB.: Endemic.

5. *J. flava* Vahl Symb. Bot. ii, (1791) 15; This.-Dyer Fl. Trop. Afr. v, (1900) 190.—*Dianthera americana* var. *a.* and *b.* Forsk. Fl. Aeg.-Arab. (1775) CIII, n. 24, 25 and p. 9, n. 24, 25.—*D. flava* Vahl. l. c. i, (1790) 5.—*D. punctata* Vahl. l. c. i, (1790) 4.—*Adhatoda flava* Nees in DC. Prodr. xi, 401; Defl. Yemen (1889) 183.—*A. suaveolens* Nees l. c.

HABITAT: II. Between Ibb and Taz, 1,800 m. (Defl. 670); near Hajeilah, 500—600 m. (Defl. 70, 92, 165); Mor (Ehrenb.); W. Agara, Hajeilah (S. 891!); Wulej, J. Milhan (S. 641!); Hadiyah (Forsk.); J. Ras (Botta).

FL.: Jan. 1889 (S.), Mar. (Ehrenb.).

FR.: Jan. 1889 (S.), Mar. (Ehrenb.).

DISTRIB.: Tropical Africa, Arabia.

Vern. name: *Wossérr* (S.).

6. *J. odora* Lam. Encycl. i, (1783) 629; Vahl Enum. i, (1804) 164; Defl. in Bull. Soc. Bot. France, xliii, (1896) 225.—*Dianthera odora* Forsk. Fl. Aeg.-Arab. (1775) CIII, n. 29 and p. 8.—*Adhatoda odora* Nees in DC. Prodr. xi, 399; Defl. Yemen (1889) 183.

HABITAT: II. Mt. Gesser (Schimp. 859!); Mt. Sidr and Kesser (Fischer 18!); Surdud (Forsk.); near Hajeilah and Wasil, 500–1,200 m. (Defl. 121, 172, 250).

FL.: Feb. (Fischer).

DISTRIB.: E. tropical Africa, Guinea, Eritrea, Arabia.

Vern. name: *kejseman* (Forsk.).

NOTE: For economic uses see Forsk. l. c.

VAR. *villosa* Defl. in Bull. Soc. Bot. France, xliii, (1896) 225.

HABITAT: II Haifan (Defl. 538).

FL.: May (Defl.).

Vern. name: *dourougrong* (Defl.).

#### 10. *Monechma* Hochst.

1. *M. debile* Nees in DC. Prodr. xi, 411.—*M. bracteatum* Hochst. in Flora (1841) 375; (1843) 75; This-Dyer Fl. Trop. Afr. v, (1900) 214.—*Dianthera debilis* Forsk. Fl. Aeg.-Arab. (1775) CIII, n. 30 and p. 9.—*Justicia debilis* Vahl Symb. Bot. ii, (1791) 15.

HABITAT: II. Taz (Forsk.).

DISTRIB.: Tropical Africa, Arabia.

#### 11. *Anisotes* Nees

1. *A. trisulcans* Nees in DC. Prodr. xi, 424; Defl. Yemen (1889) 182; Baker in Kew Bull. (1894) 338.—*Dianthera trisulca* Forsk. Fl. Aeg.-Arab. (1775) CIII, n. 28 and p. 7.—*Justicia trisulca* Vahl Symb. Bot. iii, (1791) 10.

HABITAT: II. J. Ras (Botta 217); W. el Birschi (Lunz 39!); Badjil (S. 1788!); Surdud, Hadiyah, Uahfad (Forsk.); between Badjil and Hajeilah, 300–600 m. (Defl. 65).

III. S. Arabia (Hirsch 91!); between Tahiyeh and Alrail, about 1,500 ft. (Lunt 116!).

FL.: Jan. 1838 (Lunz), Mar. 1889 (S.), Dec. 1893 (Lunt).

DISTRIB.: Endemic.

Vern. name: *madh* (S. and Forsk.).

NOTE: For medical uses see Forsk. l. c.

#### 12. *Dianthera* L.

1. *D. leptostachya* nov. comb.—*Adhatoda leptostachya* Nees in DC. Prodr. xi, 403.

HABITAT: II. Djennat (Botta 204).

DISTRIB.: Endemic.



2. *D. nuda* nov. comb.—*Adhatoda nuda* Nees in DC. Prodr. xi, 402.

HABITAT: II. Djennat (Botta 205).

DISTRIB.: Endemic.

### 13. *Ecbolium* Kurz

1. *E. Linnaeanum* Kurz in Journ. As. Soc. Beng. xl, ii, (1871) 75; Baker in Kew Bull. (1894) 338; This.-Dyer Fl. Trop. Afr. v, (1900) 236.—*Justicia Ecbolium* L. Sp. Pl. (1753) 15; Vahl Symb. Bot. i, (1790) 2; Defl. Yemen (1889) 182.—*J. viridis* Forsk. Fl. Aeg.-Arab. (1775) CII, n. 16 and p. 5.

HABITAT: II. S. of J. el Areys (Defl. 413!); Mt. Sidr (Fischer 27!); W. Agara, Hajeilah (S. 907!); W. Fatimah, Mt. Sidr (Schimp. 760!); neighbourhood of Aden (Hunter 148!); Djennat (Botta); Surdud (Forsk.).

III. Hajrain 2,600 ft. (Lunt 146!).

IV. Masqat (Auch.-Eloy 5224!).

FL.: Jan. 1894 (Lunt), Mar. 1836 (Schimp.), Mar. 1837 (Fischer), Mar. 1890 (Defl.).

FR.: Jan. 1889 (S.), Jan. 1894 (Lunt), Mar. 1836 (Schimp.).

DISTRIB.: E. Tropical Africa, Arabia, India.

Vern. name: *kossaej chasser* (Forsk.).

### 14. *Bicliptera* Juss.

1. *D. foetida* nov. comb.—*Justicia foetida* Forsk. Fl. Aeg.-Arab. (1775) CII, n. 19 and p. 5.—? *D. bivalvis* Juss. in Ann. Mus. Paris ix, 268 (non quoad plantam indicam).

HABITAT: II. Hadiyah (Forsk.).

DISTRIB.: Endemic?

Vern. name: *tuna* (Forsk.).

NOTE: For medical uses see Forsk. l. c.

2. *D. sexangularis* nov. comb.—*D. chinensis* Juss. in Ann. Mus. Paris ix, (1807) 268; Nees in DC. Prodr. xi, 477.—*Justicia chinensis* Vahl Symb. Bot. i, (1791) 13.—*J. sexangularis* Forsk. Fl. Aeg.-Arab. (1775) CII, n. 17 and p. 5.

HABITAT: II. W. Zebid, Hadiyah (Forsk.).

DISTRIB.: Tropical Asia.

Vern. name: *sovudin* (Forsk.).

### 15. *Hypoestes* R. Br.

1. *H. paniculata* Schweinf. in Abhandl. k. Preuss. Akad. d. Wiss. Berlin (separatum) (1893) 69.—*Justicia paniculata* Forsk. Fl. Aeg.-Arab. (1775) CII, n. 20 and p. 7.—*J. Forskalei* Vahl Symb. Bot. i, (1790) 2.—*H. Forskalei* R. Br. Prodr. 474; Kotschy in Sitzb. Kais. Akad. Wiss. lii, (1866) 11; Defl. Yemen (1889) 184; This.-Dyer Fl. Trop. Afr. v, (1909) 249.

HABITAT: I. Arabia Petraea: Mt. Cara (Schimp. 866!).

II. Near Sanah, 2,500 m. (Defl. 480); J. Maammara (Botta 209, 218); Manakhah, 2,000 m. (S. 1885!); J. Masana (Defl. 598!); Surdud, Milhan (Forsk.); Hijaz (ex Kotschy); near Suq el Khamiss 2,500 m. (Defl. 583); near Kaukaban, 2,800 m. (Defl. 622)

FL.: Jan. (Forsk.), Apr. 1890 (Defl.), Dec. 1835 (Schimp.).  
 FR.: Feb. 1839 (S.), Apr. 1890 (Defl.), Dec. 1835 (Schimp.).  
 DISTRIB.: Tropical Africa, Arabia.  
 Vern. name: *Ssaurab*, *mudhedz* (S.), *medhaefaa*, *toajm*, *Wsar* (Forsk.).

2. **H. radicans** Defl. Yemen (1889) 183.  
 HABITAT: II. Near Sanah, 2,400 m. (Defl. 555!).  
 DISTRIB.: Endemic.

3. **H. triflora** R. et S. Syst. 1, (1817) 141; This.-Dyer Fl. Trop. Afr. v (1900) 247.—*Justicia triflora* Forsk. Fl. Aeg.-Arab. (1775) CII, n. 18 and p. 4.—*H. adoensis* Rich. Fl. Abyss. ii, (1851) 162.  
 HABITAT: II. Hadiyah (Forsk.); Yaman (Botta 215).  
 DISTRIB.: Tropical Africa, Arabia, India.  
 Vern. name: *chodie* (Forsk.).  
 NOTE: For medical uses see Forsk. l. c.

4. **H. verticillaris** R. Br. Prodr. (1810) 474; This.-Dyer Fl. Trop. Afr. v, (1900) 250.—*Justicia verticillaris* L. f. Suppl. (1781) 85.  
 HABITAT: III. Dhofar Mts. (Bent 113!).  
 DISTRIB.: Tropical and S. Africa, Arabia, Socotra.

#### 16. **Bentia** Rolfe.

1. **B. fruticulosa** Rolfe in Kew Bull. (1894) 338; Lindau in Engl. & Prantl Nat. Pflanzenf. iv, 3 b (1895) 339.  
 HABITAT: III. Near Gumbala, 1,000 ft. (Lunt 221!).  
 FL.: Feb. 1894 (Lunt).  
 FR.: Feb. 1894 (Lunt).  
 DISTRIB.: Endemic.

### LXXVII. SELAGINEAE.

#### 1. **Globularia** L.

1. **G. Alypum** L. Sp. Pl. (1753) 95; Del. Frag. Fl. Arab. Petr. (1833) n. 17; Boiss. Fl. Or. iv, (1879) 530; Post Fl. Syr. (1896) 608.  
 HABITAT: I. Arabia Petraea (DeLaborde); el Araba (ex Post).  
 DISTRIB.: Mediterranean region.

2. **G. arabica** Jaub. & Sp. III. Pl. Or. t. 260; Boiss. Fl. Or. iv, (1879) 530; Post Fl. Syr. (1896) 609; Kneuck. in Allg. Bot. Zeitsch. ix, (1903) 150.—*G. trichocalyx* Steud. in Schimp. Pl. Arab.  
 HABITAT: I. Sinai and Serbal (Schimp. 406!); towards the top of J. Serbal, 1,900 m. (Kneuck.!).

DISTRIB.: W. Marmarica, Egypt, Arabia Petraea.  
 Vern. name: *Handaq4q*, wrongly called so by the Arabs (Post).

## LXXVIII. VERBENACEAE

1. *Lantana* L.

1. *L. petitflana* A. Rich. Fl. Abyss. ii, (1851) 169; This.-Dyer Fl. Trop. Afr. v, (1900) 277.

HABITAT: Tropical Arabia (ex This.-Dyer).

DISTRIB.: Abyssinia, Arabia, Afghanistan.

2. *L. salviaefolia* Jacq. Hort. Schoen. iii, 18, t. 285; This.-Dyer Fl. Trop. Afr. v, (1900) 276.—*L. kisi* Rich. Fl. Abyss. ii, (1851) 169.

HABITAT: II. Hijaz: Mt. Cara (Schimp. 1026!).

III. Dhofar Mts. (Bent 183!).

DISTRIB.: Tropical and S. Africa, Arabia, India.

3. *L. viburnoides* Vahl Symb. Bot. i, (1790) 45; Kotschy in Sitzb. Kais. Akad. Wiss. lii, (1856) 9; Defl. Yemen (1889) 184; This.-Dyer Fl. Trop. Afr. v, (1900) 276.—*Charachera viburnoides* Forsk. Fl. Aeg.-Arab. (1775) CXV, n. 379 and p. 116.—*Lippia Schimperii* Hochst. in Flora xxiv, (1841) i, Intell. 23.

HABITAT: II. Hijaz (ex Kotschy); J. Bura (Forsk.); near Wasil, 1,000 m. (Defl. 210); between Ydez and Mefhak, 1,600-1,800 m. (Defl. 609); Yamar (Botta).

DISTRIB.: Upper Guinea, Abyssinia, British and German E. Africa, Arabia.

2. *Lippia* L.

1. *L. nodiflora* Rich.; Schauer in DC. Prodr. xi, 525; Defl. Yemen (1889) 185; Baker in Kew Bull. (1894) 339; Post Fl. Syr. (1896) 609; Krause in Engl. Bot. Jahrb. xxxv, (1905) 737; Musch. Fl. Eg. ii, (1912) 808.—*Verbena nodiflora* L.; Forsk. Fl. Aeg.-Arab. (1775) CIII, n. 32.—*V. capitata* Forsk. l. c. LIX, n. 10 and p. 10.

HABITAT: I. Arabia Petraea (ex Musch.).

II. Mountainous region (Forsk.); near Hajeilah 700 m. (Defl. 184); W. Fatme: near Unsert (Schimp. 834!); W. el Kebir near Lahaj (Defl. 162!); W. Kebir (Ellenb.).

III. Dhofar Mts.: Hafa (Bent 14!).

FL.: Feb. 1836 (Schimp.), Dec. 1889 (Defl.).

FR.: Feb. 1836 (Schimp.), Dec. 1889 (Defl.).

DISTRIB.: Cosmopolitan in the warmer regions.

Vern. name: *nomo's* (Ellenb.).

3. *Bouchea* Cham.

1. *B. marrubifolia* Schauer in DC. Prodr. xi, 558; Anders. Fl. Aden. (1860) 28; This.-Dyer Fl. Trop. Afr. v, (1900) 282; Blatt. Fl. Aden (1919) 288.—*Chascanum marrubifolia* Feuzl in Kotschy Pl. Nub. n. 32.—*Stachytarpheta cernua* R. Br. in Salt. Abyss.

HABITAT: II. Aden (S. 24! Perry! Defl. 49! Ol. & Cl.! Hook. 83! Anders! Birdw.! Hildebr.).

FL.: Jan. 1863 (Ol. & Cl.), Mar. 1878 (Perry), May 1873 (Hildebr.), Nov. 1888 (S.), Dec. 1847 (Hook.).

FR.: Jan. 1863 (Ol. & Cl.), Mar. 1878 (Perry), May 1873 (Hildebr.), Nov. 1888 (S.), Dec. 1847 (Hook.), Dec. 1889 (Defl.).

DISTRIB.: Egypt, Nubia, Kordofan, Abyssinia, S. Arabia, Sind.

**2. B. pterygocarpa** Schauer in DC. Prodr. xi, 558; Defl. Yemen (1889) 185; This.-Dyer Fl. Trop. Afr. v, (1900) 282; Blatt. Fl. Aden (1915) 288.—*Chascanum laetum* Fenzl. in Kotschy Pl. Nub. n. 230.

HABITAT: II. Near Hajeilah, 600 m. (Defl. 72); Wasil (S. 1197!); Aden (S!).

FL.: Feb. 1889 (S.).

FR.: Feb. 1889 (S.).

DISTRIB.: Tropical Africa, Arabia.

Vern. name: *march* (S.).

#### 4. *Priva* Adans.

**1. P. leptostachya** Juss.; Schauer in DC. Prodr. xi, 533; This.-Dyer Fl. Trop. Afr. v, (1900) 285.—*P. dentata* Juss. Ann. Mus. vii, 70; Rich. Fl. Abyss. ii, (1851) 165; Defl. Yemen (1889) 185.—*P. abyssinica* Jaub. & Sp. III. Pl. Or. t. 453, 454.—*Verbena Forskalii* Vahl Symb. Bot. iii, (1794) 6.—*Zapania arabica* Poir. Dict. viii, 844.—*Phrynna*? Forsk. Fl. Aeg.-Arab. (1775) CXV, n. 372.

HABITAT: II. Hadiyah, Musa (Forsk.); Hille, J. Bura (S. 308!); W. Julut near Juma (Lunz 17!); near Hajeilah, 600 m. (Defl. 85); near Attara, 1,800 m. (Defl. 392); near Djennat and Hes (Botta).

FL.: Jan. 1889 (S.).

FR.: Jan. 1889 (S.).

DISTRIB.: Tropical and S. Africa, Socotra, Arabia, India.

Vern. name: *Hamsched* (Forsk.), *nassak* (S.).

#### 5. *Verbena* L.

**1. V. officinalis** L.; Forsk. Fl. Aeg.-Arab. (1775) CIII, n. 31; Schauer in DC. Prodr. xi, 547; Rich. Fl. Abyss. ii, (1851) 165; Defl. Yemen (1889) 185; Post Fl. Syr. (1896) 610.

HABITAT: II. Karauen, Manakhah, 2,200 m. (S. 1368!); mountainous region (Forsk.); near Hajeilah, 700 m. (Defl. 167).

FL.: Feb. 1889 (S.).

FR.: Feb. 1889 (S.).

DISTRIB.: Temperate region of the Old World to tropical and S. Africa, Arabia.

**2. V. supina** L.; Schauer in DC. Prodr. xi, 548; Vatke in Linnaea, xliii, 531; Post Fl. Syr. (1896) 610; This.-Dyer Fl. Trop. Afr. v, (1900) 286.—*V. procumbens* Forsk. Fl. Aeg.-Arab. (1775) LIX, n. 9 and p. 10.

HABITAT: I. Arabia Petraea (McDonald!).

II. Near Jiddah (Hildebr.).

FL. : Apr. 1872 (Hildebr.)

FR. : Apr. 1872 (Hildebr.).

DISTRIB. : Mediterranean region, Nubia, Arabia.

### 6. *Premna* L.

1. *P. resinosa* Schauer in DC. Prodr. xi, 637; This.-Dyer Fl. Trop. Afr. v, (1900) 289; Fiori Bos. e Piante legn. Eritrea (1909) 323.—*Holochiloma resinosum* Hochst. in Flora (1841) 371.

HABITAT: II. Agara, Hajeilah (S. 1053!).

FL. : Feb. 1889 (S.).

FR. : Feb. 1889 (S.).

DISTRIB.: Nubia, Eritrea, Arabia.

Vern. name : *Schuggab* (S.).

NOTE: For economic uses see Fiori.

### 7. *Avicennia* L.

1. *A. officinalis* L. Sp. Pl. (1753) 110; Boiss. Fl. Or. iv, (1879) 537; Defl. Yemen (1889) 185; Post Fl. Syr. (1896) 611.—*Sceura marina* Forsk. Fl. Aeg.-Arab. (1775) CV, n. 85 and p. 37.—*A. alba* Blum Bijl. 821; Dcne. Pl. l' Arab. Heur. in Ann. Sc. Nat. ser. 2, iv, (1835) 79.

HABITAT: I. Arabia Petraea: near Esmain (Schimp. 736!); Ras Mahan (Ehrenb.); Arabia Petraea to Egyptian desert (ex Post); Red Sea: Harnish Isl. (Slade 2!).

I. II. Common on the islands of the Red Sea (Forsk.).

II. Shores of Yaman (Botta); Jiddah (Zohrab 310!); Yaman, salt marshes (Bové 229!); near Mantar (Defl. 3!).

FL. : Aug. 1833 (Schimp.).

FR. : Aug. 1833 (Schimp.).

DISTRIB. : Throughout India in salt-marshes and tidal creeks; Ceylon, Malaya, shores of the Indian and Pacific Oceans.

Vern. name : *Schora* (Bové and Schimp.), *Shaurah* (Post), *Germ schura* (Forsk.).

NOTE: For economic uses see Forsk.



FL. : Apr. 1872 (Hildebr.).

FR. : Apr. 1872 (Hildebr.).

DISTRIB. : Mediterranean region, Nubia, Arabia.

### 6. *Premna* L.

1. *P. resinosa* Schauer in DC. Prodr. xi, 637; This.-Dyer Fl. Trop. Afr. v, (1900) 289; Fiori Bos. e Piante legn. Eritrea (1909) 323.—*Holochiloma resinosum* Hochst. in Flora (1841) 371.

HABITAT : II. Agara, Hajeilah (S. 1058!).

FL. : Feb. 1889 (S.).

FR. : Feb. 1889 (S.).

DISTRIB. : Nubia, Eritrea, Arabia.

Vern. name : *Schuggab* (S.).

NOTE : For economic uses see Fiori.

### 7. *Avicennia* L.

1. *A. officinalis* L. Sp. Pl. (1753) 110; Boiss. Fl. Or. iv, (1879) 537; Defl. Yemen (1889) 185; Post Fl. Syr. (1896) 611.—*Sceura marina* Forsk. Fl. Aeg.-Arab. (1775) CV, n. 85 and p. 37.—*A. alba* Blum Bijl. 821; Done. Pl. l'Arab. Heur. in Ann. Sc. Nat. ser. 2, iv, (1835) 79.

HABITAT : I. Arabia Petraea : near Esmain (Schimp. 736!); Ras Mahan (Ehrenb.!); Arabia Petraea to Egyptian desert (ex Post); Red Sea : Hanish Isl. (Slade 2!).

I. II. Common on the islands of the Red Sea (Forsk.).

II. Shores of Yaman (Botta); Jiddah (Zohrab 310!); Yaman, salt-marshes (Bové 229!); near Mantar (Defl. 30).

FL. : Aug. 1833 (Schimp.).

FR. : Aug. 1833 (Schimp.).

DISTRIB. : Throughout India in salt-marshes and tidal creeks; Ceylon, Malaya, shores of the Indian and Pacific Oceans.

Vern. name : *Schora* (Bové and Schimp.), *Shaurah* (Post), *Germ schura* (Forsk.).

NOTE : For economic uses see Forsk.

## LXXIX. LABIATEAE.

### 1. *Ocimum* L.

1. *O. Basilicum* L.; Forsk. Fl. Aeg.-Arab. (1775) CXIV, n. 362; Benth. in DC. Prodr. xii, (1843) 32; Defl. Yemen (1889) 226; This.-Dyer Fl. Trop. Afr. v, (1900) 336.—*O. graveolens* A. Br. in Flora i, (1841) 265.—*O. petitianum* Rich. Fl. Abyss. ii, (1851) 176.

HABITAT : II. Lohaja, cultivated in the plains (Forsk.); Yaman, cultivated (Defl.); Buyable at Aden (Hirsch 129).

DISTRIB. : Tropical Africa and Asia, often cultivated.

Vern. name : *Haebak*, *Rihân* (Forsk.), *Schogor*, *Hibag*, *Hâbaq* (Hirsch).

2. *O. canum*? Sims in Bot. Mag. t. 2452; This.-Dyer Fl. Trop. Afr. v, (1900) 337.

HABITAT : III. W Raide near Sehut (Hirsch 57).

DISTRIB. : Tropical Africa and Asia, often cultivated.

Vern. name : *Rihàn, Hábaq, Dhamrán, Dhomrani* (Hirsch).

3. *O. cylindrostachys* Schweinf. Arab. Pflanzennamen 168.

HABITAT : II. Wasil (S.).

DISTRIB. : Endemic.

Vern. name : *hhabbaqa* (S.).

4. *O. dichotomum* Hochst.; Benth. in DC. Prodr. xii, (1848) 39; Defl. Yemen (1889) 186; This.-Dyer Fl. Trop. Afr. v, (1900) 346.

HABITAT : II. Near Hajeilah, 600 m. (Defl. 97).

DISTRIB. : Kordofan, Yaman.

5. *O. filamentosum* Forsk. Fl. Aeg.-Arab. (1775) CXIV, n. 365 and p. 108; Defl. in Bull. Soc. Bot. France xliii, (1896) 227; This.-Dyer Fl. Trop. Afr. v, (1900) 343.

HABITAT : II. Milhan (Forsk.); J. el Areys, near Serrya, 200-300 m. (Defl. 390, 873).

FL. : Apr. 1889 (Defl.).

DISTRIB. : Eritrea, Abyssinia, Arabia.

Vern. name : *Arar* (Defl.).

6. ? *O. lamiifolium* Hochst.; Benth. in DC. Prodr. xii, (1848) 37; Defl. Yemen (1889) 186.

HABITAT : II. Foot of J. Schibam near Manakhah, 2,300 m. (Defl. 58).

DISTRIB. : Abyssinia, Arabia.

7. *O. menthaefolium* Hochst. (*partim*); Benth. in DC. Prodr. xii, (1848) 34; Defl. Yemen (1889) 185; This.-Dyer Fl. Trop. Afr. v, (1900) 340.—*O. longistylum* Hochst. ex Defl. l.c.

HABITAT : II. Mt. Sidr and Kesser (Fischer 149!); Mt. Gesser (Schimp. 845!); Bajil, Durrafields (S. 876!); near Bajil, 280 m. (Defl. 47); near Hajeilah, 600 m. (Defl. 83); J. Maammara and foot of Mt. Sabor near Djennat (Botta); Aden (Beever!).

III. Dhofar Mts. 2,600 ft. (Bent 191!).

FL. : Jan. 1889 (S.), Feb. 1836 (Schimp.), Feb. 1837 (Fischer).

FR. : Jan. 1889 (S.), Feb. 1836 (Schimp.), Feb. 1837 (Fischer).

DISTRIB. : Nubia, Abyssinia, Somaliland, Arabia.

Vern. name : *Habogbog* (S.).

8. *O. sanctum* L. Mant. 85; Boiss. Fl. Or. iv, (1879) 539.—*O. tenuiflorum* Forsk. Fl. Aeg.-Arab. (1775) CXIV, n. 364.

HABITAT : II. Mor, Surdud (Forsk.); Waloj, J. Milhan (S. 680!).

III. Dhofar Mts. : Hafa (Bent 90!).

IV. Masqat (Auch.-Eloy 5181).

FL. : Jan. 1889 (S.).



FR. : Jan. 1889 (S.).

DISTRIB. : Arabia, India.

Vern. name; *Schadjuret eszirr, vusab* (Forsk.), *dohsch* (S.).

9. *O. serpyllifolium* Forsk. Fl. Aeg.-Arab. (1775) CXIV, n. 366 and p. 110; Defl. Yemen (1889) 186.

HABITAT : II. Upper mountainous region (Forsk.); J. Maammara, E.N.E. Taz (Botta).

DISTRIB. : Endemic.

Vern. name: *Afal* (Forsk.).

10. *O. spicatum* Defl. in Bull. Soc. Bot. France xliii, (1896) 226.

HABITAT : II. J. Masana (Defl. 599!); J. el Areys, 400-500 m. (Defl. 390, 932, 962).

FL. : Apr. 1890 (Defl.).

FR. : Apr. 1890 (Defl.).

DISTRIB. : Endemic.

Vern. name; *Schougab* (Defl.).

11. *O. suave* Willd.; Benth. in DC. Prodr. xii, (1848) 35; This.-Dyer Fl. Trop. Afr. v, (1900) 338; Blatt. Fl. Aden (1915) 290.—*O. menthaefolium* Hochst. ex Benth. Lab. (*partim*).—*O. gratissimum* var. *suave* Hook. Fl. Brit. Ind. iv, (1885) 609.

HABITAT : II. Aden (Birdw.). Not gathered by any other botanist.

DISTRIB. : Transvaal, Natal, Tropical Africa, Tropical Asia.

12. *O. vaalae* Forsk. Fl. Aeg.-Arab. (1775) CXV, n. 370 and p. 111.

HABITAT : II. Beit el Fakih, cultivated in plains (Forsk.).

DISTRIB. : Endemic.

Vern. name: *Haelava, vaalae* (Forsk.).

13. *O. Zatarhendi* Benth. Lab. 16.—*O. β. Zatarhendi* Forsk. Fl. Aeg.-Arab. (1775) p. 110.

HABITAT : II. In the mountains between Dorebat and Taz (Forsk.).

DISTRIB. : Endemic.

## 2. *Orthosiphon* Benth.

1. *O. brachystemon* Defl. in Bull. Soc. Bot. France xliii, (1896) 228.

HABITAT : II. J. el Areys and Nakhai, 300-500 m. (Defl. 422, 493, 1039); W. Moaden, 200-300 m. (Defl. 1183).

FL. : Apr. 1889 (Defl.).

FR. : Apr. 1889 (Defl.).

DISTRIB. : Endemic.

Vern. name: *Afar* (Defl.).

2. *O. comosum* Baker in Kew Bull. (1895) 184.

HABITAT : III. Dhofar Mts., 2,600 ft. (Bent 152)

DISTRIB. : Endemic.

3. *O. glabratus* Benth. in DC. Prodr. xii, (1848) 50.—*O. tomentosus* Benth.  
VAR. *glabrata* Hook. f. Fl. Brit. Ind. iv, (1885) 614.

HABITAT: II. Between Beha Hajeilah and el Gara (S. 1091!).

FL.: Jan. 1889 (S.).

FR.: Jan. 1889 (S.).

DISTRIB.: Arabia, India, Ceylon.

4. *O. pallidus* Royle; Benth. in DC. Prodr. xii, (1848) 50; Boiss. Fl. Or.  
iv, (1879) 539; This.-Dyer Fl. Trop. Afr. v, (1900) 369; Blatt. Fl. Aden  
(1915) 291.

HABITAT: II. Aden (Playfair 62! Perry! Defl., Busse, S., Birdw.).

FL.: Mar. 1873 (Hildebr.), Mar. 1878 (Perry).

FR.: Mar. 1873 (Hildebr.), Mar. 1878 (Perry).

DISTRIB.: Tropical Africa, Arabia, India.

5. *O. tenuiflorus* Benth. in DC. Prodr. xii, (1848) 50; This.-Dyer Fl.  
Trop. Afr. v, (1900) 366.—*Ocimum depauperatum* Vatke in Linnaea xliii, 84.

HABITAT: II. Yaman (Botta).

III. Dhofar Mts. (Bent 79!).

DISTRIB.: Somaliland, Socotra, Arabia.

### 3. *Plectranthus* Lher.

1. *P. cylindraceus* Hochst. ex Benth. in DC. Prodr. xii, (1848) 60;  
This.-Dyer Fl. Trop. Afr. v, (1900) 414.

HABITAT: II. Wasil, 1,400 m. (S. 1220!).

FL.: Feb. 1889 (S.).

FR.: Feb. 1889 (S.).

DISTRIB.: Eritrea, Abyssinia, Arabia.

Vern. name: *uddan elgaria* (S.).

2. *P. hadiensis* Schweinf. Arab. Pflanzennamen 169.—*P. Forskalei* Willd.  
Sp. Pl. iii, 169.—*Ocimum hadiense* Forsk. Fl. Aeg.-Arab. (1775) CXV, n. 367  
and p. 109.

HABITAT: II. Hadiyah, damp lower mountainous region (Forsk.).

DISTRIB.: Endemic.

Vern. name: *Medan* (Forsk.).

3. *P. ovatus* Benth. Lab. 709; et in DC. Prodr. xii, (1848) 65.—*Ocimum*  
*gratissimum* Forsk. Fl. Aeg.-Arab. (1775) CXIV, n. 363 and p. 110.

HABITAT: II. Damp plains in lower mountainous region, Hadiyah and  
Surdud (Forsk.).

DISTRIB.: Endemic.

Vern. name: *Hobokbok* (Forsk.).

4. *P. quadridentatus* Schweinf. Fl. Abyss. Sept. Exsicc. n. 2086; This.-  
Dyer Fl. Trop. Afr. v, (1900) 409.

HABITAT: II. Wulej, J. Milhan (S. 690!).

DISTRIB.: Eritrea, Arabia.

Vern. name: *mibisse* (S.).

#### 4. *Coleus* Lour.

1. *C. arabicus* Benth. in DC. Prodr. xii, (1848) 79; Defl. Yemen (1889) 186.

HABITAT: II. Yaman; In the mountains (Botta); Mt. el Sumara, 2,700 m. (Defl. 656).

DISTRIB.: Endemic.

2. *C. barbatus* Benth. in DC. Prodr. xii, (1848) 71; Defl. Yemen (1889) 186; This.-Dyer Fl. Trop. Afr. v, (1900) 429.—*C. Forskohlii* var. *adensis* Briquet in Ann. Jard. Genève. ii, (1898) 235.—*Ocimum cinereum* R. Br. in Salt Abyss. App. 64.

HABITAT: II. Between Djobla and Taez, 2,200 m. (Defl. 666); in the mountains between Dorebat and Taez (Forsk.).

DISTRIB.: Tropical Africa and Asia.

3. *C. Zatarhendi* Benth. Lab. 50.—*Ocimum Zatarhendi* Forsk. Fl. Aeg. Arab. (1775) p. 109.—*C. aegypticum* Forsk. l.c. CXV, n. 368 and p. 110.

HABITAT: II. Beit el Fakih, cultivated in the plains (Forsk.).

DISTRIB.: Endemic.

Vern. name: *Medan* (Forsk.).

#### 5. *Lavandula* L.

1. *L. canescens* Defl. Yemen (1889) 186.

HABITAT: II. J. Nuqum near Sanah, 2,500 m. (Defl. 484).

DISTRIB.: Endemic.

2. *L. coronopifolia* Poir.; Benth. in DC. Prodr. xii, (1848) 147; Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 246; Kotschy in Sitzb. Kais. Akad. Wiss. lii, (1866) 8; Boiss. Fl. Or. iv, (1879) 542; Post Fl. Syr. (1896) 614; This.-Dyer Fl. Trop. Afr. v, (1900) 450; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 116.

HABITAT: I. W. Hebran (Schimp. 141!); W. Feiran (H. K. !); W. es Sle, W. Tarfa (Kneuck.); W. Shaikh (Boiss.); Foot of Mt. Sinai (Bové 59!); W. Gennah and neighbourhood (Lord!); N. and Central Midian (Burton!); about Dead Sea and southward and westward in deserts (ex Post); W. Rim (Rüppell); Red Sea: Hanish Is. (Slade 16!).

II. Hijaz (ex Kotschy); near Ferieh (Fischer 186!); Jiddah (Zohrab 58!).

FL.: Feb. (Fischer), June 1835 (Schimp.).

FR.: Feb. (Fischer), May 1868 (Lord), June 1832 (Bové), June 1835 (Schimp.).

DISTRIB.: N. and Tropical Africa, W. Asia.

Vern. name: *Dictae*, *Natash*, *Zeiteh* (Post).

NOTE: All animals eat (Burton).

3. *L. dentata* L.; Benth. in DC. Prodr. xii, (1848) 145; Kotschy in Sitzb. Kais. Akad. Wiss. lii, (1866) 8; This.-Dyer Fl. Trop. Afr. v, (1900) 449.

HABITAT: II. Mt. Cara in Hijaz (Schimp. 1024!); Hijaz (ex Kotschy).

DISTRIB.: Mediterranean region, Abyssinia, Arabia.

4. *L. macra* Baker in Kew Bull. (1894) 339.

HABITAT: III. Hadramaut: Khailah, on the hill-sides, alt. 3,000 ft. (Lunt 135!).

FL.: Jan. 1894 (Lunt).

FR.: Jan. 1894 (Lunt).

DISTRIB.: Endemic.

5. *L. Nimmoi* Benth. in DC. Prodr. xii, (1848) 148; Baker in Kew Bull. (1894) 339.

HABITAT: III. Bakrain near Mukalla, 200 ft. (Lunt 60!).

FL.: Dec. 1893 (Lunt).

FR.: Dec. 1893 (Lunt).

DISTRIB.: Socotra, Arabia.

6. *L. pubescens* Dene. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 246; Benth. in DC. Prodr. xii, (1848) 147; Jaub. & Sp. Ill. Pl. Or. t. 375; Boiss. Fl. Or. iv, (1879) 541; Defl. Yemen (1889) 187; Post Fl. Syr. (1896) 613; This.-Dyer Fl. Trop. Afr. v, (1900) 450; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 116.

HABITAT: I. Desert of Sinai (Bové 55!); Mt. Daklagan (Schimp. 231); Suez and Sinai (Auch.-Eloy 1761!); W. Feiran (Lord!); Desert of Ka'a (Musch.).

II. J. Nuqum near Sanah, 2,300-2,400 m. (Defl. 463); Manakhah, 2,300 m. (S. 1488!); Tayfa (Botta!); J. Reyami (Defl. 574!).

FL.: Feb. 1889 (S.), Apr. 1835 (Schimp.), Apr. 1890 (Defl.), May 1868 (Lord).

FR.: Feb. 1889 (S.), Apr. 1835 (Schimp.), Apr. 1890 (Defl.), May 1868 (Lord), June 1832 (Bové).

DISTRIB.: Somaliland, Egypt, Arabia.

Vern. name: *Dictaé* or *Siédé* (Bové), *Siejeda* (Schimp.), *Átáqa* (S.).

7. *L. santolinaefolia* Jaub. & Sp. Ill. Pl. Or. tt. 373, 374.

HABITAT: II. Tayfa (Botta).

DISTRIB.: Orient region.

8. *L. setifera* Anders. Fl. Aden. (1860) 29; Defl. in Bull. Soc. Bot. France xxxii, (1885) 352; Blatt. Fl. Aden (1915) 293.

HABITAT: II. Aden (Balfour! Thomson! Beever 83! S. 135! Birdw., Ellenb. Hook.); neighbourhood of Aden (Defl. 21!).

III. Dhofar Mts. 2,000 ft. (Bent 164!).

FL.: Dec. 1888 (S.), Dec. 1889 (Defl.), Mar. to Apr. (Defl.).

FR. : Jan. 1880 (Balfour), Feb. 1837 (Thomson), Dec. 1888 (S.), Dec. 1889 (Defl.).

DISTRIB. : Endemic.

9. *L. spica* Cav. Desc. 69; Benth. in DC. Prodr. xii, (1848) 145; Schweinf. Arab. Pflanzennamen 167.

HABITAT : II. Near Sanah (Defl.).

DISTRIB. : Mediterranean region.

10. *L. subnuda* Benth. in DC. Prodr. xii, (1848) 148; Boiss. Fl. Or. iv, (1879) 542.

HABITAT : IV. Near Masqat (Bornm. 564 ! Auch.-Eloy 5220 !).

FL. : Jan. 1893 (Bornm.).

FR. : Jan. 1893 (Bornm.).

DISTRIB. : Endemic.

11. *L. vera* DC. Fl. France Suppl. v, 398; Defl. Yemen (1889) 226.

HABITAT : II. Cultivated in Yaman (Defl.).

DISTRIB. : Mediterranean region, cultivated elsewhere.

## 6. *Mentha* L.

1. *M. piperita* L. Sp. Pl. (1762) 805; Benth. Lab. 175; Defl. Yemen (1889) 226.—*M. Kahirina* Forsk. ex Benth. l.c.

HABITAT : II. Wasil (S.); near Sanah (Defl.); Yaman, cultivated (Defl.).

DISTRIB. : Europe, Egypt, Arabia, India, Central Asia, N. and S. America.

2. *M. Pulegium* L. Sp. Pl. (1762) 807; Boiss. Fl. Or. iv, (1879) 545; Dur. & Barr. Fl. Libyc. Prodr. (1910) n. 666; Musch. Fl. Eg. (1912) 820.

HABITAT : I. Arabia Petraea (ex Musch.).

DISTRIB. : Almost cosmopolitan.

3. *M. sylvestris* L. Sp. Pl. (1762) 804; Boiss. Fl. Or. iv, (1879) 543; Defl. Yemen (1889) 187; Post Fl. Syr. (1896) 614.

HABITAT : I. Damp places of Sinai Desert (Auch.-Eloy 1802 !); Arabia Petraea (McDonald !).

II. Near Sanah, Raudha, Dhamar, 2,300 m. (Defl. 503).

DISTRIB. : Europe, Siberia, Canaries, N. and S. Africa, Abyssinia, Arabia, India.

VAR. *lavandulacea* Boiss. l.c.

HABITAT : I. Damp places of Mt. Sinai (Bové 62); J. Musa (Hart); Raphidim (Schimp. 419 !); Sinai (Holland !); N. Midian (Burton !).

II. Yaman : W. Sel (Schimp. 815 !).

FL. : Mar. 1835 (Schimp.), June 1832 (Bové), Nov. 1835 (Schimp.).

FR. : Mar. 1835 (Schimp.), June 1832 (Bové), Nov. 1835 (Schimp.).

DISTRIB. : Endemic.

Vern. name : *Haback* (Bové).

NOTE : Animals do not eat. Pounded and mixed with fresh dates, "good for stomach" (Burton).

4. *M. tomentosa* D'Urv. Enum. 67; Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 247.—*M. sylvestris* VAR. *stenostachya* Boiss. Fl. Or. iv, (1879) 543.—*M. sylvestris* VAR. *niliaca* Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 116.

HABITAT : I. Arabia Petraea (Schimp. 815!).

DISTRIB. : E. Mediterranean region, Persia.

Vern. name : *Haback* (Bové).

### 7. *Origanum* L.

1. *O. Maru* L. Sp. Pl. (1762) 826; Boiss. Fl. Or. iv, (1879) 553. VAR. *sinaicum* Boiss. l.c.; Post Fl. Syr. (1896) 617.

HABITAT : I. J. 'Arribe ca. 1,700 m., between Oasis Feiran and foot of Serbal (Kneuck.); Sinai (ex Post); Mt. Sinai (Ehrenb., Bové, Schimp. 385).

DISTRIB. : Of var. : Endemic.

### 8. *Thymus* L.

1. *T. capitatus* Link and Hoffmg. Fl. Port. i, 123; Boiss. Fl. Or. iv, (1879) 560; Post Fl. Syr. (1896) 619; Musch. Fl. Eg. (1912) 822.

HABITAT : I. Medjel to Jaffa (Hart!); Arabia Petraea (ex Musch.).

DISTRIB. : Mediterranean region.

Vern. name : *Za'tar Farisi* (Post).

2. *T. decussatus* Benth. Lab. 342; Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 248; Boiss. Fl. Or. iv, (1879) 559; Post Fl. Syr. (1896) 618.—*T. quadrangularis* Ehr. MS. ex Boiss.

HABITAT : I. Between Bëstan and Raphidim (Schimp. 378); Foot of Mt. Sinai (Bové 67); Mt. Sinai (Lord, Holland, Ehrenb.).

FL. : May 1868 (Lord), June 1832 (Bové), July 1835 (Schimp.).

FR. : May 1868 (Lord), June 1832 (Bové), July 1835 (Schimp.).

DISTRIB. : Endemic.

Vern. name : *Citroun* (Bové), *Saetheran* (Boiss.).

3. *T. pulegioides* Forsk. Fl. Aeg.-Arab. (1775) CXIV, n. 361.

HABITAT : II. Damp plain near hills, Mor, Surduð (Forsk.).

DISTRIB. : Endemic.

Vern. name : *dusch* (Forsk.).

4. *T. serpyllum* L. Sp. Pl. (1753) 590; Forsk. Fl. Aeg.-Arab. (1775) CXIV, n. 359 and p. 107; Boiss. Fl. Or. iv, (1879) 554; Post Fl. Syr. (1896) 618.

HABITAT : II. Yaman, cultivated (Defl.); upper mountainous region, Mt. Chadra (Forsk.).

DISTRIB.: Europe, Eritrea, Abyssinia, Arabia, W. Asia, Himalayas, Greenland.

Vern. name: *Saatar* (Forsk.).

VAR. *angustifolius* Boiss. l.c. 556; Post l.c.—*T. Bovei* Benth. Lab. 342.

HABITAT: I. Between Suez and Ghazah (Bové 68!); near Ghazah and southward (ex Post).

FL.: June 1832 (Bové).

FR.: June 1832 (Bové).

DISTRIB.: E. Mediterranean region.

### 9. *Micromeria* Benth.

1. *M. abyssinica* Benth. in DC. Prodr. xii, (1848) 224; This. Dyer Fl. Trop. Afr. v, (1900) 453.—*Melissa abyssinica* Hochst. ex This.-Dyer l.c.

HABITAT: II. Yaman (Botta!).

DISTRIB.: Tropical Africa, Arabia.

2. *M. biflora* Benth. Lab. 378; Defl. Yemen (1889) 187.—*M. punctata* Benth. l.c.; Kotschy in Sitzb. Kais. Akad. Wiss. lii, (1866) 8.—*M. Schimperii* Vatke in Linnaea xxxvii, 326.—*Satureia ovata et punctata* R. Br. in Salt Abyss. App. 64.

HABITAT: II. Near Wasil, 800-1,200 m. (Defl. 256); Wasil, 1,400 m. (S. 1121!); Mt. Kahel, near Manakhah, 2,500 m. (Defl. 279); W. Mazeb near Manakhah, 2,200 m. (Defl. 381); J. Reyami (Defl. 557!); Okeber, J. Milhan, 1,400 m. (S. 801!); Hijaz (ex Kotschy); in the mountains (Botta).

FL.: Feb. 1889 (S.).

FR.: Jan. and Feb. 1889 (S.), Apr. 1890 (Defl.).

DISTRIB.: Tropical and S. Africa, Arabia, India.

Vern. name: *schummesa, jubusse* (S.).

3. *M. Forskahlei* Benth. Lab. 379.—*Thymus imbricatus* Forsk. Fl. Aeg.-Arab. (1775) CXIV, n. 360 and p. 108.

HABITAT: II. Upper mountainous region, Kurma (Forsk.).

DISTRIB.: Endemic.

4. *M. microphylla* Benth. Lab. 377; Boiss. Fl. Or. iv, (1879) 572; Balfour Socotra 240.

HABITAT: Arabia (ex Balfour).

DISTRIB.: Mediterranean region, Arabia, N. India.

5. *M. myrtifolia* Boiss. et Hohen. Diagn. Pl. Or. ser. 1, v. 19.—*M. Juliana* Benth. Lab. 373. VAR. *myrtifolia* Boiss. Fl. Or. iv, (1879) 570; Post Fl. Syr. (1896) 620.

HABITAT: I. Ramleh (Hart!).

DISTRIB.: Mediterranean region.

6. *M. nervosa* Benth. Lab. 376; Boiss. Fl. Or. iv, (1879) 569; Post Fl. Syr. (1896) 620.

HABITAT: I. Ramleh (Hart!).

DISTRIB.: Mediterranean region.

7. *M. sinaica* Benth. Lab. 380; Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 249; Boiss. Fl. Or. iv, (1879) 572; Post Fl. Syr. (1896) 621; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 117.

HABITAT: I. Mt. Sinai (Schimp. 265! Bove 61! Lord!); between Oasis Feiran and foot of J. Serbal (Kneuck.); W. es Sle (Musch.); el Ghor, el Arabah and southward to Sinai (ex Post).

FR.: May 1868 (Lord), June 1832 (Bové), Aug. 1835 (Schimp.).

DISTRIB.: Arabia Petraea, Nubia.

Vern. name: *Silesle* (Bové), *suleiseleh* (Post).

8. *Micromeria* sp. aff. *M. graecae* Benth.

HABITAT: III. Hadramaut (Hirsch 157!).

#### 10. *Melissa* L.

1. *M. officinalis* L. Sp. Pl. (1753) 592; Boiss. Fl. Or. iv, (1879) 584; Post Fl. Syr. (1896) 624; Musch. Fl. Eg. (1912) 823.

HABITAT: I. Arabia Petraea (ex Musch.).

DISTRIB.: Europe, Mediterranean region, Persia.

#### 11. *Meriandra* Benth.

1. *M. bengalensis* Benth. in DC. Prodr. xii, (1848) 262; Defl. Yemen (1889) 187; Fiori Bos. e Piante legn. Eritrea (1909) 331; This.-Dyer Fl. Trop. Afr. v, (1900) 456.—*Salvia abyssinica* R. Br. in Salt Abyss. App.—*S. Schimperiana* Hochst. ex Benth. l.c.

HABITAT: II. J. Nuqum, near Sanah, 2,500 m. (Defl. 481); W. Dhahr near Raudha, 2,300 m. (Defl. 528).

DISTRIB.: Abyssinia, Arabia, cultivated in India.

NOTE: For economic uses see Fiori 331.

#### 12. *Salvia* L.

1. *S. aegyptiaca* L. Sp. Pl. (1753) 23; Boiss. Fl. Or. iv, (1879) 631; Defl. Yemen (1889) 188; Post Fl. Syr. (1896) 633; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 118.—*Melissa perennis* Forsk. Fl. Aeg.-Arab. (1775) LXVIII, n. 296 and p. 108.

HABITAT: I. W. Zewerah to Beersheba (Hart!); W. Etham and Akaba, 1,000 ft. (Milne!); Arabia Petraea (Boiss.); Sinai (ex Post); El Tor (Musch.).

II. Jiddah (Schimp. 820! Fischer 147! Zohrab 114!); Manakhah, 2,000 m. (S. 1537!); J. Nuqum, near Sanah, 2,300-2,400 m. (Defl. 457).



FL. : Jan. 1874 (Milne), Jan.-Feb. 1837 (Fischer), Dec. 1837 (Schimp.).

FR. : Jan. 1874 (Milne), Feb. 1889 (S.), Dec. 1837 (Schimp.).

DISTRIB. : Canaries, N. Africa, Nubia, Arabia.

Vern. name : *Ra'al*, *Shajaret-el-Ghazal* (Post), *Raale*, *Sadjaret el ghasal* (Forsk.).

2. *S. areysiana* Defl. in Bull. Soc. Bot. France xliii, (1896) 229.

HABITAT : II. J. el Areys, 400-500 m. (Defl. 1041).

FL. : Apr. 1893 (Defl.).

FR. : Apr. 1893 (Defl.).

DISTRIB. : Endemic.

3. *S. bracteata* Russ. Alepp. ii, 242; Boiss. Fl. Or. iv, (1879) 603; Post Fl. Syr. (1896) 628; Musch. Fl. Eg. (1912) 824.

HABITAT : I. Arabia Petraea (ex Musch.).

DISTRIB. : Arabia Petraea, Syria, Asia Minor.

4. *S. controversa* Ten. Syll. 18; Dene. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 247; Boiss. Fl. Or. iv, (1879) 630; Post Fl. Syr. (1896) 633.—*S. lanigera* Poir. Encycl. iii, 48.

HABITAT : I. Arabia Petraea : Between Nuckl and Ghazah (Boiss.); Arabia Petraea (Boiss. ! Bové); cultivated ground and deserts of Mt. Sinai (Bové 66 !); Sinai (ex Post); W. es Shaikh (Kneuck.); Desert of Ka'a (Musch.).

FL. : Mar. 1846 (Boiss.), June 1832 (Bové).

FR. : Mar. 1846 (Boiss.), June 1832 (Bové).

DISTRIB. : S. Europe, N. Africa, Arabia Petraea, Syria.

Vern. name : *Nu'eimeh*, *Shajaret-el-Jemál*, *Barájim*, *Maryamtyeh*, ' *Areim* (Post).

5. *S. deserti* Dene. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 248; Schenk Sp. Pl. it. Aeg. Arab. & Syr. (1840) n. 115; Boiss. Fl. Or. iv, (1879) 632; Post Fl. Syr. (1896) 634; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 117.—*S. aegyptiaca* L. var. *pumila* Aschers.-Schweinf. Ill. Fl. d'Eg. 121.

HABITAT : I. Arabia Petraea (McDonald ! Boiss. !); Desert of Sinai (Bové 63 !); Mt. Sinai (Schimp. 184 !); Desert of Sinai (Auch.-Eloy 115); Sinai (ex Post); W. Nasb (Lord !); Central Midian (Burton !); W. es Sle, W. Tarfa, W. es Shaikh, Plain of Raha (Kneuck.); W. Shaikh (ex Boiss.); N. and S. Arabian deserts (ex Aschers.-Schweinf.).

FL. : Mar. 1846 (Boiss.), Apr. 1835 (Schimp.), Apr. 1868 (Lord).

FR. : Mar. 1846 (Boiss.), Apr. 1835 (Schimp.), Apr. 1868 (Lord), June 1832 (Bové).

DISTRIB. : Egypt, Arabia Petraea.

Vern. name : *Ghebeychch* (S.), *Rabeja* (Bové), *Ghubeish*, *Shehtá* (Post).

6. *S. eremophila* Boiss. Diagn. Pl. Or. ser. 1, v, 12; Fl. Or. iv, (1879) 632; Kotschy in Sitzb. Kais. Akad. Wiss. lii, (1866) 8.

HABITAT : II. Hijaz (ex Kotschy).

DISTRIB. : Arabia, Persia.

7. *S. judaica* Boiss Diagn. Pl. Or. ser. 1, xii, 61; Fl. Or. iv, (1879) 635; Post Fl. Syr. (1896) 634; Musch. Fl. Eg. (1912) 828.

HABITAT: I. Arabia Petraea (ex Musch.).

DISTRIB.: Egypt, Arabia Petraea, Palestine, Syria.

8. *S. macilentata* Boiss. Diagn. Pl. Or. ser. 1, v, 13; Fl. Or. iv, (1879) 633.

HABITAT: IV. Masqat (Auch.-Eloy 5210!).

DISTRIB.: Endemic.

9. *S. nudicaulis* Vahl; Benth. in DC. Prodr. xii, (1848) 294; This.-Dyer Fl. Trop. Afr. v, (1900) 458. VAR. *nubia* Baker in This.-Dyer l.c.—*S. nubia* Ait. Hort. Kew. ed. 1, i, 42; Defl. Yemen (1889) 188.—*S. abyssinica* Hochst.; Rich. Fl. Abyss. ii, (1851) 192.—*S. congesta* Rich. l.c. 194.—*S. merjamie* Forsk. Fl. Aeg.-Arab (1875) CIII, n. 33 and p. 10.

HABITAT: II. El Aijan near J. Schibam, barley field, 2,700 m. (S. 1421); Kufma (Forsk.); J. Schibam, W. Mazeb near Manakhah, 2,200-2,600 m. (Defl. 280, 325, 384); Mt. Hadhur Nebi Schu'aib, 2,800 m. (Defl. 586).

FL.: Feb. 1889 (S.).

FR.: Feb. 1889 (S.).

DISTRIB.: Nubia, Eritrea, Abyssinia, Arabia.

Vern. name: *Merjamie*, *Dharu* (Forsk.).

10. *S. palaestina* Benth. Lab. 718; Boiss. Fl. Or. iv, (1879) 614; Post Fl. Syr. (1896) 630.—*S. sinaica* Del. MS.

HABITAT: I. Sinai (Auch.-Eloy 1539! Figari! Boiss., Schimp. 321).

DISTRIB.: Egypt, Arabia Petraea, Palestine, Syria, Mesopotamia, Persia.

Vern. name: *Kharneh* (Post).

11. *S. Schimperii* Benth. in DC. Prodr. xii, (1848) 282; Defl. Yemen (1889) 188; This.-Dyer Fl. Trop. Afr. v, (1900) 457.—*S. hypoleuca* Hochst. in Schimp. Pl. Abyss. exsic. n. 1916.

HABITAT: II. J. Schibam, near Manakhah, 2,800 m. (Defl. 350).

DISTRIB.: Abyssinia, Arabia.

12. *S. sclarea* L. Sp. Pl. (1753) 27; Boiss. Fl. Or. iv, (1879) 616; Post Fl. Syr. (1896) 631.

HABITAT: I. Sinai (Schimp. 321!); Arabia Petraea, coast (ex Post).

FL.: May 1835 (Schimp.).

FR.: May 1835 (Schimp.).

DISTRIB.: Europe, N. Africa, Sinai, Palestine, Syria, Persia.

Vern. name: *Kaff-ed-aibb* (Post).

13. *S. spinosa* L. Mant. 511; Boiss. Fl. Or. iv, (1879) 613; Defl. Yemen (1889) 187; Post Fl. Syr. (1896) 630.

HABITAT: I. Valleys of Sinai in sand (Schimp. 343); Sinai (ex Post); W. es Sle and W. Tarfa (Kneuck.).

II. Foot of J. Nuqum, near Sanah and Raudha, 2,300-2,500 m. (Defl. 465, 510, 540, 564).

DISTRIB.: N. Africa, Arabia, Syria, Mesopotamia, Persia.

14. *S. Verbenaca* L. Sp. Pl. (1753) 25; Boiss. Fl. Or. iv, (1879) 629; Post Fl. Syr. (1896) 632. var. *vernalis* Boiss. Voy. Bot. Esp. 484; Post l.c. 633.

HABITAT: I. Arabia Petraea (Hart!).

DISTRIB.: Europe, Mediterranean region.

### 13. Rosmarinus L.

1. *R. officinalis* L. Sp. Pl. (1753) 23; Boiss. Fl. Or. iv, (1879) 636; Post Fl. Syr. (1896) 634; Musch. Fl. Eg. ii, (1912) 829.

HABITAT: I. Arabia Petraea (ex Musch.).

DISTRIB.: Mediterranean region.

Vern. name: *Hasa-el-Bân* (Post).

### 14. Ziziphora L.

1. *Z. capitata* L. Sp. Pl. (1753) 21; Boiss. Fl. Or. iv, (1879) 586.

HABITAT: I. Arabia Petraea (Boiss.).

DISTRIB.: S. Europe, N. Africa, Arabia Petraea, Palestine, Syria to Persia.

2. *Z. taurica* M.B. Taur. Cauc. i, 18; Del. Frag. Fl. Arab. Petr. (1833) n. 21; Boiss. Fl. Or. iv, (1879) 587; Post Fl. Syr. (1896) 636.

HABITAT: I. Arabia Petraea (De Laborde).

DISTRIB.: Asia Minor, Syria, Arabia Petraea, Mesopotamia, Persia.

### 15. Nepeta L.

1. *N. azurea* R. Br.; Benth. in DC. Prodr. xii, (1848) 384; Defl. Yemen (1889) 188; This. Dyer Fl. Trop. Afr. v, (1900) 460.

HABITAT: II. Asyr (ex Defl.); Yaman (Botta)

DISTRIB.: Abyssinia, Somaliland, Arabia.

2. *N. Defflersiana* Schweinf. Arab. Pflanzennamen 168. - (*aff. N. Mussini*).

HABITAT: II. Manakhah, 2,200 m. (S. 1522!).

FL.: Feb. 1889 (S.).

FR.: Feb. 1889 (S.).

DISTRIB.: Endemic.

Vern. name: *freugeh* (S.).

3. *N. Mussini* Henkel. Adumbr. Pl. 15; Defl. Yemen (1889) 188.—  
*N. longiflora* Sims Bot. Mag. 23, t. 923.

HABITAT: II. J. Schibam, 2,600-2,800 m. (Defl. 311); Foot of J. Nuqum, 2,400 m. (Defl. 459).

DISTRIB.: Orient, Tropical Arabia.

4. *N. rugosa* Benth. in DC. Prodr. xii, (1848) 384; Kotschy in Sitzb. Kais. Akad. Wiss. lii, (1866) 8, t. III. B.

HABITAT : II. Asyr (ex Kotschy); Yaman (Botta).

DISTRIB. : Endemic.

5. *N. septemnerata* Benth. Lab. 484; Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 249; Schenk Sp. Pl. it. Aeg. Arab. & Syr. (1840) n. 117; Kotschy in Sitzb. Kais. Akad. Wiss. lii, (1866) 8; Boiss. Fl. Or. iv, (1879) 656; Post Fl. Syr. (1896) 636.

HABITAT : I. Mt. Sinai (Lord! Holland!); Desert of Sinai (Bové 60!); Sinai (ex Post); Mt. St. Catherine (Schimp. 137!); Mt. Horeb (Auch.-Eloy 1734!); W. Tarfa (Kneuck.); Dur el Arbain (Hart !); Arabia Petraea (McDonald!).

II. Hijaz (ex Kotschy).

FL. : May 1835 (Schimp.), May 1868 (Lord), June 1832 (Bové).

FR. : May 1835 (Schimp.), May 1868 (Lord), June 1832 (Bové).

DISTRIB. : Egypt, Arabia.

Vern. name : *Nillé* (Bové).

## 16. *Scutellaria* L.

1. *S. arabica* Jaub. & Sp. Ill. Pl. Or. t. 376.

HABITAT : II. Near Haguef (Botta).

DISTRIB. : Endemic.

2. *S. peregrina* L. Sp. Pl. (1753) 599; Boiss. Fl. Or. iv, (1879) 688; Defl. Yemen (1889) 188; Post Fl. Syr. (1896) 640.—*S. africana* Hochst. ex Defl. l.c.

HABITAT : II. Mt. Kahel, near Manakhah, 2,500 m. (Defl. 182).

DISTRIB. : Eritrea, Abyssinia, Orient, Arabia.

## 17. *Brunella* L.

1. *B. vulgaris* L. Sp. Pl. (1762) 837; Boiss. Fl. Or. iv, (1879) 691; Post Fl. Syr. (1896) 641.

HABITAT : I. Arabia Petraea (ex Post).

DISTRIB. : Almost cosmopolitan.

## 18. *Marrubium* L.

1. *M. Alysson* L. Sp. Pl. (1753) 582; Boiss. Fl. Or. iv, (1879) 700; Post Fl. Syr. (1896) 645.—*M. plicatum* Forsk. Fl. Aeg.-Arab. (1775) p. 213.

HABITAT : I. Arabia Petraea (Boiss. !); Borders of Et-Tih (ex Post).

FL. : Apr. 1846 (Boiss.).

FR. : Apr. 1846 (Boiss.).

DISTRIB. : Mediterranean region.

Vern. name : *Frasium* (Forsk.), *Frastyân* (Post).

2. *M. vulgare* L. Sp. Pl. (1753) 583; DC. Prodr. xii, (1848) 453; Kotschy in Sitzb. Kais. Akad. Wiss. lii, (1866) 9; Boiss. Fl. Or. IV, (1879) 703; Post Fl. Syr. (1896) 645; Musch. Fl. Eg. ii, (1912) 830.

HABITAT : I. Arabia Petraea (ex Musch.).

II. Yaman (Schimp. 995); Hijaz (ex Kotschy).

DISTRIB. : Europe, Mediterranean region, N. and Tropical Africa, Persia, Baluchistan.

VAR. *lanatum* Benth. in DC. Prodr. xii, (1848) 453; Defl. Yemen (1889) 189.

HABITAT : II. Yaman : In the mountains (Botta); near Dhula, 2,300 m. (Defl. 520).

### 19. *Stachys* L.

1. *S. affinis* Fres. Mus. Senck. i, (1834) 91; Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 250; Schenk Sp. Pl. it. Aeg. Arab. & Syr. (1840) n. 117; Boiss. Fl. Or. iv, (1879) 740; Post Fl. Syr. (1896) 649.—*S. orientalis* Forsk. Fl. Aeg.-Arab. (1775) LXVIII, n. 293.—*S. palaestina* Vahl Symb. Bot. ii, (1791) 64 (*non L.*).—*S. aegyptiaca* Pers. Syn. ii, (1807) 124.

HABITAT : I. Sinai (ex Post); Sinai, 6,000 ft. (Rüppell); Mt. Sinai (Schimp. 164! Boiss.! Auch.-Eloy 1793! Bové 65! Ehrenb.! Lord! Post 535!); J. Serbal (Botta!); J. Musa and W. Leja (Holland!); J. Musa (Drake 3!); W. Tarfa, between W. Tarfa and W. Rutig, Convent of S. Catherine (Kneuck.); Arabia Petraea (Pinard! McDonald!).

II. Yaman (Botta).

FL. : Mar. 1846 (Boiss.), May 1835 (Schimp.), May 1868 (Lord).

FR. : Mar. 1846 (Boiss.).

DISTRIB. : Egypt, Arabia.

Vern. name : *Gartam* (Bové), *raghat* (Forsk.), *gertum* (Post).

2. *S. nivea* Labill. Ic. Syr. iii, 5, t. 3; Boiss. Fl. Or. iv, (1879) 739; Post Fl. Syr. (1896) 649.

HABITAT : I. Mt. Sinai (Auch.-Eloy 1784, error sched. '); Sinai? (ex Post).

DISTRIB. : Syria, Sinai?

3. *S. palaestina* L. Sp. Pl. (1762) 1674 Boiss. Fl. Or. iv, (1879) 740; Defl. Yemen (1889) 189; Post Fl. Syr. (1896) 649.

HABITAT : II. Foot of J. Nuqum, near Sanah, 2,400 m. (Defl. 482); W. Suleyman near Suq el Khamiss, 2,300 m. (Defl. 580); Foot of Mt. Sabor, near Hagnef (Botta).

DISTRIB. : Arabia, Palestine, Syria.

### 20. *Lamium* L.

1. *L. amplexicaule* L. Sp. Pl. (1753) 579; Schenk Sp. Pl. it. Aeg. Arab. & Syr. (1840) n. 118; Boiss. Fl. Or. iv, (1879) 760; Post Fl. Syr. (1896) 652.

HABITAT : I. Sinai (Holland!).

DISTRIB. : Europe, Mediterranean region to Persia, Siberia.

21. *Ballota* L.

1. *B. damascena* Boiss. Diagn. Pl. Or. ser. 1, xii, 87; Fl. Or. iv, (1879) 772; Post Fl. Syr. (1896) 654; Musch. Fl. Eg. ii, (1912) 832.

HABITAT: I. Arabia Petraea (ex Musch.).

DISTRIB.: Egypt, Arabia Petraea, Palestine, Syria.

Vern. name: *Asaghân* (Post).

2. *B. undulata* (Fres.) Benth. Lab. 595; Boiss. Fl. Or. iv, (1879) 773; Post Fl. Syr. (1896) 654.—*Marrubium undulatum* Fres. Mus. Senck. i, (1834) 92; Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 250.

HABITAT: I. Arabia Petraea (McDonald!); Sinai (Ehrenb.); Desert of Sinai (Bové 58!); Foot of Mt. Sinai (Schimp. 423!); Mt. Sinai (Lord!); W. Gennah (Lord!); W. Rim, 3,000 ft. (Rüppell); southward to Et-Tih and Sinai (ex Post).

Fl.: May 1868 (Lord), June 1832 (Bové), July 1835 (Schimp.).

Fr.: May 1868 (Lord), June 1832 (Bové).

DISTRIB.: E. Mediterranean region, Mesopotamia.

Vern. name: *Rakhza* (Bové).

22. *Otostegia* Benth.

1. *O. arabica* Jaub. & Sp. Ill. Pl. Or. t. 380; Defl. Yemen (1889) 189.

HABITAT: II. J. Nuqum, near Sanah, 2,400-2,600 m. (Defl. 462, 489); between Sanah and Metne near Beyt Adran, 2,400 m. (Defl. 565); J. Yabdur (Defl. 590!); Tayfa (Botta!).

Fr.: Apr. 1890 (Defl.).

DISTRIB.: Endemic.

2. *O. Benthamiana* Jaub. & Sp. Ill. Pl. Or. t. 379; Defl. Yemen (1889) 189.

HABITAT: II. W. Hawayat, near Hajeilah, 700 m. (Defl. 171); J. Maammara (Botta).

DISTRIB.: Orient region..

3. *O. fruticosa* Schweinf. ex Penzig in Atti Congr. Bot. Geneva (1893) 356.—*O. scariosa* Benth. in DC. Prodr. xii, (1848) 522; This.-Dyer Fl. Trop. Afr. v, (1900) 495.—*O. moluccoides* Jaub. & Sp. Ill. Pl. Or. t. 378; Boiss. Fl. Or. iv, (1879) 777; Post Fl. Syr. (1896) 655.—*Clinopodium fruticosum* Forsk. Fl. Aeg.-Arab. (1775) CXIV, n. 357 and p. 107.

HABITAT: I. Sinai (ex Post); W. Hamme (Ehrenb.); W. es Sle (Kneuck.); Midian (ex This.-Dyer).

II. Middle and lower mountainous region, Hadiyah (Forsk.); Yaman: J. Maammara (Botta!).

DISTRIB.: Abyssinia, Arabia.

4. *O. microphylla* Aschers.-Schweinf. Ill. Fl. d'Eg. (1889) 122; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 118.—*O. Schimperi* Boiss. Fl. Or. iv, (1879) 776; Post Fl. Syr. (1896) 655.—*Ballota Schimperi* Benth. in

DC. Prodr. xii, (1848) 519; Kotschy in Sitzb. Kais. Akad. Wiss. lii, (1866) 9.—*Molucella microphylla* Del. Frag. Fl. Arab. Petr. (1833) n. 23, f. 2.

HABITAT: I. Arabia Petraea (De Labordo); W. es Sle (Ehrenb.); W. Gurra (Schimp. 304!); W. Zewerah and southward to Sinai (ex Post); Sinai Peninsula (Hart!).

II. Hijaz (ex Kotschy).

DISTRIB.: Egypt, Arabia.

Vern. name; *Ghasseh* (Post).

5. *O. repanda* Benth. in DC. Prodr. xii, (1848) 522; This.-Dyer Fl. Trop. Afr. v, (1900) 495.

HABITAT: II. Manakhah, 2,200 m. (S. 1601!); Yaman (Botta!).

FL.: Mar. 1889 (S.).

DISTRIB.: Nubia, Eritrea, Abyssinia, Arabia.

### 23. *Leucas* R. Br.

1. *L. glaberrima* Jaub. & Sp. Ill. Pl. Or. t. 387.

HABITAT: II. Yaman (Botta!).

DISTRIB.: Orient region.

2. *L. glabrata* R. Br.; Benth. in DC. Prodr. xii, (1848) 524; Jaub. & Sp. Ill. Pl. Or. t. 385; This.-Dyer Fl. Trop. Afr. v, (1900) 482.—*L. galeopsidea* Hochst. ex Rich. Fl. Abyss. ii, (1851) 199.

HABITAT: II. Yaman (Forsk.); Tayfa (Botta).

DISTRIB.: Tropical Africa, Natal, Arabia.

3. *L. inflata* Benth. in DC. Prodr. xii, (1848) 524; Kotschy in Sitzb. Kais. Akad. Wiss. lii, (1866) 9; Defl. Yemen (1889) 189; Post Fl. Syr. (1896) 656; This.-Dyer Fl. Trop. Afr. v, (1900) 478.—*Physoleucas pachystachya* Jaub. & Sp. Ill. Pl. Or. t. 445.

HABITAT: I. Desert of Suez (Bové 518); Sinai (Bové); between Suez and Ghazah (ex Post).

II. Jiddah (Fischer 145! Zohrab 80!); near Jiddah (Schimp. 846! Botta); J. Masana (Defl. 602!); round Sanah and Raudha, 2,200 m. (Defl. 509, 523, 533); Hijaz (ex Kotschy).

FL.: Jan. 1837 (Fischer), Jan. 1836 (Schimp.), Apr. 1890 (Defl.).

FR.: Jan. 1837 (Fischer), Apr. 1890 (Defl.).

DISTRIB.: Nubia, Somaliland, Arabia.

4. *L. martinicensis* R. Br.; Benth. in DC. Prodr. xii, (1848) 533; This.-Dyer Fl. Trop. Afr. v, (1900) 479.—*L. Schimperii* Hochst. ex A. Br. in Flora i, (1841) 279.

HABITAT: II. Yaman (Botta).

DISTRIB.: Cosmopolitan in the tropics.

5. *L. rachyphylla* Jaub. & Sp. Ill. Pl. Or. t. 386; Defl. Yemen (1889) 189; This.-Dyer Fl. Trop. Afr. v, (1900) 483.

HABITAT: II. W. Hawayat, near Hajeilah, 600-800 m. (Defl. 195); Kahel near Manakhah, 2,500 m. (Defl. 284); W. Hadda, near Sanah, 2,400 m. (Defl. 553); Tayfa (Botta).

DISTRIB.: Somaliland, Arabia.

6. *L. urticaefolia* R. Br. Prodr. 504; Boiss. Fl. Or. iv, (1879) 778.—*Phlomis urticaefolia* Vahl Symb. Bot. iii, (1794) 76.—*Ballota arabica* Hochst. et Steud. ex Boiss. l. c.

HABITAT: II. W. Fatimah near Unsert (Schimp. 818!); W. Fatimah (Fischer 143!); Jiddah (Zohrab 169!).

IV. Masqat (Auch.-Eloy 5111).

FL.: Feb. 1836 (Schimp.), Feb. 1837 (Fischer).

FR.: Feb. 1836 (Schimp.).

DISTRIB.: Eritrea, Abyssinia, Nubia, Arabia, Baluchistan, India.

#### 24. *Lastocorys* Benth.

1. *L. arabica* Jaub. & Sp. Ill. Pl. Or. t. 383, 384; Defl. Yemen (1889) 190; This.-Dyer Fl. Trop. Afr. v, (1900) 471.

HABITAT: II. Near Manakhah, 2,200 m. (Defl. 439); J. Maammara (Botta); Okeber, J. Milhan (S. 713!).

FL.: Jan. 1889 (S.).

FR.: Jan. 1889 (S.).

DISTRIB.: Somaliland, Arabia.

#### 25. *Phlomis* L.

1. *P. aurea* Dene. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 251; Boiss. Fl. Or. iv, (1879) 786; Post Fl. Syr. (1896) 657.

HABITAT: I. Desert of Sinai (Bové 54!); Sinai (ex Post); Sinai (Auch.-Eloy 1811! Ehrenb.); Mt. Sinai (Schimp. 313! Lord!); J. Musa (Drake 8!); J. Arribe (Kneuck.); Arabia Petraea (McDonald!).

FL.: May 1835 (Schimp.), May 1868 (Lord), June 1832 (Bové).

FR.: May 1835 (Schimp.), May 1868 (Lord), June 1832 (Bové).

DISTRIB.: Endemic.

Vern. name: *Auvaroar* (Bové).

2. *P. floccosa* Don. in Bot. Reg. 15, t. 1300; Boiss. Fl. Or. iv, (1879) 786; Musch. Fl. Eg. ii, (1912) 833.

HABITAT: I. Arabia Petraea (ex Musch.).

DISTRIB.: Mediterranean region.

3. *P. platystegia* Post Pl. Postian fasc. vi, 15; Fl. Syr. (1896) 658.

HABITAT: I. S. of Dead Sea (ex Post).

DISTRIB.: Arabia Petraea, Palestine.

#### 26. *Eremostachys* Bunge.

1. *E. laciniata* Bunge in Ledeb. Fl. Alt. ii, 416; Boiss. Fl. Or. iv, (1879) 793; Post Fl. Syr. (1896) 659.—*E. macrochila* Jaub. & Sp. Ill. Pl. Cr. v, p. 13.



HABITAT : I. S. of Ghazah (Boiss.).

DISTRIB. : E. Mediterranean region, Transcaucasus.

### 27. *Prasium* L.

1. *P. maius* L. Sp. Pl. (1753) 601; Boiss. Fl. Or. iv, (1879) 798; Post Fl. Syr. (1896) 660; Musch. Fl. Eg. ii, (1912) 836.

HABITAT : I. Arabia Petraea (ex Musch.).

DISTRIB. : Mediterranean region.

### 28. *Tinnea* Kotsch. et Peyr.

1. *T. arabica* Baker in Kew Bull. (1894) 339.

HABITAT : III. Hadramaut : Hillsides at Gambla, 1,000 ft. (Lunt)

DISTRIB. : Endemic.

### 29. *Teucrium* L.

1. *T. leucocladum* Boiss. Diagn. Pl. Or. ser. 1, v, 44; Fl. Or. iv, (1879) 820; Post Fl. Syr. (1896) 664.

HABITAT : I. W. Hebran (Schimp. 145; ex Post).

II. Yaman (Botta).

DISTRIB. : Endemic.

Vern. name : *Ja'ádeh* (Post).

2. *T. mascatense* Boiss. Diagn. Pl. Or. ser. 1, v, p. 44; Fl. Or. iv, (1879) 819.

HABITAT : IV. Mt. Chebek in Masqat (Auch.-Eloy 5172!).

DISTRIB. : Endemic.

3. *T. nummularifolium* Baker in Kew Bull. (1895) 185.

HABITAT : III. Dhofar Mts. : W. Gerzid (Bent 169!).

DISTRIB. : Endemic.

4. *T. Oliverianum* Ging. in Benth. Lab. 668; Boiss. Fl. Or. iv, (1879) 810.

HABITAT : IV. Central Arabia : Regah (Pelly!).

DISTRIB. : Arabia, Syria, Persia.

5. *T. orientale* L. Sp. Pl. (1753) 562; Del. Frag. Fl. Arab. Petr. (1833) n. 22; Boiss. Fl. Or. iv, (1879) 808; Post Fl. Syr. (1896) 662.

HABITAT : I. Arabia Petraea (De Laborde).

DISTRIB. : E. Mediterranean region, Persia.

6. *T. Polium* L. Sp. Pl. (1753) 566; Kotschy in Sitzb. Kais. Akad. Wiss. lii, (1866) 9; Boiss. Fl. Or. iv, (1879) 821; Baker in Kew Bull. (1894) 340.

HABITAT : I. Arabia Petraea (McDonald!); between Oasis Feiran and foot of Serbal (Kneuck.).

II. Hijaz (ex Kotschy); neighbourhood of Aden (Hunter 170! 176).

## III. Hills near Dobaibah, 4,000 ft. (Lunt).

DISTRIB.: Europe, N. Africa, E. Mediterranean region.

7. *T. sinaicum* Boiss. Diagn. Pl. Or. ser. 1, xii, 91; Fl. Or. iv, (1879) 822; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 118; Carter in Rec. Bot. Surv. Ind. vi, (1917) 200.—*T. Polium* var. *pilosum* Dene. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 250.—*T. pilosum* Aschers.-Schweinf. Ill. Fl. d'Eg. Eg. (1887) 189.

HABITAT: I. Mt. Hor and Petra (Hart!); W. el Ain (Hart!); Mt. Sinai (Botta! Schimp. 264! Lord! Boiss.); neighbourhood of Sinai (Bové 57!); Sinai: Ed Deir (Holland!); J. Musa (Drake 9!).

## IV. Zor Hills (Cox 41).

FL.: May 1868 (Lord), Aug. 1835 (Schimp.).

FR.: Aug. 1835 (Schimp.).

DISTRIB.: Egypt, Arabia.

Vern. name: *J'adah* (Cox), *Jaada* (Schimp.), *Jaad* (Drake), *Gaadu* (Bové).

8. *T. yemense* Defl. Yemen (1889) 190.

HABITAT: II. Near Manakhah, 2,200 m. (Defl. 443); round Sanah, 2,300 m. Defl. 458, 541); W. Subud (Defl. 542!).

FL.: Apr. 1890 (Defl.).

FR.: Apr. 1890 (Defl.).

DISTRIB.: Endemic.

9. *Teucrium* sp.

HABITAT: III. Dhofar Mts. 1,300 ft. (Bent 198!).

30. *Ajuga* L.

1. *A. bracteosa* Wall. Cat. n. 2032; Boiss. Fl. Or. iv, (1879) 799; This.-Dyer Fl. Trop. Afr. v, (1900) 501.—*A. remota* Benth. in Wall. Cat. n. 2033; Defl. Yemen (1889) 190.—*A. crenata* Hochst. ex Defl. l. c.

HABITAT: II. J. Schibam, 2,600 m. (Defl. 343); Mt. el Sumara, between Yerim and Ibb, 2,600 m. (Defl. 643); Manakhah, 2,300 m. (S. 1584!); Yaman (Botta!).

FL.: Feb. 1889 (S.).

FR.: Feb. 1889 (S.).

DISTRIB.: Eritrea, Abyssinia, German E. Africa, Arabia, India, China, Japan

2. *A. Iva* Schreb. Unil. 25; Dene. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 250; Boiss. Fl. Or. iv, (1879) 802; Post Fl. Syr. (1896) 665; Musch. Fl. Eg. ii, (1912) 838.—*Moscharia asperifolia* Forsk. Fl. Aeg.-Arab. (1775) LXIXV, n. 472 and p. 158.

HABITAT: I. Arabia Petraea (ex Musch.).

DISTRIB.: Mediterranean region, S. Europe.

3. *A. tridactylites* Ging. ex Benth. Lab. 699.—*A. cna* Schreb. Unil. 25; Boiss. Fl. Or. iv, (1879) 802; Post Fl. Syr. (1896) 666.

HABITAT: I. Top of Mt. Catherine (Bové 79! Schimp. 447!); J. Musa, 1,900-2,000 m. and top of Mt. Catherine (Kneuck.).

FL. : May 1835 (Schimp.), June 1832 (Bové).

FR. : May 1835 (Schimp.), June 1832 (Bové).

DISTRIB. : Orient.

### 31. *Majorana* Rupp.

1. *M. hortensis* Moench Meth. 406.

HABITAT: I. J. el Birschi (Lunz 23!).

DISTRIB. : N. Africa, Arabia, India, Central Asia.

2. *M. nervosa* Benth. Lab. 239; Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 248.

HABITAT: I. Arabia Petraea (McDonald!); J. Musa (Holland!); neighbourhood of Sinai (Bové 56!); Mt. Sinai (Schimp. 385!); W. Feiran (Lord!).

FL. : May 1868 (Lord), June 1832 (Bové), June 1835 (Schimp.).

FR. : May 1868 (Lord), June 1832 (Bové), June 1835 (Schimp.).

DISTRIB. : Endemic?

Vern. name: *Suter* (Bové), *Sater* (Schimp.).

## LXXX. PLANTAGINACEAE.

### 1. *Plantago* L.

1. *P. albicans* L. Sp. Pl. (1753) 114; Boiss. Fl. Or. iv, (1879) 882; Post Fl. Syr. (1896) 668.

HABITAT: I. Arabia Petraea (McDonald!).

DISTRIB. : Mediterranean region, Eritrea, Abyssinia, Somaliland.

2. *P. amplexicaulis* Cavan. Ic. ii, 22, t. 125; Boiss. Fl. Or. iv, (1879) 883; Post Fl. Syr. (1896) 669; Kneuck. in Allg. Bot. Zeitsch. ix, (1903) 150.

HABITAT: I. W. Gennah and neighbourhood (Lord!); W. es Sle (Kneuck.); Et-Tih and southward (ex Post); near Nuckl (Boiss.).

FR. : May 1868 (Lord).

DISTRIB. : Mediterranean region to N. India.

Vern. name: *Khanânet-en-Na'jeh* (Post).

3. *P. arabica* Boiss. Diagn. Pl. Or. ser. 1, xii, 94; Fl. Or. iv, (1879) 890; Post Fl. Syr. (1896) 671; Kneuck. in Allg. Bot. Zeitsch. ix, (1903) 150.—*P. sinaica* Dcne. in DC. Prodr. xiii, 733.—*P. Psyllium* var. *sinaica* Barn. Mon. 49.

HABITAT: I. J. Arribe 1,750 m. (Kneuck.); W. Arbain (Boiss.); Arabia Petraea (Pinard! McDonald!); Sinai (Auch.-Eloy 2717! Ehrenb.); Foot of Mt. Sinai (Schimp. 172!); Mt. Sinai (Bové 48.), elevated valleys and mountain tops of Sinai (ex Post); J. Musa (Drake 15!).

FR. : Mar. 1846 (Boiss.); June 1832 (Bové).

DISTRIB. : Endemic.

Vern. name: *Saker-el-bedden* (Bové), *Râsheer* (Drage).

4. *P. arenaria* Wald. & Kit. Pl. Rar. Hung. i, 51, t. 51; Boiss. Fl. Or. iv, (1879) 892; Post Fl. Syr. (1896) 672.—*P. ramosa* Aschers. Fl. Brandenb. iii, (1859) 92; Musch. Fl. Eg. (1912) 912.

HABITAT: I. Arabia Petraea (ex Musch.); Dead Sea to Egypt (ex Post).

DISTRIB.: Europe, Orient.

5. *P. Bellardii* All. Ped. i, 82, t. 85; Boiss. Fl. Or. iv, (1879) 884; Musch. Fl. Eg. (1912) 908.

HABITAT: I. Arabia Petraea (ex Musch.).

DISTRIB.: Mediterranean region.

6. *P. ciliata* Desf. Fl. Atl. i, 137, t. 39; Schenk Sp. Pl. it. Aeg. Arab. & Syr. (1840) n. 100; Boiss. Fl. Or. iv, (1879) 887; Post Fl. Syr. (1896) 670; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 121.

HABITAT: I. Ras Hamam: Hauara (Schimp. 425!); J. Nakus (Musch.); W. Schellae (Kneuck.); Et-Tih to Sinai (ex Post); W. Useit (Boiss.).

FR.: Mar. 1835 (Schimp.).

DISTRIB.: Mediterranean region to N. W. India.

Vern. name: *Drehehi* (Schimp.).

7. *P. Coronopus* L. Sp. Pl. (1753) 115; Forsk. Fl. Aeg.-Arab. (1775) LXII, n. 94; Del. Frag. Fl. Arab. Petr. (1833) n. 14; Schenk Sp. Pl. it. Aeg. Arab. & Syr. (1840) n. 94; Boiss. Fl. Or. iv, (1879) 888; Post Fl. Syr. (1896) 670; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 121; Carter in Rec. Bot. Surv. Ind. vi, (1917) 201.

HABITAT: I. Arabia Petraea (DeLaborde); El Tor (Musch.).

IV. Zor Hills (Cox 10).

DISTRIB.: Europe, Mediterranean region, Persia, Afghanistan, Baluchistan.

Vern. name: *Riblah*.

VAR. *filiformis* Musch. Fl. Eg. (1912) 912.—*P. Coronopus* VAR. *simplex* Boiss. Fl. Or. iv, (1879) 888.—*P. filiformis* C. Koch in Linnaea xxi, 709.

HABITAT: I. Arabia Petraea (ex Musch.).

8. *P. crassifolia* Forsk. Fl. Aeg.-Arab. (1775) LXII, n. 99 and p. 31; Musch. Fl. Eg. (1912) 911.—*P. maritima* L. Sp. Pl. (1753) 114; Boiss. Fl. Or. iv, (1879) 889; Post Fl. Syr. (1896) 671.

HABITAT: I. Arabia Petraea (ex Musch.).

DISTRIB.: Europe, Mediterranean region, Persia, Siberia.

9. *P. cylindrica* Forsk. Fl. Aeg.-Arab. (1775) LXII, n. 97 and p. 31; Schenk Sp. Pl. it. Aeg. Arab. & Syr. (1840) n. 99; Boiss. Fl. Or. iv, (1879) 882; Post Fl. Syr. (1896) 669.

HABITAT: I. Ras Hamam: near Hauara (Schimp 200!); W. Sewook and neighbourhood (Lord!); Sinai (Holland!); W. Ghurundel and neighbourhood of Ramleh (Lord!); Arabia Petraea (Boiss.!); Sinai and Et-Tih (ex

Post); between Oasis Feiran and Maghara, W. Schellal, W. Werden and W. Ghurundel (Kneuck.).

FL.: Mar. 1835 (Schimp.), Apr. 1868 (Lord).

FR.: Mar. 1835 (Schimp.), Apr. 1868 (Lord).

DISTRIB.: Egypt, Arabia Petraea, Palestine.

Vern. name: *Berchemi* (Schimp.), *Umm Lubbeideh*, *Barkhemy* (Post).

**10. P. Lagopus** L. Sp. Pl. (1753) 114; Boiss. Fl. Or. iv, (1879) 886 Post Fl. Syr. (1896) 670. VAR. *lusitanica* Musch. Fl. Eg. (1912) 910.

HABITAT: I. Arabia Petraea (ex Musch.).

DISTRIB.: Mediterranean region, Mesopotamia.

Vern. name: *Widnah* (Post).

**11. P. lanceolata** L. Sp. Pl. (1753) 116; Forsk. Fl. Aeg.-Arab. (1775) CV, n. 91; Boiss. Fl. Or. iv, (1879) 881; Post Fl. Syr. (1896) 668.

HABITAT: II. Manakhah, 2,200 m. (S. 1378!); middle mountainous region, Kurma (Forsk.).

FL.: Feb. 1889 (S.).

FR.: Feb. 1889 (S.).

DISTRIB.: Temperate regions of the whole world, Tropical Africa.

VAR. *altissima* Boiss. l. c.; Defl. Yemen (1889) 191; Post l. c.

HABITAT: II. Near Dhula 2,300 m. (Defl. 519); Yaman (Botta).

DISTRIB.: Orient.

VAR. *capitata* Presl ex Boiss. l. c.; Defl. l. c.; Post l. c.—*P. abyssinica* Hochst. Herb. Schimp. Abyss. sect. I, n. 143.

HABITAT: II. Mt. Kahel, near Manakhah 2,500 m. (Defl. 325); near Dhula 2,300 m. (Defl. 515).

DISTRIB.: Orient.

**12. P. Loefflingii** L. Sp. Pl. (1753) 115; Boiss. Fl. Or. iv, (1879) 883; Carter in Rec. Bot. Surv. Ind. vi, (1917) 201.

HABITAT: IV. Zor Hills (Cox 50).

DISTRIB.: From Persia westward to Asia Minor and Greece, N. Africa and the interior of Spain.

**13. P. maior** L. Sp. Pl. (1753) 112; Boiss. Fl. Or. iv, (1879) 878; Post Fl. Syr. (1896) 668.

HABITAT: I. In the garden of St. Catherine (Schimp. 253!).

FL.: Aug. 1835 (Schimp.).

FR.: Aug. 1835 (Schimp.).

DISTRIB.: Almost cosmopolitan.

Vern. name: *Mesaseh*, *Waraq-Sabun*, *Lisan-el-Kelh*, *Lisan-el-Hamal* (Post).

**14. P. ovata** Forsk. Fl. Aeg.-Arab. (1775) LXII, n. 98 and p. 31; Scheik Sp. Pl. it. Aeg. Arab. & Syr. (1840) n. 97; Boiss. Fl. Or. iv, (1879) 885

Post Fl. Syr. (1896) 669; Carter in Rec. Bot. Surv. Ind. vi, (1917) 201.—*P. decumbens* Forsk. l. c. LXII, n. 96 and p. 30.—*P. argentea* Desf. Fl. Atl. ii, 136; Del. Frag. Fl. Arab. Petr. (1833) n. 15; Dene. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 245.

HABITAT : I. Arabia Petraea (Boiss., DeLaborde); Arabia Petraea : Hauara (Schimp. 203!); Desert of Sinai (Bové).

IV. Sprinkled all over the plain [from Koweit to Ragah (Pelly!).

FR. : Mar. 1835 (Schimp.).

DISTRIB. : Mediterranean region to N. W. India.

Vern. name : *Jeneimeh*, *Kibash*, *Lugmet-en-Na'jeh* (Post).

15. *P. phaeostoma* Boiss. et Heldr. Diagn. Pl. Or. ser. 2, iv, 71; Boiss. Fl. Or. iv, (1879) 892; Post Fl. Syr. (1896) 671.

HABITAT : I. W. Zewerah and southward to Sinai (ex Post); Arabia Petraea : W. Mokatteb (Boiss.).

DISTRIB. : Egypt, Arabia Petraea.

16. *P. Psyllium* L. Sp. Pl. (1753) 115; Dene Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 245; Schenk Sp. Pl. it. Aeg. Arab. & Syr. (1840) n. 96; Boiss. Fl. Or. iv, (1879) 891; Post Fl. Syr. (1896) 671; Kneuck. in Allg. Bot. Zeitsch. ix, (1903) 150.

HABITAT : I. Arabia Petraea (McDonald!); N. and Central Midian (Burton!); W. es Sle, W. Tarfa, W. Rutig, Plain of Raha (Kneuck.).

DISTRIB. : Mediterranean region, Abyssinia to India.

NOTE : Animals eat (Burton).

17. *P. squarrosa* Murr. Comm. Goett. (1781) 38, t. 3; Boiss. Fl. Or. iv, (1879) 892; Post Fl. Syr. (1896) 672.—*P. aegyptiaca* Jacq. Ic. Rar. t. 28.

HABITAT : I. Desert of Sinai (Bové 47!).

FL. : June 1832 (Bové).

FR. : June 1832 (Bové).

DISTRIB. : E. Mediterranean region.

Vern. name : *Mischata* (Bové).

18. *P. stricta* Schousb. Marocc. 35; Del. Frag. Fl. Arab. Petr. (1833) n. 16; Schenk Sp. Pl. it. Aeg. Arab. & Syr. (1840) n. 95; Boiss. Fl. Or. iv, (1879) 891; Post Fl. Syr. (1896) 671.—*P. rugosa* Hochst. in Schimp. Pl. Abyss.

HABITAT : I. Arabia Petraea (DeLaborde).

DISTRIB. : N. and Tropical Africa, Arabia Petraea, Palestine, Syria, Persia.

## LXXXI. NYCTAGINACEAE.

### 1. *Mirabilis* L.

1 *M. Jalapa* L. Sp. Pl. (1753) 177; Desf. Yemen (1889) 191; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 2.

HABITAT: II. Near Schibam, Kaukaban, 2,600 m. (Defl. 619): Foot of Mt. Sabor near Djennat (Botta).

DISTRIB.: Native of Peru.

## 2. *Boerhaavia* L.

1. *B. ascendens* Willd. Sp. Pl. i, 19; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 4.

HABITAT: II. Mor (Ehrenb.!).

III. Dhofar Mts.: Hafa (Bent 5!).

FR.: Mar. (Ehrenb.).

DISTRIB.: Tropical Africa, Arabia.

2. *B. elegans* Choisy in DC. Prodr. xiii, ii, 453; Boiss. Fl. Or. iv, (1879) 1045; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 166; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 3; Blatt. Fl. Aden (1915) 295.—*B. repens* var. *elegans* Aschers. & Schweinf. in Schweinf. Beit. Fl. Aeth. 169.—*B. rubicunda* Steud. Nom. ed. 2, i, 213.

HABITAT: II. Mt. Sidr and Kesser (Fischer 159!); Mt. Sidr (Schimp. 744!); Shuqra (S. 98!); Mt. Djara and Cara (Ehrenb.!). Aden (Beever 58! S. 61! Thomson! Hook. 92! Defl., Edgew., Balfour, Birdw.).

IV. Masqat (Bent 14! Auch.-Eloy 5251!).

FL.: Feb. (Fischer, Ehrenb.), Feb. 1837 (Thomson).

FR.: Feb. (Fischer), Feb. 1836 (Schimp.), Feb. 1837 (Thomson), Mar. 1881 (S.), Nov. 1888 (S.).

DISTRIB.: Tropical Africa, Arabia to Baluchistan and Sind.

NOTE: For economic uses see This.-Dyer.

VAR. *stenophylla* Boiss. Fl. Or. iv, (1879) 1046.

HABITAT: IV. Masqat (Auch.-Eloy 5250).

DISTRIB.: Arabia, Baluchistan.

3. *B. glutinosa* Vahl Enum. i, 287; Defl. Yemen (1889) 192.

HABITAT: II. Near Bajil, 180-200 m. (Defl. 44); Yaman (Botta).

DISTRIB.: Cosmopolitan in the tropics.

4. *B. pedunculosa* Rich. Fl. Abyss. ii, (1851) 210; Defl. Yemen (1889) 192; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 168.

HABITAT: II. J. Nuqum, near Sanah, 2,500 m. (Defl. 472).

DISTRIB.: Abyssinia, Arabia.

5. *B. plumbaginea* Cav. Ic. t. 112; Boiss. Fl. Or. iv, (1879) 1044; Post Fl. Syr. (1896) 673; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 6.

HABITAT: I. Er Rym (Holland!); W. Nasb (Drake 51!).

II. W. Fadhli (Defl. 1045!); Wasil, W. Hedjan, 1,200 m. (S. 1249!); Tayfa (Schimp. 741!); W. Fatimah near Harames (Schimp. 909!).

III. Merbat (Bent 24!); W. Sigem near Mukalla (Hirsch 67).

FL.: Feb. 1889 (S.), Apr. 1893 (Defl.), Sept.-Oct.-Nov. (Ehrenb.), Dec. 1835 (Schimp.).

FR.: Dec. 1835 (Schimp.).

DISTRIB.: N. and Tropical Africa, Arabia.

Vern. name: *El Bedn* (Drake), *Hudwan* (Hirsch), *Duweinat-el-Far* (Post).

VAR. *dichotoma* Schweinf. in Bull. Herb. Boiss. (1896) App. II, 167.—*B. dichotoma* Vahl Enum. i, 290.—*Valeriana scandens* Forsk. Fl. Aeg.-Arab. (1775) CIII, n. 34 and p. 12.

HABITAT: II. Hille, J. Bura, 500 m. (S. 243); damp places in lower mountainous region, Hadiyah, Surdud, Uahfad (Forsk.); Jiddah (Fischer 171!); Aden (Lunt 354!); Yaman (ex Vahl).

FL.: Jan. and Feb. 1889 (S.), Apr. 1894 (Lunt).

Vern. name: *Charad*, *Chodara* (Forsk.), *Chardal* (S.).

VAR. *Forskalei* Schweinf. in Bull. Herb. Boiss. (1896) App. II, 167.—*B. scandens* Forsk. Fl. Aeg.-Arab. (1775) p. 3.

HABITAT: II. Manakhah, 2,200 m. (S. 1722!); Lohaja and Mor (Forsk.).

FL.: Mar. 1889 (S.).

Vern. name: *Orkos* (Forsk.).

VAR. *glabrata* Boiss. Fl. Or. iv (1879) 1044; Defl. Yemen (1889) 192; Post Fl. Syr. (1896) 673.

HABITAT: I. Dead Sea to Sinai (ex Post); Sinai (Auch.-Eloy 2490).

II. Valleys round Hajeilah, 500-700 m. (Defl. 61, 125, 146, 234); W. Surdud (Forsk.); Yaman (Botta).

IV. E. Arabia: Is. Bahrein (Bornm. 497!).

FL.: Mar. 1893 (Bornm.).

VAR. *grandiflora* Schweinf. in Bull. Herb. Boiss. (1896) App. II, 167.—*B. grandiflora* Rich. Fl. Abyss. ii, (1851) 209.

HABITAT: II. Wasil, 1,400 m. (S. 1305).

FL.: Feb. 1889 (S.).

VAR. *viscosa* Boiss. Fl. Or. iv, (1879) 1044; Post Fl. Syr. (1896) 673.

HABITAT: I. Sinai (ex Post); W. es Sle (Ehrenb.!).

II. Wasil, 1,400 m. (S. 1305!).

FL.: Feb. 1889 (S.).

6. *B. repens* L. Sp. Pl. (1753) 3; Choisy in DC. Prodr. xiii, ii, (1849) 453; Boiss. Fl. Or. iv, (1879) 1045; Post Fl. Syr. (1896) 673; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 4; Blatt. Fl. Aden (1915) 296.—*B. viscosa* Fres. Mus. Senck. i, (1834) 75; Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 245.

HABITAT: I. Desert of Sinai (Bové); W. Arbain, 5,000 ft. (Rüppell).

II. J. Bura, Hille (S. 239!); Jiddah (Schimp. 743! Fischer 167!); Aden (Lunt 33!); Shaikh Othman (Defl.).

IV. Masqat (Auch.-Eloy 5240! Bornm. 193!).



FL.: Jan 1893 (Bornm.), Apr. 1894 (Lunt), Dec. 1838 (S.), Dec.-Jan. (Fischer).

FR.: Jan. 1893 (Bornm.), Apr. 1894 (Lunt), Dec. 1835 (Schimp.), Dec. 1888 (S.).

DISTRIB.: Cosmopolitan in the tropics.

Vern. name: *rugma* (S.).

VAR. *conjungens* Aschers. & Schweinf.

HABITAT: II. Jiddah (Ehrenb.!).

VAR. *diffusa* Hook. f. Fl. Brit. Ind. iv, (1835) 709; Dcne. Pl. l'Arab. Heur. in Ann. Sc. Nat. ser. 2, iv, (1835) 83; Boiss. Fl. Or. iv, (1879) 1045; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 166.—*B. diandra* Forsk. Fl. Aeg.-Arab. (1775) CII. n. 2 and p. 3.

HABITAT: II. J. Bura, Hille, 500 m. (S.); Wulej, J. Milhan, 600 m. (S. 651), Mor, Surdud, Beit el Fakih, Uahfad (Forsk.); Yaman (ex Dcne.).

IV. Masqat (Auch.-Eloy 5252).

DISTRIB.: Tropical Africa, Arabia, India.

Vern. name: *Rugma* (S.), *Puddjef*, *Rokama*, *Chaddir* (Forsk.).

VAR. *undulata* Aschers.-Schweinf. in Ill. Fl. d'Eg 136, n. 951; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 166; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 83.

HABITAT: I. J. Hammam-Sidna-Musa (Musch.).

DISTRIB.: Egypt, Arabia.

VAR. *viscosa* Choisy in DC. Prodr. xiii, ii, (1849) 453; Defl. Yemen (1889) 192.—*B. diffusa* Forsk. Fl. Aeg.-Arab. (1775) CII, n. 3 and p. 3.

HABITAT: I. Arabia Petraea (Schimp.!).

II. Dry plains, Dahhi (Forsk.); W. Djara (Ehrenb.); near Mantar (Defl. 24); Jiddah (Zohrab 191!); Yaman (Botta).

IV. Masqat (Bornm. 194!).

FL.: Feb. (Ehrenb.).

FR.: Jan. 1893 (Bornm.).

7. *B. verticillata* Poir. Encycl. v, 56; Boiss. Fl. Or. iv, (1879) 1044; Post Fl. Syr. (1896) 673; Defl. Yemen (1889) 191; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 166; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 6; Blatt. Fl. Aden (1915) 294.—*B. scandens* Ehrenb. exs. Pl. Sinai; Kotschy It. Nub. n. 144 et It. Syr. n. 126; Anders. Journ. Linn. Soc. v, Suppl. p. 33 (non L. Sp. Pl. ed. 3, 14 et Choisy in DC. Prodr. xiii, p. 454).—*B. stellata* Wight Ic. t. 875.—*B. dichotoma* Vahl Enum. Pl. i, 290.—*B. repanda* Willd. Sp. Pl. i, 22.—*B. grandiflora* Rich. Hohen. in Schimp. Pl. Abyss. n. 2309.

HABITAT: I. Sinai (Auch.-Eloy 2490, Holland); W. Gennah and neighbourhood (Lord); El Araba and southward (ex Post).

II. Jiddah (Zohrab 46, Schimp. 742, Fischer 171); Mor (Ehrenb.); near El Hami (S. 177, 198); W. Mor (Forsk.); Hajeilah 500-700 m. (Defl. 75

127, 139, 147); Aden (Beavor. 109! Hook. 91! Balfour! Deff., S. 29, 101, Busse, Marchesetti, Anders., Birdw., Perry); Yaman (Botta).

IV. Masqat (Auch.-Eloy 5250!).

FL.: Apr.-May 1868 (Lord), Dec. 1835 (Schimp.), Dec.-Mar. (S.).

FR.: Apr.-May 1868 (Lord).

DISTRIB.: Tropical Africa and Asia.

Vern. name: *Ormol*.

### 3. *Pisonia* L.

1. *P. aculeata* L. Sp. Pl. (1753) 1026; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 166; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 8.

HABITAT: II. Hajeilah, forest in W. Madfar (S. 930! 1375!).

FL.: Jan. 1889 (S.).

FR.: Jan. 1889 (S.).

DISTRIB.: Cosmopolitan in the tropics.

Vern. name: *Schuek, hogjam* (S.).

## LXXXII. ILLECEBRACEAE.

### 1. *Pollichia* Soland.

1. *P. campestris* Soland in Ait. Hort. Kew. ed. 1, 5; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 176; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 10.—*Bergia abyssinica* Rich. Fl. Abyss. i, (1847) 49.

HABITAT: II. Manakhah, 2,300 m. (S. 1559!).

FL.: Feb. 1889 (S.).

FR.: Feb. 1889 (S.).

DISTRIB.: Tropical and S. Africa, Arabia.

### 2. *Paronychia* Juss.

1. *P. arabica* DC. Cat. Monspel. (1813) 138; Schenk Sp. Pl. it. Aeg. Arab. & Syr. (1840) n. 198; Boiss. Fl. Or. i, (1867) 745; Musch. Fl. Eg. i, (1912) 353.—*P. longiseta* Webb. Phytogr. Canar. i, (1836) 163 in adnot.—*Corrigiola albella* Forsk. Fl. Aeg.-Arab. (1775) 207.

HABITAT: I. Arabia Petraea (ex Musch.); near Ghazah (Boiss.).

DISTRIB.: Morocco, Algeria, Tunisia, Egypt, Arabia Petraea, Palestine.

Vern. name: *Libbaejt* (Forsk.).

2. *P. argentea* Lam. Fl. France iii, 230; Boiss. Fl. Or. i, (1867) 745; Musch. Fl. Eg. i, (1912) 353; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 11.

HABITAT: I. Arabia Petraea (ex Musch.).

DISTRIB.: Mediterranean region, Dongola.

3. *P. capitata* Lam. Fl. France iii, 229; Del. Frag. Fl. Arab. Petr. (1833) n. 73.—*P. nivea* DC. ap. Lam. Encycl. v, 25; Boiss. Fl. Or. i, (1867) 743.

HABITAT: I. Arabia Petraea (DeLaborde); Beersheba (Hart!).

DISTRIB.: Mediterranean region.

4. *P. lenticulata* Aschers. & Schweinf. in Oesterr. Bot. Zeitschr. (1889) 128; Musch. Fl. Eg. i, (1912) 354.—*Herniaria lenticulata* Forsk. Fl. Aeg.-Arab. (1775) LXIII, n. 149 and p. 52.—*P. desertorum* Boiss. Diagn. Pl. Or. ser. 1, fasc. III, 2, (1843) 11; Fl. Or. i, (1867) 746; Aschers.-Schweinf. Ill. Fl. d'Eg. 49, n. 177.—*P. arabica* var. *desertorum* Dur. & Barr. in Fl. Libyc. Prodr. (1910) 44.

HABITAT: I. Arabia Petraea (Boiss. ! McDonald !, ex Musch., ex Dur. & Barr.); W. Ghuweir (Hart !); Arabia Petraea: Hauara (Schimp. 345); Sinai (Auch.-Eloy 4518).

FL.: Mar. 1846 (Boiss.).

FR.: Mar. 1846 (Boiss.).

DISTRIB.: N. Africa, Arabia Petraea, Persia.

Vern. name: *Makr* (Forsk.).

5. *P. sinaica* Fres. Mus. Senck. i, (1833) 180; Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, iii, (1835) 262; Boiss. Fl. Or. i, (1867) 744.

HABITAT: I. Arabia Petraea (Pinard !); W. Hebran (Schimp. 135 !); Desert of Sinai (Bové 504 !); Mt. Sinai (Lord !); Top of Mt. Sinai, 7,000 ft. (Rüppell).

FL.: Apr. 1835 (Schimp.), May 1868 (Lord).

FR.: Apr. 1835 (Schimp.), May 1868 (Lord).

DISTRIB.: Egypt, Arabia Petraea.

### 3. *Herniaria* L.

1. *H. cinerea* DC. Fl. France v, (1815) 375; Boiss. Fl. Or. i, (1867) 739; Dur. & Barr. Fl. Libyc. Prodr. (1910) n. 151; Musch. Fl. Eg. i, (1912) 351.—*H. annua* Lag. Gen. et Sp. 12.

HABITAT: I. Arabia Petraea (ex Musch., ex Dur. & Barr.); Arabia Petraea: Nuckl (Boiss.).

DISTRIB.: Mediterranean region.

2. *H. hemistemon* J. Gay ap. Duchart. Rev. Bot. ii, (1846) 371; Boiss. Fl. Or. i, (1867) 742; Musch. Fl. Eg. i, (1912) 351.—*H. fruticosa* var. *hemistemon* Baratte ap. Bonm. et Bar. in Cat. Pl. Tunis 65.—*H. fruticosa* Coss. in Bull. Soc. Bot. France xxxvi, 94 (non L.).

HABITAT: I. Arabia Petraea (Pinard !, ex Musch.); between Suez and Mt. Sinai (Boiss.); Ras Hammam (Schimp. 195).

DISTRIB.: Tunisia, Tripolitania, Fezzan, W. Marmarica, Egypt, Arabia Petraea, Palestine, Persia.

### 4. *Gymnocarpus* Forsk.

1. *G. decander* Forsk. Fl. Aeg.-Arab. (1775) 65, t. X; Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, iii, (1835) 261; Musch. Fl. Eg. i, (1912) 354.—*G. fruticosus* Pers. Syn. i, (1805) 262; Schenk Sp. Pl. it. Aeg. Arab. & Syr. (1840) n. 197; Boiss. Fl. Or. i, (1867) 748.—*Trianthema fruticosa* Vahl Symb. Bot. i, (1790) 32.

HABITAT: I. Arabia Petraea (Schimp. 369 !, ex Musch.); Desert of Sinai (Bové 205).

DISTRIB.: Canary Islands, Morocco, Algeria, Tunisia, Tripolitania, Cyrenaica, W. Marmarica, Arabia Petraea, Palestine, Syria, Persia, Baluchistan.

Vern. name: *Ghêrat* (Bové).

### 5. *Sclerocephalus* Boiss.

1. *S. arabicus* Boiss. Diagn. Pl. Or. ser. 1, iii, 12; Fl. Or. i, (1867) 748.—*Paronychia sclerocephala* Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, iii, (1835) 262

HABITAT: I. Arabia Petraea (McDonald!); W. Gennah (Lord!); Sinai desert (Bové).

IV. Masqat (Auch.-Eloy 4513!).

FR.: Apr.-May 1868 (Lord).

DISTRIB.: Canaries, Egypt, Arabia, Persia.

### 6. *Pteranthus* Forsk.

1. *P. dichotomus* Forsk. Fl. Aeg.-Arab. (1775) LXII, n. 100.—*P. echinatus* Desf. Fl. Atl. i, 144; Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 244; Boiss. Fl. Or. i, (1867) 752; Post Fl. Syr. (1896) 164.—*P. Forskallei* Mirb. in Hist. Nat. Pl. ed. 2, x, 130.

HABITAT: I. Arabia Petraea (McDonald!); W. Atal (Schimp. 433!); Sinai and southward and eastward (ex Post); sandy neighbourhood of El Tor (Bové).

II. Mt. Sidr (Fischer 99!).

FL.: Feb. (Fischer).

FR.: Mar. 1835 (Schimp.).

DISTRIB.: N. Africa, E. Mediterranean region.

Vern. name: *El alteres* (Schimp.).

### 7. *Cometes* L.

1. *C. abyssinica* R. Br. in Wall. Pl. As. Rar. i, 18, t. 18; Boiss. Fl. Or. i, (1867) 753; Defl. Yemen (1889) 192; Post Fl. Syr. (1896) 164; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 176; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 85; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 14; Blatt. Fl. Aden (1915) 297.—*Saltia abyssinica* R. Br. in Salt Abyss. App. 64.

HABITAT: I. J. Hammam-Sidna-Musa, J. Nakus (Musch.); S. Sinai and southward (ex Post).

II. Near Ferihe (Schimp. 822!); Jiddah (Zohrab 140!); W. Fatimah (Fischer 31!); Shuqra (S. 110); near Sanah, 2,300 m. (Defl. 542), Aden (Hook. 70; Perry! Thomson! S. 46! 76! Balfour! Defl., Ellenb. Busse, Marchesetti).

III. Dhofar Mts.: Merbat (Bent 4!); W. Bagren near Mukalla (Hirsch 25).

FL.: Feb. (Fischer), Nov. 1888 (S.).

FR.: Feb. 1836 (Schimp.), Mar. 1881 (S.), Nov. 1888 (S.), Dec. 1847 (Hook.).

DISTRIB.: Arabia, Eritrea, Abyssinia, Nubia, Egypt.

2. *C. surattensis* Burm. Fl. Ind. 39, t. 15, f. 5; Boiss. Fl. Or. i, (1867) 753; Wall. Pl. As. Rar, i, 17, t. 17; Cat. 810; Hook. Fl. Brit. Ind. iv, (1885) 712; Cooke, Fl. Bomb. Pres. ii, 484; Blatt. Fl. Aden (1915) 298.—*C. apiculata* Dene. in Ann. Sc. Nat. ser. 2, ii, (1854) 244.—*Ceratonychia nidus* Edgew. in Journ. As. Soc. Beng. xvi, 1215.—*Cometes abyssinica* T. Anders. in Journ. Linn. Soc. v, Suppl. p. 32 ((non R. Br.).

HABITAT: I. Arabia Petraea: Near Nowebe (Schimp. 734); El Tor and Sinai desert (Bové).

II. Aden (S.).

IV. Near Masqat (Bornm. 158! Auch.-Eloy 4517!).

FL.: Jan. 1893 (Bornm.).

FR.: Jan. 1893 (Bornm.), Aug. 1835 (Schimp.).

DISTRIB.: Arabia, Waziristan, Baluchistan, Sind.

### LXXXIII. AMARANTACEAE.

#### 1. *Celosia* L.

1. *C. argentea* L. Sp. Pl. (1753) 205; Forsk. Fl. Aeg.-Arab. (1775) CVII, n. 171; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 17; Blatt. Fl. Aden (1915) 305.

HABITAT: II. Yaman: cultivated in the plains (Forsk.); Shaikh Othman (S.).

DISTRIB.: Tropics of the Old World.

VAR. *vera* Moq.; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 163.

HABITAT: II. Near Shaikh Othman (S. 126).

FL.: Dec. 1838 (S.).

FR.: Dec. 1838 (S.).

2. *C. cristata* L. VAR. *castrensis* Moq. et VAR. *splendens* Moq.; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 163.

HABITAT: II. Bajil (S. 306); J. Bura (S. 524, 1836).

DISTRIB.: Cultivated in warm parts.

Vern. name: *Gjull ahmar* (S.).

3. *C. populifolia* Moq. in DC. Prodr. xiii, ii, (1849) 239; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 163; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 24.

HABITAT: II. Chalife, foot of J. Bura, 300 m. (S. 214); Wulej, J. Milhan, 600 m. (S. 639!); N. E. of el Gebel near Qa'taha (Defl. 291).

FL.: Jan. 1889 (S.), Jan. 1890 (Defl.).

FR.: Jan. 1889 (S.), Jan. 1890 (Defl.).

DISTRIB.: Abyssinia, Arabia.

4. *C. trigyna* L. Mant. 212; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 19.—*Achyranthes decumbens* Forsk. Fl. Aeg.-Arab. (1775) CVII, n. 168 and p. 47.—

*A. paniculata* Forsk. l. c. CVII, n. 165 and p. 48.—*C. caudata* Vahl Symb. Bot. i, (1790) 21.

HABITAT: II. Damp places in the middle and lower mountainous region, Hadiyah, Milhan (Forsk.); Wulej, J. Milhan (S. 638!).

III. Dhofar Mts. : W. Natus (Bent 177! 178!).

FL. : Jan. 1889 (S.).

FR. : Jan. 1889 (S.).

DISTRIB. : Tropical Africa, Arabia, Madagascar.

Vern. name : *Mehut abjad, Suaed* (Forsk.).

VAR. *fasciculiflora* Fenzl ; DC. Prodr. xiii, ii, (1849) 241 ; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 162.

HABITAT : II. Above Hille and J. Bura, 1,000 m. (S. 460).

FL. : Jan. 1889 (S.).

FR. : Jan. 1889 (S.).

DISTRIB. : Eritrea, Arabia.

Vern. name : *Ssellebe* (S.).

## 2. *Digera* Forsk.

1. *D. arvensis* Forsk. Fl. Aeg.-Arab. (1775) CVI, n. 141 and p. 65 ; Deff. Yemen (1889) 193 ; Post Fl. Syr. (1896) 674 ; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 29.—*D. alternifolia* Aschers. in Schweinf. Beitr. Fl. Aethiop. 180 ; Boiss. Fl. Or. iv, (1879) 994 ; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 164.—*D. ciliata* Mart. in Nov. Act. Nat. Cur. xiii, (1826) 285 ; Dcne. Pl. l'Arab. Heur. in Ann. Sc. Nat. ser. 2, iv, (1835) 83.—*D. Forskaoli* Bl. Bijdr. 542.

HABITAT: II. Yaman, cultivated ground (Bové 248) ; W. Kebir, near Musa (Lunz 41!) ; Jiddah (Zohrab 263!) ; W. Fatimah (Fischer 42) ; W. Fatimah, near Unsert (Schimp. 830) ; Mor, Surdud (Forsk.) ; near Lahaj (Deff.) ; Tehama : Marrana, near Hodeidah (S. 165) ; Agara near Hodjeilah, 600 m. (S. 1052) ; Heathalim and W. Kebir (Ellenb.).

III. Dhofar Mts. : Haffa (Bent 10, 27).

FL. : Jan. 1889 (S.), Feb. 1836 (Schimp.), Feb. 1837 (Fischer), Mar. 1832 (Bové).

FR. : Feb. 1836 (Schimp.), Feb. 1837 (Fischer), Mar. 1832 (Bové).

DISTRIB. : Tropical Africa to India.

Vern. name : *Degir* (Ellenb.), *Dyddjer, buddjer* (Forsk.).

## 3. *Amarantus* L.

1. *A. Blitum* L. Sp. Pl. (1753) 990 ; Forsk. Fl. Aeg.-Arab. (1775) CXXI, n. 546.

HABITAT: II. Damp places near hills, Ghumfuda, Mor (Forsk.).

DISTRIB. : In all warm countries.

Vern. name : *Schedaob* (Forsk.).

2. *A. caudatus* L. Sp. Pl. (1753) 990; Boiss. Fl. Or. iv, (1879) 988; Post Fl. Syr. (1896) 675; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 163 Musch. Fl. Eg. i, (1912) 306.

HABITAT: I. Arabia Petraea (ex Musch.).

II. Bajil, 150 m. (S. 640).

FL.: Jan. 1889 (S.).

DISTRIB.: Widely cultivated in the tropics.

Vern. name: 'Urf-ed-Dik (Post).

3. *A. chlorostachys* Willd. Amarant. 34, n. 26, t. 10, f. 19; Boiss. Fl. Or. iv, (1879) 988; Baker in Kew Bull. (1894) 340; Post Fl. Syr. (1896) 675.

HABITAT: III. Cultivated at Ghatan (Lunt).

DISTRIB.: In all warm countries.

Vern. name: *Dadh* (Lunt).

NOTE: Used as a vegetable (Lunt).

4. *A. gangeticus* L. Sp. Pl. (1762) 1403; Defl. Yemen (1889) 193.—*A. tristis* L.

HABITAT: II. W. Kebir (Ellenb.); Lahaj, cultivated (Defl.).

DISTRIB.: Widely cultivated in the tropics.

Vern. name: *woder* (Ellenb.).

5. *A. graecizans* L. Sp. Pl. (1753) 990; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 163; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 34.

HABITAT: II. Shuqra (S. 77).

DISTRIB.: Tropical Africa, Arabia.

6. *A. hybridus* L. Sp. Pl. (1762) 1406; Forsk. Fl. Aeg.-Arab. (1775) CXXI, n. 548.

HABITAT: II. Yaman (ex Willd.); Zebid (Forsk.).

DISTRIB.: In all warm countries.

Vern. name: *Schadjaret erraaf* (Forsk.).

7. *A. mangostanus* L. Cent. i, 32.

HABITAT: III. Cultivated at Katan, 1,150 ft. (Lunt 163!).

FL.: Jan. 1894 (Lunt).

FR.: Jan. 1894 (Lunt).

DISTRIB.: Arabia, India.

Vern. name: *Dadh* (Lunt).

8. *A. oleraceus* L. Sp. Pl. (1762) 1403; Forsk. Fl. Aeg.-Arab. (1775) CXXI, n. 547.

HABITAT: II. Cultivated in plains, Kudmie (Forsk.).

DISTRIB.: In all warm countries.

Vern. name: *Schedaab hindi* (Forsk.).

9. *A. paniculatus* L. Sp. Pl. (1762) 1406; Boiss. Fl. Or. iv, (1879) 989.

HABITAT: II. Cultivated ground in the neighbourhood of Lahaj (Defl. 185!).

DISTRIB.: N. and Tropical America, introduced elsewhere.

10. *A. patulus* Bertol. Comm. it. Napol. 19, t. 2; Boiss. Fl. Or. iv, (1879) 989; Musch. Fl. Eg. i, (1912) 307.

HABITAT: I. Arabia Petraea (ex Musch.).

DISTRIB.: S. United States, spread in the Mediterranean region and Tropical Africa.

11. *A. polygamus* L. Amoenit. Acad. iv, (1759) 294; Hook. f. Fl. Brit. Ind. iv, (1885) 721; Cooke Fl. Bomb. Pres. ii, 91.—*A. polygonoides* Roxb. Fl. Ind. iii, 602; Willd. Sp. Pl. iv, (1805) 389.—*A. Blitum* var. *polygonoides* Moq. in DC. Prodr. xiii, ii, (1849) 263.—*Amblogyna polygonoides* Dalz. & Gibs. Bomb. Fl. 218.—*Albersia polygama* Boiss. Fl. Or. iv, (1879) 991; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 164.—*Euxolus polygamus* Moq. in DC. l.c. 272; Thw. Enum. 248 (excl. syn. *Amblogyne*).

HABITAT: II. J. Bura, coffee region, 1,000 m. (S. 1834); Wasil, 1,400 m. (S. 1974); Aden (Boycott).

DISTRIB.: In all tropical countries.

Vern. name: *Shedach*.

12. *A. retroflexus* L. Sp. Pl. (1762) 1407; DCne. Pl. l'Arab. Heur. in Ann. Sc. Nat. ser. 2, iv, (1835) 83; Boiss. Fl. Or. iv, (1879) 989; Post Fl. Syr. (1896) 675.

HABITAT: II. Yaman (Botta; Bové); Arabia (Bové ex DC.).

DISTRIB.: N. and Tropical America, Europe, N. Africa, Orient.

13. *A. sylvestris* Desf. Cat. Hort. Par. 41; Boiss. Fl. Or. iv, (1879) 990; Post Fl. Syr. (1896) 675; Defl. Yemen (1889) 193.—*A. Blitum* Moq. in DC. Prodr. xiii, ii, (1849) 263.

HABITAT: I. In the vineyards of Mt. Sinai (Schimp. 294!); W. Nasb and W. Sarawat (Hart!); Arabia Petraea (Griff.).

II. Jiddah (Zohrab 81! 98! Schimp. 857!); near Mantar, cultivated (Defl. 18); near Gumfuda and Mor (Forsk.); Aden (Boycott!).

FL.: Jan. 1836 (Schimp.), July 1835 (Schimp.).

FR.: July 1835 (Schimp.).

DISTRIB.: Europe, N. Africa, Arabia, India.

VAR. *nanus* MS. in H. K.

HABITAT: II. Jiddah (Fischer 190!).

FL.: Feb. (Fischer).

14. *A. viridis* L. Sp. Pl. (1762) 1405; Musch. Fl. Eg. i, (1912) 307; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 33; Blatt. Fl. Aden (1915) 299.—*Albersia caudata* Boiss. Fl. Or. iv, (1879) 992; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 164.—*Euxolus caudatus* Moq. in DC. Prodr. xiii, ii, (1849) 274 (*partim*); Defl. Yemen (1889) 193.

HABITAT: I. Arabia Petraea (ex Musch.).

II. Wulej, J. Milhau, 600 m. (S. 675); Agara near Hajeifah



(S. 1051); J. Bura, coffee region, 1,000 m. (S. 467! 327); neighbourhood of Lahaj (Defl. 307!); near Wasil, 800-1,000 m. (Defl. 224); Aden (Lunt 318!).

FL.: Jan. 1890 (Defl.), Apr. 1894 (Lunt).

FR.: Jan. 1890 (Defl.), Apr. 1894 (Lunt).

DISTRIB.: Widely distributed in warm countries.

Vern. name: *hogjela bissel* (S.).

15. *Amarantus* sp.—*A. racemis viridibus* Forsk. Fl. Aeg.-Arab. (1775) CXXI, n. 549.

HABITAT: II. Cultivated in the plains, Zebid (Forsk.).

Vern. name: *Asib el farras* (Forsk.).

#### 4. *Saltia* R. Br.

1. *S. papposa* Moq. in DC. Prodr. xiii, ii, (1849) 325; Anders. Fl. Aden. (1860) 32; Defl. Yemen (1889) 193; Baker in Kew Bull. (1894) 340; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 164; Blatt. Fl. Aden (1915) 301.—*Achyranthes papposa* Forsk. Fl. Aeg.-Arab. (1775) CVII, n. 167 and p. 48 (*partim*—according to Schweinf.).—*Seddera intermedia* Hochst. et Steud. in Herb. Schimp. Arab. n. 977.

HABITAT: I. Mt. Sinai (Herb. Mus. Paris.).

II. Lower mountainous region, Zebid (Forsk.); between Hes and Taz, 1,000-1,200 m. (Defl. 708); Mt. Sidr (Schimp.); Aden (Hook 93! Thomson! Defl. 67! Hildebr. 795! Perry! S. 58! 1798! Busse, Anders., Birdw., Lunt, Marchesetti); neighbourhood of Aden (Hunter 214!).

III. Sibeh, 750 ft. (Lunt 99!).

FL.: Mar. 1878 (Perry), Mar. 1888 (S.), Apr. 1861 (Thomson), June 1872 (Hildebr.), Nov. 1888 (S.), Dec. 1847 (Hook.), Dec. 1889 (Defl.), Dec. 1893 (Lunt).

FR.: Mar. 1878 (Perry), Mar. 1888 (S.), Apr. 1861 (Thomson), June 1872 (Hildebr.), Nov. 1888 (S.), Dec. 1847 (Hook.), Dec. 1889 (Defl.), Dec. 1893 (Lunt).

DISTRIB.: Arabia, India.

Vern. name: *Saenam, saenam* (Forsk.).

#### 5. *Pupalia* Juss.

1. *P. lappacea* Juss. in Ann. Mus. Paris ii, (1803) 132; Boiss. Fl. Or. iv, (1879) 995; Defl. Yemen (1889) 193; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 164; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 47.

HABITAT: II. Hille, J. Bura, 600 m. (S. 324); Tehama: Chalife, 300 m. (S. 213); W. Chuoi, Wasil, 1,200 m. (S. 1188!); Mt. Sidr (Schimp. 901! Fischer 90!); Mor (Ehrenb.); S. of J. el Areys, 200-300 m. (Defl. 435!); near Hajeilah, 700 m. (Defl. 166); near Wasil, 1,200 m. (Defl. 214); near Manakhah, 2,200 m. (Defl. 437); Yaman (Botta).

III. Dhofar Mts. (Bent 98!).

IV. Masqat (Auch.-Eloy 5253!).

FL.: Feb. 1837 (Fischer), Feb. 1836 (Schimp.), Feb. 1889 (S.), Mar. (Ehrenb.), Mar. 1890 (Defl.)

FR.: Feb. 1837 (Fischer), Feb. 1836 (Schimp.), Feb. 1889 (S.), Mar. (Ehrenb.), Mar. 1890 (Defl.).

DISTRIB.: Tropical Africa, Madagascar, Arabia to S. E. Asia.

Vern. name: *hassak, hamsched* (S.).

### 6. *Psilotrichum* Blume.

1. *P. cordatum* Moq. in DC. Prodr. xiii, ii, (1849) 280; Defl. Yemen (1889) 194; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 60.—*Achyranthes cordata* Hochst. in Flora (1844) Beil. 6.—*Psilostachys gnaphalobrya* Hochst. l.c. Beil. 6, t. 4.

HABITAT: II. Mt. Gesser (Schimp. 785); Mt. Sidr and Kesser (Fischer 161); S. of Jebel el Areys (Defl. 420); Mefhak, 1,800 m. (Defl. 592).

FL.: Feb. (Fischer); Feb. 1837 (Schimp.), Mar. 1890 (Defl.).

FR.: Feb. 1837 (Schimp.), Mar. 1890 (Defl.).

DISTRIB.: Nubia, Eritrea, Somaliland, Arabia.

### 7. *Aerua* Forsk.

1. *A. lanata* Juss. in Anz. Mus. Paris ii, (1803) 131; Boiss. Fl. Or. iv, (1879) 993; Defl. Yemen (1889) 194; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 165; This.-Dyer in Fl. Trop. Afr. vi, i, (1913) 39; Blatt. Fl. Aden (1915) 304.

HABITAT: II. Wasil, 1,400 m. (S. 1337); Wulej, J. Milhan, 600 m. (S. 637!); Aden (Defl.).

FL.: Jan. 1889 (S.).

FR.: Jan. 1889 (S.).

DISTRIB.: Warm parts of the Old World to the Philippines.

VAR. *rotundifolia* Moq. in DC. Prodr. xiii, ii, (1849) 304; Defl. Yemen (1889) 194.—*Achyranthes villosa* Forsk. Fl. Aeg.-Arab. (1775) CVII, n. 169 and p. 48.

HABITAT: II. Damp plains near hills, Hadiyah (Forsk.); J. Nuqum and Hadda, near Sanah, 2,400-2,500 m. (Defl. 487, 548, 563); between Mefhak and Suq el Khamiss, 2,000 m. (Defl. 590).

Vern. name: *Schadjaret el athleb* (Forsk.).

VAR. *viridis* Moq. l.c. 304; Defl. l.c.

HABITAT: II. Mt. Masar, near Attara, 1,800-2,000 m. (Defl. 397).

2. *A. tomentosa* Forsk. Fl. Aeg.-Arab. (1775) CXXII, n. 584 and p. 170; Del. Frag. Fl. Arab. Petr. (1833) n. 13; Schenk Sp. Pl. it. Aeg. Arab. & Syr. (1840) n. 91; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 37; Blatt. Fl. Aden (1915) 302.—*A. javanica* Wight. Ic. t. 876; Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 244; Pl. l'Arab. Heur. in Ann. Sc. Nat. ser. 2, iv, (1835) 83; Boiss. Fl. Or. iv, (1879) 992; Defl. Yemen (1889) 194; Baker in Kew Bull.

(1894) 340; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 165; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 83.

HABITAT: I. Arabia Petraea (DeLaborde; McDonald!); Arabia Petraea; Marcha (Schimp. 243!); W. Hebran (Schimp. 144!); W. Igne (Drake 104!); Sinai (Boiss.! Holland!); Desert of Tor (Bove 46!); N. Midian (Burton!).

II. Yaman: in the mountains and valleys (Schimp. 911!); Jiddah (Fischer 14! Zohrab 54! 72! 193!); W. Fatimah (Fischer 13! 73!); Manakhah, Sanah, 2,000 m. (S. 1639); Tehama: everywhere in the plains and lower mountainous region (Defl.); Aden (Hook. 95! 96! Thomson! Madden 4! Perry! S., Ellenb., Busse, Birdw., Hildebr., Marchesetti); Yaman (Bové 242!); plains in lower mountainous regions, Lohaya, Mor, Surdud (Forsk.).

III. Hegwir (Hirsch 114); between Tokham and Ghafit, 200 ft. (Lunt).

FL.: Feb. 1836 (Schimp.), Feb. (Fischer), Mar. 1846 (Boiss.), June 1832 (Bové), June 1835 (Schimp.), Oct.-Jan. 1837 (Fischer), Dec. 1847 (Hook.).

FR.: Feb. 1836 (Schimp.), Mar. 1846 (Boiss.), June 1832 (Bové), June 1835 (Schimp.), Dec. 1847 (Hook.).

DISTRIB.: Africa, Arabia, India, Ceylon (not Java).

Vern. name: *Aerua*, *Rá* (Forsk.), *Aeruek* (S.), *Yeruk* (Bové), *Jarra* (Schimp.), *Rā Fiw.* (Hirsch).

VAR. *Bovei* C. B. Cl. in This.-Dyer l.c. 38.—*A. javanica* var. *Bovei* Webb in Hook. Niger. Fl. 173; Boiss. l.c. 993; Post Fl. Syr. (1896) 676.—*A. Bovei* Edgew. in Journ. Linn. Soc. vi, 206.

HABITAT: I. J. Gharib (S. 267!); Desert of Tor (Bové 45!); W. Hamme (Schimp. 246!); Sinai (Holland!); S. Midian (Burton!).

FL.: Mar. 1835 (Schimp.), Apr. 1877 (S.).

FR.: Mar. 1835 (Schimp.), Apr. 1877 (S.).

Vern. name: *Yeruk* (Bové), *Jarra* (Schimp.).

## 8. *Achyranthes* I.

1. *A. aspera* L. Sp. Pl. (1753) 204, Fortk. Fl. Aeg.-Arab. (1775) CVII, n. 162 and p. 48; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 165; Krause in Engl. Bot. Jahrb. xxxv, (1905) 735; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 63.

HABITAT: II. Tehama: Moqlaf (S. 611); W. Kəbir (Ellenb.); near Mecca (Schimp. 944!); W. Fatimah (Fischer 91!); Oasis of Lahaj (Defl. 180!); Mor (Ehrenb.); damp plains in lower mountainous region, Mor, Surdud Hadiyah (Forsk.); Chalife, 300 m. (S. 199); Hille, J. Bura, 500 m. (S. 257); Regma near Hajeilah, 900 m. (S. 965); Manakhah, 2,300 m. (S. 1393).

III. Dhofar Mts.: Hafa (Bent 34!).

FL.: Feb. 1837 (Fischer), Mar. (Ehrenb.), Nov. 1835 (Schimp.), Dec. 1889 (Defl.).

FR. : Feb. 1837 (Fischer), Mar. (Ehrenb.), Nov. 1835 (Schimp.), Dec. 1889 (Defl.).

DISTRIB. : Hotter parts of the Old World.

Vern. name: *Chorgje* (S.), *badehe* (Ellenb.), *Uokes*, *hollem*, *hamsched*, *mahot* (Forsk.).

VAR. *argentea* Boiss. Fl. Or. iv, (1879) 994; Defl. Yemen (1889) 194; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 83.

HABITAT : I. J. Hammam-Sidna-Musa (Musch.).

II. W. Mazeb, near Manakhah, 2,200-2,300 m. (Defl. 51, 389).

IV. Masqat (Auch.-Eloy 5254).

2. *A. polystachya* Forsk. Fl. Aeg.-Arab. (1775) CVII, n. 164 and p. 48.

HABITAT : II Damp plains near hills, Surdud (Forsk.).

DISTRIB. : Endemic.

Vern. name : *Suaed* (Forsk.).

### 9. *Gomphrena* L.

1. *G. globosa* L. Sp. Pl. (1753) 224; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 165; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 75.

HABITAT : II. J. Bura, coffee region, Hille (S. 1816).

FL. : Jan. 1889 (S.).

DISTRIB. : S. America, cultivated and weed in the Old World.

## LXXXIV. CHENOPODIACEAE.

### 1. *Chenopodium* L.

1. *C. album* L. Sp. Pl. (1753) 219; Boiss. Fl. Or. iv, (1879) 901; Post Fl. Syr. (1896) 678; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 77.

HABITAT : I. In the garden of St. Catherine (Schimp. 256!).

FL. : Aug. 1835 (Schimp.).

FR. : Aug. 1835 (Schimp.).

DISTRIB. : Cosmopolitan.

Vern. name: *Gahannie* (S.), *Fiss-el-Kelab* (Post).

2. *C. ambrosioides* L. Sp. Pl. (1762) 302; Boiss. Fl. Or. iv, (1879) 904; Post Fl. Syr. (1896) 679; Musch. Fl. Eg. (1912) 273.

HABITAT : I. Arabia Petraea (ex Musch.).

DISTRIB. : America, introduced in the Old World.

3. *C. Botrys* L. Sp. Pl. (1753) 219; Boiss. Fl. Or. iv, (1879) 903; Post Fl. Syr. (1896) 679; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 79.

HABITAT : I. Arabia Petraea (Bové).

DISTRIB. : Almost cosmopolitan.

4. *C. murale* L. Sp. Pl. (1753) 219; Boiss. Fl. Or. iv, (1879) 902; Post Fl. Syr. (1896) 679; Defl. Yemen (1889) 194; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 157; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 78.—*C. triangulare* Forsk. Fl. Aeg.-Arab. (1775) CVIII, n. 197 and p. 205.

HABITAT : I. W. Ghurundel (Kneuck.); Arabia Petraea (McDonald!); W. Gennah and neighbourhood (Lord!); Sinai (Holland!); N. and S. Midian (Burton!).

II. Jiddah (Fischer 8! 207! Schimp. 825! Zohrab 82!); Taz, dry plains (Forsk.); Okeber, coffee region and J. Milhan, 900 m. (S. 814); Manakhah, 2,200 m. (S. 1909); near Manakhah, 2,300 m. (Defl. 356); Yaman (Botta).

III. Dhofar Mts.: Hafa (Bent 51! 70!).

IV. Masqat (Auch.-Eloy 5265!).

FL. : Jan. (Fischer), Jan. 1836 (Schimp.), May 1868 (Lord).

FR. : Jan. (Fischer), Jan. 1836 (Schimp.), May 1868 (Lord).

DISTRIB. : Cosmopolitan.

Vern. name : *Fiss-el-Kelāb*, *Muntineh*, *Sekrān*, *Suntar*, *Zurbeih*, *Mittein*, *Shajaret-el-Muteineh* (Post).

NOTE : Cattle eat (Burton).

5. *C. opulifolium* Schrader in DC. Fl. Fr. v, 372; Boiss. Fl. Or. iv, (1879) 901; Post Fl. Syr. (1896) 678; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 156; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 78.—? *C. viride* Forsk. Fl. Aeg.-Arab. (1775) CVIII, n. 198 and p. 205.

HABITAT : II. Manakhah, 2,200-2,500 m. (S. 1603); J. Bura, coffee region above Hille, 1,000 m. (S. 578); dry plains (Forsk.).

DISTRIB. : Europe, Tropical Africa, Orient, Arabia.

Vern. name : *Bechssen* (S.), *Rokeb ed djemmel* (Forsk.).

6. *C. Schraderianum* Roem. & Schultz. Syst. Veg. vi, 260; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 80.—*C. foetidum* Schrad. Mag. Ges. Berl. (1808) 79; Boiss. Fl. Or. iv, (1879) 903; Defl. Yemen (1889) 195; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 156.—*C. Botrys* Forsk. Fl. Aeg.-Arab. (1775) CVIII, n. 195.

HABITAT : II. Near Manakhah, 2,300 m. (Defl. 371); upper mountainous region, Chadra (Forsk.); Wasil, 1,200 m. (S. 1303); Schibam near Manakhah, 2,000 m. (S. 1910); Okeber and J. Milhan, 900 m. (S. 797).

FL. : Jan.-Mar. 1889 (S.).

FR. : Jan.-Mar. 1889 (S.).

DISTRIB. : Tropical and S. Africa, Arabia, America.

Vern. name : *wolla* (S.), *Schokr el-homar* (Forsk.).

7. *C. vulvaria* L. Sp. Pl. (1762) 321; Boiss. Fl. Or. iv, (1879) 901; Post Fl. Syr. (1896) 678; Musch. Fl. Eg. (1912) 271.

HABITAT : I. Arabia Petraea (ex Musch.).

DISTRIB. : Cosmopolitan.

## 2. *Spinacia* L.

1. *S. oleracea* L. Sp. Pl. (1753) 1027; Defl. Yemen (1889) 225.—*S. inermis* Moench. Meth. 318; Schenk Sp. Pl. it. Aeg. Arab. & Syr. (1840) n. 89.

HABITAT : II. Cultivated in Yaman (Def.).

DISTRIB. : Generally cultivated.

### 3. *Atriplex* L.

1. *A. dimorphostegium* Karel & Ker. Enum. Song. n. 714 ; Boiss. Fl. Or. iv, (1879) 909 ; Post Fl. Syr. (1896) 681.

HABITAT : I. Arabia Petraea (McDonald!) ; Arabia Petraea : Hauara (Schimp. 212!) ; Oasis Feiran, W. Ghurundel (Kneuck.) ; S. of Ghazah (Boiss.).

DISTRIB. : Mediterranean region to Persia and Baluchistan.

2. *A. Ehrenbergii* F. v. Muell. ; Musch. Fl. Eg. (1912) 278.—4. *crystallinum* Ehrenb. ; Boiss. Fl. Or. iv, (1879) 915 ; Post Fl. Syr. (1896) 682.

HABITAT : I. Akaba (Hart! and ex Post).

DISTRIB. : Egypt, Arabia Petraea.

3. *A. farinosum* Forsk. Fl. Aeg.-Arab. (1775) CXXIII, n. 602 ; Boiss. Fl. Or. iv, (1879) 917 ; Post Fl. Syr. (1896) 683 ; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 82 ; Blatt. Fl. Aden (1915) 307.

HABITAT : I. J. Nakus near Tor (Ehrenb.!) ; J. Nakus (ex Post).

II. Little Aden (Def.) ; plains along sea (Forsk.).

DISTRIB. : N. and Tropical Africa, Arabia.

Vern. name : *Huway*, 'Asfay, Otssfai.

4. *A. Halimus* L. Sp. Pl. (1762) 1492 ; Dene. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 243 ; Boiss. Fl. Or. iv, (1879) 916 ; Post Fl. Syr. (1896) 683 ; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 81.—*A. Kataf* Ehrenb. ex Boiss.

HABITAT : I. J. Hammam-Sidna-Musa (Musch.) ; neighbourhood of El Tor (Bové).

DISTRIB. : Mediterranean region.

5. *A. hastatum* L. Sp. Pl. (1753) 1053 ; Boiss. Fl. Or. iv, (1879) 909 ; Post Fl. Syr. (1896) 681. var. *salinum* Wallr. ; Boiss. l.c. ; Post l.c. ; Musch. Fl. Eg. (1912) 277.

HABITAT : I. Arabia Petraea (ex Musch.).

DISTRIB. : Nearly all temperate and warm temperate climates.

6. *A. laciniata* L. Sp. Pl. (1753) 1053.

HABITAT : I. Arabia Petraea (McDonald!).

DISTRIB. : Europe, Arabia Petraea, N. America.

7. *A. leucocladum* Boiss. Diagn. Pl. Or. ser. 1, xii, 95 ; Fl. Or. iv, (1879) 915 ; Post Fl. Syr. (1896) 683 ; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 80.

HABITAT : I. W. es Shaikh (Hart !); El Tor (Musch.); Desert of Sinai and Et-Tih (ex Post); W. Useit (Boiss.).

DISTRIB. : Egypt, Arabia Petraea, Palestine, Syria.

Vern. name : *Burgul*, *Rocholl* (Boiss.), *Shajarst-el-Bayyadin*, *Rudhl*, *Roghr*, *Rughl*, *Burghul* (Post).

8. *A. parvifolium* Lowe Primit. et Novit. Faun. et Fl. Mader. (1851) 16.—*A. palaestinum* Boiss. Diagn. Pl. Or. ser. 1, xii, 96; Fl. Or. iv, (1879) 914; Post Fl. Syr. (1896) 682.—*A. alexandrium* Boiss. Fl. Or. iv, (1879) 914.

HABITAT : I. Et-Tih (ex Post); S. of Ghazah (Boiss.).

DISTRIB. : N. Africa, Arabia Petraea, Palestine, Syria.

9. *A. portulaccoides* L. Sp. Pl. (1762) 1493; Boiss. Fl. Or. iv, (1879) 913; Post Fl. Syr. (1896) 682; Musch. Fl. Eg. (1912) 278.

HABITAT : I. Arabia Petraea (ex Musch.).

DISTRIB. : Europe, Mediterranean to Persia.

10. *A. roseum* L. Sp. Pl. (1762) 1493; Dene. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 243; Schenk Sp. Pl. it. Aeg. Arab. & Syr. (1840) n. 90; Boiss. Fl. Or. iv, (1879) 911; Post Fl. Syr. (1896) 682; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 80.

HABITAT : I. Arabia Petraea: Hamme (Schimp. 434!); Desert of El Tor (Bové 39).

FL. : Mar. 1835 (Schimp.).

FR. : Mar. 1835 (Schimp.).

DISTRIB. : Europe, E. Mediterranean region to Transcaucasus.

Vern. name : *Burrul* (Schimp.). *Rohhob* (Bové).

#### 4. *Eurotia* Adans.

1. *E. ceratoides* A. Mey. in Led. Fl. Atl. iv, 239; Boiss. Fl. Or. iv, (1879) 917; Musch. Fl. Eg. (1912) 281.—*Achyranthes papposa* Forsk. Fl. Aeg.-Arab. (1775) CVII, n. 167 and p. 48.

HABITAT : I. Arabia Petraea (ex Musch.).

II. Lower mountainous region, Zebid (Forsk.).

DISTRIB. : Europe, Mediterranean region to Persia and Baluchistan, temperate Asia.

Vern. name : *Saenaam*, *saelaam* (Forsk.).

#### 5. *Chenolea* Thunb.

1. *C. arabica* Boiss. Diagn. Pl. Or. ser. 1, xii, 97; Fl. Or. iv, (1879) 922; Post Fl. Syr. (1896) 684.

HABITAT : I. Desert of Tih (Boiss. !); Et-Tih (ex Post).

FR. : Mar. 1846 (Boiss.).

DISTRIB. : Egypt, Arabia Petraea, Palestine, Syria, Mesopotamia.

Vern. name : *Thelatheh* (Post).

6. *Kochia* Roth.

1. *K. eriophora* Schrad. Journ. 109, p. 86, t. 3; Del. Frag. Fl. Arab. Petr. (1833) n. 11.

HABITAT: I. Arabia Petraea (De Laborde).

DISTRIB.: Arabia, Persia.

2. *K. latifolia* Fres. Beitr. 179; Boiss. Fl. Or. iv, (1879) 927; Post Fl. Syr. (1896) 685.

HABITAT: I. Arabia Petraea (McDonald!); W. Hebran (Schimp. 133!); N. and S. Midian (Burton!); W. Nasb (Lord! Drake 45!); W. es Sle, W. Tarfa, W. es Shaikh (Kneuck.); Sinai (ex Post).

FR.: Apr. 1835 (Schimp.), Apr. 1868 (Lord).

DISTRIB.: Egypt, Arabia Petraea, Palestine, Syria to Persia and Baluchistan.

Vern. name: *Shezeereh* (Drake).

VAR. *inermis* Boiss. l.c.; Post l.c.

HABITAT: I. Sinai (Auch.-Eloy 2721! and ex Post); Arabia Petraea (Schimp. 133 *partim*).

3. *K. muricata* Schrad. Journ. (1809) 86; Del. Frag. Fl. Arab. Petr. (1833) n. 12; Boiss. Fl. Or. iv, (1879) 926; Post Fl. Syr. (1896) 685.—*Echinopsilon muricatus* Moq. in DC. Prodr. xiii, ii, (1849) 134.—*Salsola monobractea* Forsk. Fl. Aeg.-Arab. (1775) LXIV, n. 161 and p. 55.

HABITAT: I. Arabia Petraea (De Laborde); valleys of Sinai (Boiss. !); W. Hebran (Schimp. 143!); W. Sewook (Lord!); Desert of Ka'a, W. es Shaikh, Oasis Feiran, W. Ghurundel (Kneuck.); sands and fields in and near deserts of Sinai and westward (ex Post).

FL.: Mar. 1846 (Boiss.).

FR.: Apr. 1868 (Lord), June 1835 (Schimp.).

DISTRIB.: N. Africa, Asia.

Vern. name: *Layyah* (Post), *Remlié* (Bové), *Aeraejam* (Forsk.).

VAR. *tenuifolia* Boiss. l.c. 927; Musch. Fl. Eg. (1912) 283.

HABITAT: Tropical Arabia (ex Musch.).

4. *Kochia* sp.; Carter in Rec. Bot. Surv. Ind. vi, (1917) 182.

HABITAT: IV. Zor Hills (Cox 75).

Vern. name: *Shilwah* (Cox).

7. *Halopeplis* Bunge.

1. *H. amplexicaulis* Unger. ex Cesati, Passer and Gibelli Comp. Fl. Ital. 271; Boiss. Fl. Or. iv, (1879) 934; Post Fl. Syr. (1896) 685.—*Salicornia amplexicaulis* Vahl Symb. Bot. ii, (1791) 1.

HABITAT: I. From Ghazab to Egypt (ex Post).

DISTRIB.: Mediterranean region.



2. *H. perfoliata* Bunge ex Aschers.-Schweinf. Fl. Aethiop. 289; Boiss. Fl. Or. iv, (1879) 935; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 157; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 84; Blatt. Fl. Aden (1915) 307.—*Salicornia perfoliata* Forsk. Fl. Aeg.-Arab. (1775) 3, t. 1.

HABITAT: II. El Hami (S. 212); Jiddah and Gumfuda (Forsk.); Jiddah (Steuder 634!); Aden (S. 111! Birdw. 153! Busse, Desf.).

III. Berge near Kischin (Hirsch 88).

FL.: Aug. 1898 (Birdw.), Dec. 1888 (S.).

FR.: Aug. 1898 (Birdw.), Dec. 1888 (S.).

DISTRIB.: N. E. Africa, Nubia, Arabia.

Vern. name: *Garmir* (Hirsch).

### 8. *Halocnemon* Bieb.

1. *H. strobilaceum* M. Bieb. Fl. Taur. Cauc. iii, 3; Boiss. Fl. Or. iv, (1879) 936; Post Fl. Syr. (1896) 685; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 85.—*Salicornia cruciata* Forsk. Fl. Aeg.-Arab. (1775) 2.

HABITAT: I. Salt marshes in the neighbourhood of Suez (Bové 42!).

FL.: June 1832 (Bové).

FR.: June 1832 (Bové).

DISTRIB.: Europe, N. Africa, Eritrea, Orient, Central Asia.

Vern. name: *Sabta* (Forsk.).

### 9. *Arthrocnemum* Moq.

1. *A. glaucum* Ung. Sternb. in Atti Congr. Bot. Firenze 283; Boiss. Fl. Or. iv, (1879) 932; Post Fl. Syr. (1896) 686.—*A. macrostachyum* Mor. & Delp. Enum. Sem. Taur. 1854.—*Salicornia virginica* Forsk. Fl. Aeg.-Arab. (1775) 2.

HABITAT: I. Sinai Pen.: Tor (Lord!); Tor (Ehrenb.).

IV. Central Arabia (Pelly 25th Feb.).

DISTRIB.: Europe, N. Africa, Orient.

Vern. name: *Chraesi* (Forsk.).

### 10. *Salicornia* L.

1. *S. fruticosa* L. Sp. Pl. (1753) 3; Boiss. Fl. Or. iv, (1879) 932; Post Fl. Syr. (1896) 686; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 81.—*S. arabica* L. l.c.—*S. europaea* Forsk. Fl. Aeg.-Arab. (1775) LIX, n. 2; CII, n. 6 and p. 2.

HABITAT: I. Ras Abu Zenime (Kneuck.); W. es Sle (Musch.).

II. Plains along sea, Mochha (Forsk.).

III. Dhofar Mts.: Merbat (Bent 61!).

DISTRIB.: America, Europe, N. Africa, Arabia.

Vern. name: *Khareiseh*, *Hatab Haddadeh*, *Abu Saq*, *Be-Saq*, *Bawwal*, *Ghaseel*, *Hamid*, (Post), *Chraesi* (Forsk.).

2. *S. herbacea* L. Sp. Pl. (1753) 3; Schenk Sp. Pl. it. Aeg. Arab. & Syr. (1840) n. 87; Boiss. Fl. Or. iv, (1879) 933; Post Fl. Syr. (1896) 686; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 86.

HABITAT : Arabia.

DISTRIB. : Europe, N. Africa, Asia, N. America.

### 11. Suaeda Forsk.

1. *S. Asphaltica* Boiss. Fl. Or. iv, (1879) 938; Post Fl. Syr. (1896) 686.

HABITAT : I. Arabia Petraea (ex Post).

DISTRIB. : Arabia Petraea, Palestine, Syria.

2. *S. baccata* Forsk. Fl. Aeg.-Arab (1775) LXIV, n. 185; CIX, n. 221 and p. 69; Defl. Yemen (1889) 195; Blatt. Fl. Aden (1915) 310.—*S. baccata* Volk. in Engl. & Prantl Pflanzenf. iii, 1A, 80; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 91.—*Schanginia baccata* Moq. in DC. Prodr. xiii, ii, (1849) 154; Boiss. Fl. Or. iv, (1879) 944; Post Fl. Syr. (1896) 688.—*Suaeda setigera* DC. VAR. *mutica* Schimp. exsic. n. 438.

HABITAT : I. W. Hebran (Schimp. 438 !); Arabia Petraea (McDonald !).

II. Near Sanah, 2,300 m. (Defl. 525); plains along sea, Ghumfuda (Forsk.); Aden (S., Defl.); Yaman (Botta).

DISTRIB. : Eritrea, Egypt, Arabia, Syria.

Vern. name : *Mullaauh* (Forsk.).

3. *S. fruticosa* Forsk. (non L.) Fl. Aeg.-Arab. (1775) CIX, n. 223 and p. 70; Ic. 9; Boiss. Fl. Or. iv, (1879) 939; Post Fl. Syr. (1896) 687; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 157; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 91; Blatt. Fl. Aden (1915) 310.—*Chenopodium fruticosum* L. Sp. Pl. (1753) 221.—*Salsola fruticosa* L. Sp. Pl. (1762) 324; Sowerby Engl. Bot. t. 635.—*Salsola indica* Wall. Cat. 6946, C. (non Willd.!).—*Salsola liná* Edgew. in Hook. Journ. Bot. ii, (1840) 286.—*Lerchea obtusifolia* Steud. Nomencl. ed. 1, 187, 474; Hiern. in Cat. Afr. Pl. Welw. i, 900.—*Lerchea maritima fruticosa* O. Kuntze Rev. Gen. Pl. ii, 549.

HABITAT : I. Red Sea : Nu'uman Is. (Burton !); Hanish Is. (Slade 11 !); Dead Sea and southward (ex Post); W. Feiran and W. Gennah (Lord !); Sinai (Holland !); W. Nasb (Drake 52 !); Central Midian (Burton !).

II. W. el Kebir, neighbourhood of Lahaj (Defl. 169 !); Jiddah, dry plains (Forsk.); Aden (S. 114 ! 129 !).

III. Dhofar Mts. : Merbat (Bent 20 ! 215 !).

FL. : May 1868 (Lord), Dec. 1888 (S.), Dec. 1889 (Defl.).

FR. : May 1868 (Lord), Dec. 1888 (S.), Dec. 1889 (Defl.).

DISTRIB. : N. Africa and Europe, extending to England and through the Orient to Western India.

Vern. name : *Mileih* (Drake), *Doluk* (Forsk.), *Doluq*, *Deluq*.

NOTE : The plant is eaten by camels.

4. *S. hortensis* Forsk. Fl. Aeg.-Arab. (1775) LXIV, n. 188; CIX, n. 222 and p. 71; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 157.—*Schanginia hortensis* Moq. in DC. Prodr. xiii, ii, (1849) 153; Boiss. Fl. Or. iv, (1879) 945.

HABITAT: II. Shuqra (S. 135); Jiddah (Zohrab 146!); dry plains, Taes (Forsk.).

FL.: Mar. 1881 (S.).

FR.: Mar. 1881 (S.).

DISTRIB.: Egypt, Arabia, Mesopotamia.

Vern. name: *Mullah* (Forsk.).

5. *S. monoica* Forsk. Fl. Aeg.-Arab. (1775) LXIV, n. 189 and p. 70; CIX, n. 220; Boiss. Fl. Or. iv, (1879) 940; Post Fl. Syr. (1896) 687; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 158; Blatt. Fl. Aden (1915) 308.

HABITAT: I. Red Sea: Nu'nman Is. (Burton!); Sinai (ex Post); Unsert near Nouebe (Schimp. 721!).

II. Jiddah (Fischer 200!); Lohaja (Forsk.); Aden (S. 46! 51! 113! Defl., Busse, Birdw.).

FL.: Aug. 1892 (Post), Oct.-Nov. 1837 (Fischer), Nov. 1888 (S.).

FR.: Aug. 1892 (Post), Oct.-Nov. 1837 (Fischer), Nov. 1888 (S.).

DISTRIB.: Upper Egypt, Nubia, Libya, Eritrea, Abyssinia, Somaliland, Zanzibar, South Deccan, Ceylon, Arabia.

Vern. name: *Asal* (Forsk.), *'Asal*, *Khuriyek*, *Hamd* (Post).

NOTE: No. 113 of Schweinf. is forma *prostrata rubescens* (S.).

6. *S. vera* Forsk. Fl. Aeg.-Arab. (1775) LXIV, n. 185; CIX, n. 219 and p. 69; Boiss. Fl. Or. iv, (1879) 939; Musch. Fl. Eg. (1912) 288.—*S. foliis oblongis* Forsk. l.c. p. 69.

HABITAT: I. Arabia Petraea (ex Musch.).

DISTRIB.: Mediterranean region.

Vern. name: *Hommâm* (Forsk.).

7. *S. vermiculata* Forsk. Fl. Aeg.-Arab. (1775) LXIV, n. 187 and p. 70; Ic. 18B; Boiss. Fl. Or. iv, (1879) 940; Post Fl. Syr. (1896) 687; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 81; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 92; Blatt. Fl. Aden (1915) 311.

HABITAT: I. W. Ghurundel (Hart! Boiss.); Ras Abu Zenime (Kneuck.); Et-Tih to Sinai (ex Post).

II. Aden (Birdw.! Defl.).

DISTRIB.: Canaries, Egypt, N. Africa, Nubia, Arabia.

Vern. name: *Suweid* (Post).

VAR. *puberula* C. B. Cl. in This.-Dyer l.c.

HABITAT: Tropical Arabia (ex This.-Dyer).

DISTRIB.: Nubia, Eritrea, Arabia.

8. *Suaeda* sp. in Kneuck. in Allg. Bot. Zeitsch. ix, (1903) 150.

HABITAT: I. W. Rutig, Oasis Feiran, between Ghurundel and W. Wordan (Kneuck.).

12. *Traganum* Delile.

1. *T. nudatum* Del. Fl. d'Eg. 57; Anders. Fl. Aden. (1860) 31; Boiss. Fl. Or. iv, (1879) 946; Post Fl. Syr. (1896) 688; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 81; Blatt. Fl. Aden (1915) 312.

HABITAT: I. W. Ghurundel (Hart!); S. of El Tor (Musch.); northern borders of Et-Tih to Sinai (ex Post); Et-Tih (Boiss.).

II. Aden (Anders., Zenker).

DISTRIB.: N. Africa, Egypt, Arabia.

Vern. name: *Feres, Hamd, Thirr, Zamrán* (Post).

13. *Cornulaca* Delile.

1. *C. Ehrenbergii* Aschers. in Schweinf. Beitr. Fl. Aethiop. 184; This.: Dyer Fl. Trop. Afr. vi, i, (1913) 93.

HABITAT: II. Perim Is. (H. K.!); El Hami (S. 206!).

III. Ras Schirwen (Hirsch 158).

DISTRIB.: Eritrea, Somaliland, Arabia.

2. *C. monacantha* Del. Fl. d'Eg. 234, t. 22; Boiss. Fl. Or. iv, (1879) 984; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 82; Blatt. Fl. Aden (1915) 315.

HABITAT: II. W. Tayfa (S.!) Aden (Marchesetti).

DISTRIB.: N. Africa, Egypt, Arabia, Persia, Afghanistan

14. *Agathophora* Bunge.

1. *A. alopecuroides* Bunge in Mem. Acad. Petersb. ser. 7, vi, (1862) n. 11; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 82.—*Halogeton alopecuroides* Moq. Chenop. Enum. (1840) 161; Boiss. Fl. Or. iv, (1879) 985; Post Fl. Syr. (1896) 693.

HABITAT: I. Nonebe (Schimp. 737!); Peninsula of Sinai (Herb. Fox!); W. es Sle (Ehrenb.); Sinai (ex Post); Arabia Petraea (Boiss.).

FR.: Aug. 1837 (Fischer).

DISTRIB.: Egypt, Arabia Petraea, Syria

Vern. name: *El-Hamd* (Post).

15. *Seidlitzia* Bunge.

1. *S. Rosmarinus* Bunge in Boiss. Fl. Or. iv, (1879) 951; Musch. Fl. Eg. (1912) 293.—*Suaeda Rosmarina* Ehrenb. ex Boiss.

HABITAT: I. W. Zewerah (Hayne!); Is. of Maksuk (Ehrenb. 123).

Tropical Arabia (ex Musch.).

DISTRIB.: Egypt, Arabia.

16. *Haloxylon* Bunge.

1. *H. articulatum* Bunge II P p. vi, 439; Boiss. Fl. Or. iv, (1879) 949; Post Fl. Syr. (1896) 689.

HABITAT: I. W. Arabia (S. 103 !); W. Feiran (Herb. Fox !); Et-Tih, southward and westward to Egypt (ex Post); Et-Tih (Boiss.).

Sub-Tropical Arabia (Ehrenb.).

DISTRIB.: Mediterranean region.

Vern. name: *Niqún*, *Belbel*, *Tufweh*, *Laitún* (Post).

NOTE: Camels eat (Fox).

2. *H. Schweinfurthii* Aschers. in Aschers.-Schweinf. III. Fl. d'Eg. 128, n. 903.—*H. salicornicum* Bunge in Act. Hort. Petrop. vi, (1879) 439.

HABITAT: I. W. es Shaikh (Kneuck.); El Kantara near Suez Canal (S.!).

FR.: Nov. 1899 (S.).

DISTRIB.: Egypt, Arabia Petraea.

### 17. *Salsola* L.

1. *S. Bottae* Boiss. Fl. Or. iv, (1879) 964. *in obs.*; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 161; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 90; Blatt. Fl. Aden (1915) 312. VAR. *Fauroti* Franch. in Journ. Bot. i, 134.—*Halothamnus Bottae* Jauh. & Sp. III. Pl. Or. t. 136.

HABITAT: I. Arabia Petraea (Botta).

II. Wady west of J. Menif (Defl. 287 !); Aden (Perry! S. 125 ! Defl., Balfour).

III. Ras Schirwen (Hirsch 125).

FR.: Jan. 1890 (Defl.), Dec. 1888 (S.).

DISTRIB.: Somaliland, Arabia.

Vern. name: *Tanēt* (Hirsch).

2. *S. cyclophylla* Baker in Kew Bull. (1894) 340.

HABITAT: III. Shari Burrock Valley near Mukalla, 200-300 ft. (Lunt 53 ! 54 !).

FL.: Dec. 1893 (Lunt).

FR.: Dec. 1893 (Lunt).

DISTRIB.: Endemic.

3. *S. foetida* Del. Fl. d'Eg. n. 310 Boiss. Fl. Or. iv, (1879) 961; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 159; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 87.

HABITAT: I. Near Nouebe (Schimp. 740 !); Desert of Ka'a (Kneuck.).

II. W. Tayfa (S. !); near Hodeidah (S. 151, 152).

III. Hegwir (Hirsch 63).

FL.: Aug. 1836 (Schimp.), Dec. 1888 (S.).

FR.: Aug. 1836 (Schimp.).

DISTRIB.: N. and Temperate Africa, Western Asia, India.

Vern. name: *Hemtout* (Hirsch), *Fedahedán* (S.).

NOTE: Schweinfurth's specimen 151 is *aff. foetidæ* Del.

4. *S. Forskalii* Schweinf. in Bull. Herb. Boiss. (1896) App. II, 160; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 82; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 89; Blatt. Fl. Aden (1915) 313.

HABITAT: II. Near Hodeidah, 10km. from the coast (S. 158); Aden (S. 138, Birdw.).

DISTRIB.: Eritrea, Arabia.

Vern. name: *karm* (S.).

5. *S. hadramautica* Baker in Kew Bull. (1894) 340.

HABITAT: III. Shari Burrock Valley, Mukalla 200-300 ft. (Lunt 52!).

FL.: Dec. 1893 (Lunt).

FR.: Dec. 1893 (Lunt).

DISTRIB.: Endemic.

6. *S. imbricata* Forsk. Fl. Aeg.-Arab. (1775) CVIII, n. 201 and p. 57; Defl. Yemen (1889) 195.—*Oaroxylon imbricatum* Moq. in DC. Prodr. xiii, ii, (1849) 177.

HABITAT: II. Plains along sea, Lohaja (Forsk.); near Hodeidah and Mantar (Defl. 1, 12).

DISTRIB.: Endemic.

Vern. name: *Harm* (Forsk.).

NOTE: For economic uses see Forsk.

7. *S. inermis* Forsk. Fl. Aeg.-Arab. (1775) CVIII, n. 202 and p. 57; Boiss. Fl. Or. iv, (1879) 955; Post Fl. Syr. (1896) 690.

HABITAT: I. Mt. Hor and Petra (Hart!); dry plain of Sinai (Forsk.).

DISTRIB.: Egypt, Arabia, Syria.

Vern. name: *Gumnaeli* (Forsk.), *Jumaili*, *Nadewa* (Post)

8. *S. Kali* L. Sp. Pl. (1753) 222; Boiss. Fl. Or. iv, (1879) 854; Post Fl. Syr. (1896) 689.

HABITAT: I. Desert of Ka'a (Kneuck.).

DISTRIB.: Most temperate and tropical regions.

9. *S. leucophylla* Baker in Kew Bull. (1894) 340.

HABITAT: III. Between Ghafit and Sibeh, 600 ft. (Lunt 80!).

FL.: Dec. 1893 (Lunt).

FR.: Dec. 1893 (Lunt).

DISTRIB.: Endemic.

10. *S. longifolia* Forsk. Fl. Aeg.-Arab. (1775) LXIV, n. 159 and p. 55; Boiss. Fl. Or. iv, (1879) 957; Post Fl. Syr. (1896) 690.—*Sevada Schimperii* Moq. in DC. Prodr. xiii, ii, (1849) 154; Boiss. l.c. 986.—*Sueda platyphylla* Ehr. MS.—*Sueda monoica et baccata* Schimp. ex Boiss.

HABITAT: I. Dead Sea and southward (ex Post).

II. Near Jiddah (Schimp., Botta); Jiddah (Zohrab 74!).

III. Dhofar Mts.: Hafa (Bent 4!).

DISTRIB.: N. Africa, Nubia, Arabia.

11. *S. rigida* Pall. Ill. 20, t. 12; Boiss. Fl. Or. iv, (1879) 962, Post Fl. Syr. (1896) 691.

HABITAT: I. W. Zewerah to Beersheba (Hart!); Mt. Hor and Petra (Hart!).

DISTRIB.: Orient.

Vern. name: *Khureit* (Post).

12. *S. tetrandra* Forsk. Fl. Aeg.-Arab. (1775) LXIV, n. 103 and p. 58; Post Fl. Syr. (1896) 690.—*S. tetragona* Del. Fl. d'Eg. 228, t. 21, f. 4; Boiss. Fl. Or. iv, (1879) 957.

HABITAT: I. Ras Abu Zenime (Kneuck.); Et-Tih (Boiss.).

DISTRIB.: N. Africa, Arabia Petraea, Palestine.

13. *S. vermiculata* L. Sp. Pl. (1753) 223; Boiss. Fl. Or. iv, (1879) 962  
VAR. *villosa* Moq. in DC. Prodr. xiii, ii, (1849) 181; Musch. Fl. Eg. (1912) 299.

HABITAT: I. El Arish (ex Musch.).

DISTRIB.: Mediterranean region.

14. *S. verrucosa* M.B. Mem. Soc. Nat. Mosc. i, 141; Boiss. Fl. Or. iv, (1879) 961.

HABITAT: III. Dhofar Mts.: Merbat (Bent 44!).

FR.: June 1895 (Bent).

DISTRIB.: S. E. Russia, Caucasus, Armenia, Persia, Arabia.

### 18. *Noaea* Moq.

1. *N. mucronata* Aschers.-Schweinf. Ill. Fl. d'Eg. 131; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 82.—*Salsola mucronata* Forsk. Fl. Aeg.-Arab. (1775) LXIV, n. 158; CVIII, n. 204 and p. 56.—*N. spinosissima* Moq. in DC. Prodr. xiii, ii, (1849) 209; Boiss. Fl. Or. iv, (1879) 965; Post Fl. Syr. (1896) 691.

HABITAT: I. El Tor (Musch.).

II. Dry plains. Jiddah (Forsk.).

DISTRIB.: Egypt, Arabia, Persia, Turkestan, Afghanistan.

Vern. name: *Shauk-el-Hanash*, *'Athirr*, *Thirr*, *Dirr* (Post), *Sjok lhannasch* (Forsk.).

### 19. *Anabasis* L.

1. *A. articulata* Moq. in DC. Prodr. xiii, ii, (1849) 212; Boiss. Fl. Or. iv, (1879) 970.—*Salsola articulata* Forsk. Fl. Aeg.-Arab. (1775) LXIV, n. 160 and p. 55; Ic. 8, f. A.; Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 244.

HABITAT: I. Desert of Sinai (Bové 206!); Sinai (Holland!); Tor (Ehrenb.); W. Gennah and neighbourhood (Lord!); W. Ghurundel (Hart!); W. Tarfa, near Matai (S.).

DISTRIB.: Mediterranean region.

Vern. name: *Remeħ* (Bové).

NOTE: Eaten by camels (Lord).

2. *A. Ehrenbergii* Schweinf. in Boiss. Fl. Or. iv, (1879) 970; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 161; Blatt. Fl. Aden (1915) 314.

HABITAT: II. El Hami (S. 206); Jiddah (Ehrenb. 124!); Aden (S. 116! Defl., Birdw.).

III. W. Yidnut (Hirsch 61).

FL.: Dec. 1888 (S.).

FR.: Dec. 1888 (S.).

DISTRIB.: Nubia?, Arabia.

NOTE: Schweinfurth's 211 is *aff. Anabasis Ehrenbergii* Sch.

3. *A. setifera* Moq. in DC. Prodr. xiii, ii, (1849) 214; Boiss. Fl. Or. iv, (1879) 970.

HABITAT: I. Sinai Pen.: W. es Shaikh (Hart!); W. Zewerah (Hayne!).

DISTRIB.: Egypt, Arabia Petraea, Palestine, Persia.

Vern. name: *Hamf* (Drake).

## LXXXV. POLYGONACEAE.

### 1. Calligonum L.

1. *C. comosum* L'Herit. in Trans. Linn. Soc. London i, 180; Dene. in Ann. Sc. Nat. ser. 2, ii, (1834) 243; Scheuk Sp. Pl. it. Aeg. Arab. & Syr. (1840) n. 86; Boiss. Fl. Or. iv, (1879) 1000; Post Fl. Syr. (1896) 696; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 80.

HABITAT: I. El Tor (Bové 37!); W. Arabah (S. 102!); Arabia Petraea: W. Mokateb (Boiss!); J. Hammam-Sidna-Musa (Musch.); Sinai (ex Post).

IV. Central Arabia (Pelly 27th and 28th Feb.!).

FL.: Mar. 1846 (Boiss.), Apr. 1877 (S.).

FR.: Mar. 1846 (Boiss.), May and June 1832 (Bové).

DISTRIB.: N. Africa, Egypt, Arabia, Syria, Persia.

Vern. name: *Artas* (Bové), *Rosañ*, *Risu*, *Artá* (Post).

### 2. Pteropyrum Jaub. & Sp.

1. *P. scoparium* Jaub. & Sp. Ill: Pl. Or. t. 109; Boiss. Fl. Or. iv, (1879) 1003.

HABITAT: IV. Masqat (Auch.-Eloy 5270!).

DISTRIB.: Endemic.

### 3. Atraphaxis L.

1. *A. spinosa* L. Sp. Pl. (1762) 475; Dene. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 243. VAR. *sinaica* Boiss. Fl. Or. iv, (1879) 1021; Post Fl. Syr. (1896) 700.

HABITAT: I. Top of Mt. Catherine (Schimp. 450! Bové 36); Sinai (Holland 121! and ex Post); Mt. Horeb, 7,000 ft. (Rüppell); J. Arribe, ca. 1750 m. (Kneuck.); Arabia Petraea (McDonald!).

FL.: May 1835 (Schimp.).

FR.: May 1835 (Schimp.).

DISTRIB.: Egypt, Arabia Petraea, Baluchistan.

Vern. name: *Sorr* (Schimp.).



4. *Oxygonum* Burch.

1. *O. atriplicifolium* Martelli Fl. Bogon. 69. var. *sinuatum* Baker in This.-Dyer Fl. Trop. Afr. vi, i, (1913) 101.—*O. sinuatum* Dammer in Engl. & Prantl Pflanzenf. iii, 1A, 30; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 154.—*Ceratogonum sinuatum* Hochst. et Steud. ex Rich. Fl. Abyss. ii, (1851) 231.

HABITAT: II. Wasil, 1,400 m. (S. 1099!).

DISTRIB.: Africa, Arabia.

Vern. name: *hommuda* (S.).

2. *Oxygonum* sp.

HABITAT: III. Hegwir (Hirsch 176!).

Vern. name: *Did* (Hirsch).

5. *Polygonum* L.

1. *P. alpinum* All. Ped. i, 260, t. 68; Boiss. Fl. Or. iv, (1879) 1031.

HABITAT: I. Sinai (Auch.-Eloy 2570!).

DISTRIB.: From Greece to Afghanistan, Sinai.

2. *P. aviculare* L. Sp. Pl. (1753) 362; Boiss. Fl. Or. iv, (1879) 1036; Post Fl. Syr. (1896) 704; Dur. & Barr. Fl. Libyc. Prodr. (1903) n. 772.

HABITAT: I. Arabia Petraea (ex Dur. & Barr.).

DISTRIB.: Cosmopolitan.

3. *P. Bellardi* All. Ped. ii, 205, t. 90, f. 2; Boiss. Fl. Or. iv, (1879) 1034; Post Fl. Syr. (1896) 703.

HABITAT: I. In the vineyards of Mt. Sinai (Schimp. 388!); Arabia Petraea (ex Post).

FL.: June 1835 (Schimp.).

FR.: June 1835 (Schimp.).

DISTRIB.: S. Europe, Mediterranean region to N. India.

4. *P. equisetiforme* Sibth. & Smith Fl. Graec. i, 266, t. 364; Boiss. Fl. Or. iv, (1879) 1036; Post Fl. Syr. (1896) 704.

HABITAT: I. Arabia Petraea: Beersheba (Hart!); Desert between Suez and Ghazah (Bové 38!).

FL.: June 1832 (Bové).

DISTRIB.: Mediterranean region to Afghanistan.

5. *P. glabrum* Willd. Sp. Pl. ii, 447; Defl. Yemen (1889) 195; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 155; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 113.—*P. Hippopotami* Ehrenb. ex Meisn. in DC. Prodr. xiv, 121.—*P. nudcum* Schweinf. l. c. (*non Pers.*).

HABITAT: II. Between Ibb and Djobla, 1,900 m. (Defl. 6 8); W. Nahemi above Attara, 1,800 m. (S. 1730) Aggara near Hajeilah, 600 m. (S. 1080!).

III. Dhofar Mts. (Bent 161!).

FL. : Feb. 1889 (S.).

FR. : Feb. 1889 (S.).

DISTRIB. : Throughout the tropics.

6. *P. maritimum* L. Sp. Pl. (1753) 361 ; Boiss. Fl. Or. iv, (1879) 1037 ; Post Fl. Syr. (1896) 704 ; Musch. Fl. Eg. (1912) 264.

HABITAT : Arabia Petraea (ex Musch.).

DISTRIB. : Europe, Mediterranean region, America.

7. *P. serrulatum* Lagasca Nov. Gen. et Sp. 14 ; Boiss. Fl. Or. iv, (1879) 1028 ; Deff. Yemen (1889) 195 ; Post Fl. Syr. (1896) 702 ; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 155 ; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 107.—*P. alicifolium* Brouss. ; Willd. Enum. 428.—*I. abyssinicum* Rich. Fl. Abyss. ii, (1851) 225.

HABITAT : II. Regma near Hajeilah, 800 m. (S. 977) ; Wulej at the foot of J. Milhan, 600 m. (S. 775) ; W. Hawayat, near Hajeilah, 760 m. (Deff. 182).

FL. : Jan. 1889 (S.).

FR. : Jan. 1889 (S.).

DISTRIB. : S. Europe, Mediterranean region, Tropical and S. Africa, Arabia, N. India.

## 6. *Rumex* L.

1. *R. acutus* L. Sp. Pl. (1753) 335 ; Forsk. Fl. Aeg.-Arab. (1775) CX, n. 247.

HABITAT : II. Upper mountainous region, Kurma (Forsk.).

DISTRIB. : Europe, Arabia.

Vern. name : *Thebal* (Forsk.).

2. *R. bucephalophorus* L. Sp. Pl. (1753) 336 ; Boiss. Fl. Or. iv, (1879) 1014 ; Post Fl. Syr. (1896) 699 ; Musch. Fl. Eg. (1912) 259.

HABITAT : I. Arabia Petraea (ex Post and ex Musch.).

DISTRIB. : S. Europe, Mediterranean region.

3. *R. dentatus* L. Mant. 226 ; Post Fl. Syr. (1896) 699.

VAR. *pleiodon* Boiss. Fl. Or. iv, (1879) 1013 ; Musch. Fl. Eg. (1912) 260.

HABITAT : I. Arabia Petraea (ex Musch.).

IV. Masqat (Auch.-Eloy 5281 !).

DISTRIB. : Egypt, Palestine, Arabia, Mesopotamia to Afghanistan and Baluchistan.

4. *R. Limoniastrum* Jaub. & Sp. Ill. Pl. Or. t. 106 ; Boiss. Fl. Or. iv, (1879) 1107.

HABITAT : IV. J. Akadar (Auch.-Eloy 5280 !).

DISTRIB. : Endemic.

5. *R. nepalensis* Spreng. Syst. ii, 159 ; Defl. Yemen (1889) 195 ; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 117.—*R. Steudelii* Hochst. in Rich. Fl. Abyss. ii, (1851) 229 ; Defl. l. c. 196 ; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 154.

HABITAT : II. Near Kahil, not far from Manakhah, 2,500 m. (S. 1409 i 1519) ; near Raudha, 2,300 m. (Defl. 521) ; J. Schibam, 2,500 m. (Defl. 341).

FL. : Feb. 1889 (S.).

FR. : Feb. 1889 (S.).

DISTRIB. : Tropical Africa and Asia.

Vern. name : *lissan-el-tor* (S.).

6. *R. nervosus* Vahl Symb. Bot. i, (1790) 27 ; Jaub. & Sp. III. Pl. Or. t. 452 ; Defl. Yemen (1889) 195 ; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 153 ; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 116.—*R. persicarioides* Forsk. Fl. Aeg.-Arab. (1775) CX, n. 246 and p. 76 (*non L.*).

HABITAT : II. Wasil, 1,300 m. (S. 1083) ; middle mountainous region, Hadiyah (Forsk.) ; J. Bura, 1,300 m. (S. 267 ! ) ; Gardens of El Gebil (Defl. 276 ! ) ; Okeber, J. Milhan, 900 m. (S. 843) ; J. Schibam near Manakhah, 2,300-2,900 m. (S. 1820) ; W. Mazeb, near Manakhah, 2,200-2,300 m. (Defl. 338) ; Yaman (Botta).

FL. : Jan. 1889 (S.).

FR. : Jan. 1889 (S.).

DISTRIB. : Tropical Africa, Arabia.

Vern. name : '*Othrob* (S.), *Öthrob* (Forsk.).

7. *R. pictus* Forsk. Fl. Aeg.-Arab. (1775) LXV, n. 215 and p. 77.—*R. lacerus* Balb. Miscell. 19 ; Boiss. Fl. Or. iv, (1879) 1017 ; Post Fl. Syr. (1896) 699.

HABITAT : I. Arabia Petraea (Boiss. ! ).

IV. Central Arabia (Pelly 24th Feb. ! ).

FL. : Mar. 1846 (Boiss.).

FR. : Mar. 1846 (Boiss.).

DISTRIB. : Egypt, Arabia, Syria.

Vern. name : *memsis* (Forsk.).

NOTE : Eaten by the natives (Pelly).

8. *R. pulcher* L. Sp. Pl. (1753) 336 ; Boiss. Fl. Or. iv, (1879) 1012 ; Post Fl. Syr. (1896) 698.

HABITAT : I. Arabia Petraea (ex Post).

DISTRIB. : Europe, Mediterranean region.

9. *R. simpliciflorus* Murbeck Contr. Fl. Nord-Ouest Afr. iii, 11, t. 11, ff. 8-10 ; Dur. & Barr. Fl. Libyc. Prodr. (1903) 321.—*R. vesicarius* var. *singuliflorus* Meisn. ap. DC. Prodr. xiv, 71.

VAR. *typicus* Murbeck Die Vesicarius Gruppe d. Gatt. Rumex in Lunds Univers. Arsskr. N. E. Afd. 2, II, n. 14, p. 16, t. 1, ff. 7-9.

HABITAT: I. Arabia Petraea (ex Dur. & Barr.).

DISTRIB.: N. Africa, Arabia Petraea.

10 *R. vesicarius* L. Sp. Pl. (1753) 336; Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 243; Schenk Sp. Pl. it. Aeg. Arab. & Syr. (1840) n. 83; Boiss. Fl. Or. iv, (1879) 1017; Post Fl. Syr. (1896) 700; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 154.

HABITAT: I. Cultivated places of Sinai (Bové); W. Nasb (Drake 42!); W. es Sle (Kneuck.).

II. Manakhah, 2,300 m. (S. 1560).

IV. Masqat (Auch.-Eloy 5282!).

FR.: Feb. 1889 (S.).

DISTRIB.: Mediterranean region, Nubia, Somaliland, Arabia.

Vern. name: *Hammar* (Drake).

VAR. *roseus* Schweinf.-Muschl. in Musch. Fl. Eg. (1912) 261.—*R. roseus* L. Sp. Pl. (1753) 337; Del. Frag. Fl. Arab. Petr. (1833) n. 9; Boiss. Fl. Or. iv, (1879) 1018; Post Fl. Syr. (1896) 700.

HABITAT: I. W. Gennah and neighbourhood (Lord!); Arabia Petraea (McDonald! DeLaborde, Boiss., ex Musch.); Desert near Tor (Bové 40!); Central Midian (Burton!); Sinai (ex Post); W. Hebran (Schimp. 179).

FL.: May 1868 (Lord), June 1832 (Bové).

FR.: May 1868 (Lord), June 1832 (Bové).

DISTRIB.: Mediterranean region to Afghanistan and Baluchistan.

NOTE: Animals eat (Burton).

## 7. *Emex* Neck.

1. *E. spinosus* Campd. Monogr. Rum. 58, t. 1, f. 1; Boiss. Fl. Or. iv, (1879) 1005 Schweinf. in Bull. Herb. Boiss. (1896) App. II, 153; Post Fl. Syr. (1896) 697; Musch. Fl. Eg. (1912) 257.—*Rumex glaber* Forsk. Fl. Aeg.-Arab. (1775) p. 75.

HABITAT: I. Arabia Petraea (ex Musch.); near Ghazah (Boiss.).

II. Jiddah (Zohrab 79!); Manakhah, 2,200 m. (S. 1605).

FR.: Feb. 1889 (S.).

DISTRIB.: Mediterranean region, S. Africa, Australia.

Vern. name: *Fijl-el-Jebel*, *Hanzab*, *Shajaret-el-'Ajáz*, *Raqbet-el-'Ajáz*, *Dirs-el-'Ajáz*, *Kulleih*, *Hummeir*, *Hummeid*, *Tablalast* (Post), *Sagarat el Aguz* (Forsk.).

## LXXXVI. ARISTOLOCHIACEAE.

### 1. *Aristolochia* L.

1. *A. bracteata* Retz. Obs. v. 29; Defl. Yemen (1889) 196; Baker in Kew Bull. (1894) 340; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 153; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 136; Blatt. Fl. Aden (1915) 316.—*A. sempervirens* Forsk. Fl. Aeg.-Arab. (1775) CXX, n. 522 and p. 156.

HABITAT: II. Wulej, foot of J. Milhan, 600 m. (S. 809); Marrana near Hodeidah (S. 179); cultivated in Yaman (Bové 239!); near Mor (Ehrenb.!).

damp plains near hills, Mor (Forsk.); valleys between Hes and Taz (Defl. 704); neighbourhood of Lahaj: all the lower regions of Yaman (Defl. 129!); Aden (Birdw. 148!).

III. Dhofar Mts.: Hafa (Bent 37!); near Hajrain, 2,600 ft. (Lunt 143!).

FL.: Jan. 1894 (Lunt), Mar. 1823 (Ehrenb.).

FR.: Jan. 1894 (Lunt), Mar. 1823 (Ehrenb.), Mar. 1831 (Bové), Dec. 1889 (Defl.).

DISTRIB.: Extends from India to Abyssinia.

Vern. name: *Ghaghæ* (Forsk.).

Note: For medical uses see Forsk.

2. *A. Maurorum* L. Sp. Pl. (1762) 1303. var. *latifolia* Boiss. Fl. Or. iv, (1879) 1080; Post Fl. Syr. (1896) 707.—*A. Bottæ* Jaub. & Sp. Ill. Pl. Or. t. 98.

HABITAT: II. Shuqra (S. 88!).

FL.: Mar. 1881 (S.).

FR.: Mar. 1881 (S.).

DISTRIB.: Asia Minor, Mesopotamia, Persia, Arabia.

3. *A. rigida* Duch. in DC. Prodr. xv, i, 495; Baker in Kew Bull. (1894) 341; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 139.

HABITAT: III. Gambla, 500 ft. (Lunt 228!).

FL.: Feb. 1894 (Lunt).

DISTRIB.: Tropical Africa, Arabia.

4. *Aristolochia* sp.—*A. dubia* Forsk. Fl. Aeg.-Arab. (1775) CXX, n. 523.

HABITAT: II. Yaman.

Vern. name: *Eklit* (Forsk.).

## LXXXVII. LAURACEAE.

### 1. *Cassytha* L.

1. *C. filiformis* L. Sp. Pl. (1753) 35; Defl. Yemen (1889) 196; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 181; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 188.—*Volutella aphylla* Forsk. Fl. Aeg.-Arab. (1775) CXI, n. 263 and p. 84.

HABITAT: II. Near Wasil, 1,200 m. (S. 1267); Hille, J. Bura (S. 253!); near Wulej at the foot of J. Milhan, 600 m. (S. 1908); Mor (Ehrenb.!); damp plains near hills, Mor, Hadiyah (Forsk.); near Hajeilah, 600-700 m. (Defl. 186 bis).

FL.: Dec. 1888 (S.).

FR.: Dec. 1888 (S.).

DISTRIB.: Tropical Africa, Arabia.

Vern. name: *Schubbota*, *toschom*, *Aschughah* (S.), *Hadeg Modeg*, *djaha* (Forsk.).

## LXXXVIII. PIPERACEAE.

1. *Peperomia* Ruiz & Pav.

1. *P. arabica* DCNE. ex Moq. Syst. Pip. 121; Balfour Socotra 259.

HABITAT: II. Tropical Arabia (ex Balfour).

DISTRIB.: Tropical and S. Africa, Madagascar, Arabia, Socotra.

## LXXXIX. THYMELAEACEAE.

1. *Daphne* L.

1. *D. linearifolia* Hart: Post Fl. Syr. (1896) 709.

HABITAT: I. Petra (ex Post).

DISTRIB.: Endemic.

2. *Thymelaea* Endl.

1. *T. hirsuta* Endl.; Boiss. Fl. Or. iv, (1879) 1054; Post Fl. Syr. (1896) 709.—*Passerina hirsuta* L. Sp. Pl. (1753) 559.

HABITAT: I. Arabia Petraea (McDonald! Boiss.); Beersheba (Lowne!).

DISTRIB.: Mediterranean region.

Vern. name: *Metnan* (Post).

3. *Arthrosolen* C. A. Mey.

1. *A. sphaerocephalus* Baker in Kew Bull. (1894) 341.

HABITAT: III. Hills at Chail-ba-Wazir, 3,000 ft. and Nehar, 2,900 ft. (Lunt); Hadramaut (Hirsch 30).

DISTRIB.: Endemic.

4. *Lasiosiphon* Fres.

1. *L. somalensis* H. H. W. Pearson in This.-Dyer Fl. Trop. Afr. vi, i, (1913) 229.—*Arthrosolen somalense* Franch. Sertul. Somal. 62, n. 123, t. V; Defl. Yemen (1889) 196.

HABITAT: II. Foot of J. Nuqum, near Sanah, 300 m. (Defl. 452).

DISTRIB.: Somaliland, Arabia.

## XC. ELAEAGNACEAE.

1. *Elaeagnus* L.

1. *E. hortensis* M. Bieb. Fl. Taur. Cauc. ii, 112; Post Fl. Syr. (1896) 711.

VAR. *orientalis* Schlechtd. ex Aschers.-Schweinf. Ill. Fl. d'Eg. 136, n. 953; Musch. Fl. Eg. (1912) 666.

HABITAT: I. Arabia Petraea (ex Musch.).

DISTRIB.: Of Species: Mediterranean region, Orient, China.

## XCI. LORANTHACEAE.

1. *Loranthus* L.

1. *L. Acaciae* Zucc. Abh. Munch. Akad. iii, 249, t. 2, f. 3; Boiss. Fl. Or. iv, (1879) 1070; Post Fl. Syr. (1896) 711; This.-Dyer Fl. Trop. Afr. vi, i,

(1913) 280.—*L. gibbosulus* Rich. Fl. Abyss. i, (1847) 342.—*L. lactus* R. Br. in Salt Abyss. App. 64.

HABITAT: I. El Araba (ex Post).

III. Hadramaut: High plateau (Hirsch 41).

DISTRIB.: Nile Land, Arabia, Palestine.

Note: On *Rhamnis*, *Zizyphus*, *Acacia*.

2. *L. arabicus* Defl. Yemen (1889) 197.

HABITAT: II. Valleys between el-Mekhader and Ibb. 1,600 m. (Defl. 658).

DISTRIB.: Endemic.

3. *L. curviflorus* Benth. ex Oliv. in Hook. Ic. Pl. t. 1304; Baker in Kew Bull. (1894) 341; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 150; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 279; Blatt. Fl. Aden (1915) 318.—*Plicosepalus curviflorus* Van Tiegh. in Bull. Soc. Bot. France xli, 504, 540.

HABITAT: II. Near Sejid Suleman, Tehama, on *Acacia* and *Zizyphus* (S. 1876!); between Behah and Hajeilah on *Acacia glaucophylla* (S. 918); Shaikh Othman on *Acacia spirocarpa* (S. 119! Defl., Yerbury).

III. Sibeh, 600 ft. (Lunt 79!).

FL.: Dec. 1888 and Jan. 1889 (S.), Dec. 1893 (Lunt).

DISTRIB.: Tropical Africa, Arabia.

4. *L. Doberae* Schweinf. in Bull. Herb. Boiss. (1896) App. II, 151.

HABITAT: II. Tehama: Chalife, 300 m. (S. 216); near Hajeilah, 600 m. (S. 940).

DISTRIB.: Endemic.

Note: On *Dobera glabra* and *Tamarix articulata*.

5. *L. Fauroti* Franch. in Journ. Bot. i, 135; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 279.

HABITAT: II. Island of Kamaran (Faurot).

DISTRIB.: Somaliland, Arabia.

6. *L. globiferus* A. Rich. Fl. Abyss. i, (1847) 341. VAR. *verrucosus* Sprague in This.-Dyer Fl. Trop. Afr. vi, i, (1913) 353.—*L. verrucosus* Engl. in Engl. Bot. Jahrb. xx, 120.—*L. globiferus* Schweinf. in Bull. Herb. Boiss. (1896) App. II, 149.

HABITAT: II. Manakhah, 2,200 m. (S. 1772); Wulej, J. Milhan (S. 607).

FL.: Jan. 1889 (S.).

FR.: Mar. 1889 (S.).

DISTRIB.: N. Nigeria, Eritrea, Arabia.

NOTE: On *Acacia glaucophylla*, *Commiphora*, *Zizyphus Spina Christi* (S.).

7. *L. regularis* Steud. ex Rich. Fl. Abyss. i, (1847) 339; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 148; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 287.—*L. refescens* A. Rich. Fl. Abyss. i, (1847) 339 (non DC.).—*Septimetula regularis* Van Tiegh. in Bull. Soc. Bot. France, xlii, 266.

HABITAT : II. Manakhah, 2,200 m. (S. 1706).

DISTRIB. : Abyssinia, Arabia.

Vern. name : *Haddal* (S.).

NOTE : On *Acacia abyssinica* (S.).

8. *L. rufescens* DC. Prodr. iv, 303 ; Defl. Yemen (1889) 196 ; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 291.—*Septimetula rufescens* Van Teigh. in Bull. Soc. Bot. France, xlii, 266.

HABITAT : II. Mt. Masar near el-Hodjeir, 2,300-2,400 m. (Defl. 424) ; between Mefhak and Manakhah, 1,800 m. (Defl.).

DISTRIB. : Senegambia, Arabia.

NOTE : On *Acacia* (Defl.).

9. *L. Schimperii* Hochst. ex Rich. Fl. Abyss. i, (1847) 341 ; Defl. Yemen (1889) 197 ; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 149 ; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 337.—*L. calycinus* R. Br. in Salt. Abyss. App. 64.

HABITAT : II. Near Hajeilah, 600 m. (S.) ; near Hajeilah, 500-600 m. (Defl. 152) ; near Raudha and Tayfa, 2,300 m. (Defl. 529).

DISTRIB. : Eritrea, Abyssinia, Arabia.

Vern. name : *oddar* (S.).

NOTE : On *Acacia*, *Citrus cedrae*, *Tamarix articulata* ?

## XIII. SANTALACEAE.

### 1. *Thesium* L.

1. *T. humile* Vahl Symb. Bot. iii, (1794) 43 ; Boiss. Fl. Or. iv, (1879) 1064 ; Post Fl. Syr. (1896) 713 ; Musch. Fl. Eg. (1912) 255.

HABITAT : I. Arabia Petraea (ex Post ; ex Musch.).

DISTRIB. : Mediterranean region.

Vern. name : *Habb-el-Hureish* (Post).

NOTE : Specimens in Mr. Hill's office, not seen.

2. *T. radicans* Hochst. ex Rich. Fl. Abyss. ii, (1851) 235 ; Defl. Yemen (1889) 198 ; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 415.

HABITAT : II. Near Metne, 2,800 m. (Defl. 576).

DISTRIB. : Eritrea, Abyssinia, Arabia.

### 2. *Osyris* L.

1. *O. abyssinica* Hochst. in Flora (1841) I. Intell. 22 ; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 152 ; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 433.—*Fusanus alternifolia* R. Br. in Salt. Abyss. App. 63.

HABITAT : II. J. Bura, above Hille, 900 m. (S. 429) ; near Wulej and J. Milhan, 700 m. (S. 725) ; Wasil, 1,400 m. (S. 1105).

Fl. : Jan.-Feb. 1889 (S.).

Fr. : Jan.-Feb. 1889 (S.).

DISTRIB. : Tropical and S. Africa, Arabia.



## XCIII. BALANOPHORACEAE.

1. *Cynomorium* L.

1. *C. coccineum* L. Sp. Pl. (1762) 1875; Boiss. Fl. Or. iv, (1879) 1072; Post Fl. Syr. (1896) 715.

HABITAT: Arabia Petraea (ex Boiss.).

DISTRIB.: Mediterranean region, Songaria.

Vern. name: *Mosrār*, *Zibb-el-ard* (Post).

## XCIV. EUPHORBIACEAE.

1. *Euphorbia* L.

1. *E. abortiva* Forsk. Fl. Aeg.-Arab. (1775) CXII, n. 316.

HABITAT: II. Beit el Fakih (Forsk.).

DISTRIB.: Endemic?

2. *E. acalyphoides* Hochst. ex Boiss. in DC. Prodr. xv, ii, 98 and 1c. Euphorb. 17, t. 49; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 517.

HABITAT: II. Arabia (Ehrenb.!).

FL.: Mar. (Ehrenb.).

FR.: Mar. (Ehrenb.).

DISTRIB.: Angola, Nile Land, Arabia.

3. *E. aculeata* Forsk. Fl. Aeg.-Arab. (1775) CXII, n. 317 and p. 94.

HABITAT: II. Middle mountainous region, Taz (Forsk.).

DISTRIB.: Endemic.

Vern. name: *Kertb*, *Keratb Sab* (Forsk.).

4. *E. adenensis* Defl. in Bull. Soc. Bot. France. xxxiv, (1887) 67; Schweinf. in Bull. Herb. Boiss. (1899) App. II, 329; Blatt. Fl. Aden (1915) 327.

HABITAT: II. Aden (Birdw. 104! S. 132! Defl.).

III. Dhofar Mts. (Bent 197!); High plateau (Hirsch 5).

FL.: Dec. 1888 (S.).

FR.: Dec. 1888 (S.).

DISTRIB.: Endemic.

5. *E. aegyptiaca* Boiss. Cent. Euphorb. (1866) 13; Fl. Or. iv, (1879) 1088; Kotschy in Sitzb. Kais. Akad. Wiss. lii, (1866) 13; Post Fl. Syr. (1896) 718; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 507; Musch. Verb. Bot. Ver. Prov. Brandenb. xlix, (1907) 107.—*E. Forskolinii* Gay in Webb. & Berth. Phyt. Canar. iii, iii, 240 (partim).—*Anisophyllum Forskolinii* Klotzsch & Garcke in Abh. Akad. Berlin (1860) 25.

HABITAT: II. Jiddah (Zohrab 244! Fischer 173B!); Hijaz (ex Kotschy).

DISTRIB.: Tropical Africa, Egypt, Arabia, Syria, India.

Vern. name: *Libbein*, *Rijlet-Iblis* (Post).

6. **E. Ammak** Schweinf. in Bull. Herb. Boiss. (1899) 319.—*E. officinarum* VAR. *arborea* Forsk. Fl. Aeg.-Arab. (1775) CXII, n. 304; Defl. Yemen (1889) 200.—*Euphorbia* sp. Defl. l. c.

HABITAT: II. Near Attara, 1,800 m. (Defl.); middle mountainous region, Barah (Forsk.); J. Bura, 1,000 m. (S. 1877!); Manakhah, 2,200-2,400 m. (S. 1494!); W. Mazeh, near Manakhah, 2,200 m. (Defl.); between el-Mekhader and Ibb, 1,600 m. (Defl.); valleys between Mefhak and Suq el-Khamiss, 1,800 m. (Defl.).

FL.: Jan.-Feb. 1889 (S.).

FR.: Jan.-Feb. 1889 (S.).

DISTRIB.: Endemic.

Vern. name: *Ammakabiad*, *Ammak ferssi* (S.), *Amk* (Forsk.).

7. **E. arabica** Hochst. & Steud. ex Boiss. in DC. Prodr. xv, ii, 33; Schweinf. in Bull. Herb. Boiss. (1899) App. II, 313; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 513; Blatt. Fl. Aden (1915) 322.

HABITAT: II. W. Djara (Ehrenb.); Mt. Sidr and Kesser (Fischer 187!); Ferihe (Schimp. 756!); Bajil (S. 589); Aden (Lunt 316! S. 14! 24! Hook. 97! Perry! Beevor! Thomson! Busse, Defl., Marchesetti, Hildebr., Wichura).

III. Dhofar Mts. (Bent 99!).

FL.: Jan. 1889 (S.), Feb. (Fischer), Nov. 1838 (S.), Dec. 1847 (Hook.).

FR.: Jan. 1889 (S.), Nov. 1888 (S.).

DISTRIB.: Nubia, Eritrea, Abyssinia, Somaliland, Arabia.

VAR. **trevifolia** Boiss. l. c.; Schweinf. l. c.

HABITAT: Aden (S. 14).

FL.: Nov. 1888 (S.).

FR.: Nov. 1888 (S.).

VAR. **intricata** Schweinf. l. c. 314.

HABITAT: II. S. Coast: W. Schigu (S. 155).

FR.: Mar. 1881 (S.).

DISTRIB.: Endemic.

8. **E. arguta** Soland. in Russell Nat. Hist. Aleppo ed. 2, ii, 253; Boiss. Fl. Or. iv, (1879) 1097; Post Fl. Syr. (1896) 719; Musch. Fl. Eg. (1912) 603; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 537.

HABITAT: I. Arabia Petraea (ex Musch.; ex Post).

DISTRIB.: E. Mediterranean region, Nubia.

9. **E. Bottae** Boiss. in DC. Prodr. xv, ii, 93; Defl. Yemen (1889) 199; Blatt. Fl. Aden (1915) 324.

HABITAT: II. J. Nuqum, near Sanah, 2,400-2,600 m. (Defl. 476, 566); Mt. Omeibe near Meharras, 2,200 m. (Defl. 672); Mt. Sabor, near Taz, 1,300-1,400 m. (Defl. 691); J. Ras, between Hes and Udein and W. Sina, foot of Mt. Sabor, near Djennat (Botta); Aden (Defl.).

DISTRIB.: Endemic.

10. *E. Cactus* Ehrenb. ex Boiss. in DC. Prodr. xv, ii, 82; Schweinf. in Bull. Herb. Boiss. (1899) App. II, 321.—*E. antiquorum* var. *major articulata* Forsk. Fl. Aeg.-Arab. (1775) 93.

HABITAT: II. W. Kamme (Ehrenb.); Wasil, 1400 m. (S. 1939!); Tehama: el Americh (S. 480!); coffee region above Hille and J. Bura, 1,000 m. (S. 1878).

FL.: Jan.-Feb. 1889 (S.).

FR.: Jan.-Feb. 1889 (S.).

DISTRIB.: Endemic (cf. Brown in This.-Dyer Fl. Trop. Afr. vi, i, (1913) 601).

Vern. name: *Gholak*, *Kaelak* (Forsk.), *ammak* (S.), *Kellach* in Tehama (S.).

11. *E. canariensis* Forsk. Fl. Aeg.-Arab. (1775) CXII, n. 307; Defl. Yemen (1889) 201.—? *E. polyacantha* Boiss. Cent. Euphorb. 25.

HABITAT: II. Middle mountainous region, Djobla, Tæz (Forsk.); valleys round Ydiz and Mefhak, 1,600-1,800 m., foot of Mt. Sabor, near Tæz, 1,300 m. (Defl.).

DISTRIB.: Endemic.

Vern. name: *Kassas* (Forsk.)

12. *E. chamaepeplus* Boiss. & Gaill. Diagn. Pl. Or. ser. 2, iv, 88. var. *sinaica* Boiss. Fl. Or. iv, (1879) 1113; Post Fl. Syr. (1896) 723.—*E. sinaica* Hochst. ex Boiss. l. c.

HABITAT: I. St. Catherine (Schimp. 234!); Sinai (ex Post); Plain of Raha (Kneuck.).

FL.: Apr. 1835 (Schimp.).

FR.: Apr. 1835 (Schimp.).

DISTRIB.: Egypt, Arabia Petraea, Palestine.

13. *E. chamaesyce* L. Amoen. Acad. 115; Kotschy in Sitzb. Kais. Akad. Wiss. lii, (1866) 13; Boiss. Fl. Or. iv, (1879) 1058; Post Fl. Syr. (1896) 718; Musch. Fl. Eg. (1912) 601.

HABITAT: I. Arabia Petraea (ex Musch.).

II. Hijaz (ex Kotschy).

DISTRIB.: Mediterranean region to Persia.

14. *E. cornuta* Pers. Syn. ii, 17; Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 241; Boiss. Fl. Or. iv, (1879) 1093; Post Fl. Syr. (1896) 719.—*E. retusa* Forsk. Fl. Aeg.-Arab. (1775) LXVII, n. 257 and p. 93.

HABITAT: I. Plain of Raha, W. es Shaikh, Oasis Feiran, foot of Serbal (Kneuck.); Sinai (Auch.-Eloy 2032! Holland!); Sinai: near Senned (Drake 80!); Desert of Sinai (Bové 199!); Et-Tih and Sinai (ex Post); Arabia Petraea (McDonald! Boiss.! Schimp. 337); W. Gennah and neighbourhood (Lord!); W. Nasb (Lord!); N. Midian (Burton!).

FL.: Mar. 1846 (Boiss.), Mar. 1868 (Lord), June 1832 (Bové).

FR.: Mar. 1846 (Boiss.), Mar. 1868 (Lord), June 1832 (Bové).

DISTRIB.: N. Africa. Arabia Petraea.

Vern. name: *Melbein*, *Libbein*, *Nu'maniyeh*, *As'ad*, *Libbanek* (Post), *Melbaejn*, *Noomante* (Forsk.), *Om-el-béné* (Bové), *Libeina* (Drake), *Atir* (Burton).

15. *E. cuneata* Vahl Symb. Bot. ii, (1791) 53; Jaub. & Sp. Ill. Pl. Or. t. 463; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 545; Blatt. Fl. Aden (1915) 325.—*E. fruticosa* Edgew. in Journ. As. Soc. Beng. xvi, 1219.

HABITAT: II. Mt. Djara, Ketumbal (Ehrenb.); Aden (Madden! Ol. & Cl.! Defl. 95! Hook. 102! Balfour! S., Busse, Edgew., Anders., Hildebr., Birdw., Kuntze); Yaman (ex Vahl).

DISTRIB.: Tropical Africa, Arabia.

NOTE: Hirsch's specimen n. 162 collected in Hadramaut is nearly allied to the above species.

VAR. *Perrottetii* Schweinf. in Bull. Herb. Boiss. (1899) App. II, 317.—*E. Perrottetii* Jaub. & Sp. Ill. Pl. Or. t. 464.

HABITAT: II. Aden (S. 50! Perrottet).

FL.: Nov. 1888 (S.).

FR.: Nov. 1888 (S.).

DISTRIB.: Endemic.

16. *E. dracunculoides* Lam. Encycl. ii, 428; Boiss. Fl. Or. iv, (1879) 1110; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 515.—*E. glauca* Ehrenb. ex Boiss. l. c.

HABITAT: II. Yaman: near Bahara (Schimp. 894!).

IV. Masqat (Auch.-Eloy 5305!).

FL.: Feb. 1836 (Schimp.).

FR.: Feb. 1836 (Schimp.).

DISTRIB.: Tropical Africa, Arabia, India, Mauritius.

17. *E. fodbliana* Defl. in Bull. Soc. Bot. France, xliii, (1896) 230.

HABITAT: II. N. of J. el Nakhai, 700-800 m. (Defl. 494).

DISTRIB.: Endemic.

18. *E. fruticosa* Forsk. Fl. Aeg.-Arab. (1775) CXII, n. 306 and p. 94; Schweinf. in Bull. Herb. Boiss. (1899) App. II, 327.

HABITAT: II. Attara (S. 1361!); middle mountainous region, Chadra (Forsk.).

FL.: Feb. 1889 (S.).

FR.: Feb. 1889 (S.).

DISTRIB.: Endemic.

Vern. name: *Schóruur* (Forsk.).

19. *E. granulata* Forsk. Fl. Aeg.-Arab. (1775) CXII, n. 312 and p. 94; Defl. Yemen (1889) 198; Post Fl. Syr. (1896) 718; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 502; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 107; Blatt. Fl. Aden (1915) 323.—*E. Forskalii* Gay in Webb & Berth. Phyt. Canar. iii, iii, 240 (partim).—*E. fragilis* DCne. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 241.—*Anisophyllum Forskalei* Klotzsch & Garcke in Abh. Akad. Berlin (1859) 25 (partim).

HABITAT: I. W. Akaba (ex Post); deserts in the neighbourhood of El Tor (Bové).

II. Damp and dry plains near hills, Lohaja and Mor (Forsk.); near Hodeidah (Defl. 27); Aden (Lunt 353!); Little Aden (Defl.).

FL.: Apr. 1894 (Lunt).

FR.: Apr. 1894 (Lunt).

DISTRIB.: Tropical Africa, N. Africa, Arabia, Syria, India.

Vern. name: *Lebbaejde*, *Lebbejn*, *Melaebene* (Forsk.), *Libbein* (Post).

VAR. *glabrata* Muell.-Arg. in DC. Prodr. xv, ii, 34; Schweinf. in Bull. Herb. Boiss. (1899) App. II, 314.

HABITAT: II. Tehama: Bajil (S. 559); Jiddah (Schimp. 754! Fischer 173!); near Gumfuda (Ehrenb.); Aggara near Hajeilah, 400 m. (S. 1064).

IV. Masqat (Auch.-Eloy 5304!).

FL.: Jan. and Feb. 1889 (S.), Feb. (Ehrenb.).

FR.: Jan. and Feb. 1889 (S.), Feb. (Ehrenb.), Dec. 1836 (Schimp.).

DISTRIB.: Tropical Africa, Arabia.

20. *E. hadramautica* Baker in Kew Bull. (1894) 341.

HABITAT: III. Hadramaut: Bir-Backban, 3,500 ft. (Lunt).

DISTRIB.: Endemic.

21. *E. helioscopia* L. Sp. Pl. (1862) 658; Boiss. Fl. Or. iv, (1879) 1107; Defl. Yemen (1889) 198; Post Fl. Syr. (1896) 721; Schweinf. in Bull. Herb. Boiss. (1899) App. II, 330.

HABITAT: I. Arabia Petraea (ex Post, Schimp.).

II. Manakhah, 2,400 m. (S. 466! 1619); Mefhak and Sanah (Defl. 572).

FL.: Mar. 1889 (S.).

FR.: Mar. 1889 (S.).

DISTRIB.: Europe, N. and S. Africa, E. Mediterranean region, America.

Vern. name: *Ssaade* (S.), *rumude*.

22. *E. hypericifolia* L. Sp. Pl. (1753) 454; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 498; Blatt. Fl. Aden (1915) 321.—*E. indica* Lam. Encycl. ii, 423; Boiss. Fl. Or. iv, (1879) 1086; Defl. Yemen (1889) 198; Schweinf. in Bull. Herb. Boiss. (1899) App. II, 313; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 107.—*E. decumbens* Forsk. Fl. Aeg.-Arab. (1775) CXII, n. 313.

HABITAT: II. Suddud (Forsk.); W. Fatimah near Unsart (Schimp. 757!); W. Fatimah (Fischer 183!); Wulej, J. Milhan, 500 m. (S. 628!); Wasil, 1,400 m. (S. 1079); J. Bura above Hille, 900 m. (S. 471); Aggara near Hajeilah, 400 m. (S. 903); near Lahadj, cultivated (Defl.); near Hajeilah, 600 m. (Defl. 161); Aden (Hook., Anders., Marchesetti?); Yaman (Botta).

III. Dhofar Mts. (Bent 53!).

IV. Masqat (Auch.-Eloy 5301! Bent 2!).

FL.: Jan. 1889 (S.), Feb. (Fischer), Feb. 1836 (Schimp.).

FR.: Jan. 1889 (S.), Feb. (Fischer), Feb. 1836 (Schimp.).

DISTRIB.: Throughout all warm regions.

Vern. name: *Melaehene* (Forsk.).

**23. *E. inarticulata*** Schweinf. in Bull. Herb. Boiss. (1899) App. II, 324.—  
*E. antiquorum* VAR. *minor inarticulata* Forsk. Fl. Aeg.-Arab. (1775) p. 94.

HABITAT: II. Aggara near Hajeilah, 400 m. (S. 1001); Wulej, J. Milhan, 600 m. (S. 711); Wasil, 1,400 m. (S. 859!); Chalife, J. Bura (S.).

FL.: Jan. and Feb. 1889 (S.).

FR.: Jan. and Feb. 1889 (S.).

DISTRIB.: Endemic.

Vern. name: *ssujeb* (S.), *chorraesch* (Forsk.).

**24. *E. longetuberculosa*** Hochst. ex Boiss. in DC. Prodr. xv, ii, 85; This.-  
Dyer Fl. Trop. Afr. vi, i, (1913) 558.

HABITAT: II. W. Adab (Defl. 466!).

FL.: Mar. 1890 (Defl.).

FR.: Mar. 1890 (Defl.).

DISTRIB.: Abyssinia, Somaliland, Arabia.

**25. *E. mauritanica*** Lam. Encycl. ii, 468; Musch. Fl. Eg. (1912) 602.—  
*E. Tirucalli* VAR. *simplex* Forsk. Fl. Aeg.-Arab. (1775) CXII, n. 308.

HABITAT: I. Arabia Petraea (ex Musch.).

II. Djobla (Forsk.).

DISTRIB.: S. Africa, Arabia.

Vern. name: *dahan* (Forsk.).

**26. *E. oblongicaulis*** Baker in Kew Bull. (1895) 185.

HABITAT: III. Dhofar Coast: Rigout (Bent 61); High plateau (Hirsch 7).

DISTRIB.: Endemic.

Vern. name: *Zubb-ed-Dib* (Hirsch).

**27. *E. obovata*** Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 241;  
Boiss. Fl. Or. iv, (1879) 1117; Post Fl. Syr. (1896) 723.

HABITAT: I. Desert of Sinai (Bové 200!); Mt. Sinai (Schimp. 324!  
Lord! Ehrenb.); Sinai (ex Post); W. es Sle (Ehrenb.); Om Shomer (Drake  
37!); between W. Rahabe and W. Rutig (Kuenck.).

FL.: May 1835 (Schimp.), May 1868 (Lord), June 1832 (Bové), Sept. (Ehrenb.).

FR.: May 1835 (Schimp.), May 1868 (Lord), June 1832 (Bové), Sept. (Ehrenb.).

DISTRIB.: Endemic.

Vern. name: *El béné* (Bové), *Libeina* (Drake).

**28. *E. officinalis*** Forsk. Fl. Aeg.-Arab. (1775) p. 94; Defl. Yemen (1889)  
200.—? *E. fruticosa* Forsk. l. c. CXII, n. 306 and p. 94.

HABITAT: II. Saadah and Kaukaban, 2,600 m. (Defl. 618); Chadra, Djobla (Forsk.).

DISTRIB.: Endemic.

Vern. name: *Schorur* (Forsk.).

29. *E. Psoralis* L. Sp. Pl. (1762) 657; Boiss. Fl. Or. iv, (1879) 1130; Post Fl. Syr (1896) 724; Musch. Fl. Eg. (1912) 607.

HABITAT : I. Arabia Petraea (ex Musch.).

DISTRIB. : Europe, Mediterranean region.

30. *E. parciramulosa* Schweinf. in Bull. Herb. Boiss. (1899) App. II, 326.

HABITAT : Manakhah, near Hagjera, 2,000 m. (S. 1712!).

FL. : Feb. 1889 (S.).

FR. : Feb. 1889 (S.).

DISTRIB. : Endemic.

31. *E. parvula* Del. Fl. d'Eg. 290, t. 30, f. 4; Boiss. Fl. Or. iv, (1879) 1109; Post Fl. Syr. (1896) 722.

HABITAT : I. Palestine to Egypt (ex Post).

DISTRIB. : N. Africa, Arabia Petraea, Palestine.

32. *E. Peplis* L. Amoen. Acad. 113; Boiss. Fl. Or. iv, (1879) 1086; Musch. Fl. Eg. (1912) 599.

HABITAT : I. Arabia Petraea (ex Musch.).

DISTRIB. : Europe, Mediterranean region.

33. *E. peploides* Gouan. Fl. Monsp. 174; Boiss. Fl. Or. iv, (1879) 1112; Post Fl. Syr. (1896) 723; Musch. Fl. Eg. (1912) 606.

HABITAT : I. Arabia Petraea (ex Musch.).

DISTRIB. : Mediterranean region.

34. *E. Peplus* L. Sp. Pl. (1762) 658; Schenk. Sp. Pl. it. Aeg. Arab. & Syr. (1840) n. 76; Boiss. Fl. Or. iv, (1879) 1112; Post Fl. Syr. (1896) 723; Schweinf. in Bull. Herb. Boiss. (1899) App. II, 330.

HABITAT : I. Arabia Petraea (ex Post); Raphidim (Schimp. 249!); J. Catherine (Drake 25!); Mt. Sinai to Tor (Lord!).

II. Jiddah (Zohrab 269!); Manakhah, 2,300 m. (S. 1520!); Wasil, 1,100 m. (S. 1078); neighbourhood of Adeu (Hunter 123!).

FL. : Feb. 1889 (S.), Apr. 1835 (Schimp.), May 1868 (Lord).

FR. : Feb. 1889 (S.), Apr. 1835 (Schimp.), May 1868 (Lord).

DISTRIB. : Almost cosmopolitan.

Vern. name: *Ma'laqah*, *Wudeinah*, *Sabun-gheit* (Post), *Om-el-beene* (Drake).

35. *E. Petitiana* A. Rich. Fl. Abyss. ii, (1851) 241; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 535.—*E. carebrina* Hochst. ex Boiss. in DC. Prodr. xv, ii, 146; Defl. Yemen (1889) 198.

HABITAT : II. Foot of J. Nuqum near Sanah, 2,300 m. (Defl. 453).

DISTRIB. : Abyssinia, Arabia.

36. *E. polycnemoides* Hochst. ex Boiss. in DC. Prodr. xv, ii, 46; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 315; This.-Dyer Fl. Trop. vi, i, (1913) 506; Blatt. Fl. Aden (1915) 324.

HABITAT : II. Aden (S., Defl., Birdw.).

FL. : Mar. (S.).

FR. : Mar. (S.).

DISTRIB. : Tropical Africa, Arabia.

37. *E. qarad* Defl. in Bull. Soc. Bot. France xliii, (1896) 230.

HABITAT : II. W. el Djamma, W. el-Milah, near el-Hadjar and Qa el-Qabilah near Monsara (Defl. 296) ; J. el-Reyami, near Haifan (Defl. 566) ; S. base of Mt. el-Masnieh (Defl.).

DISTRIB. : Endemic.

Vern. name : *Qarad, Qaradh* (Defl.).

38. *E. Riebeckii* Pax in Engl. Bot. Jahrb. xxviii, (1901) 26.

HABITAT : II. W. Schigu, near Bolhalf (S. 155!).

FR. : Mar. 1881 (S.).

DISTRIB. : Endemic.

39. *E. sanguinea* Hochst. & Steud. ex Boiss. in DC. Prodr. xv, ii, 35. VAR. *intermedia* Boiss. in DC. l. c. ; Schweinf. in Bull. Herb. Boiss. (1899) App. II, 314 ; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 508.

HABITAT : II. Tayfa (Schimp. 753).

FL. : Dec. 1835 (Schimp.).

FR. : Dec. 1835 (Schimp.).

DISTRIB. : Eritrea, Abyssinia, S. Africa, Arabia.

40. *E. sanguinea* Hochst. & Steud. VAR. *jemenica* Schweinf. in Bull. Herb. Boiss. (1899) App. II, 315.

HABITAT : II. Above Hille, J. Bura, 700 m. (S. 431) ; Aggara, near Hajeilah, 400 m. (S. 877) ; Manakhah, 2,400 m. (S. 1521) ; Wasil, 1,400 m. (S. 1125).

FL. : Jan. and Feb. 1889 (S.).

FR. : Jan. and Feb. 1889 (S.).

DISTRIB. : Endemic.

41. *E. Schimperii* Presl. Bemerk. 109 ; Baker in Kew Bull. (1894) 341 ; Schweinf. in Bull. Herb. Boiss. (1899) App. II, 317 ; Blatt. Fl. Aden (1915) 324.—*E. Tirucalli* VAR. *dichotoma* Forsk. Fl. Aeg.-Arab. (1775) CXII, n. 309.

HABITAT : II. Middle mountainous region (Forsk.) ; J. Mesana (Defl. 606) ; J. Cara and near Tayfa (Schimp. 878!) ; Aden (Defl., Busse, Ellenb. ex-Krause, S. 33, 1796, Hook., Thomson, Anders.).

III. Hills between Ghafit and Sibeh, 600 ft. (Lunt) ; Hegwir (Hirsch 119).

FL. : Apr. 1890 (Defl.).

FR. Apr. 1890 (Defl.).

DISTRIB. : Tropical Africa, Arabia, Persia.

Vern. name : *Miat* (Hirsch), *Rummid* (Forsk.).



**42. *E. Schimperiana*** Scheele in *Linnaea*, xvii, 344; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 533.—*E. esula* Forsk. Fl. Aeg.-Arab. (1775) CXII, r. 315 and p. 94 (non L.).—*E. monticola* Hochst. ex Rich. Fl. Abyss. ii, (1851) 242; Schweinf. in Bull. Herb. Boiss. (1899) App. II, 330.—*E. variegata* Defl. Yemen (1889) 198.—*E. Hochstetteriana* Pax in Engl. Bot. Jahrb. xix, 123

HABITAT: II. Hijaz (Schimp. !); J. Cara (Schimp. 897 !); Sanah and Raudha, 2,300 m. (Defl. 497); Gelil near Qa'taba (Defl. 277 !); upper mountainous region, Hadiyah and Kurma (Forsk.); Aggara near Hajeilah, 400 m. (S. 914); J. Bura above Hille, 900 m. (S. 522); near Wasil, 1,200 m. (S. 1250); near Manakhah and J. Schibam, 2,300-2,700 m. (S. 1434, 1465, 1539, 1683); foot of J. Schibam, near Manakhah, 2,200-2,400 m. (Defl. 378); Aden Hinterland (Ellenb. & Busse).

FL.: Jan. 1890 (Defl.), Jan.-Mar. 1889 (S.), Dec. 1835 (Schimp.).

FR.: Jan. 1890 (Defl.), Jan.-Mar. 1889 (S.), Dec. 1835 (Schimp.).

DISTRIB.: Tropical Africa, Arabia.

Vern. name: *Subaesib*, *Sauseb* (Forsk.).

**43. *E. scordifolia*** Jacq. Collect. v, 113; Kotschy in Sitzb. Kais. Akad. Wiss. lii, (1866) 13; Schweinf. in Bull. Herb. Boiss. (1899) App. II, 315; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 501.—*E. thymifolia* Forsk. Fl. Aeg.-Arab. (1775) CXII, n. 310.

HABITAT: I. N. Midian (Burton).

II. Hijaz (ex Kotschy); near Hodeidah (S. 175); Jiddah (Schimp. 755! Zohrab 189! 294! Fischer 163!); Ghumfuda (Ehrenb.); middle mountainous region, Ghumfuda (Forsk.).

FL.: Feb. (Ehrenb.), Dec. 1888 (S.).

FR.: Dec. 1888 (S.).

DISTRIB.: Tropical Africa, Arabia.

Vern. name: *Ghaerghir* (Burton), *Rummid* (Forsk.).

**44. *E. scordioides*** Defl. MS. in Herb. Kew.

HABITAT: II. Oasis of Lahaj (Defl. 121!).

DISTRIB.: Endemic?

**45. *E. systyla*** Edgew. in Journ. As. Soc. Beng. xvi, 1218; Anders. Fl. Aden. (1860) 35; Schweinf. in Bull. Herb. Boiss. (1899) App. II, 316; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 519; Blatt. Fl. Aden (1915) 326.

HABITAT: II. Aden (Thomson, Hook. 37! Defl. 12! Hildebr. 783, Maddon, Balfour, S. 21, Busse, Edgew., Anders., Birdw., Kuntze, Marchesetti).

FL.: Nov. 1888 (S.).

FR.: Nov. 1888 (S.).

DISTRIB.: Somaliland, Arabia.

**46. *E. tenuirama*** Schweinf. in Berger Sukk. Euph. (1907) 49.

HABITAT: II. Yaman (S.).

DISTRIB.: Endemic.

47. *E. terracina* L. Sp. Pl. (1762) 654; Boiss. Fl. Or. iv, (1879) 1123; Muscn. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 108. var. *prostrata* Boiss. l. c.; Post Fl. Syr. (1896) 724.—*E. obliquaia* Forsk. Fl. Aeg.-Arab. (1775) LXVII, n. 258 and p. 93.

HABITAT: I. Arabia Petraea (Boiss.); Sinai (ex Post).

DISTRIB.: Mediterranean region.

48. *E. triaculeata* Forsk. Fl. Aeg.-Arab. (1775) CXII, n. 311 and p. 94; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 564; Defl. Yemen (1889) 201.

HABITAT: II. Damp plains near hills, Musa (Forsk.); valleys between Bajil and Hajeilah, 500 m. (Defl.).

DISTRIB.: Tropical Africa, Arabia.

49. *E. yemenica* Boiss. Cent. Euph. 37.

HABITAT: II. J. Sabor (Botta).

DISTRIB.: Endemic.

50. *Euphorbia* sp.

HABITAT: II. Aden (Lunt)

## 2. *Bridelia* Willd.

1. *B. tomentosa* Blume Bijdr. 597. var. *glabrata* Schweinf. in Bull. Herb. Boiss. (1899) App. II, 305.

HABITAT: II. J. Bura above Hille, 800 m. (S. 465); J. Milhan, Wulej, 900 m. (S. 846).

FL.: Jan. 1889 (S.).

FR.: Jan. 1889 (S.).

DISTRIB.: Of var.: Endemic.

## 3. *Andrachne* L.

1. *A. aspera* Spreng. Syst. iii, 884; Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 240; Pl. l'Arab. Heur. in Ann. Sc. Nat. ser. 2, iv, (1835) 83; Boiss. Fl. Or. iv, (1879) 1133; Schweinf. in Bull. Herb. Boiss. (1899) App. II, 299; Post Fl. Syr. (1896) 726; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 633.

HABITAT: I. Mt. Sinai (Schimp. 401!); cultivated ground of Sinai (Bové 88!); Et-Tih and Sinai (ex Post); Akaba (Hart!); Arabia Petraea (Auch.-Eloy, Boiss.).

II. Jiddah (Fischer 165! Schimp. 749!); Wasil, 1,300 m. (S. 1322!); Ketumbal (Ehrenb. !); below Manakhab, 2,100 m. (S. 1550).

III. Dhofar Mts. (Bent 165!).

IV. Near Masqat (Bornm. 614! Bent 81!).

FL.: Jan. 1893 (Bornm.), Feb. (Fischer), Feb. (Ehrenb.), Feb. 1836 (Schimp.), Feb. 1889 (S.), Apr. 1835 (Schimp.), June 1832 (Bové).

FR.: Jan. 1893 (Bornm.), Feb. 1836 (Schimp.), Feb. 1889 (S.), Apr. 1835 (Schimp.), June 1832 (Bové).

DISTRIB.: Nile Land, Arabia, Persia, N. W. India.

Vern. name: *Kimmash* (Post).

FORMA *umbrosa* Bornm.

HABITAT: IV. Near Masqat (Bornm. 615!).

FL.: Jan. 1893 (Bornm.).

FR.: Jan. 1893 (Bornm.).

2. *A. telephioides* L. Sp. Pl. (1753) 1014; Boiss. Fl. Or. iv, (1879) 1138; Post Fl. Syr. (1896) 726; Musch. Fl. Eg. (1912) 596; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 633.

HABITAT: I. Arabia Petraea (ex Musch.); Sinai (ex Post).

II. Tropical Arabia (ex This.-Dyer).

DISTRIB.: Mediterranean region, Somaliland, Arabia, Afghanistan, India.

Vern. name: *Libbaneh* (Post).

VAR. *rotundifolia* J. Muell. ap. DC. Prodr. xv, ii, 236; Dur. & Barr. Fl. Libyc. Prodr. (1910) 216.

HABITAT: I. El Haddan (Schimp. 323!); Sinai (Auch.-Eloy 2009!); Arabia Petraea and Sinai (ex Dur. & Barr.).

FL.: May 1835 (Schimp.).

FR.: May 1835 (Schimp.).

DISTRIB.: N. Africa, Arabia Petraea, Palestine, Syria, Persia, Turkestan.

#### 4. *Cluytiandra* Muell.

1. *C. somalensis* Pax in Eugl. Bot. Jahrb. xxxiii, 277 (*partim*); This.-Dyer Fl. Trop. Afr. vi, i, (1913) 739.

HABITAT: II. S. E. Arabia (ex This.-Dyer).

III. Dhofar Mts. (Bent 105!); Plain of Dhofar (Bent 133!).

FL.: May 1895 (Bent).

FR.: May 1895 (Bent).

DISTRIB.: Somaliland, British E. Africa, Arabia.

#### 5. *Phyllanthus* L.

1. *P. maderaspatensis* L. Sp. Pl. (1753) 982; Defl. Yemen (1889) 202; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 722; Blatt. Fl. Aden (1915) 328.—*P. arabicus* Hochst. ex Baill. Adansonia i, 86.

HABITAT: II. Near Hajeilah, 500-600 m. (Defl. 73, 101); Jiddah and Mt. Sidr (Fischer 153!); J. Bura, Hille, 800 m. (S. 544!); Aden (Perry! S. 30! Defl., Birdw.); Yaman (Botta).

FL.: Jan. 1889 (S.), Mar. 1878 (Perry), Nov. 1888 (S.).

FR.: Jan. 1889 (S.), Mar. 1878 (Perry), Nov. 1888 (S.).

DISTRIB.: Tropical and extra-tropical regions of the Old World.

Vern. name: *Cholf*.

VAR. *Thonningii* Muell.-Arg. in Linnaea, xxxii, 19; Schweinf. in Bull. Herb. Boiss. (1899) App. II, 304.

HABITAT: II. J. Bura near Hille, 600-800 m. (S. 325, 544); Aggara near Hajeilah, 600 m. (S. 905); Wulej, J. Milhan, 600 m. (S. 1860).

FL. : Jan. 1889 (S.).

FR. : Jan. 1889 (S.).

Vern. name : *Cholf* (S.).

2. *P. hodjelensis* Schweinf. in Bull. Herb. Boiss. (1899) App. II, 304.

HABITAT : II. Regma near Hajeilah, 900 m. (S. 968).

FL. : Jan. 1889 (S.).

FR. : Jan. 1889 (S.).

DISTRIB. : Endemic.

3. *P. lalambensis* Schweinf. in Bull. Herb. Boiss. (1899) App. II, 302

This.-Dyer Fl. Trop. Afr. vi, i, (1913) 698.—*P. ovalifolius* Forsk. Fl. Aeg.-Arab. (1775) CXXI, n. 536 and p. 159 ?

HABITAT : II. Hadiyah (Forsk.) ; Okeber, J. Milhan, 900 m. (S. 404).

DISTRIB. : Eritrea, British Central Africa, Arabia.

Vern. name : *Homaemer* (Forsk.).

4. *P. Niruri* L. Sp. Pl. (1753) 981 ; Forsk. Fl. Aeg.-Arab. (1775) CXXI, n. 534 and p. 159 ; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 731.

HABITAT : II. Middle and lower mountainous region, Hadiyah (Forsk.).

DISTRIB. : Throughout the tropics.

Vern. name : *mekatkata*, *menecketo* (Forsk.).

5. *P. rotundifolius* Klein ex Willd. Sp. Pl. iv, 584 ; Schweinf. in Bull. Herb. Boiss. (1899) App. II, 303 ; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 731.

HABITAT : II. Shuqra (S. 803) ; J. Bura, Hille, 800 m. (S. 542 ! ) ; Jiddah (Zohrab 136 ! ) ; Jiddah and W. Fatimah (Fischer 166 ! ) ; W. Fatimah near Unsert (Schimp. 750 ! ).

FL. : Jan 1889 (S.), Feb. 1836 (Schimp.), Feb. 1837 (Fischer), Mar. 1881 (S.).

FR. : Jan. 1889 (S.), Feb. 1836 (Schimp.), Feb. 1837 (Fischer), Mar. 1881 (S.).

DISTRIB. : Nubia, Eritrea, Somaliland, Arabia, India.

6. *P. tenellus* Muell.-Arg. in Linnaea, xxxii, 7. var. *arabicus* Muell.-Arg. in DC. Prodr. xv, ii, 339 ; Schweinf. in Bull. Herb. Boiss. (1899) App. II, 303. — *Maderaspatensis* Forsk. Fl. Aeg.-Arab. (1775) CXXI, n. 535 and p. 159.

HABITAT : II. Lower mountainous region, Hadiyah (Forsk.) ; above Hille, J. Bura, 900 m. (S. 543) ; J. Milhan near Wulej, 600 m. (S. 673).

FL. : Jan. 1889 (S.).

FR. : Jan. 1889 (S.).

DISTRIB. : Endemic.

## 6. *Securinega* Juss.

1. *S. phyllanthoides* Muell.-Arg. in DC. Prodr. xv, ii, 448.—*Meineckia phyllanthoides* Baill. Etude Gén. Euphorb. 586 ; Schweinf. in Bull. Herb. Boiss. (1899) App. II, 301.

HABITAT: II. Above Hille, J. Bura, 900 m. (S. 1971); Wulej, J. Milhan, 600 m. (S. 1972); Yaman (Botta ex DC.).

FL.: Jan. and Feb. 1889 (S.).

FR.: Jan. and Feb. 1889 (S.).

DISTRIB.: Endemic.

### 7. *Flueggea* Willd.

1. *F. microcarpa* Blume Bijdr. 580; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 736.—*F. obovata* Buch.-Ham. in Wall. Cat. 7928; Schweinf. in Bull. Herb. Boiss. (1899) App. II, 299.—*Securinaga abyssinica* Rich. Fl. Abyss. ii, (1851) 256.—*Phyllanthus hamrur* Forsk. Fl. Aeg.-Arab. (1775) CXXI, n. 537 and p. 159?

HABITAT: II. J. Bura above Hille, 900 m. (S. 413); Wulej, J. Milhan, 600 m. (S. 646); Wasil, 1,300 m. (S. 1308); middle mountainous region, Milhan (Forsk.); Aden (Birdw. 174!).

FL.: Aug. 1898 (Birdw.).

FR.: Aug. 1898 (Birdw.).

DISTRIB.: Tropical Africa and Asia.

Vern. name: *kennet-el-bagar*, *hésmelo* (S.), *hamrur* (Forsk.).

### 8. *Jatropha* L.

1. *J. lobata* Muell.-Arg. in DC. Prodr. xv, ii, 1085; Schweinf. in Bull. Herb. Boiss. (1899) App. II, 311. VAR. *glauca* Pax in Engl. Pflanzenr. v, 147, (1910) 32; Blatt. Fl. Aden (1915) 331.—*Croton lobatum* Forsk. Fl. Aeg.-Arab. (1775) CXXI, n. 562 and p. 162.—*J. glauca* Vahl Symb. Bot. i, (1790) 76 (*partim*).—*J. lobata* VAR. *genuina* Muell.-Arg. l. c.; Defl. Yamen (1889) 202.

HABITAT: II. Damp plains near hills, Surdad, Mor (Forsk.); Tehama: W Rissian (Lunz 19!); Marrana (S. 177); Chalife, J. Bura, 300 m. (S. 233); near Bajil, 200 m. (Defl. 48 and 54); near Hajeilah, 600 m. (Defl. 151); near Hes (Botta); Beha in fields (S. 881!); Aden (S. 50); Yaman (Traill!).

FL.: Jan. 1889 and Dec. 1888 (S.).

FR.: Jan. 1889, Mar. 1881 and Dec. 1888 (S.).

DISTRIB.: Nile Land, Arabia.

Vern. name: *tumbašski ghulghul* (S.), *obáb*, *medjersche* (Forsk.).

2. *J. spinosa* Vahl Symb. Bot. i, (1790) 79; Schweinf. in Bull. Herb. Boiss. (1899) App. II, 311.—*Croton spinosum* Forsk. Fl. Aeg.-Arab. (1775) CXXII, n. 565 and p. 163.—*J. aculeata* F. G. Dietr. Lexicon Gaertn. und Bot. Nachtr. iv, (1818) 76; Defl. Yemen (1889) 202.

VAR. *genuina* Pax in Engl. Pflanzenr. iv, 147, (1910) 56.

HABITAT: II. Valleys near Mefhak, 1,800 m. (Defl. 601); damp plains near hills, Uahfad (Forsk.); Aden (Balfour! S. 32! Defl. 22! Hildebr. 785, Lunz 288, Ellerfb. 86, Busse 2069).

FL.: Jan. 1880 (Balfour). Nov. 1888 (S.), Dec. 1889 (Defl.).

FR.: Jan. 1880 (Balfour), Nov. 1888 (S.), Dec. 1889 (Defl.).

DISTRIB. : Endemic.

Vern. name : *Badr-es-Simssim* (S.).

VAR. *crenulata* Pax l. c.

HABITAT : II. Aden (S. 50! Thomson! Hook. 101! Hirsch 132); neighbourhood of Aden (Hunter 216!).

III. Hadramaut : Sel near Sehut, Hegwir (Hirsch 133, 134); Dhofar Mts. (120!).

FL. : Feb. 1857 (Thomson), Mar. 1881 (S.), Dec. 1847 (Hook.).

FR. : Feb. 1857 (Thomson), Mar. 1881 (S.).

DISTRIB. : Endemic.

Vern. name : *Dimā, Sebrôt* (Hirsch).

3. *J. variegata* Vahl Symb. Bot. i, (1790) 79.—*Croton variegatum* Forsk. Fl. Aeg.-Arab. (1775) CXXI, n. 564 and p. 163.

HABITAT : II. Middle mountainous region, Zebid (Forsk.).

DISTRIB. : Endemic.

Vern. name : *Dundul* (Forsk.).

4. *J. villosa* Muell.-Arg. in DC. Prodr. xv, ii, 1085; Schweinf. in Bull. Herb. Boiss. (1899) App. II, 311.—*Croton villosum* Forsk. Fl. Aeg.-Arab. (1775) CXXII, n. 566 and p. 163.—*Adenoropium Forskalii* Pohl Pl. Bras. Icon. et Descr. i, (1827) 15.—*J. glandulosa* Vahl Symb. Bot. i, (1790) 80; Dcne. Pl. l'Arab. Heur. in Ann. Sc. Nat. ser. 2, iv, (1835) 83; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 793.—*J. villosa* var. *genuina* Muell.-Arg. l. c.; Defl. Yemen (1889) 202.

HABITAT : II. Near Mantar (Defl. 23); Tehama : W. Kalte (Lunz 20!); damp plains near hills, Mor, Beit el Fakih (Forsk.); Bajil (S. 1784!); Shuqra (S. 93!); N. of Shuqra (Defl. 364!); Ghumfuda (Ehrenb.!); Yaman (Rové 236).

III. Dhofar Mts. (Bent!); J. Hegwir (Hirsch 18).

FL. : Mar. 1881, 1889 (S.), Mar. 1890 (Defl.).

FR. : Mar. 1881, 1889 (S.).

DISTRIB. : Nubia, Eritrea, Somaliand, Arabia.

Vern. name : *Öbab, Bocka* (Forsk.), *Obab, Obbab* (S.), *Sabūt* (Hirsch).

VAR. *glabra* Muell.-Arg. l. c.

HABITAT : II. Yaman (Botta).

5. *Jatropha* sp. in Kew Bull. (1894) 341.

HABITAT : III. Sibeh, 750 ft. (Lunt 102!).

## 9. *Croton* L.

1. *C. confertus* Baker in Kew Bull. (1895) 186.

HABITAT : III. Derbat (Bent 231!),

FL. : May 1895 (Bent).

FR. : May 1895 (Bent).

DISTRIB. : Endemic.

2. *C. lobatus* L. Sp. Pl. (1753) 1005; Vahl Symb. Bot. i, (1790) 78; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 750.—*C. trilobatum* Forsk. Fl. Aeg.-Arab. (1775) CXXII, n. 567 and p. 163.—*C. lobatus* var. *riparius* Muell.-Arg. in DC. Prodr. xv, ii, 668; Defl. Yemen (1889) 202; Schweinf. in Bull. Herb. Boiss. (1899) App. II, 305.

HABITAT: II. Chalife, J. Bura, 300 m. (S. 209); Wulej, J. Milhan, 600 m. (S. 710); Agara near Hajeilah, 600 m. (S. 904); Hille, J. Bura, 400 m. (S. 237!); damp plains near hills, Surduf (Forsk.); below Wasil, 1,100 m. (S. 1171); between Hajeilah and Wasil, 700—1,000 m. (Defl. 191, 227, 230); Yaman (Ehrenb.).

FL.: Jan. 1889 (S.).

FR.: Jan. 1889 (S.).

DISTRIB.: Tropical Africa, Arabia.

Vern. name: *Abu thalat* (S.).

### 10. *Cluytia* L.

1. *C. Janbertiana* Muell.-Arg. in DC. Prodr. xv, ii, 1044.—*C. lanceolata* Jaub. & Sp. Ill. Pl. Or. t. 467.

HABITAT: II. J. Sabot (Botta); Yaman: Ahl-Kaf (Botta).

DISTRIB.: Endemic.

2. *C. lanceolata* Forsk. Fl. Aeg.-Arab. (1775) CXXII, n. 589 and p. 170 (*non Hochst.*).

HABITAT: II. Yaman: Boka (Forsk.!).

DISTRIB.: Endemic.

Vern. name: *Alloh, Luch* (Forsk.).

3. *C. myricoides* Jaub. & Sp. Ill. Pl. Or. v, (1853-1857) tt. 465, 466.

HABITAT: II. Top of Mt. Cara, 1,350 m. (Schimp. 824!); near Tayfa (Botta!); J. Sabot (Botta).

DISTRIB.: Endemic.

4. *C. Richardiana* Muell.-Arg. in DC. Prodr. xv, ii, 1044 (excl. var.  $\beta$ .); Schweinf. in Bull. Herb. Boiss. (1899) App. II, 312; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 810.—*C. lanceolata* var. *pubescens* Rich. Fl. Abyss. ii, (1851) 253.—*C. Richardiana* var. *pubescens* Muell.-Arg. l.c.; Defl. Yemen (1889) 203.

HABITAT: II. Foot of Mt. Masar near el-Hodjeir, 2,300—2,400 m. (Defl. 407); J. Bura, above Hille, 1,500 m. (S. 663); Wasil, 1,300 m. (S. 1253); Manakhah, 2,000 m. (S. 1500!); neighbourhood of Aden (Hunter 120! 140!).

FL.: Feb. 1889 (S.).

FR.: Feb. 1889 (S.).

DISTRIB.: Eritrea, Abyssinia, British E. Africa, Arabia.

Vern. name: *ssann, ssanna* (S.).

VAR. ? *tenuirama* Schweinf. l.c.

HABITAT: II. Okeber and J. Milhan, coffee region, 900 m. (S. 842).

FL.: Jan. 1889 (S.).

DISTRIB.: Endemic.

### 11. *Chrozophora* Neck.

1. *C. oblongifolia* A. Juss. ex Spreng. Syst. Veg. iii, 850; Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 242; Pl. l'Arab. Heur. in Ann. Sc. Nat. ser. 2, iv, (1835) 83; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 836.—*C. obliqua* A. Juss. Tent. Euphorb. 28; Boiss. Fl. Or. iv, (1879) 1141; Defl. Yemen (1889) 203; Post Fl. Syr. (1896) 727; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 106; Blatt. Fl. Aden (1915) 352.—*C. obliqua* var. *angustifolia et incisa* Schweinf. in Bull. Herb. Boiss. (1899) App. II, 306.—*Croton tinctorium* Forsk. Fl. Aeg.-Arab. (1775) CXXI, n. 563.

HABITAT: I. Sinai (Auch.-Eloy 2004!); desert between Tor and Sinai (Bové 202!); W. Hebran (Schimp. 359!); W. Feiran and neighbourhood (Lord!); W. Nasb and W. Sarawat (Hart!); W. Mokatteb (Drake 101!); W. Bedr (Kaiser 30!); N. Midian (Bartou!).

II. Damp plains, Lohaja (Forsk.); Gumfuda (Ehrenb.); Shuqra (S. 70); Jiddah (Zohrab 91! Fischer 7!); W. Jalut, near Juma (Lunz 31!); Aden (Defl. 62! Perry! Thomson! S. 29! Hook. 100! Balfour!); cultivated ground in Yaman (Bové 237!).

IV. Masqat (Auch.-Eloy 5296! Bornm. 592! Bent 10!).

FL.: Jan. 1893 (Bornm.), Feb. (Ehrenb.), May 1868 (Lord), May 1895 (Bent), June 1833 (Bové), June 1835 (Schimp.), Oct.-Jan. (Fischer), Nov. 1888 (S.), Dec. 1889 (Defl.).

FR.: Jan. 1893 (Bornm.), May 1895 (Bent), June 1833 (Bové), June 1835 (Schimp.), Nov. 1888 (S.), Dec. 1889 (Defl.).

DISTRIB.: Nile-Land, Arabia, Socotra, Sind.

Vern. name: *Sommé* (Bové), Hadak.

2. *C. plicata* A. Juss. ex Spreng. Syst. Veg. iii, 850; Boiss. Fl. Or. iv, (1879) 1140; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 106; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 834.—*Croton plicatum* Vahl Symb. Bot i, (1790) 78.—*Croton tinctorium* Forsk. Fl. Aeg.-Arab. (1775) LXXV, n. 490 and p. 162 (*non L.*).

HABITAT: II. Tropical Arabia (ex Boiss.).

DISTRIB.: Tropical Africa, Egypt, Arabia, India.

Vern. name: *Ghobbajre* (Forsk.).

3. *C. tinctoria* Juss. Tent. Euphorb. 28; Boiss. Fl. Or. iv, (1879) 1140; Post Fl. Syr. (1896) 726; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 106.

HABITAT: I. Arabia Petrasa (ex Post).

DISTRIB.: Mediterranean region.

Vern. name: *Faqqus-el-Humr* (Post).



12. *Erythrococca* Benth.

1. *E. abyssinica* Pax in Engl. Bot. Jahrb. xix, 87; Schweinf. in Bull. Herb. Boiss. (1899) App. II, 306; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 856.—*Mercurialis* ? sp. Defl. Yemen (1889) 203.—*Olaoxylon Deflersii* Schweinf. ex Prain in Ann. Bot. xxv, 612.—*Deflersia Erythrococca* Schweinf. ex Penzig in Atti Congr. Bot. Genova 395.

HABITAT: II. Mt. Masar, near Attara, 1,800 m. (Defl. 413); W. Madfar, near Hajeilah, 800 m. (S. 933!); J. Bura, above Hille, 900 m. (S. 1813); W. Chuoiat near Wasil, 1,200 m. (S. 1176); Manakhab, 2,400 m. (S. 1690).

FL.: Mar. 1889 (S.).

DISTRIB.: Eritrea, Abyssinia, Arabia.

Vern. name: *asnab* (S.).

13. *Micrococca* Benth.

1. *M. Mercurialis* Benth. in Hook. Niger Fl. 503; Schweinf. in Bull. Herb. Boiss. (1899) App. II, 306; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 878.—*Olaoxylon Mercurialis* Thwaites Enum. Pl. Zeyl.

HABITAT: II. Agara near Hajeilah, 500 m. (S. 1973); Hille near Wulej, J. Milhan, 600 m. (S. 777).

FL.: Jan. and Feb. 1889 (S.).

FR.: Jan. and Feb. 1889 (S.).

DISTRIB.: Tropical Africa and Asia, Madagascar.

14. *Mercurialis* L.

1. *M. annua* L. Sp. Pl. (1762) 1465; Boiss. Fl. Or. iv, (1879) 1142 Post Fl. Syr. (1896) 728; Musch. Fl. Eg. (1912) 594.

HABITAT: I. Arabia Petraea (ex Post and ex Musch.).

DISTRIB.: Europe, Mediterranean region.

15. *Acalypha* L.

1. ? *A. brachystachya* Hornem Hort. Hafn. ii, 909.—*A. supera* Forsk. Fl. Aeg.-Arab. (1775) CXXI, n. 560 and p. 162.

HABITAT: II. Damp plains near hills, Surdud (Forsk.).

DISTRIB.: Tropical Africa, Arabia, India, Ceylon, Java.

2. *A. ciliata* Forsk. Fl. Aeg.-Arab. (1775) CXXI, n. 561 and p. 162; Schweinf. in Bull. Herb. Boiss. (1899) App. II, 310; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 901.

HABITAT: II. Lower mountainous region, Tæz (Forsk.); Agara near Hajeilah, 600 m. (S. 1015).

FL.: Feb. 1889 (S.).

FR.: Feb. 1889 (S.).

DISTRIB.: Cape Verde Islands, Tropical Africa, Arabia, India.

3. *A. crenata* Hochst. ex Rich. Fl. Abyss. ii, (1851) 246; Schweinf. in Bull. Herb. Boiss. (1899) App. II, 309; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 903.—*A. Vahlbiana* Oliv. in Trans. Linn. Soc. xxix, 147 (*partim, non Muell.-Arg.*).

HABITAT: II. Foot of J. Milhan near Wulej, 600 m. (S. 659).

FL.: Jan. 1889 (S.).

FR.: Jan. 1889 (S.).

DISTRIB.: Tropical Africa, Arabia.

4. *A. decidua* Forsk. Fl. Aeg.-Arab. (1775) CXXI, n. 558 and p. 161.

HABITAT: II. Damp plains in lower mountainous region, Surdud, Hadiyah (Forsk.).

DISTRIB.: Endemic.

Vern. name: *Bortom soghaier* (Forsk.).

5. *A. fruticosa* Forsk. Fl. Aeg.-Arab. (1775) CXXI, n. 557 and p. 161; Defl. Yemen (1889) 204; Schweinf. in Bull. Herb. Boiss. (1899) App. II, 309; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 895, 1056.

HABITAT: II. Near Hajeilah, 600 m. (Defl. 59); damp plains in lower mountainous region, Surdud, Hadiyah (Forsk.); Chalife near J. Bura (S. 197!); S. of J. el Areys, 200-300 m. (Defl. 423!); near Hille and J. Bura, 600 m. (S. 315); Wulej, J. Milhan, 600 m. (S. 744); valleys round Mefhak, 1,800 m. (Defl. 591); J. Ras, near Hes and W. Sina, foot of Mt. Sabor, near Djennat (Botta).

FL.: Jan. 1889 (S.), Mar. 1890 (Defl.), Dec. 1888 (S.).

FR.: Jan. 1889 (S.), Mar. 1890 (Defl.), Dec. 1888 (S.).

DISTRIB.: Tropical Africa, Arabia, India, Ceylon.

Vern. name: *Deffran* (S.), *Börtom, daefrán* (Forsk.).

6. *A. indica* L. Sp. Pl. (1753) 1003; Defl. Yemen (1889) 204; Schweinf. in Bull. Herb. Boiss. (1899) App. II, 309; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 903.—*A. spicata* Forsk. Fl. Aeg.-Arab. (1775) CXXI, n. 559 and p. 161.

HABITAT: II. W. Hawayat near Hajeilah, 600 m. (Defl. 183); damp plains near hills, Surdud (Forsk.); Jiddah (Zohrab 280!); W. Fatimah (Fischer 116!); near Mecca (Schimp. 765!); Mor and Dalar (Ehrenb.!); S. of J. el Areys (Defl.!); J. Bura, near Hille, 600 m. (S. 315, 659a, 946); Agara near Hajeilah, 600 m. (S. 1982); Wasil, W. Chuoiat 1,100 m. (S. 1205); J. Maamara, Hes (Botta).

FL.: Feb. (Fischer), Feb. 1836 (Schimp.), Mar. 1890 (Defl.), June 1895 (Bent).

FR.: Feb. 1836 (Schimp.), Mar. 1890 (Defl.), June 1895 (Bent).

DISTRIB.: Tropical Africa, Asia.

Vern. name: *Harram-ed-dhibbel* (S.).

7. *A. paniculata* Miq. Fl. Ind. Bat. i, ii, 406; Schweinf. in Bull. Herb. Boiss. (1899) App. II, 309; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 886.

HABITAT: II. Hille, J. Bura (S. 346!); Okeber and J. Milhan, 1,000 m. (S. 816).

FL.: Jan. 1889 (S.).

FR.: Jan. 1889 (S.).

DISTRIB.: Tropical Africa and Asia.

### 16. *Ricinus* L.

1. *R. communis* L. Sp. Pl. (1753) 1007; Forsk. Fl. Aeg.-Arab. (1775) CXXI, n. 556; Defl. Yemen (1889) 204; Baker in Kew Bull. (1894) 341; Krause in Engl. Bot. Jahrb. xxxv, (1905) 736; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 108; Blatt. Fl. Aden (1915) 333.

HABITAT: II. Near Heathalim and W. Kebir (Ellenb.); damp plain in middle mountainous region, Hadiyah, Kudmie, Mor (Forsk.); W. Mazeb, near Manakhah, 2,200 m. (Defl. 368); Shaikh Othman (Defl.).

III. Cultivated parts at Schibam, Alrail and between Sibeh and Tahiyeh (Lunt).

DISTRIB.: Throughout the tropics, probably indigenous in Africa.

Vern. name: *Tebsha*, *Zaejt*, *Djar* (Forsk.).

VAR. *africanus* Muell.-Arg.; Defl. Yemen (1889) 204; Schweinf. in Bull. Herb. Boiss. (1899) App. II, 310.—*R. africanus* Willd. Sp. Pl. iv, 565.

HABITAT: II. Foot of J. Bura, near Hille, 600 m. (S. 254); below Wasil, 1,100 m. (S. 1151); Jiddah (Fischer 208!); Manakhah, 2,200 m. (S. 1602!); near Wasil, 1,000 m. (Defl. 239).

III. Sehut (Hirsch 68).

FL.: Feb. 1889 (S.), Oct.-Mar. (Fischer).

FR.: Feb. 1889 (S.), Dec. 1888 (S.).

DISTRIB.: Same as the type.

Vern. name: *Schigrüt*, *Salit* (Hirsch).

### 17. *Tragia* L.

1. *T. arabica* Baill. Étude Gén. Euphorb. 461; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 981.—*T. mitis* VAR. *arabica* Muell.-Arg. in DC. Prodr. xv, ii, 942; Defl. Yemen (1889) 204.—*T. pungens* VAR. *arabica* Schweinf. in Bull. Herb. Boiss. (1899) App. II, 310.

HABITAT: II. J. Milhan, Wulej, 700 m. (S. 834); Wasil, 1,300 m. (S. 1128!); foot of Mt. Masar, near Attara, 1,800 m. (Defl. 412); W. Suleyman, near Suq el Khamiss, 2,400 m. (Defl. 578); near Tæz, 1,300 m. (Defl. 686); Yaman: in the mountains (Botta).

FL.: Jan. and Feb. 1889 (S.).

FR.: Feb. 1889 (S.).

DISTRIB.: Abyssinia, Somaliland, Socotra, Arabia.

Vern. name: *Mschorgana* (S.).

2. *T. pungens* Muell.-Arg. in DC. Prodr. xv, ii, 941.—*Jatropha pungens* Forsk. Fl. Aeg.-Arab. (1775) CXXI, n. 555 and p. 163.—*T. cordifolia* Vahl Symb. Bot. i, (1790) 76; This.-Dyer Fl. Trop. vi, i, (1913) 980.

HABITAT: II. Lower mountainous region, Hadiyah (Forsk.).

DISTRIB.: Tropical Africa, Arabia.

Vern. name: *Horekrek, Mekerakaka, Humejta*, (Forsk.).

### 18. *Dalechampia* L.

1. *D. scandens* L. Sp. Pl. (1753) 1054. var. *cordofana* Muell.-Arg. in DC. Prodr. xv, ii, 1245; Defl. Yemen (1889) 204; Schweinf. in Bull. Herb. Boiss. (1899) App. II, 310; This.-Dyer Fl. Trop. Afr. vi, i, (1913) 954.—*D. cordofana* Hochst. ex Rich. Fl. Abyss. ii, (1851) 244.—*D. triportita* R. Br. in Salt Abyss. App. 65.

HABITAT: II. Wulej and foot of J. Milhan, 600 m. (S. 730); Bajil (S. 546!); Is. Ketumbal (Ehrenb.); near Hajeilah, 600 m. (Defl. 102); mountains near Cahim (Botta).

III. Dhofar Mts. (Bent 139!).

FL.: Feb. (Ehrenb.).

FR.: Jan. 1889 (S.), Feb. (Ehrenb.).

DISTRIB.: Tropical Africa, Arabia.

## XCV. URTICACEAE.

### 1. *Celtis* L.

1. *C. integrifolia* Lam. Encycl. iv, 140; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 116.—? *Ficus toka* Forsk. Fl. Aeg.-Arab. (1775) CXXIV, n. 618 and p. 219.

HABITAT: II. Wulej, foot of J. Milhan, 600 m. (S. 645); Milhan (Forsk.); W. Surdud (S. 613!).

FR.: Jan. 1889 (S.).

DISTRIB.: Tropical Africa, Yaman.

Vern. name: *Toka* (Forsk.).

2. *C. Kraussiana* Bernh. in Flora, xxviii, (1845) 87; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 115.—*C. australis* Rich. Fl. Abyss. ii, (1851) 257.—*C. vesiculosa* Hochst. ex Planch. in Ann. Sc. Nat. ser. 3, X, (1848) 295.

HABITAT: II. Above Hille, J. Bura, 900 m. (S. 457); Wasil, 1,400 m. (S. 2010).

DISTRIB.: Tropical and S. Africa, Yaman.

### 2. *Trema* Lour.

1. *T. Hochstetteri* Engl. in Abh. Preuss. Akad. Wiss. ii, 190; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 116.—*Sponia Hochstetteri* Buch. ex Planch. in DC. Prodr. xvii, 198.

HABITAT: II. Near Hajeilah, 800 m. (S. 986); above Hille and J. Bura, 900 m. (S. 370).

FL.: Jan. 1889 (S.).

DISTRIB.: Abyssinia, Yaman.

3. *Morus* L.

1. *M. nigra* L. Sp. Pl. (1762) 1398; Boiss. Fl. Or. iv, (1879) 1153; Defl. Yemen (1889) 223; Post Fl. Syr. (1896) 729.

HABITAT: I. Arabia Petraea (ex Post).

II. Cultivated in Yaman (Defl.).

DISTRIB.: Europe, Mediterranean region, cultivated in Arabia.

Vern. name: *Tût-Shâmi* (Post).

4. *Dorstenia* L.

1. *D. arabica* Hemsl. in Icon. Plant. t. 2503.

HABITAT: III. E. Arabia (Bent!).

DISTRIB.: Endemic.

2. *D. foetida* Schweinf. in Bull. Herb. Boiss. (1896) App. II, 120.—*Kosaria foetida* Forsk. Fl. Aeg.-Arab. (1775) CXXI, n. 532 and p. 164, t. 20.—*D. radiata* Lam. Encycl. ii, 318; Defl. Yemen (1889) 205.—*K. Forskahlîi* Gmel. Linn. Syst. Nat. ii, i, 71.

HABITAT: II. Above Hille, J. Bura, 900 m. (S. 1826); Wulej, J. Milhan (S. 697!); Wasil, 1,400 m. (S. 1927!); middle mountainous region, Hadiyah (Forsk.).

FL.: Jan. and Feb. 1889 (S.).

FR.: Jan. and Feb. 1889 (S.).

DISTRIB.: Abyssinia, Arabia.

Vern. name: *Kosser*, *Kosser-er-robach* (S.), *Kosar* (Forsk.).

5. *Ficus* L.

1. *F. capensis* Thunb. Diss. Fic. (1786) 13; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 140; Miidb. and Burret in Engl. Bot. Jahrb. xlvi, 195.

HABITAT: II. Above Hille near J. Bura, 900-1,000 m. (S. 466!).

FL.: Jan. 1889 (S.).

FR.: Jan. 1889 (S.).

DISTRIB.: Tropical and S. Africa, Arabia.

Vern. name: *chonsur* (S.).

NOTE: Fiori Bos. e Piante Legn. Eritrea (1909) 116 mentions VAR. *typica* as occurring in Yaman.

2. *F. Carica* L. Sp. Pl. (1762) 1513; Baker in Kew Bull. (1894) 341.

HABITAT: I. W. Nasb (Drake 60!).

III. Hills at Khailah, 3,000 ft. (Lunt).

DISTRIB.: Probably indigenous in Arabia.

Vern. name: *Hammart* (Drake).

VAR. *leucocarpa* Schweinf. in Bull. Herb. Boiss. (1896) App. II, 128.

HABITAT: II. Bet-Moqlad, el Hausan near Manakhah, 2,000 m. (S. 1716!).

VAR. *rupestris* Hausskn.; Kneuck. in Allg. Bot. Zeitsch. ix, (1913) 151.

HABITAT: I. W. Tarfa, J. Sorbal, 1,900 m. (Kneuck.).

3. *F. exasperata* Vahl Enum. Pl. ii, (1805) 197; Mildb. & Burret in Engl. Bot. Jahrb. xlvi, 200.—*F. serrata* Forsk. Fl. Aeg.-Arab. (1775) CXXIV, n. 624 and p. 179 (*non L.*); Schweinf. in Bull. Herb. Boiss. (1896) App. II, 121.

HABITAT: II. Near Hille, ravines at foot of J. Bura (S. 383); J. Bura, 1,000 m. (S. 417); Hajeilah, Manod (S. 987); J. Milhan, coffee region (S. 8060); W. Chuoiyet, Wasil, 1,200 m. (S. 1159); middle and lower mountainous region, Hadiyah (Forsk.).

FL.: Jan. 1889 (S.).

FR.: Jan. 1889 (S.).

DISTRIB.: Tropical Africa and Arabia.

Vern. name: *Haschref, Chaschraf* (S.).

4. *F. glumosa* Del. Cent. Pl. Méroé (1826) 63; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 131; Mildb. & Burret in Engl. Bot. Jahrb. xlvi, 217.

HABITAT: II. Hille, J. Bura (S. 281, 317 !); J. Bura (S. 418 !); near Wulej, foot of J. Milhan (S. 670).

FL.: Jan. 1889 (S.).

FR.: Jan. 1889 (S.).

DISTRIB.: Tropical Africa, Arabia.

Vern. name: *Beddah, meddah* (S.).

5. *F. lutea* Vahl Enum. Pl. ii, (1805) 185; Mildb. & Burret in Engl. Bot. Jahrb. xlvi, 209.—*F. ingens* Miq. in Ann. Mus. Lugd. Bat. iii, 288; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 134.—*F. Schimperiana* Hochst in Rich. Fl. Abyss. ii, (1851) 266.

HABITAT: II. Near Hille, foot of J. Bura, 600 m. (S. 313 !); Wasil, Wadyet-Têm, 1,500 m. (S. 1224 !); Wulej at the foot of J. Milhan, 600 m. (S. 751 !).

FL.: Jan. 1889 (S.).

DISTRIB.: Tropical Africa, Arabia.

Vern. name: *beddah, dhurruf* (S.).

6. *F. palmata* Forsk. Fl. Aeg.-Arab. (1775) CXXIV, n. 623 and p. 179; Vahl Symb. Bot. i, (1790) t. XXIV; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 124; Mildb. & Burret in Engl. Bot. Jahrb. xlvi, 189.—*F. morifolia* Forsk. l. c. n. 622 and p. 179.—*F. Forskalei* Vahl Enum. Pl. ii, (1805) 196.—*F. Pseudo-Carica* Miq. in Hook. Lond. Journ. Bot. vii, (1848) 225, *incl. var. tomentosa* Rich. Fl. Abyss. ii, (1851) 271; Defl. Yemen (1889) 205.

HABITAT: II. Kahil near Manakhah (S. 1474); Okeber and J. Milhan (S. 806); W. Chuoiyet, Wasil, 1,200 m. (S. 1153 !); J. Bura, 1,000 m. (S. 666 ! 1833); Wasil, W. Tehm, 1,500 m. (S. 1230 !); Bilad Hodjeria: J. el Aslah (Defl. 619 !); Uahfad, Hadiyah, Kurma (Forsk.); Hes and Taz (Botta); W. Mazeb, near Manakhah, 2,200 m. (Defl. 372, 373).

FL.: Jan. and Feb. 1889 (S.), Apr. 1890 (Defl.).

FR.: Jan. and Feb. 1889 (S.), Apr. 1890 (Defl.).

DISTRIB.: Eritrea, Abyssinia, Somaliland, Arabia.

Vern. name: *Belless el heqje, belless* (S.), *Baeles* (Forsk.).

**7. F. populifolia** Vahl Symb. Bot. i, (1790) 82, t. XXII; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 129; Mildb. & Burret in Engl. Bot. Jahrb. xlv, 214.—*F. religiosa* Forsk. Fl. Aeg.-Arab. (1775) CXXIV, n. 626 and p. 180.

HABITAT: II. Above Hajeilah (S. 443); J. Milhan, Wulej (S. 749!); near Hille; at foot of J. Bura (S. 255!); W. el Neqil (Defl. 228!); middle mountainous region, Zebid (Forsk.).

FL.: Jan. 1889 (S.), Jan. 1890 (Defl.).

DISTRIB.: Tropical Africa, Arabia.

Vern. name: *Dharaf* (Defl.), *Mudah*, *Vudah* (Forsk.).

**8. F. pseudo-sycomorus** Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 242; Boiss. Fl. Or. iv, (1879) 1155; Post Fl. Syr. (1896) 730.

HABITAT: I. Desert of Sinai (Bové 204!); Sinai: Nakeb Haue (Schimp. 162!); Sinai (Holland!); from Dead Sea to Sinai (ex Post).

FR.: Apr. 1835 (Schimp.), June 1832 (Bové).

DISTRIB.: Egypt, Arabia Petraea, Palestine, Syria.

Vern. name: *Hamad* (Bové).

**9. F. salicifolia** Vahl Symb. Bot. i, (1790) 82, t. XXIII; Defl. Yemen (1889) 206; Baker in Kew Bull. (1894) 342; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 133; Mildb. & Burret in Engl. Bot. Jahrb. xlv, 206.—*F. indica* Forsk. Fl. Aeg.-Arab. (1775) CXXIV, n. 625 and p. 179 (*non L.*).—*F. taab* Forsk. l.c. p. 219.

HABITAT: II. Above Wulej, J. Milhan (S. 833); near Hille, foot of J. Bura (S. 318); J. Maamara, Hes (Botta); Manakhah, 2,300 m. (S. 1484! 1626); W. Saylet (Defl. 245!); W. Chuoiel, Wasil, 1,200 m. (S. 1158!); Mt. Cara (Schimp. 942!); el Hami (S. 201!); middle mountainous region, Uahfad, Zebid (Forsk.); Bilad Fodhli, J. el Areys (Defl. 967); near Manakhah, 2,200 m. (Defl. 433).

III. Between Tahiyeh and Alrail, 1,800 ft. (Lunt 122!); Wady near Sehut (Hirsch 98 and 136).

IV. Masqat (Auch.-Eloy 5316! Bent 4! Bornm. 646!).

FL.: Jan. 1890 (Defl.), Feb. 1889 (S.), Dec. 1835 (Schimp.), Dec. 1893 (Lunt).

DISTRIB.: Tropical Africa, Arabia.

Vern. name: *Thaab* (Forsk.), *Athab* (S.), *Hathib*, *Etheb*, *Letheb* (Hirsch).

**10. F. sur** Forsk. Fl. Aeg.-Arab. (1775) CXXIV, n. 619 and p. 180; Mildb. & Burret in Engl. Bot. Jahrb. xlv, 199.

HABITAT: II. Djobla (Forsk.).

DISTRIB.: Abyssinia, Eritrea, Yaman.

Vern. name: *sur* (Forsk.).

**11. F. Sycomorus** L. Sp. Pl. (1753) 1059; Defl. Yemen (1889) 206; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 142; Mildb. & Burret in Engl. Bot. Jahrb. xlv, 191.—*F. Sycomorus vera* Forsk. Fl. Aeg.-Arab. (1775) p. 180.—*F. chana* Forsk. l.c. p. 219.

HABITAT : II. Near Hajeilah, 600 m. (Defl. 105); in the mountains between Hes and Taz (Botta); Hille, J. Bura (S. 251!); W. el Kebir, neighbourhood of Lahaj (Defl. 165!); Hajeilah, Agara (S. 890!); Wulej, J. Milhan (S. 678, 793!); Surdud (Forsk.).

FL. : Jan. 1889 (S.).

FR. : Jan. 1889 (S.), Dec. 1889 (Defl.).

DISTRIB. : Tropical Africa, Egypt, Arabia.

Vern. name : *Djummeiz*, *chanas*, *obre* (Forsk.), *Tokar* (Defl.), *burrah*, *ehanas* (S.).

12. *F. vasta* Forsk. Fl. Aeg.-Arab. (1775) CXXIV, n. 621 and p. 179; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 129; Mildb. & Burret in Engl. Bot. Jahrb. xvi, 216.—*F. benghalensis* Vahl Symb. Bot. i, (1790) 82.—*F. socotrana* Balf. f. in Proc. Roy. Soc. Edinb. xii, (1884) 96; Defl. Yemen (1889) 205.

HABITAT : II. Manakhah (S. 1501); W. Chuoiat (S. 1150); Hille, J. Bura (S. 252!); Hajeilah (S. 929!); Wulej, J. Milhan (S. 700!); J. el Areys, near Serrya (Defl. 1087); near Hajeilah, 600 m. (Defl. 103); middle and lower mountainous region, Hadiyah and Taz (Forsk.).

FL. : Jan. and Feb. 1889 (S.).

FR. : Jan. and Feb. 1889 (S.).

DISTRIB. : Tropical Africa, Socotra, Arabia.

Vern. name : *tolak* (S.), *tulak*, *taluk* (Forsk.).

13. *Ficus* sp. in Defl. Yemen (1889) 205.

HABITAT : II. Near Manakhah, 2,200 m. (Defl. 432).

14. *Ficus* sp. in Defl. Yemen (1889) 205.

HABITAT : II. Foot of Mt. Masar, near Attara, 1,800 m. (Defl. 402); Lahaj, cultivated (Defl.).

#### Species dubiae.

*F. sycomoroides* Forsk. Fl. Aeg.-Arab. (1775) CXXIV, n. 617.

HABITAT : II. Surdud (Forsk.).

Vern. name : *Chanas* (Forsk.).

*F. toka* Forsk. Fl. Aeg.-Arab. (1775) CXXIV, n. 618 and p. 210.—? *Celtis integrifolia* Lam.

HABITAT : II. Milhan (Forsk.).

Vern. name : *toka* (Forsk.).

#### 6. *Antiaris* Lesch.

1. *A. challa* nov. comb.—*Ficus challa* Schweinf. in Bull. Herb. Boiss. (1896) App. II, 144.—*F. barbidentis* Warb. MS. Herb. Berol. ex Mildb. & Burret in Engl. Bot. Jahrb. xvi, 264.

HABITAT : II. Above Hille, 800 m. (S. 416!), Regma near Hajeilah, 900 m. (S. 982!).

DISTRIB. : Endemic.

Vern. name : *Challa* (S.).



7. *Urtica* L.

1. *U. urens* L. Sp. Pl. (1762) 1396; Forsk. Fl. Aeg.-Arab. (1775) CXXI, n. 543; Boiss. Fl. Or. iv, (1879) 1146; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 145; Post Fl. Syr. (1896) 731.

HABITAT: I. Arabia Petraea (ex Post).

II. Manakhah, 2,200 m. (S. 1382!); middle mountainous region, Hadiyah (Forsk.).

DISTRIB.: Europe, N. and Tropical Africa, Orient.

Vern. name: *Hurreiq*, *Zaghilil* (Post), *Kolaehlehae* (Forsk.).

8. *Fleurya* Gaudich.

1. *F. aestuans* Gaud. Uran. 196. VAR. *Linnaeana* Wedd.; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 145.—*Urtica divaricata* Forsk. Fl. Aeg.-Arab. (1775) CXXI, n. 542 and p. 160 (*non* L.).—*U. hirsuta* Vahl Symb. Bot. i, (1790) 76.—*U. Schimperiana* Hochst. in Bot. Zeit. xxxiii, 259.

HABITAT: II. Agara and Regma near Hajeilah, 600-800 m. (S. 1017, 953); J. Bura above Hille, 800 m. in coffee plantations (S. 430!) Okeber and J. Milhan, 1,000 m. (S. 826); lower mountainous region, Hadiyah (Forsk.).

FL.: Jan. 1889 (S.).

FR.: Jan. 1889 (S.).

DISTRIB.: ?

Vern. name: *Melaerreka* (Forsk.).

9. *Girardinia* Gaudich.

1. *G. condensata* Wedd. in Arch. Mus. Par. viii, (1855-56) 169.—*Urtica palmata* Forsk. Fl. Aeg.-Arab. (1775) CXXI, n. 539 and p. 159.

HABITAT: II. Middle mountainous region, Hadiyah (Forsk.).

DISTRIB.: Abyssinia, Arabia.

Vern. name: *Schadjaret el mehabbe*, *Horokrok* (Forsk.).

10. *Pouzolzia* Gaudich.

1. *P. arabica* Defl. Yemen (1889) 206.

HABITAT: II. Near Wasil, 1,000-1,200 m. (Defl. 215).

DISTRIB.: Endemie.

2. *P. mixta* H. Gf. Solms. in Schweinf. Beitr. Aeth.; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 146.

HABITAT: II. W. Hedjan near Wasil, 1,300 m. (S. 1268).

DISTRIB.: Tropical Africa, Arabia.

3. *P. parasitica* Schweinf. in Bull. Herb. Boiss. (1896) App. II, 145.—*Urtica parasitica* Forsk. Fl. Aeg.-Arab. (1775) CXXI, n. 541 and p. 160.—*U. muralis* Vahl Symb. Bot. i, (1790) 77.—*P. procridioides* Wedd. Mon. Urt. 412.

HABITAT: II. Near Wasil, 1,400 m. (S. 1269, 1275!); middle mountainous region, Hadiyah (Forsk.).

FL.: Feb. 1889 (S.).

DISTRIB.: S. Africa, Arabia.

Vern. name: *Naedjaa* (Forsk.).

### 11. *Debregeasia* Gaudich.

1. *D. bicolor* Wedd. in DC. Prodr. xvi, 25<sup>25</sup>; Defl. Yemen (1889) 206; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 147.—*Baehmeria hypoleuca* Hochst. Herb. Schimp. Abyss. ii, n. 862.

HABITAT: II. Hille, foot of J. Milhan, 600 m. (S. 774); Manakhah, 2,200 m. (S. 1575); J. Bura (S. 436!); near Sanah, 2,400 m. (Defl. 583).

FL.: Jan. 1889 (S.).

DISTRIB.: Arabia, India.

Vern. name: *assanab* (S.).

### 12. *Parietaria* L.

1. *P. alsinifolia* Defl. Fl. d'Eg. 137, t. 50, f. 2; Boiss. Fl. Or. iv, (1879) 1151; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 148; Post Fl. Syr. (1896) 733.—*Freirea alsinifolia* Gaudich.; Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 242.

HABITAT: I. Sinai (Auch.-Eloy 2792! Boiss.! Schimp. 121!); Et.-Tih and southward to Sinai (ex Post); W. Rim, 3,000 ft. (Rüppell); W. Gennah and W. Feiran (Lord!); W. Nasb (Drake 68!); Central Midian (Burton!); W. Tarfa, W. es Shaikh, between Oasis Feiran and foot of Serbal (Kneuck.); Arabia Petraea (McDonald!).

II. Above Hille, coffee region of J. Bura, 900 m. (S. 536).

IV. Masqat—(Bornm. 647!).

FL.: Jan. 1889 (S.), Jan. 1893 (Bornm.), Apr. 1835 (Schimp.), Apr. 1846 (Boiss.), May 1868 (Lord).

FR.: Apr. 1835 (Schimp.), Apr. 1846 (Boiss.), May 1868 (Lord).

DISTRIB.: Egypt, Arabia, Palestine, Persia.

Vern. name: *Ashleet* (Drake).

2. *P. judaica* L. Sp. Pl. (1762) 1492; Boiss. Fl. Or. iv, (1879) 1149; Post Fl. Syr. (1896) 732.

HABITAT: I. Arabia Petraea (ex Post).

DISTRIB.: Europe, Mediterranean region, Orient.

Vern. name: *Hashishet-er-Rih* (Post).

### 13. *Forskohlea* L.

1. *F. tenacissima* L. Mant. 72; Dcne. Fl. Sin. in Ann. Sc. Nat. ser. 2, ii, (1834) 242; Anders. Fl. Aden. (1860) 36; Boiss. Fl. Or. iv, (1879) 1151; Defl. Yemen (1889) 207; Post Fl. Syr. (1896) 733; Schweinf. in Bull. Herb. Boiss. (1896) App. II, 148; Musch. Verh. Bot. Ver. Prov. Brandenb. xlix, (1907) 80; Blatt. Fl. Aden. (1915) 335.—*Caidbeja adhaerens* Forsk. Fl. Aeg.-Arab. (1775) p. 82.

HABITAT: I. Central Midian (Burton!); W. es Sle, W. Tarfa (Kneuck.); from Dead Sea to Sinai (ex Post); Sinai (Holland!); Desert of Sinai (Bové 203!);

W. es Shaikh (Drake 92!); W. Hebran and W. Gurra (Schimp. 230!); W Arbain, 5,000 ft. (Rüppell).

II. Jiddah (Fischer 179! Zohrab 47!); Gemauer near Wasil, 1,400 m. (S. 1254!); Shuqra (S. 85); J. Nuqum, near Sanah, 2,300 m. (Defl. 511); Hadiyah (Forsk.); Aden (Hook. 90! Birdw. S. 2006, Defl., Perry).

III. Gàret Mukalla (Hirsch 72!).

FL.: Feb. (Fischer), Feb. 1889 (S.), Apr. and June (Schimp.), Dec. 1847 (Hook.).

FR.: Feb. (Fischer), Feb. 1889 (S.), Apr. and June (Schimp.), Dec. 1847 (Hook.).

DISTRIB.: Mediterranean region, Orient, Sind, Punjab.

Vern. name: *Leseke* (Bové), *lessike* (S.), *lussaq*, *hamsched* (Forsk.).

NOTE: Animals eat (Burton).

2. *F. viridis* Ehrbg. in Wedd. Monogr. Urt. 537; Schweinf. in Bull. Herb. Boiss. (1896) App. II. 148; Blatt. Fl. Aden (1915) 336.

HABITAT: II, Aden (Perry! Defl., S. 21a, Busse).

FL.: Mar. 1878 (Perry).

FR.: Mar. 1878 (Perry).

DISTRIB.: Tropical Africa, Arabia, Socotra.

#### 14. *Droguetia* Gaudich.

1. *D. iners* Schweinf. in Bull. Herb. Boiss. (1896) App. II, 146.—*Urtica iners* Forsk. Fl. Aeg.-Arab. (1775) CXXI, n. 540 and p. 160.—*U. dubia* Forsk. l.c. n. 544?—*U. verticillata* Vahl Symb. Bot. i, (1790) 76.—*D. pauciflora* Wedd. in DC. Prodr. xvi, i, 235<sup>58</sup>.—*Pouzolzia pauciflora* Hochst. in Rich. Fl. Abyss. ii, (1851) 259.—*U. urens* VAR. *iners* Wedd. l.c. 40.

HABITAT: II. Middle mountainous region, Hadiyah (Forsk.).

DISTRIB.: Tropical Africa, Arabia.

Vern. name: *Hamsched* (Forsk.).

#### 15. *Barbeya* Schweinf.

1. *B. oleoides* Schweinf. in Bull. Herb. Boiss. (1896) App. II, 117.

HABITAT: II. Above Hille and J. Bura, 800 m. (S. 503); Okeber, J. Milhan (S. 851!); between Wasil and Attara, 1,600 m. (S. 1775! 1353! 1375, 1966).

FR.: Jan., Feb. and Mar. 1889 (S.).

DISTRIB.: Eritrea, Yaman.

Vern. name: *Kemb*, *Himb* (S.).

### XCVI. JUGLANDACEAE.

#### 1. *Juglans* L.

1. *J. regia* L. Sp. Pl. (1762) 1415; Boiss. Fl. Or. iv, (1879) 1160; Defl. Yemen (1889) 223; Post Fl. Syr. (1896) 735.

HABITAT: I. Arabia Petraea, cultivated (ex Post).

II. Cultivated in Yaman (Defl.).

DISTRIB.: Orient, N. India, cultivated elsewhere.

**XCVII. SALICACEAE.****1. Salix L.**

**1. S. alba** L. Sp. Pl. (1762) 1449; Boiss. Fl. Or. iv, (1879) 1185.

HABITAT: II. Taz (Manzoni; probably introduced from Persia).

DISTRIB.: Europe, Mediterranean region, introduced in Arabia.

**2. Populus L.****1. Populus sp.**

HABITAT: IV. Central Arabia: Aradh Hills (Pelly).

**XCVIII. CERATOPHYLLACEAE.****1. Ceratophyllum L.**

**1. C. demersum** L. Sp. Pl. (1762) 1409; Boiss. Fl. Or. iv, (1879) 1202; Defl. Yemen (1889) 207; Post Fl. Syr. (1896) 745.

HABITAT: II. Mountainous region between Hes and Taz, 700 m. (Defl. 710!).

DISTRIB.: Europe, Mediterranean region, Arabia, Asia.

# THE BOTANICAL EXPLORATION OF ARABIA.

BY

E. BLATTER.

This brief sketch is intended to contain everything that has been done or written towards the botanical exploration of the vast peninsula of Arabia. It gives the names of collectors, botanists and travellers and, where possible, short notes on their lives and activities.

The country, except the Sinai Peninsula and parts of Yemen, is still very little known, geographically as well as botanically. Many books of travel have been included because very often they are the only source from which we are able to glean valuable information regarding the vegetation of extensive areas.

The matter has been arranged chronologically. On the left margin of the page the year is given during which a traveller visited Arabia for the first time or during which a book was published. Where several explorers have visited Arabia or when several books have appeared during the same year, the names are arranged alphabetically.

I wish to express my indebtedness to my Assistant, Mr. Joseph Fernandez, who has helped me considerably in the preparation of this paper.

## B.C.

**1800-1500 B.C.**—The oldest reference to Arabian plants is found in the Old Testament books Genesis and Exodus where mention is made of Midianite traders between Arabia and Egypt and of the wanderings of the Children of Israel in the Sinai Peninsula. References are found in the following:

**Celsius.**—*Hierobotanicon, sive de plantis Sacræ Scripturæ dissertationes breves.* Upsala, 1745-7.

**Hiller.**—*Hierophyticon, sive Commentarius in loca Scripturæ Sacræ quæ plantarum faciunt mentionem.* Treviris, 1725.

**Ursinus.**—*Arboretum biblicum.* Nuremberg, 1699.

**Ursinus.**—*Arboreti biblici continuatio.* Nuremberg, 1699.

**Cultrera.**—*Botanique biblique.* Geneva, 1861.

**Balfour.**—*The plants of the Bible.* London, 1885.

**Duns.**—Biblical Natural Science, being the explanation of all references in Holy Scripture to Geology, Botany, etc. London, 1863-5.

**Hooker and Tristram.**—Plants of the Bible, with the chief allusions collected and explained in Aids to the Student of the Holy Bible. London.

**Knight.**—Bible Plants and Animals. London, 1899.

**Smith.**—Bible Plants, their history, with a review of the opinions of various writers regarding their identification. London, 1878.

**Tristram, H. B.**—The Natural History of the Bible. London, 1889.

**Tristram, H. B.**—The Fauna and Flora of Palestine. London, 1884.

**Fillion.**—Atlas d'histoire naturelle de la Bible. Paris, 1884.

**Vigouroux.**—Dictionnaire de la Bible, passim. Paris, 1895.

**Fonck.**—Streifzüge durch die Biblische Flora. Freiburg, 1900.

**Oedmann.**—Vermischte Sammlungen aus der Naturkunde zur Erklärung der Heiligen Schrift. Leipzig, 1786-95

**Rosenmüller.**—Handbuch der Biblischen Altertumskunde IV, 1.

**Flavius Josephus.**—Jüdische Altertümer (übersetzt H. Clementz). Halle o. J. Bd. I, Buch III, Kap. 1, Abs. 6, p. 140-41.

**Breydenbach, Bernhard von.**—Die heyligen reysen gen Jherusalem zu dem heyligen Grab und fürbas zu der hochgelobten jungfrown und Merteryn sankt Katheryn. I, 193. 1483.

**Belon, Pierre.**—Observations de plusieurs singularités et choses mémorables trouvées en Grèce, Asie, etc. Paris, 1553.

**Alpino, Prospero.**—De medicina egyptiorum. 1591.

**Alpino, Prospero.**—De plantis Aegypti. 1592.

**Ritter, Karl.**—Die Erdkunde von Asien. Bd. VIII, 2. Abt. 1. Absch. : Die Sinai-Halbinsel. Berlin, 1848.

**Morrison, A.**—Relation historique d'un voyage nouvellement fait au Mont Sinai et à Jerusalem. 1704.

**Büsching, A. Fr.**—Gesammelte Nachrichten von dem morgenländischen Manna, in dessen wöchentlichen Nachrichten. Berlin, III. Jahrgung, 6. St., 1775, p. 41-48.

**Seetzen.**—Schreiben aus Mocha, 1810 ; in Mon. Corresp. XXVI, p. 392. 1912.

**Robinson, E.**—Palestina und die südlich angrenzenden Länder. Tagebuch einer Reise im Jahre 1838. Halle vol. I, p. 188-89. 1841.

**Tischendorf, C.**—Terre-Sainte. Paris, 1868.

**Kaiser, A.**—Der heutige Stand der Mannafrage. Mitteil. der Thurgauischen Naturforsch. Gesellschaft. Heft. 25. 1924.

**Hummelauer.**—Commentarius in Exodum. Paris, 1897.

**Ebers.**—Durch Gosen zum Sinai. Leipzig, 1872.

**Zenner.**—Man hu. In Zeitschr. d. kath. Theologie XXIII (1899) 164.

**Peters.**—Zu Man Hu. Ecod. 1. 371.

**Kaiser, A.**—Wanderungen und Wandlungen in der Sinai-wüste—Wiefelden o. J. 1929.

**Bodenheimer, F. S.**—Ueber das Tamariskenmanna des Sinai. In Bodenheimer und Theodor, Ergebnisse der Sinai-Expedition 1927 der Hebräischen Universität. Jerusalem 1929, p. 45-88.

**484—ab. 424 B.C.—Herodotus of Halicarnassus in Asia Minor.**—He travelled extensively in Egypt and Assyria. The main purpose of his work is historical, but it is full of geographical information and contains several most interesting references to plants, also Arabian. “Surely when he spoke of the Spice-land he meant some part of the peninsula which we still call Arabia, and not the southern Hamad.” (Hogarth.)

The first edition of Herodot's *Historiæ* is by Aldus (1502). The best critical editions are those by Gaisford and Stein (Berlin, 1869).

The best Latin commentary is that of Buehr (Leipzig, 1856).

The best English translation is by Rawlinson in 4 vols. (1858).

About **300 B.C.—Theophrastus of Eresus**, born about 370 B.C., died about 287 B.C. He was a pupil of Aristotle. During his time Alexander the Great (356-323 B.C.) had undertaken his many wars of conquest. To him the ancient world owed a vast increase of its knowledge in geography and natural history. It was Theophrastus who made use of the accounts brought home by Alexander's army. And he did this to such an extent that he was said to have written the first plant-geography. Arabia was not omitted. We find numerous references to the northern coasts of the Red Sea and the islands of the Persian Gulf. Of the many Greek writings by Theophrastus two botanical works have come down to us: *History of the Plants*. It seems to have consisted originally of ten books, nine of which have been preserved intact, and: *The Causes of Plants*. It was in eight books, of which six remain.

For a long time these works were little known until Pope Nicholas V about the middle of the 15th century induced the Greek refugee

Theodore Gaza to prepare a Latin translation. This was printed for the first time at Trivoso in 1483.

Of other editions the following may be mentioned :

Theophrasti Eresii Græce et Latine opera omnia. Daniel Heinsius emendavit etc.—Lugd. Batav. 1613.—1 vol. fol.

Theophrasti Eresii historiæ plantarum libri decem. Græce et Latine. Cum notis.....iconibus illustravit Joh. Bodæus a Stapal. Amstelod., 1644.

Theophrasti Eresii de historia plantarum libri decem Græce et Latine. Curante Joh. Stackhouse. Oxonii, 1813.

Theophrasti Eresii quæ supersunt opera et excerpta librorum Græce et Latine. Ad fidem librorum editorum et scriptorum emendavit, historiam et libros de causis plantarum conjuncta opera H. F. Linkii, excerpta solus explicare conatus est J. G. Schneider. Lipsiæ, 1818-1821.—5 vol. 8.

Theoprast's Naturgeschichte der Gewächse. Übersetzt und erläutert von K. Sprengel. Altona, 1822.

Theophrasti Eresii opera quæ supersunt omnia. Emendata edidit cum apparatu critico Fr. Wimmer. Tom. I historiam plantarum continens. Vratislav, 1842.

Sibthorp, J.—Floræ Græcæ prodromus etc. Edid. J. E. Smith, II vol. 8. London, 1806-13.

Bretzel, H.—Botanische Forschungen des Alexande zuges. Leipzig, 1903.

**Ab. 104 B.C.—Agatharchides and Artemidorus** seem to have had detailed knowledge of both shores of the Red Sea. But we have only reports of later writers especially of Photius. Agatharchides, as he himself indicates, gained his information from merchants and hunters who had been induced by the Egyptian kings to visit those countries. For the botanist those details are of interest which deal with the spices and incense of S. Arabia. Strabo and Diodorus seem to have borrowed much information from Agatharchides. See :

**Photii myriobiblon sive bibliotheca** etc. Græce edid. David Hoeschelius, Latine reddidit et scholiis auxit Andr. Schottus. Rothomagi, 1653.

**Photii bibliotheka.**—Ex recens. Imm. Bekkeri. 2 vol. Berolini, 1821.

**Meyer, E. H. F.**—Botanische Erläuterungen zu Strabon und einem Fragment des Dikäarchus. Königsberg, 1852.—(All botanically interesting remarks made by Agatharchides are given in Strabo's parallel texts.)



About 66 B.C.—after 21 A.D.—**Strabo** born at Amasia in Pontus. Spent his life in travel and study. “I have travelled,” he says, “from Armenia to the parts of Tyrrhenia adjacent to Sardinia; towards the south from the Euxine to the borders of Ethiopia.” Of his *Geographica* in 17 books, nos. XI-XVI are devoted to Asia. Here are passages relating particularly to Arabia. He gives the general character of the southern Hamad near Petra. He knew an immense dreary tract, south of the Hamad, largely sandy with thorny desert vegetation, and a few wells and palm oases, a tract which at last merged into a region of greater plenty. He was aware of something, too, of the incense-land of Hadramaut.

He also gives an account of the expedition of Aelius Gallus, Eparch of Egypt, who, by order of the Roman Emperor, undertook the conquest of inner Arabia.

The first edition of Strabo's *Geographica* appeared at Venice (1516). Good editions are those by Müller and Dübner (1853-56), and Meineke (1552-53).

See also: E. H. F. Meyer.—*Versuch botanischer Erleuterungen zu Strabon u. einem Fragment des Dikäarchus*. Königsberg, 1852.

Marcel Dubois.—*Examen de la Géographie de Strabo*. 1891.

#### ARAB BOTANISTS 9TH—14TH CENTURY.

Died 895 A.D.—**Abu H'anifadt Ahmad Ben Daud Addainri**.—Visited the holy places. Gives many botanical observations from the neighbourhood of Medina. Wrote in addition to many other books one on plants. (See Wüstenfeld. *Arabische Ärzte* n. 92).

Silberberg, B.—*Das Pflanzenbuch des Abu Hanifa*. Strassburg, 1910.

915-919 A.D.—**Istakhri**.—Born in the Persian province Fars. He was not a naturalist but a good observer. He describes many parts of Arabia, Syria, Mesopotamia, Armenia, Persia and India. According to some he wrote between 915-919 the “book of climates” or “countries.”

*Liber climatum auctore Abu Ishac el-Faresi vulgo el-Issthachri*. Ecodice Gothano edidit J. H. Moeller. Gothæ, 1839.

*Das Buch der Länder von Schech Ebu Ishak el Farsi el Isztachri*. Aus dem Arabischen übersetzt von A. D. Mordtmann. Nebst einem Vorworte von C. Ritter. Mit 6 Karten. Hamburg, 1845.

Istakhri is also the author of a work that for a long time had been ascribed to Ibn Haukal. See:

The Oriental geography of Eben Haukal. Translated by Sir Williams Onsley. London, 1800.

**1153 A.D.—Idrisi.**—Born at Ceuta he made his studies at Cordova. He wrote a geographical work entitled: Pleasures of Travelling. His writings are full of botanical observations on Europe, Africa, Arabia, the Orient and even the further east (in the year 1153).

The Geographical Society of Paris published a translation of the whole work:

Géographie d'Edrisi, traduite de l'Arabe en Français d'après deux manuscrits de la bibliothèque du roi, et accompagnée de notes par P. Amédée Jaubert. Paris, tom. I, 1836, II, 1840.

Also under the title: Recueil de voyages, et de mémoires publié par la Société de Géographie. Tome V et VI.

**1216 A.D.—Abul Abbas Annabati.**—A botanist of Sevilla. In 1216 he came to Alexandria. Travelled in Egypt, Arabia, Syria, Mesopotamia and Persia. Gave the distribution of the plants found in this area and of rare plants the precise localities, so that future explorers might find it again. He wrote a "book of travels."

Died **1248.**—**Ibn Baithar** or **Ebn-al-Beitar.**—He was born at Malaga and travelled in search of plants in Tunis, Egypt, Greece, Syria Medina and Mosul. He died at Damascus in 1248. He is said to have described no plant that he had not seen, and those he described amounted to about 1,400, as against Pliny's 1,000.

His works were edited, though not quite satisfactorily, by Jos. Sontheimer in 2 vols. Stuttgart, 1840 and 1842.

**1303-1377.—Ibn Batuta.**—Born at Tanger in 1303 he started travelling at the age of 22. He visited Mecca, was in Yemen, Dabar and Oman, and went as far as India and China, and southwards to the Sudan. Of botanical information he has given little, though there are a few exceptions. He died in 1377. An English translation of an extract from Samuel Lee's work appeared in London in 1829.

The complete original manuscript with a French translation appeared in the Collection d'ouvrages Orientaux, published by the Société Asiatique, under the title:

Voyages d'Ibn Batouta, texte arabe accompagné d'une traduction par C. Defremerie et le Dr. B. R. Sanguinetti. Paris, 1853-59.

A recent translation was made by Gibb: Ibn Battuta.—Travels in Asia and Africa, 1325-1354. Translated and selected by H. A. R. Gibb. London, 1929.

Died **1331.**—**Abu-l-Fida** was one of the best-informed and most reliable geographers of the Arabs. He describes Ared and Jabal Shammar,

mentioning Affaj and the Wady Yabrin. He says something of the great northern oasis of Jauf, and of Yemama and Faïd and the southern desert. He died in 1331.

There is an edition of his geography by Reinaud and Mac Guckin de Slane. Paris, 1840.

A French translation appeared by Reinaud. Paris, 1848.

#### 16TH TO 20TH CENTURY.

**1535.—Barthema, Ludovico di.**—Accompanied the Syrian pilgrims to Medina and Mecca as a mameluke voluntary, and visited Yemen. He then coasted down from Jidda by way of Kamaran and Jezan to Aden where he was arrested as a spy. After a quaint adventure he was released and went by the land route to Sana. He speaks of the orchards and fountains of all South Yemen, the spice trade of Zebid and the abundance of vines.

**Barthema, L. di.**—Itinerario de Ludovico de Barthema. Stampato e Vinegia, 1535.

**Badger, G. P.**—The travels of Ludovicus Varthema in Egypt, Siria, Arabia, etc. Edited by Badger and published for the Hakluyt Society. 1863.

**Barthema, L. di.**—Travels in Arabia, translated by Richard Eden, 1576.

**1546-49.—Belon, Pierre (1517-1564).**—Born at Mans, assassinated in 1563. He travelled in the years 1546-49 in Greece, Asia Minor, Syria, Egypt and Arabia, paying attention chiefly to plants and animals.

**Belon, P.**—Les observations de plusieurs singularités et choses mémorables, trouvées en Grèce, Asie, Judée, Egypte, Arabie. Paris 1554 and at Anvers 1555. Pages 269-289 give "Le Voyage du Caire au mont Sinai."

This was later on translated by Clusius in his *Exoticorum*.

**Belon, P.**—Plurimarum singularium et memorabilium rerum in Græcia, Asia, etc. ab ipso conspectarum observationes: C. Clusius latinis faciebat. Altera editio (Impr. in Clusii Exot.). Antverpiæ, 1605.

**Belon, P.**—Portraits d'oyseaux, animaux, serpens, herbes, arbres, hommes et femmes d'Arabie et d'Egypte. Paris, 1557 et 1618.

See: **Morren, C. J. E.**—A la mémoire de Pierre Belon de Mans, 1517-1564. Liège, 1885.

**1565.—Furer ab Haimendorf, Christ.**—He went on a pilgrimage to the Holy Land in 1565, being then 24 years of age, and returned in 1566.

**Furer ab Haimendorf, C.**—Itinerarium Aegypti, Arabiae, Palaestinae, Syriae, aliarumque Regionum Orientalium. Norimbergae, 1621.

**1573.—Rauwolf, Leonhard.**—Born at Augsburg. Died in 1596. Travelled and collected in Syria, Mesopotamia, Kurdistan, Palestine (1573-76). He had collected 513 plants. First they went to the library of the Kurfürsten of Bavaria. Then they were carried away by the Swedes during the thirty years' war. Queen Christine gave them to Isaak Vossius, professor at Leyden. When Vossius went to England they were used by Plukenet, Morison and Ray. Later on they went back to Leyden (University).

**Rauwolf, L.**—Bestelten Midici zu Augsburg, eigentliche Beschreibung der Raiss, so er in die Morgenländer vollbracht etc. Frankfurt, 1582.

An edition in 4 parts with illustrations was published in 1583 under the title:

**Leonharti Rauwolfen, der Artzney Doctoren etc.** Aigentliche beschreibung der Raiss, so er vor dieser Zeit gegen Auffgang inn die Morgenländer, fürnemlich Syriam, Judaeam, Arabiam, Mesopotamiam, Babyloniam, Assyriam, etc., vollbracht. Frankfurt, 1583.

The work was translated into Dutch, English and French. The descriptions were translated into Latin and published in the appendix to:

**Dalechamps.** Historia generalis Plantarum. 2 vol. et append. Lugduni, 1587.

A full description of Rauwolf's plants was published much later by:

**Gronovius, Jan Fredrik.**—Flora orientalis sive recensio plantarum quas.....L. Rauwolfus in Syria, Arabia, etc.....1573-75.....collegit. Lugduni Batavorum, 1755.

**1580-83.—Alpinus, Prosper.**—Born (1553) at Marostica in Upper Italy. Travelled in Egypt between 1580-83. Professor at Padua.

**Alpinus, P.**—The Plantis Aegypti liber. Venet. 1592, Patavii, 1640, Leidæ, 1735.

**Alpinus, P.**—De Balsamo dialogus. Venet. 1591 et 1639.

**Alpinus, P.**—De plantis exoticis, edidit A. Alpini auctoris filii. Venet. 1627, 1629, 1639. 1656.

**1658-63.—Valle, Pietro della.**—Viaggi, descritti da lui medesimo in Lettere familiari all'erudito suo Amico Schipano, la Persia e l'India. 3 vols. Roma, 1658-63.

**Valle, Pietro della.**—The travels of Sig. P. d. V.....into East India and Arabia Deserta....[translated by G. Havers] whereunto is added a Relation of Sir T. Roe's Voyage into the East Indies. London, 1665; edited by Edward Grey. 2 vols. 1892.

**1681.—Dapper, O.**—Mesopotamien, Babylonien, Assyrien, Anatolien oder Klein-Asien und Arabien: nebst einer vollkommnen Vorstellung des glücklichen, wüsten und steinigen Arabiens, zusamt deren verschiedenen Gewaechsen, Thieren, Sitten, Regierung, etc., ins hochteutsche übersetzt von J. Beer. Nürnberg, 1681.

**1708.—La Roque, J. de.**—Voyage dans l'Arabie heureuse fait de 1708-1710 par l'océan oriental et le détroit de la mer rouge, avec la relation particulière d'un voyage fait.....à la cour du roi de Yemen....un mémoire concernant l'arbre et le fruit du café. Amsterdam, 1716.

**La Roque, J. de.**—A voyage to Arabia the Happy, by the way of the Eastern Ocean and the Straits of the Red Sea, performed by the French for the first time in A.D. 1708, 1709 and 1710, etc. London, 1726.

**La Roque, J. de.**—A voyage to Arabia Fœlix through the Eastern Ocean and the Streights of the Red Sea.....1708-10, together with a particular account of a journey from Mocha to Muab, the Court of the King of Yaman.....1711-13, also the narrative concerning the Tree and fruit of coffee, translated from the French; to which is added an account of the captivity of Sir H. Middleton at Mokka, by the Turks in the year 1612, and his journey from thence to Zenan, or Sanaa. 1732.

**La Roque, J. de.**—Nachricht vom Cafee und Cafee-Baum. Leipzig, 1717.

**1710.—Tellez, F. Balt (S. J.).**—The travels of the Jesuits in Ethiopia: Geographical Description, Travels in Arabia Felix, Account of Kingdoms beyond Ethiopia, etc. 1710.

**1732.—Arvieux, d'(Chevalier).**—Travels of, in Arabia the Desert, written by himself and published by Mr. De la Roque.....with a general description of Arabia, 1732.

**Arvieux, d'.**—Die Sitten der Beduinen Araber. Uebersetzt u. mit Anmerkungen u. Zusätzen versehen von Ernst F. K. Rosenmüller. Mit einem biblisch-zoologischen Anhang des Uebersetzers. Leipzig, 1789.

**1761-63.—Forskall, Peter (1736-63).**—A Swede by birth and a pupil of Linnæus, was a physician with special knowledge of botany. Was educated at Göttingen. Was appointed professor of natural history

at Copenhagen. Shortly afterwards, 1761, Frederik V. of Denmark sent him together with Niebuhr and a few others on a scientific expedition to the East, more especially to Egypt and Arabia. He made an enormous collection of plants with detailed notes on everything he observed. He was, no doubt, the greatest botanist that ever worked in Arabia, especially considering the state of our botanical knowledge at that time. After spending some time in Egypt, the expedition visited Yemen. After encountering many dangers he died at Yerim, 1763. "Niebuhr mourned the ablest of his comrades, a man whom every botanist still holds in honour." His numerous discoveries were afterwards published by his friend Niebuhr, the only member of the expedition who survived its perils.

*Flora ægyptiaco-arabica sive descriptiones plantarum, quas per Aegyptum inferiorem et Arabiam Felicem detexit, illustravit Petrus Forskal. Post mortem auctoris edidit Carsten Niebuhr. Accedit tabula Arabiæ Felicis geographico-botanica Havniæ, 1775.*

Niebuhr opens the volume with these appropriate words:—

"Durum iter.....  
..... serpens, sitis, ardor, arenæ,  
Dulcia virtuti : gaudet patientia duris.  
Tantus amor florum!"

**Forskal, Peter.**—*Icones rerum naturalium, quas in itinere Orientali depingi curavit C. Niebuhr Havniæ, 1776. 43 tab.*

**Vahl, Martin.**—*Symbolæ botanicæ, sive plantarum tam earum quas collegit P. Forskal quam aliarum.....descriptiones, etc. Havniæ, 1790-94. 3 vols.*

For a criticism of Forskal's botanical work see : Sprengel, Curtius. —*Historia Rei Herbariæ. Amstelodami (1808) vol. II, p. 421.*

**Sontheimer.**—*Die zusammengesetzten Heilmittel der Araber. Nach dem fünften Buch des Canons von Ebn Sina. Aus dem arabischen übersetzt. Freiburg, 1844.*—This contains an appendix under the title : *Essai de Sinonymie (sic!) botanique arabe par Mr. Husson.*—It is an Arabic-Latin glossary helping the understanding of the Egyptian names of plants or also the rectification of Forskal's arabic plant names.

See also under Schweinfurth.

**Michælis, J. Dan.**—*Fragen an eine Gesellschaft gelehrter Männer, die nach Arabien reisen. Frankfurt, 1762.*

**Legré, L.**—*Pierre Forskal. Marseille, 1900.*

**1761-67.**—**Niebuhr, Karsten (1733-1815).**—Geographer and traveller. Was born in the Hannoverian territory of Hadeln. In 1761 he joined

an expedition to explore Arabia, Persia and India. Having lost his four companions by death and after finishing a great amount of geographical work he returned to Copenhagen in 1867. He published the following books of a high standard and full of information, also botanical, on Yemen in special and Arabia in general:

**Niebuhr, K.**—Beschreibung von Arabien. Kopenhagen, 1772.

**Niebuhr, K.**—Reisebeschreibung nach Arabien und andern umliegenden Ländern. 2 vols. Kopenhagen, 1774-78.

**Niebuhr, K.**—Description de l'Arabie, faite sur les observations propres et des avis recueillis dans les lieux mêmes, 25 planches, 1774.

**Niebuhr, K.**—Description de l'Arabie. 2 vols. 1779.

**Niebuhr, K.**—Voyage en Arabie et en d'autres pays de l'Orient avec l'extrait de sa description de l'Arabie et des observations de Forskal. 2 vols. 1780.

For his edition of Forskal's works see under Forskal.

It was only in 1837 that all Niebuhr's own observations were published in a final edition of the latter part of this his original narrative.

**Niebuhr, Carsten.**—Travels through Arabia, translated into English by Robert Heron. 2 vols. Edinburgh, 1792.

**1772.**—**Pietri.**—There are plants in the Brit. Museum with the label 'Pietri flora arabica' of the year 1772.

**1780.**—**Yrwin, E.**—Voyage à la Mer Rouge, sur le côtes de l'Arabie, en Egypte et dans les déserts de la Thébaïde, suivi d'un autre de Venise à Bassorah, par les deserts de l'Arabie, Alep, Bagdad et le Tygre, 1780-81. 1792. Translated from the 2nd English edition by Parrand.

**1782.**—**Ferrières—Sauveboeuf.**—Mémoires historiques et géographiques des voyages faits en Turquie, en Perse et en Arabie, 1782-89. 2 vols. Mæstricht, 1790.

**1788.**—**Cloupet.**—Nouveau Voyage dans l'Arabie Heureuse en 1788. Paris, 1810.

**1789.**—**Grandpré, L. de.**—Reise nach Indien und Arabien in den Jahren 1789-90. Translated from the French. Berlin, 1802.

**1802.**—**Annesley, George,** 2nd Earl of Mountnorris, Viscount Valentia (1769-1844).

**Annesley, G.**—Voyages and travels in India, the Red Sea, Abyssinia and Egypt in 1802-06. 3 vols. London, 1809. vol. 4 (plates) London, 1811.

**1807.**—**Ali Bey al-'Abbasi.**—Perhaps a spy of Napoleon. He landed at Jidda in 1807 and went to Mecca. When on the way to Medina he

was turned back by the Wahabis. He returned to Europe *viâ* Egypt, Syria and Turkey and reported himself in Paris in 1813. A year later a narrative of travels, translated from his Spanish manuscript was published. It contains notes on the geology, bôtany, and meteorology of the Hijas. He set out once more for Mecca *viâ* Damascus in 1818, but died on the road, two marches from Mzerib, of dysentery.

**Ali Bey.**—Travels. Paris, 1814; London, 1816.

See also: **G. Finati.**—Travels. Edited by W. J. Bankes. London, 1830.

**Viajes di Ali Bey.**—Barcelona, 1888.

**1809.**—**Burckhardt, Johann Ludwig** (1784-1817), called himself Ibrahim ibn Abd-Allah.—Born at Lausanne in Switzerland he was educated at Neuchâtel, Leipzig and Göttingen. In 1806 he came to London and his services were accepted by Sir Joseph Banks, the leading spirit of the African Association, to explore the interior of Africa. In 1809 he embarked for Malta, having previously qualified himself by the study of Arabic and also by inuring himself to hunger, thirst, and exposure. After a stay of two years at Aleppo he went to Cairo, Nubia and thence to Mecca in 1814, to perform the pilgrimage. In 1815 he returned to Cairo, and in the following year he ascended Mount Sinai. Returned to Cairo he died of dysentery in 1817, and was buried, as a holy pilgrim, in the Muslim cemetery. There is much for students of the natural sciences in his books and his botanical notes are numerous.

**Burckhardt, J. L.**—Travels in Syria and the Holy Land. London, 1822.

**Burckhardt, J. L.**—Travels in Arabia. 2 vols. London, 1830.

**Burckhardt, J. L.**—Notes on the Bedouines and Wahabys. 4°. 2 vols. London, 1830 (in German, Weimar, 1831).

**Burckhardt, J. L.**—The same. 8°. London, 1831.

**Burckhardt, J. L.**—Voyages en Arabie, contenant la description des parties du Hedjaz, regardées comme sacrées par les Musulmans, suivis de notes sur les Bedouins et d'un essai sur l'histoire des Wahabites. Trad. par J. Eyriés. 3 vols. 1835.

**1809.**—**Salt, Henry** (1780-1827).—Traveller and collector of antiquities. As secretary and draughtsman to Viscount Valentia (1802) he visited India, Ceylon and (in 1805) Abyssinia. During his second journey to Abyssinia he went to Aden (1809) which was in possession of Ahmed, the chief of the Azaibeas. Salt seems to have collected plants, but, judging from his specimens in the British Museum, without appending any notes or records of station to his specimens. His plants



were named by R. Brown; they were given to Banks and are now in the British Museum. Salt died in 1827 near Alexandria.

**Salt, H.**—A voyage to Abyssinia and travels into the interior of that country, etc. London, 1814. (German edition, Weimar 1815).

**Brown, R.**—List of New and Rare plants, collected in Abyssinia during the years 1805 and 1810, arranged according to the Linnean System. In Appendix IV of Salts' Voyage. London, 1814.

**1810.**—**Maundrell, Henry.**—A Journal from Grand Cairo to Mount Sinai, translated by Bp. R. Clayton. London, 1810.

**Ab. 1810.**—**Seetzen, Ulrich Jasper.** (Hajji Musa).—Conseiller d'ambassade in the Russian service. He had trained himself for twenty years in Germany to be an Eastern explorer. He was a botanist of European reputation and a learned Arabist who had already spent some seven years in Syria. He visited Mecca and Medina and was qualifying as a dervish. Then he went to Sana and Aden and back to the Yemen highlands, in the character of Hajji Musa, a physician; but he had not passed Tais before he was murdered. His last diaries and all his books were lost.

**Seetzen, U. J.**—Auszug aus einem Schreiben, Mocha, 17. Nov. 1810. V. Zach, Monatl. Corresp. XXVIII, (Sept. 1813) 231.

**Seetzen, U. J.**—Travels in Yemen. 1810.

**Seetzen, U. J.**—Reisen durch Syrien Palästina, Phœnicien, die Trans-Jordan-Länder, Arabia Petræa und Unter-Aegypten, herausgegeben und commentiert von F. Kruse, Hinrichs, H. Müller 3 maps. 4 vols. Berlin, 1854-56.

**1816.**—**Mayeux**—Les Bédouines. Paris, 1816. (Many botanical references).

**1819.**—**Sadlier, George Forster** (Capt.).—A British ship of war was sent from Bombay to the Persian Gulf in 1819. Upon it went a special emissary Capt. Sadlier who, entrusted with a political mission, crossed the Arabian Peninsula, passing through Nejd. The journey ended at Jidda.

The first report of his experiences was given to the Literary Society of Bombay in April 1821 (Vol. III, 449).

A fuller story was published in the Records of the Bombay Government in 1866.—This contains a good deal of information on crops and cultivation.

**1820-26.**—**Ehrenberg, Christian Gottfried** (1795-1876) was born at Delitzsch in Prussian Saxony. He was the founder of the study of microscopic organisms. In 1820-26 he visited Egypt, Syria, and Arabia; in 1827 he was appointed to a medical chair at Berlin; in 1829 he

accompanied Humboldt on an expedition to the Ural and Altai mountains.

**Ehrenberg, C. G. und W. F. Hemprich.**—Naturgeschichtliche Reisen durch Nord-Afrika und West-Asien, etc. Berlin, 1828. (These two naturalists kept to the coast of Abu Arish, S.-W. Arabia).

**Ehrenberg, C. G.**—Beitrag zur Charakteristic der Nord-afrikanischen Wüsten. Berlin, 1827.

**Ehrenberg, C. G. et F. G. Hemprich.**—Symbolae physicae. 2 vols. Berolini, 1828-45.

**Ehrenberg, C. G.**—De Myrrhae et Opocalpasi ab Hemprichio et Ehrenbergio in itinere per Arabiam et Habessiniam detectis plantis particulam primam offert. Berolini, 1841.

**Ehrenberg, C. G.**—Plantarum Cotyledonearum nova genera auctoribus Hemprich et Ehrenberg primis lineis adumbrat. Linnæus, IV (1829) 306-404.

**Ehrenberg, C. G.**—Symbolæ Physicæ, seu Icones et descriptiones Corporum Naturalium novorum aut minus cognitorum quæ ex itineribus per Libyam, Aegyptum, Nubiam, Dongalam, Syriam, Arabiam et Habessiniam. . . . . P. C. Hemprich et C. G. Ehrenberg . . . . . studio 1820-25 redierunt. Pars botanica pp. 65, 24 col. pl. Publico usui obtulit C. Schumann. Berlin, 1900.

**J. Hanstein.**—Christian Gottfried Ehrenberg. Bonn, 1877.

**1821-26.**—**Boteler, T.**—Narrative of a voyage of Discovery to Africa and Arabia in 1821 to 1826. 2 vols. 1835.

**1826.**—**Rueppel, Edward (Dr.)**.—A German naturalist. He travelled in Nubia and Kordofan and explored Sinai in 1826. His plants were described by Fresenius.

**Rueppel, E.**—Reise in Nubien, Kordofan und dem peträischen Arabien, vorzüglich in geographisch-statistischer Hinsicht. Frankfurt am Main, 1829.

**Fresenius, J. B. G. W.**—Beiträge zur Flora von Aegypten und Arabien. Frankfurt am Main, 1834.

**1827.**—**Lambert, Aylmer Bourke (1761-1842).**—Collected in the deserts of Sinai and Akaba in 1827. Plants at Kew.

**1830.**—**Aucher-Eloy or Peter Martin Remi Aucher (1793-1838).**—Born at Blois in France, he studied pharmacy at Orleans and Paris. In the latter town he prosecuted his botanical studies under Jussieu and Desfontaines (1813). Married (1817) a young lady named Eloy and added her name to his own. Became bookseller and printer. Undertook a series of journeys in Turkey, Greece, Egypt, Sinai, Syria and Persia with a view of collecting botanical and zoological specimens.

He encountered many difficulties and dangers. Finally he explored Muscat and the island of Ormuz. He was compelled, by the state of his health, to return to Shiraz, which he reached in very enfeebled condition. Thence he proceeded to Ispahan where he died in 1838. His extensive and valuable collections were sent to Paris and were soon dispersed over various public and private herbaria in France, Britain and elsewhere. All were made use of in Boissier's *Flora Orientalis*.

**Aucher-Eloy, P. M. R.**—*Relations de voyages en Orient de 1830 a 1838, revues et annotées par le Cte. Jaubert.* Paris, 1843. 2 vols. (His journey in Sinai on p. 27-36, in Oman p. 545).

**Boissier, E.**—*Plantæ Aucherianæ Orientales cum novarum specierum descriptione.* Genève, 2. dec. 1841 (*Ann. Sc. Nat. sér. 2, vol. XVI, ann. 1841, botanique, p. 347-377; vol. XVII, ann. 1842, p. 45-90, 150-205, 381-390*).

**Boissier, E.**—*Novorum generum Cruciferarum diagnosis, ex plantarum Aucherianarum enumeratione.* *Ann. Sc. Nat. sér. 2, vol. XVI, ann. 1841, p. 378-382.*

**Boissier, E.**—*Plantæ Aucherianæ adjunctis nonnullis e regionibus Mediterraneis et Orientalibus aliis cum novarum specierum descriptione.* *Ann. Sc. Nat. botanique, sér. 3, ann. 1844, vol. I, p. 120-151, 297-349, vol. II, p. 46-96.*

**1831.—Bové, Nic.**—Director of the gardens of Ibrahim Pasha at Cairo. Collected in 1831 in Egypt and Yemen. In 1832 he was in Sinai from where he brought rich collections, worked out later on by Decaisne.

**Bové, N.**—*Relation abrégée d'un voyage botanique en Egypte dans les trois Arabies, en Palestine et en Syrie.* *Ann. Sc. Nat. 2nd sér. I (1834) 72-87.*

**Decaisne, J.**—*Florula Sinaica. Énumération des plantes recueillies par M. Bové dans les deux Arabies, la Palestine, la Syrie et l'Egypte.* Paris, 1834. (Tiré des *Ann. Sc. Nat. sér. 2, II et III*).

**Decaisne, J.**—*Sur quelques nouveaux genres et espèces de plantes de l'Arabie-Heureuse.* *Ann. Sc. Paris, 1835.*

**1831.—Cruttenden, Charles** (Naval Lieutenant).—Made an excursion into Dabar and undertook an expedition from Mokha to Sana in 1835 in the company of Dr. Hulton, also of the Indian Surveying ship "Palinurus." Hulton died shortly after regaining the ship of a malady similar to that fatal to Niebuhr's party.

**Cruttenden, C.**—*Journal of an excursion into Dabar.* *Bomb. Journ. Geogr. Soc. I (1831).*

**Cruttenden, C.**—Excursion to Sana, the capital of Yemen. Bomb. Journ. Geogr. Soc. II, and VIII (1838) 267. Gives an account of the coffee-yielding highlands.

**Hulton.**—Account of the Curia Muria Iles. Journ. Roy. Geogr. Soc. XI, 156; Bomb. Journ. Geogr. Soc. III.

**Cruttenden, C.**—Narrative of a journey from Mokka to Sana. Journ. Roy. Geogr. Soc. VIII, 1838.

**1833.**—**Carless, Lieut.**—Memoir on the Gulf of Akabah, from notes during the survey by Moesby in 1833. Bomb. Journ. Geogr. Soc. I.

**Ab. 1833.**—**Laborde, Léon de,** the son of Count Alexandre de Laborde, was an enterprising traveller, antiquarian and skilful artist. Before his arrival in Egypt he had explored all Asia Minor and Syria. He visited Arabia Petræa and collected many plants which were described by Delile who before had published “*La Flore d’Egypte.*”

**Laborde, L. de et Linant.**—*Voyage de l’Arabie Pétrée.* Paris, 1830.

**Delile, A. R.**—*Fragments d’une Flore de l’Arabie Pétrée, plantes recueillies par M. Léon de Laborde.* Paris, 1833.

**Laborde, Leon de.**—*Journey through Arabia Petræa to Mount Sinai and the excavated city of Petra.* London, 1836.

**Before 1834.**—**Traill, James** (fl. 1827-35).—Gardener at Chiswick and to Ibrahim Pasha at Cairo. Collected in Sinai before 1834.

**1834.**—**Fresenius, J. B. G. W.** (1808-66).—Professor of Botany at Senckenberg’s medical Institute of Frankfurt worked out the collections made by Dr. Rueppel who traversed Egypt, Arabia and Abyssinia.

**Fresenius, J. B. G. W.**—*Beiträge zur Flora von Aegypten und Arabien.* (Mus. Senck). Frankfurt am Main, 1834.

**1834.**—**Hochstetter and Steudel.**—*Projet de Voyage en Arabie, pour la Botanique et la Zoologie* (Extrait d’un avis aux membres de la Société des Voyages d’histoire naturelle d’Esslingen, par MM. Hochstetter et Stendel à la date du 5 avril 1834). In *Ann. Sc. Nat.* ser. II, vol. I, 318-319.

**1835.**—**Schimper, Wilhelm Philipp.**—Sent by the ‘Naturhistorischen Reiseverein’ of Württemberg to Egypt, from where he went to Arabia Petraea, chiefly investigating the flora of Sinai in 1835. He then proceeded to Abyssinia. Plants at Kew. In 1836 he also collected at Jidda and Taif (Hedjas).—Many of his plants were published in :

**Richard, A.**—*Tentamen Floræ Abyssinicæ etc.* Paris, 2 vols. 1847-51.

**1836.**—**Schubert, G. H. von.**—*Reise in das Morgenland, 1836 und 1837.* Erlangen, 1838-39.

## Plants described by Schenk.

Schenk, A.—Plantarum species quas in Itinere per Aegyptum . . . . . G. H. de Schubert, M. Erdle et J. R. Roth colligerunt. Monachii, 1840.

**1837.—Botta, Paul Emile.**—A French botanist and physician to Mehemet Ali. He was commissioned by the Museum of Natural History of Paris. He arrived at Hodeida in 1837 and pushed his researches further into the western highlands of Yemen than Forskall had done. He ascended Mt. Sabor behind Tais, famous for its wealth of vegetation.

**Botta, P. E.**—Relation d'un voyage dans l'Jemen, entrepris en 1837 pour le Museum d'histoire naturelle de Paris. Paris, 1841.

**Decaisne, J.**—Observations sur quelques nouveaux genres et espèces de plantes de l'Arabie heureuse. Ann. Sc. Nat. ser. 2, IV, p. 65.

**Decaisne, J.**—Plantes de l'Arabie heureuse recueillies par P. E. Botta. Paris, 1841. (Arch. du Museum, II, 89-199.)

**1837.—Roth, J. R. (Dr.), M. Erdle and G. H. de Schubert** visited in 1837 Arabia Petræa, Palestine and the Libanon. Roth was at Aden in 1847. He returned later on to Palestiné where he died. Plants at Kew.

**Schenk, August.**—Plantarum species . . . . . in itinere per Ægyptum, Arabiam et Syriam . . . . . collectæ. Monachii, 1840.

**Schenk, August.**—Plantarum species quas in itinere per Ægyptum, Arabiam Petræam . . . . . G. H. de Schubert, M. Erdle et J. R. Roth colligerunt. Monachii, 1840.

**Roth, J. R.**—Ueber die Halbinsel Aden. Münch. Gelehrt. Anz. XXVI (1848) col. 313-318; Münch. Bull. Akad. (1848) col. 137-142.

**Roth, J. R.**—Notice on the Peninsula of Aden. Hook. Journ. Bot. I (1849) 216-19.

**1838.—Wellsted, James Raymond (1805-1842).**—Surveyor and traveller. In 1830 he was appointed second lieutenant of the East India Company's ship *Palinurus*, then engaged in making a survey of the Gulf of Akaba and the northern part of the Red Sea. They then surveyed the southern coast of Arabia (1833) and Oman (1835). His books contain many botanical observations. In the Sinai Peninsula he made a very large collection of plants which, according to his own statement "are now in the possession of A. Bourke Lambert Esq., V.P.L.S." Others were sent to J. Lindley.

**Wellsted, J. R.**—Travels in Arabia. 2 vols. London, 1838.

**Wellsted, J. R.**—Observations on the coast of Arabia between Ras Mohammed and Jiddah. Journ. Roy. Geogr. Soc. VI, 51.

**Wellsted, J. R.**—Narrative of a journey into the interior of Oman. Journ. Roy. Geogr. Soc. VII, 1837.

**Lindley, John.**—Notes on a collection of plants transmitted by Lieut. J. R. Wellsted. Geographical Journal.

**Wellsted, J. R.**—Reisen in Arabien. Halle, 1842.

**Wellsted, J. R.**—Narrative of a journey to the ruins of Nakel el Hajar. Journ. Roy. Geogr. Soc. VII (1837) 20.

1838.—**Whitelock, F.**—Descriptive Sketch of the Islands and Coast situated at the entrance of the Persian Gulf. Journ. Roy. Geogr. Soc. VIII, 1838.

1839.—**Haines, S. B.**—Memoir to accompany a Chart of the south coast of Arabia from the entrance of the Red Sea to Misenat. Journ. Roy. Geogr. Soc. IX (1839) 125-156 and XV (1845) 104.

1840.—**Combes, E. and M. O. Tamisier**, two Frenchmen accompanying the Egyptian Expedition to Asir (S. W. Arabia), published an account of travels in Abyssinia and Arabia Felix, containing notes on botany.

**Combes E. et M. O. Tamisier.**—Voyage en Abyssinie et l'Arabie Heureuse. Paris, 1851.

Ab. 1840.—**Gough, George Stevens, 2nd Viscount (1815-95).**—He was Captain of the Grenadier Guards. He collected at Aden about 1840, and with Munro in the Neilgherries 1842.

1842.—**Rœdiger, E.**—Reisen in Arabien, mit Excurs über himyaritische Inschriften. 1 vol., 1842.

1842-57.—**Jaubert et Spach.**—Illustrationes Plantarum Orientalium ou Choix de plantes nouvelles ou peu connues de l'Asie occidentale. Paris, 1842-57. 5 vols.

1843.—**Chedufau** (also spelt Chedufault and Chedufeau) was one of the few Frenchmen who accompanied the Egyptian Expedition into Asir. He remained eight years in Arabia. He mentions oases of many thousand palm-trees, producing also fine wheat and a super-fine sort of coffee.

**Chedufau** in Bull. Soc. Géogr. 2nd série (1843) 106. These are the first and last European observations concerning the mountains of Asir.

1843.—**Wrede, Adolph von.** ('Abd-al Hud'). He came of a good Bavarian family and is said to have been in the Service of King Otho, in Greece. Subsequently he resided in Egypt. Went to Jidda and Aden. Entered Hadramaut from Makalla, disguised as a pilgrim.

Explored many valleys and took botanical notes. Finally he was suspected as an English spy and forced to return to Makalla.

**Capt. Haines** of the 'Palinurus' obtained a brief report from Wrede and communicated it to the Royal Geogr. Soc. (1844) 107.

**Karl Ritter** who was just finishing the Arabian volumes of his 'Description of Asia' welcomed Wrede's report as an immense gain to knowledge.

Wrede did not publish anything, but emigrated to Texas, where he is said to have killed himself about 1860.

Later on **Baron Heinrich von Maltzan** published Wrede's journal in full with a map and a vindictory preface. The map was re-issued in a revised form in 1872, in Petermann's 'Mitteilungen'.

**Wrede, A. von.**—Reise in Hadhramut, etc., edited by H. **Freiherr v. Maltzan**. Brunswick, 1870.

**Wrede, A. von.**—Ueber die Heimat des Weihrauches. Monatsber. Verh. Ges. f. Erdkunde IX (1852-53) 38.

**Fresnel, F.**—Note sur le voyage de M. de Wrede dans la vallée de Doan. 1845.

**1845.**—**Malcolmson.**—Account of Aden. Journ. Roy. As. Soc. Great Br. and Irel. no. 16, part I (1845) 279-292.

**1845.**—**Wallin, George Augustus.**—A Swedish Arabist. Was commissioned by Mehemet Ali to make a report on the rising power of Jabal-Shammar (1845). Disguised as a learned Moslem sheikh he passed the northern Nefud from Jauf to Hail and visited Medina. The report of his experiences on this first journey was long delayed. It was read to the Roy. Geogr. Soc. in 1852 (XXIV, p. 115).

Wallin returned to Cairo and in 1848 he journeyed anew to Arabia, setting out from Mueyhi, on the Red Sea coast. He reached the Oasis of Teima, on the frontier of the Shammar dominion, and went to Hail and Meshed Ali. Then he returned to Europe *viâ* Baghdad. He died in Finland after four years (1852) as professor at the University of Helsingfors. He was a scientific explorer of the best modern type. His papers are full of botanical information.

The narrative of the second journey was published in the Journal of the Roy. Geogr. Soc. XX (1850) 293.

**1846.**—**Boissier, Pierre-Edmond** (1810-1881).—Botanist and traveller. He was born at Geneva. He was the author of many books on systematic botany and plant-geography. He travelled vastly in the Mediterranean region and in the Orient. In 1846 he visited Egypt

and Mt. Sinai and crossed the whole of Arabia Petræa up to Gaza. Then he went to Palestine and Syria.

See his publications on Aucher-Eloy's plants.

**Boissier, E.**—*Diagnoses plantarum Orientalium novarum.* 3 vols. Série I, vol. I—

- fasc. 1, Lipsiæ, 1842, 76 pages;
- fasc. 2, Genevæ, 1843, 115 pages;
- fasc. 3, Genevæ, 1843, 60 pages;
- fasc. 4, Lipsiæ, 1844, 86 pages;
- fasc. 5, Lipsiæ, 1844, cum addend. ad fasc. 1 et 2, 91 pages;
- fasc. 6, Lipsiæ, 1845, 136 pages;
- fasc. 7, Lipsiæ, 1846, 130 pages.

Série I, vol. II—

- fasc. 8, Parisiis, 1849, 128 pages;
- fasc. 9, Parisiis, 1849, 131 pages;
- fasc. 10, Parisiis, 1849, 122 pages;
- fasc. 11, Parisiis, 1849, 136 pages;
- fasc. 12, Neocomi, 1853, 120 pages;
- fasc. 13, Neocomi, 1853, cum ind. fasc. 1-13 ind. pl. Aucher. Or. nov., etc., 114 pages et præmonenda p. I-III.

Série 2, vol. III—

- fasc. 1, Neocomi, 1854, 120 pages;
- fasc. 2, Lipsiæ, 1856, 125 pages;
- fasc. 3, Lipsiæ, 1856, 177 pages;
- fasc. 4, Lipsiæ et Parisiis, 1859, 146 pages;
- fasc. 5, Lipsiæ, 1856 (sic!), 118 pages;
- fasc. 6, Lipsiæ et Parisiis, 1859, cum ind. fasc. 1-6, 148 pages.

**Boissier, E.**—*Centuria Euphorbiarum.* Lipsiæ et Parisiis, 1860.

**Boissier, E.**—*Euphorbiaceæ, subordo Euphorbieæ, in De Candolle Prodrômus vol. XV, sect. 2, anno 1862 and 1866, p. 3-188, et addend. et corrig. p. 1261-1269.*

**Boissier, E.**—*Flora orientalis, 5 vols. Genevæ et Basileæ 1867-84, et Supplementum, editore R. Buser. Lugduni, 1888.*

**Christ, H.**—*Notice sur la vie et les travaux botaniques d'Edmond Boissier. In Supplémento ad Floram Orientalem I-XXXIII (1888).*

1846.—**Edgeworth, Michael Pakenham (1812-1881).**—Went to India in 1831 to join the civil service. In 1842 he went home on leave. On his way he took advantage of the steamer coaling at Aden to look about for plants. Of the 40 species he collected in that short period, no less than 11 were new to science.



**Edgeworth, M. P.**—Two hours' Herborization at Aden. Journ. As. Soc. Bengal XVI, 1211.

1846.—**Pinard** collected in Arabia Petræa in 1846. Plants at Kew.

1846.—**Ritter, Karl** (1779-1859).—Professor of Geography. His publications contain a great number of references to natural history.

**Ritter, K.**—Erdkunde von Asien. pt. XII (1846) and pt. XIII (1847) contain Arabia, pts. 14-17 the Sinai Peninsula, Palestine and Syria.—Vol. XIII gives a long treatise (98 pages) on the Date-palm.

In 1852 Ritter published a revised map of Arabia.

1847.—**Blanche, J.**—Vice Consul of France at Tripoli, collected plants in various parts of Syria and went even to Palmyra.

**Puel, Timothée et Alphonse Maille.**—Catalogue de l'herbier de Syrie publié par J. Blanche et C. Gaillardot (nn. 1-50). Paris, 1854.

1847.—**Cole, C. S. D.**—Account of an Overland Journey from Leskairee to Maskat and the 'Green Mountains' of Oman. Trans. Bomb. Geogr. Soc. VIII, 1847.

1847.—**Desvergers, N.**—Arabie. Paris, 1847.

1847.—**Hooker, Sir Joseph Dalton** (1817-1911). On his route to India in December 1847 he remained two days in Aden, where he made an extensive collection of plants. From Madras he wrote home: "I have lost nearly all my collections (particularly that made at Aden) from the salt water in our wretched dormitory on board the ship." For his second visit to Aden, see under T. Thomson.

"Extracts from the private letters of Dr. Hooker, written during a botanical Mission to India." Hooker's London Journ. of Bot. VII (1848) 307-314.

1847.—**Munro, William** (1818-80).—General 39th Regiment. Collected in India and (1870-5) Barbados; at Aden in 1847. Plants at Kew.

1848.—**Carter, Henry John** (1813-1895) of the Bombay Medical Service. He was naturalist and geologist to the Arabian Coast Survey under Capt. Sanders.

**Carter, H. J.**—The Frankincense tree of Arabia (*Boswellia papyrifera*). Journ. Bomb. Br. As. Soc. II (1848) 380.

**Carter, H. J.**—Memoir on the Geology of the South-east Coast of Arabia. Journ. Bomb. Br. As. Soc. IV (1852) 21-96.

*Boswellia Carteri* Birdwood in Linn. Trans. XXVII, 143.

1849.—**Figari, Antonio**, a disciple of Dom. Viviani.—Sent exsiccata of Sinai of the year 1849 to Kew in 1886 (ex Museo Florentino).

He also collected at Mecca.

**Figari, A. & Giuseppe de Notaris.** Nuovi materiali per l'algologia del Mar Rosso, etc. Mem. Acc. Tor. II, XIII (Torino 1853).

**Figari, A.**—Studi scientifici sull'Egitto e sue adiacenze compresa la Penisola dell'Arabia Petrea. 2 vols. Lucca, 1864-65. (vol. II, 479-677 contain two diaries of excursions into Arabia Petrea in 1847 and 1849).

**Figari, Antonio & A. H. Husson.**—L'exploration scientifique de l'Egypte sous le règne de Mohammed Ali—mis en ordre par A. Defflers. (Rev. d'Egypte). Le Caire, 1896.

**1849.**—**Hogg, John** (1800-69).—Classical scholar and naturalist.

**Hogg, J.**—On Mount Serbal being the true Mount Sinai; on the Manna of the Israelites, etc. (Repr. from Trans. Roy. Soc. of Lit.) London, 1849.

**Hogg, J.**—On Sinai, map and paper. Jameson's Edinb. Philosophical Journ. XLVIII, 193, XLIX, 33.

**1849.**—**McDonald, Major**, collected in Arabia Petrea in 1849.

**1849.**—**Tamisier, M. O.**—Voyage en Arabie. Paris, 1849.

**1850.**—**Madden, Edward** (died in 1856). Lt.-Col. of the Bengal Artillery. Travelled in India (1830-45) and collected at Simla, Kumaon, and Aden. Plants at Kew.

**1851.**—**Guarmani, Carlo**. (Khalil Agha).—A Levantine Italian. At one time consular agent for the King of Prussia at Jerusalem. He undertook an expedition to Jaufr in 1851. In 1864 he set out again intrusted with a mission to buy stallions in Nejd for their French and Sardinian majesties. He went to Teima, Kheibar, the Ateiba country and Kasim. Here, suspected of being a Turkish spy he was sent a prisoner to Aneiza. Here he was set free and went to Jabal Shammar. Then he returned across the Nafud.

**Guarmani, C.**—Il Neged settentrionale : Itinerario da Gerusalemme a Aneizeh nel Cassim. Gerusalemme, 1866.

**1851.**—**Bromfield, William Arnold** (1801-1851).—Botanist. Travelled in the West Indies, North America, Egypt and Syria. At Damascus he was attacked by malignant typhus and died 4 days after his arrival.

**Bromfield, W. A.**—Letters from Egypt and Syria. London, 1856.

**1851.**—**Lynch.**—Narrative of the U. S. Expedition to the river Jordan and the Dead Sea. 5th ed. London, 1851.

**1851.**—**Thomson, Thomas** (1817-78).—In 1839 he joined the Bengal Army as Surgeon. In 1851, in the company of J. D. Hooker, he returned to Europe. They largely increased the number of specimens of Hooker's previous collection at Aden and also added some.

species to the list. In 1854 we find Thomson as Superintendent of the Botanic Garden in Calcutta. When, owing to ill health, he returned to Europe in 1861, he once more made a small collection of plants at Aden. A third set of Aden plants, gathered by Thomson, dates from 1872. The specimens are at Kew.

**1852.—Playfair, Sir Robert Lambert (1828-1899).—**He entered the Madras Artillery in 1846. Retired from the Army as Lieutenant-Colonel (1867). Later he served as Assistant Executive Engineer at Aden (1852-53) and still later acted as Political Resident (up to 1862). He sent a number of plants to Kew together with coloured sketches which he had personally made. Brandis mentions that Playfair cultivated a number of the more interesting Aden plants in the little garden surrounding his bungalow.

Brandis in Petermann's *Mitteil.* (1857) 480.

Playfair, R. L.—*History of Arabia Felix or Yemen.* Bombay, 1859.

**1852.—Vaughan, James (fl. 1852-3).—**He was Assistant Surgeon to the Bombay Army and Civil and Port Surgeon at Aden in 1852. Returned to England in 1853.

Vaughan, J.—Notes upon the Drugs observed at Aden (Arabia). *Pharmac. Journ.* XII (1852) 226-29, 268-271.—(1853) 385-88. cf. *Hooker Journ. Bot.* V, 124.

**1853.—Burton, Sir Richard Francis (1821-1890).—**Explorer and scholar (Al-Haj Abdullah). In 1853 he visited Medina and Mecca, in 1877 he went to Midian. On these journeys he wrote several volumes, containing many botanical observations. He also collected plants which are at Kew.

Burton, R. F.—*Personal Narrative of a Pilgrimage to El-Medinah and Meccah.* 3 vols. London, 1855-56.

Burton, R. F.—*The Gold Mines of Midian.* London, 1878 (Contains a list of plants).

A Memorial edition by Lady Burton appeared in 2 vols. 1893.

Burton, R. F.—*The Land of Midian (revisited).* 2 vols. London, 1879 (Contains a list of plants).

Burton communicated a long paper to the Roy. Geogr. Soc. after his return from his first visit to Midian (vol. XXIV, 208).

**1853.—Saulcy.—***Voyage autours de la Mer Morte et dans les terres bibliques.* 2 vols. Paris, 1853 a 54. Avec Atlas de 61 pl. et cartes.

**1854.—Hamilton, James.—***Sinai, Hedjaz, and Soudan.* London, 1857 (Contains botanical notes.)

1854.—Winckler, Emil.—Geschichte der Botanik. Frankfurt a.M., 1854.

1855.—Brandis, Sir Dietrich (1824-1907).—Inspector General of Indian Forests. When he went to India in 1855 he stopped a day at Aden and collected 64 plants. He is the only visitor who spoke 'of the wonderful variety of the vegetation of Aden.' He gave the number of plants growing at Aden as amounting to about 260, and in this he came nearer the truth than any other botanist. A short sketch of his voyage appeared in Petermann's Mitteilungen. It seems that his Aden plants exist no longer. Professor Strasburger informed me that they are not at Bonn. I also ascertained that they are not at the 'Botanische Staatsinstitut' of Hamburg. It is, therefore, probable that they perished in the same fire which destroyed his early collections.

Brandis in Petermann's Mitteilungen (1857) 480.

1855.—Lowth, G. T.—A Wanderer in Arabia or Western Footsteps in Eastern Tracks. 2 vols. 1855.

1856.—Meyer, Ernest H. F.—Geschichte der Botanik. vol. 3. Koenigsberg, 1856.

1856.—Stern, A.—A journey to Sana'a in 1856. Jewish Intelligencer XXIII, 101 ff.

Ab. 1857.—Calvert, Henry Hunter (1816?-1882).—Vice-Consul at Alexandria. Collected at Jeddah and sent plants to Lindley.

1857?—Schomburgk, Sir Robert Hermann (1804-65).—Born at Freiburg in Silesia. There are a few Aden plants at Kew collected by him. We do not know the exact date of his visit to Aden. It must have been before 1860, as Anderson made use of his specimens for the publication of his 'Florula.' It was probably in 1857 when Schomburgk was appointed British representative to the Siamese Court.

1859.—Anderson, Thomas (1832-1870).—In 1854 he entered the Bengal Medical service. His health failing, he went home. The steamer being detained at Aden for some days, he made an interesting collection of plants upon which he based his *Florula Adenensis*. Later on he became Director of the Calcutta Botanical Garden. Plants at Kew.

Anderson, T.—*Florula Adenensis*. A systematic account, with descriptions of the flowering plants hitherto found at Aden. Journ. of Proc. Linn. Soc. V (1860) Suppl. p. IV.

Anderson, T.—On *Sphærocoma*, a new genus of Caryophyllæ, from Aden in Arabia Felix. Journ. Linn. Soc. V (1860) 15.

1859.—Courbon, Alfred.—Dr. A. Courbon accompanied the French Exploring expedition to the Red Sea under the command of Capt. Russel in the year 1859-60. Courbon collected within a few months

800 species in Abyssinia and on the coasts and islands of the Red Sea. At Aden he gathered 35 species. The botanical results of this expedition were published by Brogniart.

**Brogniart, A.**—Notices sur les résultats relatifs à la botanique obtenues par le Dr. Alfred Courbon, pendant le cours d'une exploration de la mer rouge exécutée en 1859-60. Bull. Soc. Bot. de France, VII, 898-903.

**Courbon, A.**—Exploration de la mer rouge sous les ordres de Mr. Russel Capitaine de Vaisseau, 1859-60.—The book is not known to me.

**1859.—Stiffe, A. W.**—A visit to the Hot Springs of Boshier, near Muscat. Trans. Bomb. Geogr. Soc. XV, 1859.

**1859.—Strauss, F. A.**—Sinai und Golgatha. Reise in das Morgenland. 7. Auflage. Berlin, 1859.

**1859.—Whish.**—Memoir on Bahrein. 1859.

**Ab. 1859.—Zohrab, James.**—Collected at Jeddah about 1859. Plants sent to Kew in 1881.

**1860.—Pengelly, W. M.**—Remarks on a portion of the Eastern Coast of Arabia between Muscat and Sohar. Trans. Bomb. Geogr. Soc. XVI, 1860.

**1860.—Wichura.**—Collected some plants at Aden in 1860, when accompanying the Prussian Expedition to Eastern Asia. Plants in the Herbarium of Berlin.

**1861.—Kotschy, Th.**—Umriss von Südpalästina im Kleide der Frühlingflora. Wien (Z. b. G.) 1861.

**Kotschy, Th.**—Plantæ Arabiæ in ditionibus Hedschas Asyr et el-Arysch a medico germanico nomine ignoto, in el-Arysch defuncto annis 1836-1838 collectæ. Sitzb. d. k. Akad. d. Wiss. Wien LII, (1865).

**1861.—Steudner, H.**—Collected at Jidda in June 1861. Plants at Kew.

**1862.—Palgrave, William Gifford.** (1826-1888).—Diplomatist and traveller. Received a lieutenant's commission in the 8th Bombay regiment of native infantry. Became a Jesuit. In 1862 he undertook an adventurous journey across Central Arabia which he accomplished in 1863. He passed as a Syrian Christian doctor and merchant; but he carried his life in his hands. His route lay along El Jauf, Hail, Beraidah, Riyadh, el Hofuf and Katif. On his return to Syria he, with the consent of his superiors, severed his connection with the Society of Jesus, and engaged in diplomatic work for the English Government.

The result of his journey he embodied in one of the most fascinating of modern books of travel. The botanist finds in it a great number of interesting observations on the vegetation of the country, on economic products and agriculture. In Feb. 1864 he communicated the geographical results of his journey to the Roy. Geogr. Soc.

**Palgrave, W. G.**—Narrative of a year's journey through Central and Eastern Arabia (1862-63). 2 vols. London, 1865.

**Palgrave, W. G.**—Une année de voyage dans l'Arabie centrale (1862-63), traduit par E. Jonveaux. Paris, 1866.

**1863.**—**Lowne, Benjamin Thompson.**—Collected S. W. of the Dead Sea in 1863-64. Plants at Kew.

**Lowne, B. T.**—Vegetation of the Western and Southern Shores of the Dead Sea. Journ. Linn. Soc. IX (1866) 211.

**1863.**—**Oliver and Cleave.**—There are a number of specimens at Kew, collected at Aden by "Oliver and Cleave." In spite of prolonged investigations I have not been able to gather any information regarding the bearers of these names.

**1865.**—**Arconati, Visconti, G.**—Diario di un viaggio in Arabia Petrea (1865). Con molte tavole fotogr. Torino, 1872.

**1865.**—**Pelly, Sir Lewis (1825-1892).**—Served as an Indian official in various capacities. In 1862 he became political resident on the Persian Gulf. On his journey in 1865 to Riyadh, the Wahabi capital of the highlands of Central Arabia, known as Nejd, he gathered a number of plants which he transmitted to Kew. Between 1865 and 1871 he paid other visits to the Chaub Arabs and Arab tribes of the littoral of the Gulfs of Persia and Oman.

**Pelly, Lewis.**—Report of a journey to the Wahabee Capital of Riyadh, in Central Arabia. Bombay, 1866.

**Pelly, L.**—In Journ. Roy. Geogr. Soc. (1866) 169.

Proceedings of the Roy. Geogr. Soc. London, 1865.

**Pelly, Lewis.**—From Oman to Nedjd. London, 1868.

**1866.**—**Clément-Mullet.**—Le livre de l'agriculture d'Ibn-al-Awam. Paris, 1866.

**1866.**—**Milne-Redhead, Richard (1828-1900).**—A barrister, made collections in India, W. Indies, Brazil, Sinai and other countries.

**Milne-Redhead, R.**—Desert Flora of Sinai. In Journ. Linn. Soc. IX (1866) 208-229.

**1867.**—**Fox, Henry Elliott, Rev. (1841-1926).**—Collected in Sinai in 1867 and in Palestine in 1890. The Sinai plants are at Kew.

1867.—Lorentz.—Ueber die Moose, die Ehrenberg 1820-26 in Ägypten, der Sinai-Halbinsel und Syrien gesammelt. Berlin, 1867. 4°. Mit 15 Tafeln.

1868.—Lord, J. K. and Banermann collected 31 Ferns in Sinai in 1868. Plants at Kew.

1868.—Schweinfurth, G. A. (1836-1925).—One of the greatest travellers and botanists of modern times. In addition to numerous and extensive journeys in Africa, his travels brought him to Socotra and the south coast of Arabia, east of Aden (1881). Another expedition took him to Yemen (1889) where he looked for the plants collected by Forskal in 1763. In this way he was able to gather 600 species which are of equal value as Forskal's original collection.

Schweinfurth, G.—Pflanzen-geographische Skizze des gesammten Nil-Gebietes und der Uferländer des Rothen Meeres. In Petermanns Geogr. Mitteil, 1868.

Schweinfurth, G.—Ueber die Vegetationsverhältnisse einiger Länder und Ufergegenden des Rothen Meeres. In Jahresb. d. Geogr. Ges. München 3 (1873) 130-154.

Schweinfurth, G.—Allgemeine Betrachtungen über die Flora von Socotra. Engl. Bot. Jahrb. V (1884) 40-49.

Schweinfurth, G.—Sur la flore des anciens jardins arabes d'Égypte. In Bull. Inst. Égypte 1887. Le Caire, 1888.

Schweinfurth, G.—Über die Florengemeinschaft von Südarabien u. Nordabyssinien. In Verh. Ges. Erkunde Berlin XVIII. Berlin, 1891.

Schweinfurth, G.—Brief an Prof. Ascherson aus Menacha. Verh. d. Ges. f. Erdk. Berlin, 1889.

Schweinfurth, G.—Über seine Reise nach dem glücklichen Arabien. Verh. d. Ges. f. Erdk. Berlin, 1889 (XVI) 299-307.

Schweinfurth, G.—Sur certains rapports entre l'Arabie Heureuse et l'ancienne Égypte résultant de son dernier voyage au Yémen. Genève.

Schweinfurth, G.—Über Balsam u. Myrrhe. Ber. der Pharmaceutischen Ges. Berlin, 5 Okt. 1893.

Schweinfurth, G.—Veränderungen des Vegetationscharakters durch die Menschen. Mit besonderer Berücksichtigung von Afrika u. den angrenzenden asiatischen Gebieten. Umschau, Frankf. a. M. 1901 (841-843).

Schweinfurth, G.—Fahrt auf dem Suez-Kanal. Globus, VI-33-42.

**Schweinfurth, G.**—Über den Einfluss der Nordwinde auf die Vegetationsverhältnisse des Roten Meeres und sein Niveau.

Zeitschr. d. Ges. f. Erdk. Berlin, II, 411-423.

**Schweinfurth, G.**—Brief an Dr. P. Ascherson (aus Suez). Zeitschr. d. Ges. f. Erdk. Berlin, III, 517-521.

**Schweinfurth, G.**—Ägyptens auswärtige Beziehungen hinsichtlich der Culturgewächse. In Verh. Berl. Anth. Gesell Berlin, 1891.

**Schweinfurth, G.**—Sammlung arabisch-äthiopischer Pflanzen. Ergebnisse von Reisen in den Jahren 1881, 88, 89, 91 und 92. In Bull. de l'Herbier Boissier, 2me année (1894) Append. II, and Tome IV (1896) (Including the year 1894 of his journeys).

**Schweinfurth, G.**—Veröffentlichte Briefe, Aufsätze und Werke, 1860-1907 von G. S. Berlin, 1907.

**Schweinfurth, G.**—Arabische Pflanzennamen aus Ägypten, Algerien und Yemen. Berlin, 1912.

**Staudinger, P.**—Georg Schweinfurth. Die Naturwissenschaften, XIV. Jahrg., Heft 24 (1926) 557.

**Mildbræd, J.**—Georg Schweinfurth as Botaniker. Die Naturwissenschaften l. c. 569.

**Walther, J.**—Georg Schweinfurth in der Wüste. Die Naturwissenschaften, l. c. 573.

**1868.**—**Zenker (Dr.)**.—He collected a few plants at Aden in 1868. Plants in the Herbarium of Berlin.

**1869.**—**Daumas.**—Vie arabe. Paris, 1869. (Contains many references to plants).

**1869.**—**Drake** who was with Sir Henry James during his survey of Sinai collected 176 plants in that locality. They were communicated to Kew by Sir H. James in 1870.

**1869.**—**Palmer, Edward Henry (1840-1882).**—“Sheikh Abdullah.” Orientalist. During 1868-70 he was engaged for the Palestine Exploration Fund in the Survey of Sinai and of the Desert of the Wanderings. In 1882 he was chosen by Government for the perilous mission of winning over the Sinai tribes to Britain. But in August he and his two companions were betrayed and murdered in the ravine of Wady Sudr. Eight months later the three were buried in St. Paul's.

**Palmer, E. H.**—The Desert of the Exodus: Journeys on foot in the Wilderness of the Forty Years Wanderings. 2 vols. Cambridge, 1871. (Contains a list of plants).

**Palmer, E. H.**—Der Schauplatz der vierzigjährigen Wüstenwanderung Israels. 5 Karten. Gotha, 1876.



- Besent (Sir Walter).**—Life and achievements of E. H. Palmer 3rd ed. London, 1883.
- 1870.**—**Munzinger, W. M.**—A scientific explorer. Worked with Capt. S. B. Miles in S. Arabia.
- Miles, S. B. and W. M. Munzinger.**—Account of an excursion into the interior of Southern Arabia. Journ. Roy. Geogr. Soc. XLI (1871) 210.—See Athenæum, 24th Sept. 1870.
- 1871.**—**Birdwood, Sir G. C. Molesworth (1832-1917); M.D.**—In Bombay 1854-68.
- Birdwood, G. C. M.**—On the genus *Boswellia*, with descriptions and figures of 3 new species, in Trans. Linn. Soc. vol. XXVII, see also Proc. (1875-80) 24; gums produced Proc. (1875-80) 24.
- 1871.**—**Wüstenfeld, F.**—Die Strasse von Bacra nach Mekka mit der Landschaft Dharija, nach arabischen Quellen bearbeitet. 1 Karte. Göttingen, 1871.
- Wüstenfeld, F.**—Das Gebiet von Medina. Nach arabischen Geographen beschrieben. 1 Karte. Göttingen, 1873.
- Wüstenfeld, F.**—Das Gebiet von Medina. Abh. d. Ges. d. Wiss. z. Göttingen. XVIII (1873).
- Wüstenfeld, F.**—Bahrein und Jemama. Nach arabischen Geographen beschrieben. 1 Karte. Göttingen, 1874.
- Wüstenfeld, F.**—Jemen im XI (XVII) Jahrhundert. Göttingen, 1885.
- 1872.**—**Hildebrandt, Joh. Maria.**—He visited Aden in June 1872, before starting on his journey to Somaliland, and apparently a second and third time in May 1873, and March 1875. According to Krause his plants belong to the Botanical Museum of Berlin. A set of duplicates, though incomplete, is at Kew. Hildebrandt's plants were described by Vatke.
- Vatke, W.**—Plantas in itinere Africano ab J. M. Hildebrandt collectas determinat W. Vatke. Oesterr. Bot. Zeitschr. XXV (1875) 9, 94, 166, 230, 323; XXVI (1876) 145; XXVII (1877) 194; XXVIII (1878) 198, 213, 260; XXIX (1879) 218, 250; XXX (1880) 77, 273. Continued in *Linnaea* XLIII (1880-82) 83, 305, 507.
- 1872.**—**Miles, S. B. (Col.)**—British Resident in Maskat. Many botanical observations are given in the accounts of his excursions.
- Miles, S. B.**—On the neighbourhood of Bunder Mooraya. Journ. Roy. Geogr. Soc. XLII (1872).
- Miles, S. B.**—Journal of an excursion in Oman in South-Eastern Arabia. Journ. Roy. Geogr. Soc. 1896.

- Miles, S. B.**—On the Border of the Great Desert. A Journey in Oman, *ibid* 1910.
- Miles, S. B.**—The countries and Tribes of the Persian Gulf. 2 vols. 1919.
- 1873.**—**Hanbury.**—Botanical origin and country of Myrrh. Pharm. Journ. April 19th 1873.
- 1873.**—**Maltzan, H. von.**—Reise in der Küstengegend von Hedschas. 2 vols. Leipzig, 1868.
- Maltzan, H. von.**—Briefe aus Arabien. Beil. z. Allg. Ztg. München no. 61, 62, 63 (1871).
- Maltzan, H. von.**—Geographische Forschungen in Süd-Arabien. Petermann's Mitteilungen no. 17 (1871); no. 18 (1872). Gotha.
- Maltzan, H. von.**—Ueber das Klima des westlichen und südlichen Arabien. Peterm. Mitt. no. 18 (1872).
- Maltzan, H. von.**—Reisen in Arabien. 2 maps. 2 vols. Braunschwig, 1873.
- 1873.**—**Millingen, Charles.**—An English Doctor in the Turkish service. In his desire of going beyond Niebuhr he made a détour north of the Hodeida road. in 1873.
- Millingen, C.**—Notes of a Journey in Yemen. Journ. Roy. Geogr. Soc. (1874) 118.
- 1873.**—**Stevens.**—Report on the country around Aden. Journ. Roy. Geogr. Soc. 1873.
- 1874.**—**Beke, Charles Tilstone** (1800-1874).—Explorer, chiefly in Abyssinia. In December, 1873 he left for Egypt, accompanied by several scientific friends, for the purpose of investigating the true location of Mount Sinai (1874). He died soon after his return to England. His widow issued the results of his last journey :
- The late Dr. C. Beke's discoveries of Sinai in Arabia and of Midian... edited by his Widow Emily Beke. London, 1878. (Contains in App. D. p. 593 Prof. Oliver's determinations of plants collected near Akaba by John Milne, F.G.S., on Dr. Beke's Expedition to Sinai, January and February, 1874).
- 1874.**—**Milne, John.**—Made a collection in Sinai in 1874. Plants at Kew.
- 1875.**—**Annesly, Oliver Francis Theodore** (Capt.).—Collected a few plants at Aden in 1875.
- Ab. 1875.**—**Ball, John** (1818-1889).—The Geography and Geology of West-Central Sinai. Cairo, Government Press.
- 1875.**—**Doughty, Charles Montague.**—He travelled 1875 in Petraea, 1876-1878 in North Western Arabia and Nejd, leaving Arabia at

Jidda. Without exaggeration he can be called the greatest explorer in Arabia. Even the botanist will find very much of interest.

**Doughty, C. M.**—*Travels in Arabia Deserta*. 2 vols. Cambridge, 1888.

Many new editions, reprints, cheaper editions and one-volume editions have appeared in the meantime.

**Doughty, C. M.**—*Wanderings in Arabia*; being an abridgment of "Travels in Arabia Deserta", with introduction by E. Garnett. 2 vols. 1908.

**Fairley, B.**—*C. M. Doughty, a critical study*. 1927.

**Hogarth, D. G.**—*The life of C. M. Doughty*. London, 1928.

1875.—**Marchesetti, C. von** (died in 1883).—Director of the Natural History Museum and Botanical Gardens at Trieste, visited Aden at least three times, 1875, 1880 and 1881. When on a tour to China he had an attack of sunstroke in the Island of Pulo Penang and was obliged to return to Europe in 1881. In spite of his weakened condition he disembarked at Aden in order to visit a small valley which was well known to him for harbouring certain interesting plants. Provided with a lantern and helped by a splendid moon, it did not take him long to find what he wanted. But his nightly expedition amongst the rocks in the immediate vicinity of the fortifications roused the suspicions of a sentry and von Marchesetti was arrested as a Russian spy. It was only with great difficulty and after many explanations that he at last succeeded in being set at liberty.

**Marchesetti, C. von.**—*Ein Ausflug nach Aden*. *Österr. Bot. Zeitschr.* (1881) no. 1.

Life and work of von Marchesetti. *Österr. Bot. Zeitschr.* XXXIII (1883) 1-8.

1875.—**Sprenger, A.**—*Die Alte Geographie Arabiens*. Bern, 1875.

1876.—**Floyer, Ernest Aiscouth.**—*Collected on the Persian Gulf*. Plants at Kew.

1876.—**Kuntze, Otto** (Died 1907).—He came to Aden on the 9th January 1876 towards the end of his scientific tour round the world (1874-76). He stopped there only for three hours and collected 29 specimens of phanerogamic plants which, later on, he embodied in his 'Revisio Generum Plantarum'.

**Kuntze, O.**—*Um die Erde. Reiseberichte eines Naturforschers*. 2nd ed. Leipzig, 1888.

1877.—**Collins, James.**—There is a note in the Proceedings of the Linnean Soc. (1876-77, p. XXIV) saying: "Dr. Trimen, F.L.S., exhibited specimens of the Olibanum, or Frankincense-tree, *Boswellia*

Carterii, Birdwood, gathered by James Collins at Aden in October 1877."

1877.—**Guessfeldt, P.**—Reise durch die arabische Wüste. 1 Karte. 1877.

1877.—**King, J. S.**—Description and History of the British Outpost of Perim, Straits of Bab-el-Mandeb. Select. from the Rec. Bombay Gov. 1877. No. 49, New Ser.

1877.—**Manzoni, Renzo**, grandson of Alessandro Manzoni. He travelled in the highlands of Yemen on his way from Aden to Sana in 1877. He describes them fully giving botanical information.

**Manzoni, R.**—Viaggi nell'Arabia meridionale. Cosmos, Torino 1878.

On another occasion he diverged to Ibb and Tais.

**Manzoni, R.**—Il Jemen. Tre anni nell'Arabia Felice. Roma, 1884.

1877.—**Schapira.**—Travels in Yemen. 1877.

**Kiepert, H.**—Shapiras Reise in Yemen. Globus, 1880.

1878.—**Coomaswamy, A. K.**—Communicated plants to Kew which had been collected at Perim Island, 1878.

1878.—**Huber, Charles**, of Strassburg.—A naturalist. He travelled in Arabia in 1878 and 1880. He visited Jauf, Hail, Teyma, Medain Salih, el-Ally, Kheybar and el-Kasim. In 1883 Huber returned to Arabia with Prof. Julius Euting and revisited Jauf, Hail, Teyma, Medain Salih and el-Ally. Then he separated from his companion and journeyed towards Jidda. In reascending from Jidda Huber was shot by his guides.

**Huber, C.**—Voyage dans l'Arabie Centrale. Bulletin de la Société de Géographie, VII<sup>me</sup> série, vol. 5, p. 304, 468; vol. 6, p. 92.

**Huber, C.**—Voyage dans l'Arabie centrale; Hamad, Sammar, Quacim, Hedjaz, 1878-1882. Paris, 1885.

**Huber, C.**—Journal d'un voyage en Arabie. Published by the Asiatic and Geographical Societies of Paris in 1891.

1878.—**Klunzinger, C. B.**—Vegetationsbilder d. ägyptisch-arab. Wüste. Zeitschr. Ges. f. Erdk. Berlin vol. XIII (1878) 432.

1878.—**Perry, William Wykeham** (1846?-1894).—He was Fleet-Paymaster R. N. Though not a professional botanist, he has done valuable work by his accurate observations and untiring efforts in collecting plants. When stationed in the Red Sea he gathered a considerable number of species at Aden in 1878. He also collected on the Somali coast

and in the Persian Gulf in addition to many other places. His plants are at Kew.—See Kew Bulletin (1894) 397-8.

1879.—**Rehatsek, E.**—Wine among the ancient Arabs.—Journ. Bomb. Br. Roy. As. Soc. 1879.

1880.—**Balfour, Sir Isaac Bailey** (1853-1922).—Professor of Botany at Glasgow, Oxford and Edinburgh. He visited Aden in 1800 when on his way to Socotra. He collected a considerable number of plants of which there is a set of Duplicates at Kew. In the following work there are many references to the flora of Arabia.

**Balfour, I. B.**—Botany of Socotra. Trans. Roy. Soc. Edinb. XXXI. Edinburgh, 1888.

1880.—**Blunt, Lady Anne.**—The wife of Wilfrid Scawen Blunt, traveller and poet. They both travelled amongst the Anaze and Shammar tribesmen of the Hamad and Mesopotamian steppes. The Blunts came to Jauf in 1879. Then they went to Nejd where Lady Anne made a collection of plants (now at Kew).

**Blunt, W. S.**—A visit to Jebel Shammar (Nejd): new routes through Central Arabia. 2 maps. 1879.

**Lady Anne Blunt.**—A Pilgrimage to Nejd. 2 vols. London, 1881, with appendices by W. S. Blunt.

1880.—**Hunter, Frederick Mercer** (Major).—In 1880 he collected 250 specimens of plants in the "neighbourhood of Aden."

**Hunter, F. M.**—Aden Handbook. 1873.

**Hunter, F. M.**—An account of the British Settlement of Aden. London, 1877.

1880.—**Wetzstein.**—Ueber die Trüffeln im Orient. Sitzb. d. bot. Ver. Prov. Brandbg. XXII; Dec. 1880.

1881.—**Fischer, Theobald.**—Die Dattelpalme, ihre geographische Verbreitung und culturhistorische Bedeutung. 2 maps. Ergänzungsheft no. 64 zu Petermann's Mitteilungen Gotha, 1881.

1881.—**Gutschmid, A. von.**—Die Nabatäische Landwirtschaft und ihre Geschwister. Zeitschr. d. Deutschen Morgenländischen Gesellsch. XV (1881) 1-110.

1881.—**Upton, R. D.** (Major).—Gleanings from the desert of Arabia. London, 1881.

1882.—**Slade, Edmund John Warre** (Lieut.).—Collected in Hamish Island in the Red Sea. Plants at Kew.

1883-84.—**Ebers, G.**—Palästina in Wort und Bild nebst der Sinaihalbinsel und dem Lande Gosen. 2 vols. Stuttgart, 1883-84.

1883.—**Euting, Julius** (Prof.).—A Strassburg orientalist. He was encouraged by the King of Würtemberg and General von Manteuffel to

join his countryman C. Huber (1883) (see C. Huber) on his exploration tour in Central Arabia. The travellers separated at el-Ala. Soon after Euting was attacked by Jeheina Bedouins. He killed two and fled for his life to el-Wij, whence he reached Jerusalem.

**Euting, J.**—Tagebuch einer Reise in Inner-Arabien, Theil I. Leyden, 1896. (The second part has not appeared).

**1883.—Goodrich, L. C.**—He collected Ferns in Arabia in 1883. Plants at Kew.

**1883.—Hart, Henry Chichester** (1847-1908), who had been Naturalist to the British Polar Expedition in 1876, was invited by Prof. Hull, Director of the Geological Survey of Ireland, to take part as a volunteer on a geological and surveying expedition to Sinai and Palestine under the auspices of the Palestine Exploration Society. He was chiefly induced to do so by the assurance he received from Professor Oliver, of Kew "that whatever our Continental brethren may have accomplished, few British botanists had as yet turned their attention to Sinai." The botanical results were published in two papers.

**Hart, H. C.**—A naturalist's journey to Sinai, Petra and south Palestine. Palestine Exploration Fund, Quarterly Statement (1885) p. 252 ff.

**Hart, H. C.**—Report on the Botany of Sinai and S. Palestine. In R. Ir. Acad. Trans. XXVIII (1885) 373-452.

**Hart, H. C.**—Some account of the Fauna and Flora of Sinai, Petra, and Wady-Arabah. (Palest. Explor. Fund). London, 1891. 4to.

The plants are at Kew and in the British Museum.

**1884.—Beevor, Hugh Reese.**—Dr. Beevor collected at Aden in November 1884. His specimens which were not very numerous were presented to Kew.

**1884.—Field, Henry M. (DD.)** of New York.—On the Desert. A narrative of travel from Egypt through the wilderness of Sinai to Palestine. London, 1884.

He travelled with Dr. G. E. Post, the botanist; offers many botanical notes.

**1884.—Glaser, Ed.**—Meine Reise durch Arhab und Haschid. Peterm. Mitt., 1884.

**Glaser, Ed.**—Ueber meine Reisen in Arabien. Mitt. der k. k. geogr. Ges. Wien XXX, 1887.

**Glaser, Ed.**—Von Hodeida nach Sana. Peterm. Mitt., 1886.

**Glaser, Ed.**—Skizzè der Geschichte und Geographie Arabiens. Berlin, 1890.

- Glaser, Ed.**—Einige Beobachtungen des Herrn Dr. Glaser zu Sana. Meteorol. Ztsch., 1893.
- Glaser, Ed.**—Ueber seine vierte Reise nach Arabien. Jahresb. der geogr. Ges. München, 1892-93.
- Glaser, Ed.**—Vierte Forschungsreise nach Arabien. Beil. z. Münch. Allgem. Ztg. No. 5, 1894.
- Hommel, Fr.**—Ed. Glasers Reise nach Mareb. Beil. z. Münch. Allgem. Ztg. 1888.
- 1884.—Post, George Edward.**—American Missionary and Prof. of Surgery and Botany at Beirut in Syria. Nobody knew better the flora from Syria to Sinai.
- Post, G. E.**—[Flora of Syria ; in Arabic. Beirut, 1884.]
- Post, G. E.**—Diagnoses Plantarum Novarum Orientalium. In Linn. Journ. Bot. XXIV (1888) 419-441.
- Post, G. E.**—The Botanical Geography of Syria and Palestine. In Journ. Vict. Inst. XXII. London, 1888.
- Post, G. E.**—Narrative of a scientific expedition in the Trans-Jordanic region in the spring of 1886. Quart. Statem. Palest. Expl. Fund. London, 1888.
- Post, G. E.**—Plantæ Postianæ Fasc. 1-5, Lausanne, 1890-3. Fasc. 6-9 in Bull. Herb. Boiss. I, III, V, VII. Genève, 1893-9. Fasc. 10 in Mém. Herb. Boiss. No. 18. 1900.
- Post, G. E.**—Flora of Syria, Palestine, and Sinai, from the Taurus to Ras Muhammad and from the Mediterranean Sea to the Syrian Desert. Beirut, 1896.
- 1884.—Yerbury, J. W. (Major).**—Well known for his valuable contributions to Aden Zoology. The plants he collected at Aden are in the British Museum. Among them was a new species *Albuca Yerburyi*. Yerbury died a few years ago in an accident in London.
- Ridley, H. N.**—A new species of *Albuca* from Aden. In Journ. Bot. 22 (1884) 370.
- Yerbury, J. W.**—The Butterflies of Aden and the Neighbourhood with some notes on their habits, food-plants, etc. Journ. Bomb. Nat. Hist. Soc. 1892.
- 1885.—Berg, L. W. C. Van den.**—In 1883 the Dutch Colonial Department thought it expedient to obtain an authoritative report on the origin and relation of the immigrants from Hadramaut into the East-Indian possessions. Van den Berg, an able Arabic scholar, stationed at the time in Java was commissioned to write the report.
- Berg, Van den.**—Le Hadhramaut et les Colonies Arabes de l'Archipel Indien. Batavia, 1885.

**Berg, Van den.**—Hadramaut and the Arabian colonies in the Indian Archipelago. Translated from the Dutch by Major Seeley. Bombay Govern. Records No. 212, new series.

**1885.—Defflers, A.**—The well known French botanist and traveller spent almost his whole life in Egypt. He undertook numerous journeys into Yemen, collected many specimens and described new species. He stands undoubtedly in the foremost ranks of botanical explorers of Arabia.

**Defflers, A.**—Herborisations dans les montagnes volcaniques d'Aden. Bull. Soc. Bot. Fr. XXXII (1885) 343-56.

**Defflers, A.**—Nouvelles contributions à la flore d'Aden. Bull. Soc. Bot. Fr. XXXIV (1887) 61-69.

**Defflers, A.**—Voyage au Yemen. Journal d'une excursion botanique faite en 1887 dans les montagnes de l'Arabie Heureuse. 6 pl. Paris, 1889.

**Defflers, A.**—Descriptions de quelques plantes nouvelles ou peu connues de l'Arabie méridionale. Bull. Soc. Bot. Fr. XLII (1895) 297-306 ; XLIII (1896) 104-23, 218-234.

**Defflers, A.**—Plantes de l'Arabie méridionale recueillies pendant les années 1889, 1890, 1893 et 1894. Bull. Soc. Bot. Fr. XLIII (1896) 321.

**Defflers, A.**—Esquisse de géographie Botanique. Le Caire, 1894.

**Defflers, A.**—Les Asclépiadacées de l'Arabie tropicale. Mém. de l'Inst. d'Égypte III, 270.

**Franchet, A.**—A criticism of Defflers' "Voyage au Yemen." Bull. Soc. Bot. de France vol. 37 (1890) 26-30.

**1885.—Fuchs, M.**—Die geographische Verbreitung des Kaffeebaumes. Halle, 1885.

**1885.—Kahlenberg, C.**—Dschidda und Hodeida. Oester. Mitt. f. den Orient, VI (1855).

**1886.—Postel, R.**—Aden ; notes de voyage. Gazette géogr. 1st April 1886.

**1886.—Volkens, G.**—Zur Flora der ägyptisch-arabischen Wüste. Sitzb. Kgl. Akad. Wiss. Berlin, 1886.

**Volkens, G.**—Die Flora der ägyptisch-arabischen Wüste auf Grundlage anatomisch-physiologischer Forschungen. Berlin, 1887.

**1887.—Ascherson, P. F. A., & G. Schweinfurth.**—Illustration de la Flore d'Égypte. Le Caire 1887, Supplement, *ibid.* 1889.

**1887.—Haig, F. (Gen.).**—A journey through Yemen. Proc. Roy. Geogr. Soc. IX (1887).



- Haig, F.**—Un voyage au travers l'Yémen. Bull. Soc. Géogr. d'Anvers (1887) 88.
- 1887.**—**Hurgronje, J. S.**—Ueber seine Reise nach Mekka. Verh. d. Ges. f. Erdkunde z. Berlin. XIV, 1887.
- Hurgronje, J. S.**—Mekka mit Bilder Atlas. 2 vols. Hague, 1888.
- 1887.**—**Musa** collected in Sinai in 1887. Plants at Kew
- 1891.**—**Bethge, O.**—Das Klima Arabiens. Wissenschaftliche Beil. z. Programm der Realsch. zu Kassel. Ostern, 1891.
- 1891.**—**Burckhardt, Hermann.**—He travelled from Damar to Reda. Gives botanical notes.
- Burckhardt, H.** in Zeitschr. der Gesellsch. für Erdkunde n. 7 (1902) 593.
- Burckhardt, H.**—Reisskitzen aus dem Yemen. Mitt. d. Ges. f. Erdkunde. Berlin, 1902.
- Burckhardt, H.**—Ost Arabien von Basra bis Maskat. Zeitschr. der Ges. f. Erdkunde. Berlin, 1906.
- 1891.**—**Kaiser, A.**—Collected in Sinai in Dec. 1891. Plants at Kew.
- 1891.**—**Rossi.**—Un'excursione nell'Yemen durante l'insurrezione del 1891. Catania, 1894.
- Rossi.**—Nell'Yemen. Rio. Coloniale II, 1906.
- 1892.**—**Don Josaphet.**—Wüste u. Wüstenvolk. Oesterr. Monatschr. XVIII, 1892.
- 1892.**—**Harris, Walter B.**—He took the direct road from Aden to Sana, and a cross-road from Tais to Reda in 1892.
- Harris, W. B.**—A Journey through the Yemen and some general remarks upon the country. London, 1893. Contains many botanical observations.
- Harris, W. B.**—A recent journey in Yemen. Rep. Brit. Assoc. Advanc. Sc. 1893.
- 1892.**—**Hervey, Dudley Francis Amelius.**—Collected at Malacca, and sent a few plants from Aden to Kew in 1892.
- 1892.**—**Walther, Fr. P., Ord. Min.**—Itinerarium in terram sanctam et ad sanctam Catharinam. Tübingen, 1892.
- 1893.**—**Bent, James Theodore (1852-1897).**—Traveller and archæologist. He and his wife were constant companions in the East, in Arabia, and in Africa. In winter of 1893-4 they went to Hadramaut, accompanied by William Lunt, a member of the staff of the Royal Gardens. The plants were described by Baker in the Kew Bull. 1894 p. 328. The species number about 150

The second journey brought them to the neighbourhood of Muscat the hilly region near Marbat and the Dhofar mountains (1894-5). The plants were described in Kew Bull. 1895, p. 180. The Cryptogams are at Kew. In Nov. 1896 they traversed Socotra and explored the little known country within 50 miles of Aden.

Their last journey was through Vafei and Fadhli countries in March 1897. An account of this was given by Mrs. Bent to the Roy. Geogr. Soc., and published in the Roy. Geogr. Journ. XII, 41.

**Bent, J. T.**—Exploration of the Frankincense country, S. Arabia. Geogr. Journ. Aug., 1895.

**Bent, J. T.**—Muscat. Contemp. Rev. LXXVIII (1895).

**Bent, J. T.**—On the Yafei and Fadhli countries. Geogr. Journ. (1898) 411.

**Bent, J. T. and M. V. A.**—Southern Arabia. London, 1900. Contains a list of plants.

**1893.**—**Bornmüller, Joseph.**—Professor. Collected during his "Iter Persico-turcicum" also at Maskat in 1893.

**Bornmüller, J.**—Über eine neue Linaria der Sektion *Elatinoides* aus der Flora von Aegypten u. des Sinai. Allgem. bot. Zeitschr. Karlsr. 15 (1909) 130-31

**Bornmüller, J.**—Iter Persico-turcicum 1892-93, Beiträge zur Flora von Persien, Babylonien, Assyrien, Arabien, Bot. Centralbl. Beih. Abt. 2. 28, (1911) 89-171.

**Bornmüller, J.**—Über eine neue *Cakile* Art aus der Flora Arabiens (*Cakile arabica* Velenovsky et Bornm. Rep. spec. nov. regni veget. Berlin 9 (1911) 114.

**1893.**—**Hirsch, Leo.**—A profound Arabic scholar and expert in the law of Islam. Assuming the native dress, but travelling as a Christian, he went to Hadramaut in 1893. He visited Wady Hanaire, Wady Doam, Wady Gaiban, Wady el-Ain. In Shibam he met with a cold reception and returned to the coast. After visiting Wady Bin Ali and the downs of the Jol he went back to Makalla.

**Hirsch, L.**—Reisen in Südarabien. Leiden, 1897. (Contains a list of plants contributed by Schweinfurth). See also:

**Hirsch, L.**—Bericht über seine Reise nach Hadramaut. Verh. d. Ges. für Erdkunde zu Berlin XX (1893).

**Hirsch, L.**—A journey in Hadramaut. Geogr. Journ. III (1894), and Petermann's Mitteil. (1894) 20, 246.

**Hirsch, L.**—Neue Wanderungen in Yemen. Globus No. 74 (1898).

**1893.**—**Lunt, William** (1871-1904).—Kew gardener. Was appointed botanical collector to Th. Bent's expedition to the Hadramaut Valley

(1893-4). They penetrated as far north as Al Had. Lunt collected about 150 species. An enumeration appeared in the Kew Bull. (1894) 328. Plants at Kew and the Brit. Museum. See also Th. Bent.

**1893.—Nolde, Edward.**—A German. He set out from Damascus in 1893. He penetrated a little way into South Nejd, beyond Kasim, having crossed the Nafud by a track other than that which makes for Jubbe. He died by his own hand in London, 1895.

**Nolde, E.**—Reise nach Innerabien, Kurdistan und Armenien. Braunschweig, 1895.

**1894.—Zwemer, S. M.**—An American missionary to the Jews, made his way, in 1894, from Aden to Tais. His book contains botanical notes.

**Zwemer, S. M.**—Three Journeys in Northern Oman. Geogr. Journ. XIX, 1902.

**Zwemer, S. M.**—Arabia, the Cradle of Islam. Edinburgh, 1900.

**1895.—Farmer, John Bretland,** sent a collection of Perim Island plants to Kew.

**1896.—Palacky, J.**—Ueber die Flora von Hadramaut (Arabien) Sitzb. d. Boehm. Ges. d. Wiss. XIX, May 1896.

**1897.—Birdwood, W. S. (Col.)**—He and his wife made in 1897 and 1898 by far the most complete collection of Aden plants. Two collections were received at Kew, one in July 1897 and the other in Aug. 1898. A complete set of their plants is kept in the Herbarium of the Bombay Natural History Society. It is from this collection that Blatter compiled his list of the Flora of Aden.

**1897.—Brünnow, R. E. und A. von Domaszewski.**—Die Provincia Arabia auf Grund zweier 1897 und 1898 unternommenen Reisen und der Berichte früherer Reisender. 3 vols. Strassburg, 1904-09.

**1897.—Charnay, D.**—Voyage au Yémen. Congrès Roy. Soc. Géogr. Paris, 1897.

**Charnay, D.**—Une excursion à l'Oasis de la Hadj ou el Hota près d'Aden. A travers le Monde. 1898.

**Charnay D. et A. Defflers.**—Excursions au Yémen. Le tour du Monde, IV nouv. série, 1898.

**Charnay, D.**—Une excursion au Yémen. Bull. d. l. Soc. de Géogr. d'Anvers XXIII (1899).

**1897.—Jacob, G.**—Altarabisches Beduinenleben. Berlin, 1897. (Contains very many references to uses of plants).

**1898.—Simony, O. (Prof.)**—Belonged to an Austrian scientific expedition to S. Arabia and Socotra undertaken in the year 1898 and 1899. He collected Lichens in S. Arabia, Socotra and the neighbouring islands. His phanerogamic plants have been worked out by Vierhapper.

- Steiner, J.**—Bearbeitung der von O. Simony 1898 und 1899 in Südarabien, auf Sokotra und den benachbarten Inseln gesammelten Flechten. Denkschr. Wien. Akad. LXXI (1907) 93-102.
- 1899.—Bardey, P.**—Rapport sur El Jémen et partie du pays d'Hadramaut. Bull. de Géogr. hist. et descr. Paris, 1899.
- Bardey, P.**—Lettres de Hodeida. Revue de Géogr. Bd. 49. Paris, 1901.
- 1899.—Ellenbeck, (Dr.)**—Accompanied the expedition of Baron von Erlangen to Somaliland. Before their immediate departure for that country they visited Aden in December 1899. Ellenbeck gathered 65 specimens of plants which are preserved in the Museum of Berlin.
- 1899.—Hornby, E.**—Sinai and Petra. The Journals in 1899 and 1901. 10 col. plates after F. M. Hornby. London (not dated).
- 1899.—Jayakar, A. S. G. (Col., I.M.S.)**—Collected in Oman. Plants at the British Museum.
- 1899.—Schmidt, V.**—Undersogulser in Orienten II. Yemen. Geogr. Tidschrift. Kjøbenhavn, 1899.
- 1899.—Werther, C. W.**—Von Aden landeinwärts. Beil. z. Allg. Ztg. München, 1899.
- 1900-1.—Hein, Wilhelm (Dr.)** and his wife made a stay of several weeks at Aden (1900) preparatory to their tour in Kishin. Mrs. Hein informed me that during that time she devoted her attention to the one surviving Frankincense tree near the Tanks, as Prof. Wettstein had expressed his wish to have a few flowers of that plant. Dr. Hein and his wife then reached Kishin, east of Aden, on the 25th Jan. 1901. Mrs. Hein collected about 100 species of plants and a few more at Shaikh Othman on their return to Aden. The specimens are in the Botanic Institute of Vienna.
- See Geogr. Journ. XX (1902) 226 and Zeitschr. der Gesell. für Erdkunde No. 9 (1902).
- 1901.—Hommel, Fr.**—Das Land der Königin von Saba. Deutsche Rundschau für Geogr. und Statistik, Heft 8, 1901.
- 1901.—Schiffner, V.**—Einige Materialien zur Moosflora des Orients. Oesterr. Bot. Zeitschr. Wien 51 (1901) 156-61.
- 1902.—Kneucker, J. Andreas** of Karlsruhe in Baden, Editor of the 'Allgemeinen Bot. Zeitschrift'.
- Kneucker, A.**—Botanische Ausbeute einer Reise durch die Sinaihalbinsel v. 27. März bis 13. April 1902. Allgem. Bot. Zeits., Karlsruhe 9 (1903) 125-129, 146-151, 165-167, 184-189, 203-264; 10 (1904) 4-16.

- Kneucker, A.**—Beiträge zur Kenntnis der phytogeographischen Verhältnisse des Sinaitischen Teils der arabischen Wüste. Verh. Ges. D. Naturf. Leipzig, 1911 u. 1912.
- 1902.**—**Wimmer, J.**—Palæstinas Boden mit seinen Pflanzen u. Tierwelt vom Beginn der Biblischen Zeiten bis zur Gegenwart. Ver. Schr. Görres Ges. Cöln. 2 (1902) 1-128.
- 1903.**—**Léveillé et Vaniot.**—Cyperacées de Palestine. Bull. Acad. intern. géog. bot. (1903) 566, Mans (Le).
- Léveillé et Vaniot.**—Renonculacées et Oenothéracées d'Orient. Bull. Acad. intern. géog. bot. (1903) 567, Mans (Le).
- 1903.**—**Magnus, P.**—Fungi, Ein weiterer Beitrag zur Kenntnis der Pilze des Orients. Bull. Boiss. ser. 2, 3 (1903) 573-587. Genève.
- 1904.**—**Hogarth, David George.**—The Penetration of Arabia. London, 1904.
- 1905.**—**Krause, K.**—Professor Krause of Berlin published in 1905 contributions towards the knowledge of the Flora of Aden. He enumerates 178 species as growing in Aden and Little Aden. He has not visited Aden himself, but the specimens of the following collectors were at his disposal: Hildebrandt, Schweinfurth, Ellenbeck, Busse, and Deflers. He adds a list of 40 species from Aden Hinterland.
- Krause, K.**—Beiträge zur Kenntnis der Flora von Aden. Engl. Bot. Jahrb. XXXV (1905) Heft 5.
- 1905.**—**Planès, J.** (l'abbé).—Noms des plantes recueillies en Arabie Petrée et dans le pays de Moab. Revue biblique Internat. 2 (1905) 400-410.
- Planès, J.**—Notice sur la flore de l'Arabie Petrée. Chalon-sur-Saône. Bull. Soc. Sci. Nat. 29 (1903) 193-202.
- 1906.**—**Buxton.**—A journey to Sana. Blackwoods Magazine. 1906.
- 1906.**—**Pilgrim, Guy E.**—Superintendent Geological Survey of India, collected in Oman in 1906.
- Pilgrim, G.**—Geology of the Persian Gulf and adjoining Portion of Persia and Arabia. Mem. Geol. Surv. Ind. 34, pt. 4 (1908).
- 1907.**—**Blatter, Ethelbert.**—The Flora of Aden. Journ. Bomb. Nat. Hist. Soc. XVII (1907) 895-921; XVIII (1907) 54-68.
- Blatter, E.**—Flora of Aden. Records Bot. Surv. India VII (1914-16), with map and plates.
- Blatter, E.**—Flora Arabica. Records Bot. Surv. India VIII, pt. I (1919), pt. II (1921), pt. III (1921); with map. (So far only the Dicotyledoneae have been worked out).
- Ab. 1907.**—**Cox, Sir Percy Z.**—Political Department of India. Collected under the slopes of the Zor Hills on the coast line of the N.-E. corner of

the Principality of Koweit on the Persian Gulf. The plants were worked out by Humphery G. Carter in Calcutta.

**Cox, Sir P. Z.**—Overland Journey to Maskat from the Persian Gulf. Geol. Journ. 20 (1902).

**Humphery, G. Carter.**—Some plants of the Zor Hills, Koweit, Arabia, with notes by Sir P. Z. Cox and Lieut.-Col. S. G. Knox. Records Bot. Survey of India VI (1917) No. 6. Contains also a note on fungi.

**Cox, Sir P. Z.**—Some excursions in Oman. Geol. Journ. 66 (1925).  
Ab. 1907.—**Knox, S. G. (Lt.-Col.)**.—Political Agent at Koweit, collected together with Sir P. Z. Cox. (See above ab. 1907, Cox).

1907.—**Muschler, Reno.**—Beitrag zur Kenntniss der Flora von 'el Tor' (Sinai Halbinsel). Berlin. Verh. Bot. Ver. 49 (1907) 66-146.

**Muschler, Reno.**—A Manual Flora of Egypt. 2 vols. Berlin, 1912. (Contains constant references to Arabia Petraea and other parts of Arabia).

1907.—**Vierhapper, F. (Prof.)**.—Beiträge zur Kenntniss der Flora von Südarabien, Sokotra, Semha und Abd el Kari, Akad. d. Wiss. (1907) 17 pl.

1907.—**Watt, G.**—The wild and cultivated Cotton Plants of the world. London, 1907.

1907.—**Weber, O.**—Forschungsreisen in Südarabien bis zum Auftreten Ed. Glasers. Leipzig, 1907.

**Weber, O.**—Ed. Glasers Forschungsreisen in Südarabien. Leipzig, 1909.

1909-12.—**Fiori, Adriano (Prof.)**.—Boschi e Piante Legnose del'Eritrea. Firenze, 1909-12. (Contains many references to Arabia).

1909.—**Last, J. T.**—Collected at Maskat in 1909.

1909.—**Musil, Alois.**—Collected at Shih in Nefud in 1909. (Cf. Rep. Nov. Spec. Reg. Veg. IX [1910-11] 114). Plants described by Velenovsky.

**Velenovsky, J.**—Plantæ arabicæ Musilianæ. Prag. Sitz. Ber. Böhm. Gesel. Wissensch. Mathemat. Kl. XI (1911) 17.

**Musil, A.**—Die Hypothese von der Austrocknung Arabiens und deren Folgen. Petermanns Mitt. 60, (1914) 332.

This article is a criticism of :

**Leone Caetani Principe di Teano.**—Studi di Storia orientale. vol. I. Islam e cristianesimo. L'Arabia preislamica. Gli Arabi antichi, XV+419. Milano, 1911.

**Musil, A.**—Arabia Petraea. 3 vols. 1907-8.

**Musil, A.**—Karte von Arabia Petraea. 1907.

- Musil, A.**—Nord Arabien. Vorbericht über die Forschungsreise 1908-9. 1909.
- Musil, A.**—Northern Negd. (It deals with a journey carried out in 1915, from Al Jauf to Umm Jaraif, thence to the Hejaz railway, and back, skirting close to Hail to Najf in Iraq).
- 1909.**—**Nagelberg, S.**—Kitab as-sagar. Ein botanisches Lexikon. Kirchhain, 1909.
- 1910.**—**Behn, E.**—Yemen. Grundzüge der Bodenplastik und ihr Einfluss auf Klima und Lebewelt. Marburg, 1910.
- 1910.**—**Berger, Alwyn.**—Stapelien u. Kleinien einschliesslich einiger anderer verwandter Sukkulenten. Stuttgart, 1910.
- 1911.**—**Bury, G. Wyman.**—The Land of Uz. London, 1911. (This book deals with Aden Hinterland and its protected tribes).
- Bury, G. W.**—Arabia Infelix or the Turks in Yamen. London, 1915. (Contains an interesting chapter on crops and climate).
- 1911.**—**Dinsmore, J. E. und G. Dalman.**—Die Pflanzen Palästinas, auf Grund eigener Sammlung u. der Flora Posts u. Boissiers. Mit Beigabe der arabischen Namen von G. Dalman. Zeitschr. d. Deutschen Palästina-ver. 34 (1911) 1-38, 185-241.
- 1913.**—**Crossland, Charles (1844-1916).**—Mycologist.
- Crossland, C.**—Desert and Water Gardens of the Red Sea. Being an account of the Natives and the Shore-formations of the Coast. London, 1913.
- 1913.**—**Schmidt, W.**—Das südwestliche Arabien. 2 Karten u. 13 Tabellen. Frankfurt, 1913.
- 1915.**—**Shakespear, William Henry.**—He joined the Indian Army in 1898 and entered the political service in 1903. Was political agent at Koweit. Here he made a collection of plants which are at the British Museum. He was killed in the course of tribal fighting in 1915.
- 1917.**—**Philby, H. St. J. B.**—The Heart of Arabia, 1922. Contains a list of plants.
- 1922.**—**Kaiser, A.**—Swiss explorer of Arbon.
- Kaiser, A.**—Die Sinaiwüste. Mitteilungen der Thurgauischen Naturforschenden Gesellschaft, Frauenfeld 1922.
- 1923.**—**Buxton, P. A.**—Animal life in Deserts. London, 1923. (Plants are also considered).
- 1923.**—**Cheesman, R. E. (Major).**—In the Political Department. Travelled in E. Arabia. His writings contain botanical notes.
- Cheesman, R. E.**—From Oqair to the Ruins of Salwa. Geogr. Journ. 1923, Nov.

**Cheesman, R. E.**—The Deserts of Jafura and Jabrin. Geogr. Journ. 1925, Feb.

**Cheesman, R. E.**—In unknown Arabia. London, 1926. Contains a small list of plants, named by R. D'O. Good and C. Norman.

**1923.—Moritz, B.**—Arabien. Studien zur physikalischen und historischen Geographie des Landes. Hannover, 1923.

**1925.—Fernandez, Joseph.**—Formerly employed in the Agricultural Directorate, Baghdad, joined G. M. Lees' expedition to Oman in South-Eastern Arabia in 1925-26. Fernandez collected along the coast from Maskat to Sohar and inland for about 40 miles. Before leaving Arabia he gathered plants on Bahrein Island in the Persian Gulf. His collection amounts to about 3,000 specimens, one of the largest ever made in Arabia. The plants are accompanied by an extensive and detailed journal. Both are at present in the Herbarium Blatter but the plants have not been worked out as yet. The journey has been described in detail in the following publications.

**Lees, G. M.**—The physical geography of South-Eastern Arabia. Geogr. Journal LXXI, No. 5 (1928).

**Lees, G. M.**—The geology and Tectonics of Oman and of parts of South-Eastern Arabia. Quart. Journ. Geol. Soc. LXXXIV pt. 4 (1928) 585-670, plates XLI-LI.

**Eccles, G. J.**—The Sultanate of Muscat and Oman. Journ. Centr. Asian Soc. XIV, pt. 1 (1927) 19.

**1925.—Fox, H. Munro.**—The Biology of the Suez Canal. In Nature 115 (1925) 262.

**1926.—Stocker, Otto.**—Die Aegyptisch-Arabische Wüste. In "Vegetationsbilder" herausgegeben von G. Karsten u. H. Schenck. 17 Reihe, Heft 5 6. Jena, 1926.

**1926.—Thomas, Bertram S.**—Financial Minister to the Sultan of Maskat. Did a good deal of travelling in S. Eastern Arabia : in 1926 between Maskat and Sharja on the Pirate Coast, 1928 from Suwaik westwards along the S. coast to Dhofar and lastly, (1930-31) from Dhofar across the Roba el Khali to Dohah in the Katar Peninsula on the Persian Gulf. His natural history collections await working out. In the meantime we must be satisfied with what he mentions in his descriptions.

**Thomas, B. S.**—Alarms and Excursions in Arabia. An account of his great journey against the Great Desert of South Arabia.

With a preface by Sir A. T. Wilson. With photograph and maps.

**1926.—Wilson, A. T.**—A summary of Scientific Research in the Persian Gulf. Journal Bombay Natural History Society XXXI (1926) 638.



**1927.**—In July of 1927 the Hebrew University of Jerusalem sent an expedition to Sinai under the guidance of F. S. Bodenheimer. The chief aim of the expedition was to inquire into the origin of the Tamarix-manna. In 1929 the results were published under the title: *Ergebnisse der Sinai-Expedition 1927*, edited by F. S. Bodenheimer and O. Theodor. It contains the following papers.

**Bodenheimer und Theodor.**—Reisebericht. (p. 1-19).

**Bodenheimer und Theodor.**—Allgemein zoologischer Bericht (p. 20-44).

**Bodenheimer.**—Ueber das Tamariskenmanna des Sinai (p. 45-88).

**Fodor, A. und R. Cohn.**—Notiz über die chemische Zusammensetzung des Tamariskenmannas (p. 89).

Under Beiträge zur Kenntnis des Sinaigebietes we find the following botanical papers.

**Pinner, L.**—Weizen aus der Oase Feiran (p. 129-132).

**Warburg, O.**—Bemerkungen über die Tamarisken des Sinaigebirges sowie der Sinai Halbinsel (p. 133-140).

**1927.**—**Bradnell, B. J. L.**—The Wilderness of Sinai: a record of two years' recent exploration. London, 1927.

**1927.**—**Parker, A. C. (Lt.-Col.)**.—Sinai, lecture given to the Central Asian Society on Nov. 2, 1927. Published in *Journ. Central Asian Soc.* XV, pt. I (1928) 3.

**1927.**—**Sprague, T. A.**—*Commiphora foliacea* Sprague. In *Hook. Ic. Pl. II*, pt. 1 (1927) t. 3105.

**1928.**—**Plessner, Martin.**—Der Inhalt der Nabatäischen Landwirtschaft *Zeitschr. f. Semitistik.* VI (1928) 27-56.

**1928.**—**Rihani, Ameen.**—Ibn Sa'oud of Arabia. His people and his land. London, 1928.

**Rihani, A.**—Around the Coasts of Arabia. 22 plates. 1930.

**Rihani, A.**—Arabian Peak and Desert Travels in Al-Yaman. 1930.

**1930.**—**Oppenheimer, H. R.**—*Reliquiae Aaronsohnianæ. I. Florula Transjordanica.* *Bull. Soc. Bot. Geneve* XXII, 1930.

**1931.**—**Schimper, A. F. W.**—*Pflanzengeographie auf physiologischer Grundlage*, neu bearb. von F. C. von Faber. Jena, 1931.

**1931.**—**Thiébaud, J. et R. Gombault.**—Made a botanical excursion to Jabel Tenf in the Syrian Desert, on the frontier of Syria and Irak. Their paper contains a list of plants and ecological notes.

**Thiébaud, J. et R. Gombault.**—Une excursion au Djebel Tenf. *Bull. Mensuel de la Société Linnéenne de Lyon* No. 5, May 1932.

**1932.—Bergdolt, Ernst.**—Beiträge zur Geschichte der Botanik im Orient, I. Berichte der Deutschen Bot. Gesellschaft (1932) 321-336.

**1932.—Laurent-Täckholm, Vivi.**—Bibliographical notes to the Flora of Egypt. Contains many references to the flora of Arabia. Reprinted from Festskrift till Verner Söderberg den fjärde oktober 1932.

**Laurent-Täckholm, Vivi.**—Some new plants from Sinai and Egypt. Svensk Botanisk Tidskrift, Bd. 26, H. 1—2 (1932) Upsala.

## APPENDIX.

Of the following collectors I have not been able to ascertain any details, especially not the date of their visits to Arabia.

**Bruce.**—Collected in Arabia deserta.

**Fischer, S.**—Collected 208 sheets of plants in S. Arabia and sent them to Kew (ex Herb. Kew).

**Grotan, F.**—Collected in Sinai (ex A. Thellung sub genere *Lepidium*).

**Holland, F. W.**—Collected in Sinai (ex Herb. Kew.).

**Paul, Prince of Würtemberg.**—Collected at Jidda. (ex Engl. Bot. Jahrb. XVIII, 99).

**Spitzel.**—Collected at Mecca. Plants in Herb. Dingle (ex Engl. Bot. Jahrb. XVIII, 100).

**Wiesner, Rd.**—Collected at Aden (ex Herb. Sulp. Kurz).

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## XCIX. GNETACEAE.

1. *Ephedra* Tourn. ex L.

1. *E. alata* Decne. Enum. pl. réc. par Bové. Ann. Sc. Nat. Isér. II (1835) 239, var. *Decaisnei* Stapf in Denkschr. d. Mathem.-Naturw. Classe d. Kais. Akad. d. Wissensch. Wien (1889) 37.

HABITAT: I. Arabia Petraea (McDonald!); Oasis Farrun, Wady Shellal, between Ras Abu Zenime and Wady Charandel, and between Wady Charandel and Wady Werdan (ex Kneuck.); Tih Desert (Boiss.); Sinai Valleys (Bové, Auch.).

2. *E. foliata* (Boiss.) Stapf in Denkschr. d. Mathem.-Naturw. Classe d. Kais. Akad. der Wissensch. Wien (1889) 49, t. 2 and 10, f. 1-11, var. *ciliata* Stapf l. c.—*E. ciliata* Aitchison Fl. Kurum Valley (1882) 187.—*E. foliata* Aitch. Bot. Affghan. Bound. Commiss. 112.—*E. Alte* Brandis For. Fl. 501, t. 69.—*E. peduncularis* Boiss. l. c. 717.—*E. asparagoides* Griff. Not. II, 340.

HABITAT: II. Aden (S. 106!, Thomson, Defl.!, Perry!).

FL.: Apr. 1878 (Perry), May 1886 (Defl.), Dec. 1888 (S.).

FR.: Feb. 1857 (Thomson), Apr. 1878 (Perry), May 1886 (Defl.), Dec. 1888 (S.).

DISTRIB.: Punjab, Sind, Persian Baluchistan, Turkestan and westwards to Syria.

3. *E. Alte* C. A. Mey. Monogr. d. Gattung Ephed. (1846) 75, t. 3, fig. 4; Boiss. Fl. Or. V (1884) 715.—*E. aphylla et distachya* Forsk. Fl. Aeg.-Arab. (1775) LXXVII.—*E. altissima* Del. Descr. de l'Eg. 110 (non Desf.).

HABITAT: I. Raphidim (Schimp. 280!); Bestam (Schimp. 316!); Sinai (Auch. 2873!); Mt. Catherine (Drake 2!); top of Mt. Sinai (Bové 214!).

FL.: June 1832 (Bové), July 1835 (Schimp.).

DISTRIB.: Egypt, Syria, Cyrenaica, Somaliland.

Vern. name: *Aelde-gammel* (Bové), *Alte* (Schimp.).

4. *E. fragilis* Desf. Fl. Atlant. II, 372.

HABITAT: I. Wady Arabah (Hart).

DISTRIB.: Mediterranean, Arabia.

## C. CONIFERAE.

1. *Cupressus* Tourn. ex L.

1. *C. sempervirens* L. Sp. Pl. 1002.

HABITAT: I. Jebel Musa, ca. 2,100 m., probably cult. (ex Kneuck.); Arabia Petraea (McDonald!) very likely planted.

DISTRIB.: N.-W. India, planted only. The horizontally branches variety is wild in N. Persia, Syria and Asia Minor.

2. *Juniperus* Tourn. ex L.1. *J. procera* Hochst. ex Endl. Syn. Conif. 26.

HABITAT : II. Yaman (ex Fiori).

DISTRIB. : Tropical Africa.

2. *J. phoenicea* L. Sp. Pl. 1471.

HABITAT : I. Central Midian (Burton!).

DISTRIB. : Mediterranean region.

3. *J. macropoda* Boiss. Fl. Or. V, 709.

HABITAT : IV. Maskat, Gebel Akhdar (Auch. 5335).

DISTRIB. : Arabia, Persia, Himalayan region.

## B. MONOCOTYLEDONEAE.

## CI. HYDROCHARITACEAE.

1. *Enhalus* C. A. Rich.1. *E. acoroides* Steud. Nomencl. I, 554.—*Stratiotes acoroides* Linn. f. Suppl. 268.—*Enhalus acoroides* Boiss. Fl. Or. V (1881) 6.—*E. marinus* Griff. Not. Pl. As. III, 178, Ic. t. 249, 250.

HABITAT : II. Hodeidah (S. 149!).

FR. : Sterile in Dec. (S.).

DISTRIB. : Indian and Pacific Oceans, on the shores of Asia, Africa, Australia and Melanesia.

Vern. name : *Suram* (S.).2. *Halophila* Thouars.1. *H. ovalis* (R. Br.) Hook. f. in Fl. Tasm. II (1860) 45; Boiss. Fl. Or. V (1881) 2; Balfour, The genus *Halophila* 47.—*Caulinia ovalis* R. Br. Prodr. Nov. Holl. 339.—*Halophila ovata* Gaud. in Freyc. Voy. Bot. 429, t. 40, fig. 1.

HABITAT : I. Gulf of Suez (Frauenfeld, Aschers.).

II. Hodeidah (S. 150!); Aden (Balfour!); near Jedda (Hildebr. 107).

FR. : Dec. 1888 (S.).

DISTRIB. : Also known from the Persian Gulf, Indian Ocean, South Seas.

Vern. name : *Suram* (S.).2. *H. stipulacea* Aschers. Sitzb. Naturf. Fr. Berlin (1867) 3.—*Zosteria stipulacea* Forsk. Fl. Aeg.-Arab. (1775) Descr. 158.—*Thalassia stipulacea* Koenig Ann. Bot. II, 97.

HABITAT: I. Gulf of Suez (Del., Ehrenb.!, Schimp.!), near Tor (Ehrenb.!, Bové!).

DISTRIB.: Red Sea, Indian Ocean, islands of E. Africa.

### 3. *Thalassia* Solander.

1. *T. Hemprichii* (Ehrenb.) Aschers. in Boiss. Fl. Or. V (1884) 7.—*Schizotheca Hemprichii* Ehrenb. Symb. Phys. Bot. Tab. XI, 1; Act. Acad. Berol. (1832) t. 429.

HABITAT: II. Jedda (S.).

DISTRIB.: Indian and Pacific Oceans on the shores of Africa and tropical Asia, Indian Archipelago, Melanesia.

## CII. ORCHIDACEAE.

### 1. *Holothrix* L. C. Rich.

1. *H. Vatkeana* Rchb. f. in Journ. Bot. XIV (1876) 346.

HABITAT: II. Spring el Mechader, near Menacha (S. 1431!).

FL.: Feb. 1889 (S.), Mar. 1889 (S.).

FR.: Mar. 1889 (S.).

DISTRIB.: Tropical Africa.

### 2. *Habenaria* Willd.

1. *H. arabica* Blatter, *nov. comb.*—*Bicornella Arabica* Defl. Voy. Yemen 208, t. 6.

HABITAT: II. Yaman (Defl.!).

2. *H. macrantha* Hochst. in A. Rich. Tent. Fl. Abyss. II (1851) 294, t. 87.

HABITAT: II. At the Shibam near Menacha, 2,600 m. (S. 1768).

FL.: Mar. 1889 (S.).

DISTRIB.: Abyssinia.

3. *H. aphylla* R. Br. Prodr. 312, *in nota*.

HABITAT: Arabia (*non vidi*).

DISTRIB.: Arabia.

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

1. *E. Schimperiana* Rich. Tent. Fl. Abyss. II (1851) 283.

HABITAT: II. Wolledje at the foot of Jebel Melhan, 700 m. (S. 735!).

FL.: Jan. (S.).

DISTRIB.: Abyssinia.

2. *E. Petersii* Reichb. f. in Flora XLVIII (1865) 186.

HABITAT : Arabia (ex Herb. Kew).

DISTRIB. : Tropical Africa.

#### 4. *Orchis* (Tourn.) L.

1. *O. palustris* Jacq. Coll. I, 75.

HABITAT : IV. Hufuf Oasis (Cheeseman).

DISTRIB. : Europe, N. Africa, Orient.

### CIII. SCITAMINACEAE.

#### ZINGIBERACEAE.

##### 1. *Zingiber* Adans.

1. *Z. officinale* Rosc. Trans. Linn. Soc. VIII, 348.

HABITAT : II. Jebel Bura, cultivated in coffee plantations, 1,000 m. (S. 1882).

Vern. name : *Sengebil* (S.).

#### CANNACEAE.

##### 1. *Canna* L.

1. *C. indica* L. Sp. Pl. 1.

HABITAT : II. Jebel Bura, above Hille, 900 m. (S. 501); near Ussil in Wady Hedjan, 12 m. (S. 1272); Manod near Hodjela, 900 m. (S. 984); wild or run wild.

FL. : Jan. (S.).

Vern. name : *Jussr* (S.), *Schenef-el-diq* (S.).

#### MUSACEAE.

##### 1. *Musa* L.

1. *M. sapientium* L. Sp. Pl. 1477.

HABITAT : II. Jebel Bura, cultivated in coffee plantations, 900-1,000 m. (S. 1819).

### CIV. HAEMODORACEAE.

##### 1. *Sansevieria* Thunb.

1. *S. Ehrenbergii* Schweinf. in Baker Journ. Linn. Soc. XIV, 549; Kew Bull. (1892) 129; Oliv. in Bot. Mag. 2269.

HABITAT : II. Outliers W. of Jebel Melhan and in the plain of Tehama, 300-500 m. (S. 696!); W. of the foot of Jebel Bura, near Chalife, 400 m. (S. 190!).

DISTRIB. : Abyssinia.

**2. S. guineensis** Willd. Sp. Pl. II, 159.

HABITAT: II. Yaman (ex Fiori); Jebel Melhan near Wolledje, 600 m. (S. 696a!); Jebel Bura, above Hille, 800 m. (S. 378).

FL.: Feb.-Jan. 1889 (S.).

FR.: Feb.-Jan. 1889 (S.).

DISTRIB.: Tropical Africa.

Vern. name: *Dermeq, hharag* (S.).

**CV. IRIDACEAE.****1. Iris** Tourn. ex L.

**1. I. florentina** L. Sp. Pl. II, 55; Bot. Mag. t. 671.—*I.* Forsk. Fl. Aeg.-Arab. (1775) p. CIII.—*I. sp.* Defl. Voy. Yemen 209.

HABITAT: II. Top of Shibam, below the old castle; S. W. slope of the hill between el-Hausan and Hayjera, 2,850-2,200 m. (S. 1663).

FL.: Beginning of Mar. (S.).

DISTRIB.: Mediterranean.

**2. I. Sisyrinchium** L. Sp. Pl. 40.—*I. aegyptia* Del. in Labord. Voy. Arab. Petr. 82.

HABITAT: IV. From the neighb. of Koweit and here and there in hollows in the neighb. of Regat (Pelly!).

DISTRIB.: Mediterranean, Orient, Afghanistan, Baluchistan.

**3. I. Helenae** Barbey Herboris. au Levant (1880) 159, no. 841; Boiss. Fl. Or. V (1884) 132; Baker Handb. Irid. 19.

HABITAT: I. Desert between Egypt and Palestine near El-Arish (Barbey).

FL.: Mar. (Barbey).

**4. I. palaestina** Boiss. Fl. Or. V (1884) 122.—*Xiphium palaestinum* Baker in Seem. Journ. (1871) 108.

HABITAT: I. Tel Abou Hereireh to Gaza (Hart).

FL.: Last week of Dec. (Hart).

DISTRIB.: Palestine, Syria, Mesopotamia.

**2. Gladiolus** L.

**1. G. segetum** Ker-Gawl. in Bot. Mag. (1804) t. 719; Boiss. Fl. Or. V (1884) 139; Baker Handb. Irid. 200; Musch. Fl. Egypt. I (1912) 238.

HABITAT: I. Arabia Petraea (ex Muschler).

DISTRIB.: Mediterranean to Persia and Turkestan.

**2. G. segetum** Ker-Gawl. var. **Guepini** (Koch) Boiss. Fl. Or. V (1884) 139; Musch. Fl. Egypt I (1912) 238.—*G. Guepini* Koch Flora XXIII (1840) 466.

HABITAT : I. Arabia Petraea (ex Muschler).

DISTRIB. : Mediterranean.

## CVI. AMARYLLIDACEAE.

### 1. *Pancratium* Dill. ex L.

1. *P. maritimum* L. Sp. Pl. (1753) 291 ; Boiss. Fl. Or. V (1884) 152 ; Baker Handb. Amaryll. 118 ; Musch. Fl. Egypt I (1912) 235.

HABITAT : I. Arabia Petraea (ex Muschler).

DISTRIB. : Mediterranean.

2. *P. tortuosum* Herb. in Ann. Nat. Hist. ser. I, IV (1840) 28 ; Baker Handb. Amaryll. 120.—*P. tortifolium* Boiss. Diagn. ser. I, XIII, 18.

HABITAT : II. Jedda (Zohrab 101 !, Fischer 94 !, Schimp. 876 !); Aden (Thomson !).

III. Dhofar Mts. (Bent 153).

FL. : Feb. (Fischer), Apr. 1861 (Thomson), Dec. 1835 (Schimp.).

DISTRIB. : Arabia, Egypt, Nubia.

3. *P. trianthum* Herb. in Ann. Nat. Hist. ser. I, IV (1840) 28.—*P. tenuifolium* Hochst. in A. Rich. Tent. Fl. Abyss. II (1851) 312.

HABITAT : II. Haifa, Wady Moaden (Defl.).

DISTRIB. : Tropical Africa, Arabia.

4. *P. Sickenbergerii* Aschers. & Schweinf. in Gartenzeitg. II (1883) 345 ; Boiss. Fl. Or. V (1884) 153 ; Baker Handb. Amaryll. 118.

HABITAT : I. Wady-es Sheikh, Wady Barak and Wady Lebwel (Hart !); from Akaba to Ain Abon Weirideh (Hart); between Suez and Mt. Sinai (Boiss. !); Bir ei Fachme (Sickenb.); Bir Abu Elfein (Barbey).

FL. : Nov. and Dec. (Hart).

DISTRIB. : Egypt, Sinai.

Vern. name : *Aissalan* (ex Boiss.).

5. *P. maximum* Forsk. Fl. Aeg.-Arab. (1775) Descr. 72 ; Schweinf. in Bull. Herb. Boiss. (1894) App. II, 82.

HABITAT : II. Jebel Melhan, near Wolledje, 600 m. (S. 699 !); Jebel Bura, above Hille, 900 m. (S. 352 !); Aden (S. 109 !); near Taes (Nichbur).

FL. : Dec. 1888 (S.).

DISTRIB. : S. Arabia, Nubia.

OBSERV. : Flowered at Aden on the 6th day after heavy rain (S.).

Vern. name : *Bassal er robach* (=bulb of the baboon) (S.).

2. *Crinum* L.

1. *C. yemense* Schweinf. Bull. Herb. Boiss. (1894) App. 81; Defl. Voy. Yemen (1889) 209; (*Deflers non descripsit plantam quare Schweinfurth consideramus speciei auctorem.*)—*Crinum yemense* Hort. Damman in Gard. Chron. I, 643.—*C. jemenicum* Hort. Damman.—*Non est C. latifolium* Linn. uti habet Index Kewensis. Vide Schweinf. l. c.

HABITAT: II. Haifa (Defl.!).

DISTRIB.: Arabia.

3. *Ixiolirion* Fisch.

1. *I. montanum* Herb. App. (1821) 37.—*Amaryllis montana* Labill. Ic. Pl. Syr. Dec. II, 5.

HABITAT: I. Gaza (Boiss.!, Barbey).

DISTRIB.: Syria, Palestine, Mesopotamia, Persia.

4. *Haemanthus* L.

1. *H. arabicus* Roem. et Schult. ex Schweinf. in Bull. Herb. Boiss. (1894) App. II, 80.—*H. coccineus* Forsk. Fl. Aeg.-Arab. (1775) Des. 75.

HABITAT: II. Hadie (Forsk.); Lakkeme Jebel Harassa, 2,000 m. (S. 1971!); Jebel Bura, 900 m. (S. 1841); Kahil near Menacha, 2,500 m. (S. 1441, 1701); Jebel Melhan, 900 m. (S. 756).

FL.: Jan. and Feb. 1889 (S.).

FR.: Feb. 1889 (S.), Mar. 1889 (S.).

DISTRIB.: Arabia.

Vern. name: *Bassal el hannesch* (S.) (means Snake-bulb).

2. *H. coccineus* L. Sp. Pl. 325; Defl. Ext. Bull. Société Bot. France XLIII (1896) 330.

HABITAT: II. Haifa, Serrya (Defl.).

DISTRIB.: S. Africa, Arabia.

5. *Polianthes* L.

1. *P. tuberosa* L. Sp. Pl. 316.

HABITAT: II. Jebel Bura, above Hille, cultivated, 1,000 m. (S. 1821).

FL.: Jan. 1889.

DISTRIB.: Mexico.

Vern. name: *Sambag*; *rengess* (S.).

6. *Vellozia* Vand.

1. *V. sp.* Schweinf. in Bull. Herb. Boiss. (1894) App. II, 94, under *Barbacenia*.

HABITAT: II. Jebel Bura, above Hille, 1,000 m. (S. 1872).

Vern. name: *Thalliq* (S.).

2. *V. (xerophyta) arabica* Baker in Kew Bull. (1894) 342 ; Ic. Plant. 2364.

HABITAT : III. Under the edges of rocks at Dobaibah, alt. 1,200 m. (Lunt 205 !).

FL. : Feb. 1894 (Lunt).

DISTRIB. : Arabia.

### 1. *Sternbergia* Waldst. & Kit.

1. *S. cholchiciflora* Waldst. & Kit. Pl. Rar. Hung. II (1805) 172, t. 159 ; Boiss. Fl. Or. V (1884) 147.—*Amaryllis cholchiciflora* Ker-Gawl. in Journ. Sc. & Arts II (1817) 345.—*Sternbergia aetnensis* Guss. Fl. Sic. Prodr. I (1832) 395.—*S. dalmatica* Herb. Amaryll. (1837) 413, t. 47, f. 2.—*S. Clusiana* Ker-Gawl. ex Schult. f. Syst. VII, 794.—*S. macrantha* J. Gay ex Boiss. Fl. Or. l. c. 148 ; Hart Bot. Sinai & S. Palest. in Transact. Roy. Irish Acad. (1885) 445.—*S. pulchella* Boiss. & Blanche Diagn. ser. II, IV, 97.—*S. Schuberti* Schenk Pl. Sp. Aegypt. (1840) 11.—*S. stipitata* Boiss. & Haussk. ex-Boiss. l. c. 148.

HABITAT : I. Mount Hor, especially about the summit (Hart!).

FL. : Early in Dec. (Hart).

DISTRIB. : S. Europe, Syria, Palestine, Persia.

## CVII. COLCHICACEAE.

### 1. *Androcymbium* Willd.

1. *A. palaestinum* Baker in Journ. Linn. Soc. XVII (1880) 445.

HABITAT : I. Wady Arabah (Hart).

DISTRIB. : Sinai, Palestine.

### 2. *Colchicum* L.

1. *C. montanum* L. Sp. Pl. 342.

HABITAT : I. Sinai (Holland!).

DISTRIB. : S. Europe.

2. *C. Steveni* Kunth Enum. Pl. IV, 144.

HABITAT : I. Jebel Catherine (Hart!) ; Mt. Hor and Petra (Hart!).

FL. : Second week of Dec.

DISTRIB. : Arabia, Syria.

3. *C. variegatum* L. Sp. Pl. 342.

HABITAT : I. Sinai.

DISTRIB. : S. Europe.

4. *C. velutinum* Bornm. et Kneuck. in Allg. Bot. Zeitsch. (1903) 63.

HABITAT : I. Jebel Catherine, ca. 2,450 m. (ex Kneuck.).

DISTRIB. : Sinai.



## CVIII. LILIACEAE.

1. *Littonia* Hook.

1. *L. obscura* Baker Ic. Plant. 2365.

HABITAT: III. Near Cosair, nearly sea level (Lunt 280!).

FL.: Mar. 1894 (Lunt).

DISTRIB.: Endemic.

2. *L. minor* Defl. in Bull. Soc. Bot. Fr. XXXII (1885) 353.

HABITAT: II. Little Aden (Defl. 517!); Wady el'anterich (Defl. 541!).

FL.: Apr. 1890 (Defl.).

FR.: Apr. 1890 (Defl.).

DISTRIB.: Arabia.

2. *Merendera* Ram.

1. *M. abyssinica* Rich. Tent. Fl. Abyss. II, 337.

HABITAT: II. Neighb. of Aden (Hunter 57!).

DISTRIB.: Abyssinia, Arabia.

Vern. name: *Shagorat-al-tair* (Hunter).

3. *Gagea* Salisb.

1. *G. reticulata* Schult. Syst. Veg. VII (1829) 552, var. *tenuifolia* Boiss. Fl. Or. V (1884) 238.

HABITAT: I. Towards top of Mt. Catherine (Schimp. 404!); N. Midian (Burton!).

FL.: Apr. 1835 (Schimp.).

Vern. name: *Betet hakjel* (Schimp.).

4. *Tulipa* L.

1. *T. montana* Lindl. in Bot. Regist. XIII (1827) t. 1106; Boiss. Fl. Or. V, 192; Baker in Journ. Linn. Soc. XIV (1873) 279.

HABITAT: I. Sinai.

DISTRIB.: Egypt, Sinai, Armenia, Persia, Kurdistan, Afghanistan.

5. *Hyacinthus* (Tourn.) L.

1. *H. flexuosus* Baker in Journ. of Botany XII (1874) 8.—*Bellevalia flexuosa* Boiss. Diagn. Plant. Or. Ser. I, fasc. XIII, 36.

HABITAT: I. N. Midian (Burton!).

DISTRIB.: Egypt, Sinai, Midian, Syria.

2. *H. colchicoides* Delile in Laborde Voy. Arab. Petr. 32.

HABITAT: I. Arabia Petraea (Herb. Kew!).

DISTRIB.: Arabia.

6. *Muscari Tourn.*

1. *M. comosum* (L.) Mill. Gard. Dict. ed. VIII (1768) no. 2; Baker in Journ. Linn. Soc. XI (1871) 414.—*Hyacinthus comosus* L. Sp. Pl. I, 318.—*Muscari Holzmanni* Boiss. Fl. Or. V, 293.—*Bellevalia comosa* Heldr. in Atti Congr. Fir. 228.

HABITAT: I. Sinai (Herb. Kew!).

DISTRIB.: Middle and south Europe and the other parts of the Mediterranean region, Egypt, Sinai.

7. *Urginea Steinh.*

1. *U. undulata* Steinh. in Ann. Sc. Nat. ser. 2, I (1834) 330; Baker in Journ. Linn. Soc. XIII (1873) 220.

HABITAT: I. Sinai (Herb. Kew!).

DISTRIB.: Egypt. All other parts of the Mediterranean region.

8. *Albuca L.*

1. *A. Yerburyi* Ridley in Journ. Bot. XXII (1884) 370.

HABITAT: II. Aden (Yerburyi!, Birdwood 126! Beevor!).

DISTRIB.: Aden.

2. *A. abyssinica* Dryand in Vet. Acad. Nya. Handl. Stockh. (1784) 297.

HABITAT: II. Near Menacha, 2,900 m. (S. 1664); near Kahil above Menacha, 2,500 m. (S. 1439! 1753!); Jebel Bura above Hille, 1,000 m. (S.).

DISTRIB.: S. Africa, Abyssinia, Eritrea.

9. *Dipcadi Medic.*

1. *D. erythraeum* Webb. & Benth. Hist. Nat. Canar. III, pt. 2 (1840-1850) 341; Baker in Journ. Linn. Soc. XI (1871) 40.—*Uropetalum erythraeum* Boiss. Fl. Or. V, 286.—*Hyacinthus serotinus* Forsk. Fl. Aeg.-Arab. 209.

HABITAT: I. Desert, between Suez and El Tor (Schimp. 405!); N. Midian (Burton!).

II. Jedda (Fischer 96!).

IV. Found sprinkled all over the plain from Koweit to Regat (Pelly).

FL.: Feb. (Fischer), Mar. 1835 (Schimp.).

FR.: Mar. 1835 (Schimp.).

DISTRIB.: Egypt, Syria, Arabia.

2. *D. tacazzeanum* (Hochst.) Baker in Trans. Linn. Soc. II, ser. I, 247.

HABITAT: II. Yaman (Herb. Kew!).

DISTRIB.: Arabia, Eritrea.

**10. Allium (Tourn.) L.**

1. *A. ascalonicum* L. Amoen. Acad. IV, 454.

HABITAT : III. Cultivated at Shibam, 600 m. (Lunt 172 !).

FL. : Jan. 1894 (Lunt).

FR : Jan. 1894 (Lunt).

DISTRIB. : Cultivated everywhere.

Vern. name : *Buṣl* (Lunt).

2. *A. sativum* L. Sp. Pl. 296.

HABITAT : III. Cultivated at Al Ghatan, 345 m. (Lunt 179 !).

DISTRIB. : Europe.

3. *A. cepa* L. Sp. Pl. I (1753) 431.

HABITAT : I. Sinai (Herb. Kew !).

II. Yaman (Herb. Kew !).

DISTRIB. : A cosmopolitan pot-herb.

4. *A. neapolitanum* Cirillo. Plant. rar. regn. Neap. I (1788) 13, t. IV.

HABITAT : I. Sinai (Herb. Kew !).

DISTRIB. : Throughout the Mediterranean region.

5. *A. paniculatum* L. Sp. Pl. ed. II (1762) 428, var. *pallens* Boiss. Fl. Or. V (1884) 260.

HABITAT : I. Sinai (Herb. Kew !).

DISTRIB. : Mediterranean region.

6. *A. nigrum* L. Sp. Pl. ed. II, 430.

HABITAT : I. Sinai (Herb. Kew !).

DISTRIB. : Europe, Orient.

7. *A. sinaiticum* Boiss. Diagn. Ser. I, XIII, 31.

HABITAT : I. Between Mt. Sinai and Nuckl (Boiss.).

DISTRIB. : Arabia.

8. *A. stamineum* Boiss. Diagn. Ser. II, IV, 119.

HABITAT : I. Sinai and Mt. St. Catherine (Schimp. 258).

DISTRIB. : Mediterranean, Orient.

**11. Bulbine L.**

1. *B. asphodeloides* Spreng. Syst. II, 85.

HABITAT : II. Yaman (Herb. Kew !).

DISTRIB. : Abyssinia, South Africa.

**12. Asphodeline Reichb.**

1. *A. lutea* Reich. Fl. Germ. Excurs. 116.

HABITAT : Arabia (ex Baker).

DISTRIB. : Mediterranean region, Caucasus, Asia Minor,

### 13. *Asphodelus* (Tourn.) L.

1. *A. viscidulus* Boiss. Diagn. Pl. Or. ser. 1, fasc. VII (1846) 118.

HABITAT : I. Arabia Petraea (Schimp. 237 !); sandy plain of Ramleh between Sinai and Jebel Tih (Boiss.!).

FL. : Mar. 1835 (Schimp.), Mar. 1846 (Boiss.).

DISTRIB. : Egypt, Arabia, Syria.

2. *A. fistulosus* L. Sp. Pl. 309.

HABITAT : II. Jedda (Zohrab !); Taifa (Botta !).

DISTRIB. : Mediterranean region, Orient, India.

3. *A. fistulosus* L. var. *tenuifolius* Baker in Journ. Linn. Soc. XV (1877) 272.

HABITAT : I. Wady Hamme (Schimp. 206 !); N. Midian (Burton !); Wady Nasb (Lord !); Desert of Sinai (Bové 505 !); Arabia Petraea (McDonald !); Sinai, near Senned (Drake 85 !).

#### IV. Neighbourhood of Koweit (Pelly !).

FL. : Apr. 1868 (Lord).

FR. : Mar. 1835 (Schimp.), Apr. 1868 (Lord), June 1832 (Bové).

Vern. name : *Baruak* (Schimp.), *Barwry* (Drake).

4. *A. fistulosus* L. var. *clavatus* Baker in Journ. Linn. Soc. XV (1877) 271.

HABITAT : III. Weed in cultivated crop near Shibam, 600 m. (Lunt 170 !).

FL. : Jan. 1894 (Lunt).

FR. : Jan. 1894 (Lunt).

DISTRIB. : Dhofar.

5. *A. pendulinus* Coss. et Dur. in Bull. Soc. Bot. Fr. IV (1857) 399, 497.

HABITAT : I. Arabia Petraea : Wady Mokateb (Boiss. !); Arabia Petraea (McDonald !).

FR. : Mar. 1846 (Boiss.).

DISTRIB. : Algeria, Arabia.

6. *A. tenuifolius* Cav. in Ann. Sc. Nat. III (1800) 46, t. 27, fig. 2, var. *micranthus* Boiss. Fl. Or. V (1884) 315.

HABITAT : I. Arabia Petraea (Boiss.!).

DISTRIB. : Mediterranean region, Arabia, Syria, Palestine, Nubia.

7. *A. microcarpus* Viv. in Linnaea I (1826) 500.

HABITAT : I. Beersheba (Lowne 306 !).

DISTRIB. : Mediterranean, Canaries.

14. *Dracaena* Vand.

1. *D. serrulata* Baker in Kew Bull. (1894) 342.

HABITAT : III. On hills near Dobaibah, about 1,200 m. (Lunt 206 !).

DISTRIB. : Arabia.

15. *Scilla* L.

1. *S. yemensis* Defl. Voy. Yemer (1889) 212.

HABITAT : II. Yaman (Defl.).

DISTRIB. : Arabia.

16. *Aloe* Tourn. ex L.

1. *A. trichosantha* Berger. in Engl. Bot. Jahrb. XXXVI (1905)

62.—*A. percrassa* Schweinf. (1894) *non* Tod.

HABITAT : II. Yaman (ex Fiori).

DISTRIB. : Eritrea, Yaman.

2. *A. inermis* Forsk. Fl. Aeg.-Arab. (1775) 74.—*A. Luntii* Baker in Kew Bull. (1894) 342 *et in* Bot. Mag. (1895) t. 7448.

HABITAT : II. Neighb. of Taez (Forsk.).

III. Hills near Dobaibah, 900 m. (Lunt 225 !).

FL. : Feb. 1894 (Lunt).

DISTRIB. : Arabia.

3. *A. menachensis* Schweinf. in Bull. Herb. Boiss. (1894) App. II  
64 (*sub. var.*).

HABITAT : II. Near Menacha, 2,200 m. (S. 1685 !).

FL. : Mar. 1889 (S.).

DISTRIB. : Arabia.

4. *A. vaccillans* Forsk. Fl. Aeg.-Arab. 74.

HABITAT : II. Ussil, 1,400 m. (S. 1350); near Menacha, 2,300 m. (S. 1497, 1623).

FR. : Feb. 1889 (S.).

DISTRIB. : Arabia.

Vern. name : *Cher* (S.).

5. *A. sabaea* Schweinf. in Bull. Herb. Boiss. II. App. II (1894) 74.

HABITAT : II. Wady Madfar near Hodjela, 700 m. (S. 941 !); Aggara near Hodjela, 600 m. (S. 1010 !); Ussil, 1,400 m. (S. 1344 !).

FR. : Jan. 1889 (S.), Feb. 1889 (S.).

DISTRIB. : Arabia.

OBSERV. : Notizblatt Konig. bot. Gart. Berlin (1895) 425.

Vern. name : *Geschb.* (S.).

6. *A. rubroviolacea* Schweinf. in Bull. Herb. Boiss. II, App. II (1894) 71.

HABITAT : II. Top of Shibam near Menacha, 2,900 m. (S. 1658 !).

FL. : Mar. 1889 (S.).

FR. : Mar. 1889 (S.).

OBSERV. : Figd. for Herb. Kew and for Bot. Mag. t. 7882.

Vern. name : *Ssabr* (S.).

7 *A. pendens* Forsk. Fl. Aeg.-Arab. 74 ; Bot. Mag. t. 7827.

HABITAT : II. Above Ussil, 1,500 m. (S. 1222 !); in Wady Nahemi above Attara, 2,000 m. (S. 1751); Jebel Bura, 900 m. (S. 363, 1845).

FL. : Feb. 1889 (S.).

DISTRIB. : Arabia.

Vern. name : *Arrar* (S.).

8. *A. tomentosa* Defl. Voy. Yemen (1884) 211.

HABITAT : II. Yaman (Defl. !).

DISTRIB. : Arabia.

9. *A. vera* L. Sp. Pl. 320, var. *officinalis* Forsk. descr. 72, 74.

HABITAT : II. Badjil, 200 m. (S. 531); foot of Jebel Bura near Hille, 600 m. (S. 360); at Chalife, 300 m. (S. 182); at the foot of Jebel Melhan, 600 m. (S. 658).

FL. : Jan. 1889 (S.).

DISTRIB. : Arabia.

10. *A. vera* L. var. *angustifolia* Schweinf. in Bull. Herb. Boiss. App. II (1894) 62.

HABITAT : II. Jebel Bura near Hille, 600 m. (S. 305).

FL. : Jan. 1889 (S.).

DISTRIB. : Yaman.

### 17. *Kniphofia* Moench.

1. *K. sumarae* Defl. Voy. Yemen, 210.

HABITAT : II. Yaman (Defl. !).

DISTRIB. : Arabia.

### 18. *Asparagus* Tourt.

1. *A. racemosus* Willd. Sp. Pl. II, 152.

HABITAT : II. Jebel Bura, 900-1,200 m. (S. 487).

III. Dhofar Mts., 480 m. (Bent 189 !).

DISTRIB. : India, Orient, tropical Africa, Australia.

2. *A. asiaticus* L. Sp. Pl. 313.

HABITAT : II. Jedda (Schimp. 914 !); Ussil, 1,400 m. (S. 1164); Menacha, 2,000-2,400 m. (S. 1613; 1505); western slope of Jebel Bura above Hille, 900 m. (S. 423).

FL. : Feb. (S.).

FR. : Dec. 1837 (Schimp.).

DISTRIB. : India, Orient, tropical and S. Africa.

3. *A. stipularis* Forsk. Fl. Aeg.-Arab. (1775) 72.

HABITAT : I. Sinai (Holland 111a !); Arabia Petraea (McDonald !).

DISTRIB. : Mediterranean region, Canary Islands.

4. *A. africanus* Lam. Encycl. I, 295.

HABITAT : III. Hills near Dobaibah, 1,200 m. (Lunt 217 !); South coast, el-Hami (S. 190).

DISTRIB. : Arabia, S. Africa.

5. *A. officinalis* L. Sp. Pl. 313.

HABITAT : II. Jebel Bura, cultivated in the coffee region, 1,000 m. (S. 488); Jebel Melhan, 1,000 m. (S. 864).

DISTRIB. : Europe, Caucasus, Siberia, Arabia.

Vern. name : *Ssúfel herr* (S.) *Cat's hair*.

6. *A. scaberulus* Rich. Tent. Fl. Abyss. II, 320.

HABITAT : II. Yaman.

DISTRIB. : Arabia, Abyssinia.

## CIX. COMMELINACEAE.

### 1. *Cyanotis* D. Don.

1. *C. foecunda* DC. ex Hassk. Commel. Ind. 110.

HABITAT : II. Arabia (Botta !).

DISTRIB. : Arabia, Abyssinia.

2. *C. nyctitropa* Defl. in Bull. Soc. Bot. Fr. XLIII, 234.

HABITAT : II. Yaman Haifan (Defl.).

DISTRIB. : Arabia.

### 2. *Aneilema* R. Br.

1. *A. Forskalei* Kunth Enum. IV, 71.—*Commelina tuberosa* Forsk. descr. 12.—*Aneilema Ehrenbergii* Clarke in DC. Mon. III, 227, 228.—*A. tacazzeanum* Hochst. in Clarke, DC. Mon. III, 222.

HABITAT : II. Jebel Bura, 600-900 m. (S. 289); foot of Jebel Melhan, 600 m. (S. 698); Regma near Hodjela, 900 m. (S. 944); Aggara near Hodjela, 600 m. (S. 1055).

FL. : Jan.-Feb. 1889 (S.).

DISTRIB. : Yaman, Eritrea.

**2. *A. aequinoctiale* Kunth Enum. Pl. IV, 72.**

HABITAT : II. Yaman (Botta !).

DISTRIB. : Tropical Africa, Arabia.

**3. *A. aequinoctiale* Kunth, var. *minor* C. B. Clarke in DC. Monogr. III, 221.**

HABITAT : II. Yaman (Botta !).

DISTRIB. : Arabia.

**3. *Commelina* L.****1. *C. albescens* Hassk. in Schweinf. Béitr. Aeth. 210.**

HABITAT : II. Aggara near Hodjela, 600 m. (S. 1073); near Badjil, 250 m. (S. 1783); S. of Jebel el Areys, 200-300 m. (Defl. 411 !); neighb. of Aden (Hunter 169 !).

III. Dhofar Mts. (Bent 123a !).

FL. : Mar. 1890 (Defl.).

FR. : Mar. 1890 (Defl.).

DISTRIB. : Tropical Africa, Arabia.

**2. *C. Forskalei* Vahl Enum. II, 172.**

HABITAT : II. Ussil, 1,200 m. (S. 1110, 1056); foot of Jebel Bura, 600 m. (S. 230); near Saiman and Wady Fatimah (Schimp. 763 !); Wady Fatimah (Fischer 93 !).

III. Stream, foot of Dhofar Mts. (Bent 123 !).

FL. : Feb. (Fischer), Nov. 1835 and Feb. 1836 (Schimp.).

FR. : Feb. (Fischer), Dec. 1888 (S.).

Vern. name : *Uelán, uoalán* (Ussil), *gjelif* (Hille).**3. *C. Forskalei* Vahl var. *pterocarpa* Schweinf. Bull. Herb. Boiss. App. II (1894) 56.**

HABITAT : II. Ravine near Hille, Jebel Bura, 700 m. (S. 283, 364); Aggara near Hodjela, 600 m. (S. 902).

FR. : Jan. 1889 (S.).

DISTRIB. : Arabia.

**4. *C. benghalensis* L. Sp. Pl. 60, var. *hirsuta* Hassk. in DC. Monogr. III, 160.**

HABITAT : II. Foot of Jebel Melhan, 600 m. (S. 753); Regma near Hodjela, 900 m. (S. 780).

FL. : Jan. 1889.

FR. : Jan. 1889.

DISTRIB. : Yaman, Eritrea.

**5. *C. benghalensis* L. var. *fimbriata* Schweinf. Bull. Herb. Boiss. App. II (1894) 53.**

HABITAT : II. Aggara near Hodjela, 600 m. (S. 1045).

FR. : Feb. 1889 (S.).

DISTRIB. : Arabia, Eritrea.



6. *C. Beccariana* Martelli Fl. Bogos. 87 (? *C. Krebsiana* Kunth Enum. IV, 40, 41; ?—*C. edulis* Rich. Tent. Fl. Abyss. II, 341).

HABITAT: II. Above Menacha, Wady Schurfa, 2,500 m. (S. 1758); in the north-west below Menacha, 2,000 m. (S. 1544).

FL.: Feb.-Mar. 1889 (S.).

DISTRIB.: Arabia, Eritrea.

7. *C. Petersii* Hassk. in Peters Mossamb. II, 522.

HABITAT: II. Ussil, 1,400 m. (S. 1259!).

DISTRIB.: Tropical Africa, Arabia.

8. *C. ussilensis* Schweinf. in Bull. Herb. Boiss. App. II (1894) 58.

HABITAT: II. Ussil, 1,800 m. (S. 1258!).

FL.: Feb. 1889 (S.).

DISTRIB.: Arabia.

## CX. JUNCACEAE.

### 1. *Juncus* (Tourn.) L.

1. *J. bufonius* L. Sp. Pl. 328.

HABITAT: I. Damp places of Sinai (Bové 31!).

FR.: Nov. 1832 (Bové).

DISTRIB.: Cosmopolitan.

Vern. name: *Kerbel* (Bové).

2. *J. bufonius* L., var. *subauriculata* Buchenau in Allg. Bot. Zeits. (1903) 165.

HABITAT: I. Oasis Firan (ex Kneuck.).

DISTRIB.: Arabia.

3. *J. bufonius* L., var. *fasciculatus* Koch Syn. Flor. Germar. I (1837) 732.

HABITAT: I. Arabia Petraea (ex Muschler).

DISTRIB.: Cosmopolitan.

4. *J. Fontanesii* Laharpe Monogr. Joncac. (1827) 130.—*J. articulatus* Desf. Fl. Atl. I, 313.—*J. pyramidatus* Laharpe Monogr. Joncac. (1827) 128.

HABITAT: I. Arabia Petraea (ex Muschler).

II. Menacha, 2,300 m. (S. 1577!).

FL.: Feb. 1889 (S.).

DISTRIB.: Mediterranean region, German E. Africa, British Central Africa, Nyassaland, Egypt, W. Asia.

5. *J. subulatus* Forsk. Fl. Aeg.-Arab. (1775) 75.

HABITAT: I. Arabia Petraea (ex Muschler).

DISTRIB.: Morocco to Syria.

6. *J. glaucus* Ehrh. Beitr. Zur Naturk. VI (1791) 83, var. *longicornis* Grogndt.

HABITAT: I. Raphidim (Schimp. 287!).

FR.: July 1835 (Schimp.).

7. *J. acutus* L. Sp. Pl. I (1753) 325.—*J. spinosus* Forsk. Fl. Aeg.-Arab. 75.

HABITAT: IV. Maskat (Auch. 5475!); Hufuf Oasis (Cheeseman).

DISTRIB.: Temperate region.

8. *J. maritimus* Lam. Encycl. III (1789) 264, var. *arabicus* Aschers. and Buch. in Boiss. Fl. Or. V (1884) 354.

HABITAT: I. Near Tor (Bové 29!); Wady Farran (Lord!); Wadies Sudr, Ghurundel and Elain, Akaba; in the Arabah and Ghor es Safieh; S. Midian (Burton!).

FR.: Apr. 1878 (Burton), May 1868 (Lord), June 1832 (Bové).

DISTRIB.: Egypt, also known from Sinai, Palestine and Afghanistan.

9. *J. punctorius* L. Fl. Suppl. 208.

HABITAT: I. Mt. Sinai to Tor (Lord!).

FR.: May 1868 (Lord).

DISTRIB.: S. Africa, W. Asia.

10. *J. punctorius* L. f. var. *mauritanicus* Buchenau et Trabut in Monogr. Juncac. (1890) 278.

HABITAT: I. Arabia Petraea (ex Buchenau).

DISTRIB.: S. Africa, Somaliland, Eritrea, Abyssinia, Sinai, Baluchistan.

11. *J. effusus* L. Sp. Pl. 326.

HABITAT: I. Arabia Petraea, near Raphidim (Schimp.).

DISTRIB.: Europe, Siberia, Japan, India, N. America, Australia.

## CXI. PALMAE.

### 1. Phoenix L.

1. *P. dactylifera* L. Sp. Pl. I (1753) 1188.

HABITAT: Cultivated all over Arabia.

2. *P. reclinata* Jacq. Fragm. Bot. (1809) 27, t. 24.—*P. spinosa* Thonning in Videnskabernes Selskabs Afhandl. IV (1829) 211.

HABITAT: II. Aggara near Hodjela, 600 m. (S. 1037); Wady Madfar near Hodjela, 700 m. (S. 993); foot of Jebel Bura, 600 m. (S. 341).

DISTRIB.: Tropical Africa.

Vern. name: *Schottob* (Hodjela), *Schegja* (Ussil).

2. *Hyphaene* Gaertn.

1. *H. thebaica* Mart. Hist. Palm. III, 225.

HABITAT: II. Rare and only in the lowland, here and there cultivated. At Hodeidah in the sand of the coast region successfully cultivated.

DISTRIB.: Along the valley of the Nile in middle and upper Egypt; Shaikh Othman near Aden.

3. *Cocos* L.

1. *C. nucifera* L. Sp. Pl. I (1753) 1188.

HABITAT: II. Lahej (Defl.) cultivated.

III. South coast, near el-Harzi, east of Schehr, planted in great quantities.

FR.: Feb. 1881 (S.).

DISTRIB.: Cosmopolitan in the tropics.

4. *Areca* L.

1. *A. catechu* L. Sp. Pl. 1189.

HABITAT: II. Yaman.

DISTRIB.: Exact native country of the Betel-nut Palm is uncertain.

## CXII. PANDANACEAE.

1. *Pandanus* Rumph. ex L. f.

1. *P. tectorius* Soland. ex Parkinson Journ. Voy. H. M. S. Endeavour (1773) 46.—*P. odoratissimus* L. f. Suppl. (1781) 424.

HABITAT: II. In the ravine Offer, Jebel Bura near Hille, 600 m. (S. 314); Wady Chuoiat, 1,200 m. (S. 1181); Aggara near Hodjela, 600 m.

FL.: Female flowers Feb. 1889 (S.).

DISTRIB.: India, Arabia.

Vern. name: *Kadi* (S.).

## CXIII. TYPHACEAE.

1. *Typha* L.

1. *T. angustifolia* L. Sp. Pl. 971.

HABITAT: II. Bahr-es-Sahan near Ammerieh, in the low country of the Tehama (S. 474); Spring near Bet-el-Mograb, not far from Menacha, 2,400 m. (S. 1707).

III. Stream of valley leading to Dhofar Mts. (Bent 94!).

DISTRIB.: Europe, N. America, Asia, also in tropical America.

Vern. name: *Hafe*, *haffa* (S.).

**2. *T. angustata* Bory et Chaub. Nouv. Fl. Pelop. 4.**

HABITAT : I. Between Tor and Sinai (Bové 35 !); Jebel Catherine (Drake 36 !); Wady Hebran (Schimp. 366 !); Arabia Petraea (McDonald !).

FL. : June 1832 (Bové).

FR. : June 1832 (Bové), June 1835 (Schimp.).

DISTRIB. : Also found in the Mediterranean region, Orient, northern India, Nubia and Abyssinia.

Vern. name : *Halfa* (Drake).

**3. *T. latifolia* L. Sp. Pl. I (1753) 971.**

HABITAT : I. Arabia Petraea (ex Muschler).

DISTRIB. : Almost cosmopolitan.

**CXIV. LEMNACEAE.****1. *Lemna* L.****1. *L. polyrrhiza* L. Sp. Pl. I (1753) 970.**

HABITAT : I. Arabia Petraea (ex Muschler).

DISTRIB. : Widely distributed in most warm and temperate regions.

**2. *L. minor* L. Sp. Pl. I (1753) 970.**

HABITAT : I. Arabia Petraea (ex Muschler).

DISTRIB. : Widely distributed through the warm and temperate regions of the earth.

**3. *L. paucicostata* Hegelmaier in Monogr. Lemnac. (1868) 139, t. VIII.**

HABITAT : I. Arabia Petraea (ex Muschler).

DISTRIB. : Widely distributed through the warmer parts of the earth.

**4. *L. gibba* L. Sp. Pl. I (1753) 970.**

HABITAT : I. Arabia Petraea (ex Muschler).

II. Wady Nahemi above Attara, 2,100 m. (S. 1744); near Menacha, 2,850 m. (S. 1662 !).

DISTRIB. : Tropical Africa, widely distributed in Europe, Asia and America.

Vern. name : *Bellessinan* (Menacha) (S.).

**CXV. ALISMATACEAE.****1. *Damasonium* Mill.**

**1. *D. alisma* Mill., var. *compactum* Micheli in DC. Monogr. Phanerog. III (1881) 42.**

HABITAT : I. Arabia Petraea (ex Muschler).

DISTRIB. : Egypt, also common in the Mediterranean and Atlantic region.

## CXVI. ARACEAE.

### 1. *Arisaema* Mart.

1. *A. enneaphyllum* Hochst. ex A. Rich. Tent. Fl. Abyss. II (1851) 352 ; Defl. Voy. Yemen (1889) 215.

HABITAT : II. Yaman at the tops of Jebel Shibam near Menacha, 2,800 m. (Defl. 347) ; on the way from Shibam to the castle Kaukaban, 2,600-2,800 m. (Defl. 621) ; Wady Suleymen, 2,400 m. (Defl. 574) ; top of Jebel-el-Sumara, on the way from Yerim to Ibb, 2,800 m. (Defl.).

DISTRIB. : N. African Steppen Province, Abyssinia, Yaman.

2. *A. Bottae* Schott Prodr. (1860) 42 ; Engl. in DC. Mon. Phan. II (1879) 551.

HABITAT : II. Yaman, Ahl el caf (Botta !) ; Haifan (Defl.) ; Mt. Sabor (Botta !).

DISTRIB. : Abyssinia, Eritrea, Yaman.

3. *A. flavum* Schott Prodr. (1860) 40 ; Engl. in DC. Mon. Phan. II (1879) 548.—*Arum flavum* Forsk. Fl. Aeg.-Arab. p. CXX, n. 525 (1775) 157.

HABITAT : II. Neighb. of Aden (Hunter 268 !) ; near Taaes (Forsk. in Herb. Univers. Kiel.).

DISTRIB. : Abyssinia, Eritrea, Yaman, Afghanistan, Kurram Valley, subtropical western Himalaya, Garhwal.

### 2. *Colocasia* Schott.

1. *C. esculenta* Schott Meletem. (1832) 18.—*Arum esculentum* L. Sp. Pl. (1753) 965, ed. 2 (1763) 1369.

HABITAT : II. Yaman Manod near Hodjela, 900 m. (S. 946 !) ; foot of Jebel Bura near Hille, 600 m. (S. 334).

DISTRIB. : Cultivated in all hot countries.

Vern. name : *Kurkum* (Hills) ; *ssandj* (Ussil.).

## CXVII. NAIADACEAE.

### 1. *Cymodocea* Kon.

1. *C. isoetifolia* Aschers. Sitzb. Ges. Naturf. Fr. Berlin (1887) 3

HABITAT : II. Hodeidah (S. 147 !) ; Aden (Defl. 317 !).

DISTRIB. : Red Sea, Indian and Pacific Ocean between the tropics.

2. *C. ciliata* Ehrbg. Sitzb. Ges. Naturf. Fr. Berlin (1867) 3.—*Zostera ciliata* Forsk. descr. 157.

HABITAT: I. Hamah Island (Slade !); Red Sea (Bové 540 !); near Suez (Schimp. 961 !).

II. Aden (Thomson !); Hodeidah (S. 787 !).

DISTRIB.: Widely distributed in the Red Sea and the Indian Ocean to N.-E. Australia.

Vern. name: *Suram* (S.).

3. *C. nodosa* Aschers. Sitzb. Ges. Naturf. Fr. Berlin (1867) 4.

HABITAT: II. Hodeidah (S. 148 !).

DISTRIB.: Mediterranean Sea, African Atlantic coast from Tanger to Senegambia.

4. *C. serrulata* Aschers. et Magnus Sitzb. Ges. Naturf. Fr. Berlin (1870) 84.

HABITAT: II. Hodeidah (S. 146 !).

DISTRIB.: Red Sea coasts and also known from Australian coasts.

5. *C. rotundata* Aschers. et Schweinf. Sitzb. Ges. Naturf. Fr. Berlin (1870) 84.

HABITAT: II. Hodeidah (S. 158a !); Aden (Balfour !).

DISTRIB.: Widely distributed in the Red Sea.

6. *C. Hemprichia* Ehrbg.

HABITAT: II. Aden (Balfour !); Aden Bir Ahmed (Defl.).

## 2. *Diplanthera* Thou.

1. *D. uninervis* Aschers. in Engl. Naturl. Pflanzenfam. Nachtr. (1897) 37.—*Zostera uninervis* Forsk. Fl. Aeg.-Arab. 157.—*Halodule uninervis* Aschers. in Boiss. Fl. Or. V. 24.

HABITAT: I. Tor (Ehrenb. !);

II. Hodeidah (S. 148); Aden (Balfour !).

DISTRIB.: Common in the Red Sea and in the Indian and Pacific Oceans.

## 3. *Naias* L.

1. *N. graminea* Del. Descr. Egypte Hist. Nat. II. (1813) 282, t. 50, fig. 3.

HABITAT: III. Dhofar Mts., river mouth, coast (Bent 217 !).

DISTRIB.: Generally distributed throughout the warmer parts of the Old World.

2. *N. minor* All. Fl. pedemont. II (1785) 221.

HABITAT: I. Arabia Petraea (ex Muschler).

DISTRIB. : Also found in Europe, Asia Minor, Syria, Kurdistan, Persia, Afghanistan, India, Burma, Malacca and Manchuria.

3. *N. marina* L. Sp. Pl. ed. I (1753) 1015, var. *Ehrenbergii* A. Br. in Journ. of Bot. II (1864) 275.

HABITAT : II. Yaman (ex Rendle).

DISTRIB. : Arabia, Tunis, Socotra.

#### 4. *Zannichellia* Mich. ex L.

1. *Z. palustris* L. Sp. Pl. I (1753) 969.

HABITAT : I. Arabia Petraea.

DISTRIB. : Cosmopolitan species wanting only in Australia but found in New Zealand.

#### 5. *Ruppia* L.

1. *R. rostellata* Koch ex Reichb. Ic. Pl. Crit. II, 66.

HABITAT : I. Tor *ex aqua subdulci thermarum* (Ehrenb.!).

DISTRIB. : Common in brackish waters. In almost all temperate and subtropical countries.

2. *R. maritima* L., var. *spiralis* (L.) Aschers. in Boiss. Fl. Or. V (1884) 18.

HABITAT : I. Near el Tor (Schimp. 219!).

FR. : March 1835 (Schimp.).

DISTRIB. of type : Temperate and tropical regions.

#### 6. *Potamogeton* (Tourn.) L.

1. *P. natans* L. Sp. Pl. I (1753) 126.

HABITAT : III. Dhofar Mts., Derbat Lake, 240 m. (Bent 211!).

DISTRIB. : A widely dispersed plant, found in nearly all temperate climates.

2. *P. natans* L., var. *serotinus* Boiss. Fl. Or. V (1884) 16.

HABITAT : I. Arabia Petraea (ex Muschler).

DISTRIB. : Distribution of type.

3. *P. pusillus* L. Sp. Pl. I (1753) 183.

HABITAT : II. Northern slopes of Jebel Shibam, above Menacha 2,500-2,600 m. (S. 1674! 1963).

DISTRIB. : Almost cosmopolitan.

4. *P. Preussii* A. Benn. in Fl. Trop. Afr. VIII (1902) 222.

HABITAT : II. Arabia, Yaman (Defl.).

DISTRIB. : Tropical Africa, Arabia.

5. *P. coloratus* Hornem. in Fl. Dan. t. 1449.

HABITAT : Arabia (Schimp. 893 !).

DISTRIB. : Europe.

### CXVIII. CYPERACEAE.

#### I. *Cyperus* L.

1. *C. Fenzelianus* Steud. Syn. Pl. Cyp. 33.

HABITAT : II. Wady Fatimah (Fischer 119 !).

III. Dhofar Mts. (Bent 134 !).

FL. : Feb. (Fischer).

DISTRIB. : Tropical Africa, Arabia.

2. *C. rotundus* L. Sp. Pl. 45.

HABITAT : I. Ghor es Safieh (Hart).

II. Jedda (Schimp. 916 !, Zohrab 3 !); Yaman (S. 897 ! *partim*); foot of Jebel Bura near Hille, 600 m. (S. 351); at the river of Aggara near Hodjela, 600 m. (S. 1060); Wady Fatimah (Fischer 119 !).

III. Dhofar Mts. : Hafu (Bent 41 !).

FL. : Feb. 1837 (Fischer); Jan.-Feb. 1889 (S.).

FR. : Jan.-Feb. 1889 (S.).

DISTRIB. : Cosmopolitan.

3. *C. rotundus* L., var. *macrostachyus* Boiss.

HABITAT : I. Arabia Petraea (Boiss. !).

DISTRIB. of type : Cosmopolitan.

4. *C. falcatus* Nees & Ehrbg. in Boeckl Cyp. I. 150, 151.

HABITAT : II. Aden (S. 14).

III. El Hami, east of Schehr (S. 210).

FL. : Mar. & Apr. 1881 (S.).

FR. : Mar. & Apr. 1881 (S.).

4a. *C. falcatus* Nees var. *hamiensis* Schweinf. Bull. Herb. Boiss. (1894) App. II, 47.

HABITAT : III. El. Hami, east of Schehr (S.).

FL. : Apr. 1881 (S.).

DISTRIB. : Arabia.

5. *C. articulatus* L. Sp. Pl. 44.

HABITAT : II. Aggara, Hodjela (S. 1036 !); Wady Garu (Ehrenb. !).

FL. : Feb. 1889 (S.), Feb. 1823 (Ehrenb.).

FR. : Feb. 1889 (S.), Feb. 1823 (Ehrenb.).

DISTRIB. : Tropics.

Vern. name : *Chasegj* (S.).



6. *C. flabelliformis* Rottb. Desc. Nov. Pl. 42.—*C. gradatus* Forsk. Fl. Aeg.-Arab. 13.

HABITAT : II. Hodjela, Manod (S. 978) ; Jebel Bura, 900 m. (S. 513) ; Wady Chuoiel, 1,200 m. (S. 1168).

FR. : Jan. 1889 (S.)

DISTRIB. : Arabia, Abyssinia.

Vern. name : *Kuff el ma* (S.).

7. *C. bulbosus* Vahl Enum. II, 342.

HABITAT : II. Jedda (Zohrab 23 !, Fischer 54 !, Schimp. 809 !) ; Wady Adab near Shukra (Defl. 471 !).

FL. : Jan. 1837 (Fischer), Jan. 1836 (Schimp.), Mar. 1890 (Defl.).

DISTRIB. : Arabia, Africa, India orientalis.

8. *C. conglomeratus* Rottb. Desc. Nov. Pl. 21.

HABITAT : I. N. Midian (Burton !) ; Wady Ghurundel and Ramleh (Lord !) ; Desert of Tor (Bové 28 !).

II. Jedda (Schimp. 1042 !) ; Aden (Thomson !, Defl. 37 ! Perry !, S. !) ; Is. of Ketumbal (Ehrenb. !).

IV. Oman (Pilgrim !) ; Maskat (Bornm. 684 !) ; Central Arabia (Pelly !).

FR. : Jan. 1893 (Bornm.), Apr. 1868 (Lord), June 1832 (Bové), Nov.-Dec. 1888 (S.), Mar. 1881 (S.).

DISTRIB. : Generally in the tropics.

9. *C. conglomeratus* Rottb., var. *effusus* Boiss. Fl. Or. V, 369.

HABITAT : II. Near Dahab (Schimp. 301 !) ; near Noweba (Schimp. 733 !) ; Hanish Island (Slade !) ; Jedda (Fischer 55 !, Zohrab 13 ! 22 !, Schimp. 810 !) ; Aden (S. 15 !, Thomson !, Beevor 50 !).

III. El Hami (S. 210 !).

FL. : Oct.-Feb. (Fischer), July 1835 (Schimp.), Nov. 1888 (S.).

FR. : Oct.-Feb. (Fischer), Nov. 1888 (S.).

DISTRIB. : Of type.

10. *C. conglomeratus* Rottb., var. *pumilus*.

HABITAT : II. Jedda (Zohrab 13a in H. K. !) ; Aden (Hook. 105 !).

III. Dhofar Mts. : Hafu (Bent 28 !).

IV. Oman (Pilgrim !).

DISTRIB. : Of type.

11. *C. arenarius* Retz. Obs. IV, 9.

HABITAT : II. Neighb. of Aden (Hunter 113 !).

DISTRIB. : Tropical Asia.

12. *C. eleusinoides* Kunth Enum. Pl. II, 39.

HABITAT : II. Wady Hedjan, 1,200 m. (S. 1962 !).

FL. : Feb. 1889 (S.).

DISTRIB. : Generally in the tropics.

**13. *C. rubicundus* Vahl Enum. Pl. II, 308.**

HABITAT : II. Aggara near Hodjela, 600 m. (S. 897 !); Neighb. of Aden (Hunter 67 !); S.-W. of Jebel Nakhai, 800 m. (Defl. 490 !); foot of Jebel Bura, 600 m. (S. 386).

FL. : Jan.-Feb. 1889 (S.).

FR. : Jan. 1889 (S.), Feb. 1889 (S.), Mar. 1890 (Defl.).

DISTRIB. : India, tropical Africa, Arabia.

**14. *C. longus* L. Sp. Pl. 45.**

HABITAT : I. Arabia Petraea (ex Muschler); Ghor es Safieh (Hart).

DISTRIB. : Europe, Orient.

**15. *C. laevigatus* L. Mant. II, 179.—*C. mucronatus* Rottl. Desc. Nov. Pl. 19.**

HABITAT : I. Wady es-Sle, Oasis Firan (ex Kneuck.).

II. Zeyda (Defl.).

DISTRIB. : Cosmopolitan in the warmer regions.

**16. *C. laevigatus* L. var. *distachyus* Coss. et D. R.**

HABITAT : I. Arabia Petraea; Oasis Firan, Wady Ghurundel (ex Kneuck. *sub Acorello*).

DISTRIB. : Of type.

**17. *C. atronitens* Hochst. in Flora, XXIV (1841) 1.**

HABITAT : II. Jebel Shibam, above Menacha, 2,700 m. (S. 1679 !).

FR. : Mar. 1889 (S.).

DISTRIB. : Arabia, tropical Africa.

**18. *C. leptophyllus* Hochst. ex Steud. Syn. Pl. Cyp. 33.**

HABITAT : II. Western slopes of Jebel Bura, 900 m. (S. 387 !); Wady Hedjan, 1,200 m. (S. 1089); Shukra (Defl.).

DISTRIB. : Tropical Africa, Arabia.

Vern. name : *Schile* (Ussil).

**19. *C. obtusiflorus* Vahl Enum. II, 308.**

HABITAT : II. Yāman (Herb. Kew).

DISTRIB. : S. Africa, Madagascar, Arabia.

**20. *C. polystachyus* Rottb. Desc. Nov. Pl. 39.**

HABITAT : II. Yaman (Herb. Kew).

DISTRIB. : Everywhere in the tropics.

2. *Scirpus* (Tourn.) L.1. *S. setaceus* L. Sp. Pl. 49.

HABITAT : II. At Menacha, source Mechander, 2,300 m. (S. 1428 !).

FL. : Feb. 1889 (S.).

DISTRIB. : Australia, Asia, Europe.

2. *S. corymbosus* Heyne in Roth Nov. Pl. Sp. 28, var. *brachyceros* H. in Rich. Tent. Fl. Abyss. II, 496.

HABITAT : II. At Jebel Shibam, above Menacha, 2,500 m. (S. 1767 !).

FL. : Mar. 1889 (S.).

DISTRIB. of type : Africa, India.

3. *S. lacustris* L. Sp. Pl. 48.

HABITAT : I. Arabia Petraea.

DISTRIB. : Cosmopolitan.

4. *S. maritimus* L. Sp. Pl. 51.

HABITAT : I. Ghor es Safieh (Hart !).

DISTRIB. : Cosmopolitan.

5. *S. Holoschoenus* L. Sp. Pl. 49.

HABITAT : I. S. Midian (Burton !); Arabia Petraea (McDonald !); foot of Mt. Sinai (Schimp. 108 !); Mt. Sinai (Lord, Bové 21 ! 32 ! 33 !); Sinai, near Senned (Drake 86 !); Jebel Musa; Wady el Tihyeh to Jebel Hertih (Hart).

FL. : Mar.-Apr. 1878 (Burton), May 1835 (Schimp.).

FR. : Mar.-Apr. 1878 (Burton), May 1835 (Schimp.), June 1832 (Bové).

DISTRIB. : Cosmopolitan.

Vern. name : *Deess* (Drake).6. *S. littoralis* Schrad. Fl. Germ. I, 142, t. 5, fig. 7.

HABITAT : III. Brackish pool at Ghafyt, 180 m. (Lunt 91); Dhofar Mts., in streams near coast (Bent).

DISTRIB. : Europe, Asia, Egypt.

3. *Fimbristylis* Vahl.1. *F. spathacea* Roth Nov. Pl. Sp. 24.

HABITAT : II. S.-W. Arabia (Ehrenb. !).

III. Near the hot springs of el Hami (S. 158 !).

FL. : Apr. 1881 (S.).

FR. : Apr. 1881 (S.).

DISTRIB. : Warm regions.

2. *F. ferruginea* Vahl Enum. II, 291.

HABITAT : II. Above Menacha, 2,500 m. (S. 1709); Wady et-Tehm, 1,500 m. (S. 1245); Wady Shaari, foot of Jebel Melhan, 700 m. (S. 677)

Aggara near Hodjela, 600 m. (S. 1075) ; Zeyda (Defl.).

III. Near the hot springs of el Hami (S. 184 ! 199 !).

IV. Maskat (Auch. 5480 !).

DISTRIB. : All warm regions.

3. **F. cf. ferruginea** Vahl.

HABITAT : IV. Hufuf Oasis (Cheeseman).

4. **F. dichotoma** Vahl Enum. II, 287.

HABITAT : I. Ghor es Safieh (Hart).

DISTRIB. : S. Europe, N. Africa.

#### 4. **Schoenus** L.

1. **S. nigricans** L. Sp. Pl. 43.

HABITAT : I. Arabia Petraea (Bové ! Schimp. !).

DISTRIB. : Cosmopolitan.

#### 5. **Carex** (Dill.) L.

1. **C. diluta** Bieb. Fl. Taur. Cauc. II, 388.

HABITAT : I. Foot of Mt. Sinai, Gauaje el Leestan (Schimp. 176 !).

FL. : Apr. 1835 (Schimp.).

DISTRIB. : Southern Europe, temperate Asia.

Vern. name : *Dis el Muje* (Schimp.).

2. **C. diluta** Bieb. var. **Bottae** C. B. Clarke.

HABITAT : I. Mt. Sinai, Arabia Petraea (Figari !); Sinai (Botta 3 !); damp places of Sinai (Bové 23 !).

FL. : June-July (Figari).

FR. : June-July (Figari); June 1832 (Bové).

DISTRIB. : Of type.

3. **C. Burchelliana** Böckl. in *Linnaea* XLI (1877) 234., var. **leiocarpa** Schweinf. in Bull. Herb. Boiss. (1894) App. II. 51.

HABITAT : II. At Menacha, source Machader, 2,300 m. (S. 1424).

FL. : Feb. 1889 (S.).

FR. : Feb. 1889 (S.).

DISTRIB. of type : South Africa.

4. **C. divisa** Huds. Fl. Angl. ed. I, 348.

HABITAT : I. Ghor es Safieh (Hart).

DISTRIB. : North temperate regions.

5. **C. stenophylla** Wahlenb. in Vet. Akad. Nya. Handl. Stockh. (1803) 142 ; var. **planifolia** Boiss.

HABITAT : I. Summit of Mt. Hor (Hart); from Wady Zewerah to Bir es Seba and Tel Abou Hereireh (Hart).

DISTRIB. of type : North temperate region.

6. *C. distans* L. Syst. ed. X, 1263.

HABITAT : I. Arabia Petraea.

DISTRIB. : Western Asia, N. America.

## CXIX. GRAMINEAE.

### 1. Imperata Cyrill.

1. *I. cylindrica* Beauv. Agrost. 165, t. 5, fig. 1.

HABITAT : I. Desert of Sinai (Bové 16 !); Sinai (Holland !); Wadies Zelegah and Elain : Ghor es Safieh (Hart).

FR. : June 1832 (Bové).

DISTRIB. : The hotter parts of the Old World.

Vern. name : *Halseh* (Bové).

### 2. Saccharum L.

1. *S. biflorum* Forsk. Fl. Aeg.-Arab. 16.

HABITAT : I. Sinai (Herb. Kew !).

DISTRIB. : Egypt, Syria, Sinai, Palestine.

2. *S. spontaneum* L. Mant. (1771) 183.

HABITAT : II. Oasis of Lahadj (Defl. 147).

FR. : Dec. 1889 (Defl.).

DISTRIB. : Tropics of the Old World.

3. *S. officinale* L. Sp. Pl. 54.

HABITAT : II. Yaman (Herb. Kew !).

DISTRIB. : Cultivated in warm regions.

4. *S. Ravennae* L. Syst. ed. XIII, 88.—*Erianthus Ravennae* Beauv. Agrost. 162.

HABITAT : I. Ghor es Safieh (Hart).

DISTRIB. : Western Himalaya, Punjab, Upper Gangetic Plain, Sind, extending westwards to the Mediterranean.

### 3. Rottboellia L. f.

1. *R. hirsuta* Vahl Symb. Bot. I, 11.—*Coelorachis hirsuta* Brongn. in Duperr. Voy. Coq. Bot. 64, t. 14 (1829) 65, *in obs.*—*Saccharum hirsutum* Forsk. Fl. Aeg.-Arab. 16.

HABITAT : I. Desert of Sinai (Bové 18); Sinai (Bové !).

II. Perim Island (H. K. !); near Jedda (Schimp. 791 !);

Badjil (S. 873 !).

IV. Maskat (Auch. 5460 !).

FR. : Jan. 1889 (S.), June 1832 (Bové).

DISTRIB. : Tropical Africa, Arabia, Afghanistan.

Vern. name : *Tuham, ta'am* (S.).

2. *R. exaltata* L. f. Suppl. 114, var. *genuina* Hack. in DC. Monogr. VI, 294.

HABITAT : II. Aggara, near Hodjela, in maize fields, 600 m. (S. 1070 !).

FR. : Feb. 1889 (S.).

DISTRIB. : Tropics.

Vern. name : *Qoren* (S.).

#### 4. *Apluda* L.

1. *A. varia* Hack. in DC. Monogr. VI, 196, var. *aristata* Hack. l. c. 199.

HABITAT : II. Tropical Arabia (ex Stapf).

DISTRIB. : Tropical Asia to New Caledonia, tropical Arabia and Socotra.

#### 5. *Ischaemum* L.

1. *I. laxum* R. Br. Prod. 205.

HABITAT : II. Foot of Jebel Bura, 600 m. (S. 300).

FL. : Jan. 1889 (S.).

FR. : Jan. 1889 (S.).

DISTRIB. : Tropics of the Old-World.

#### 6. *Elionurus* Humb. et Bonpl.

1. *E. hirsutus* (Forsk.) Munro ex Benth. in Journ. Linn. Soc. XIX (1881) 68.—*Saccharum hirsutum* Forsk. Fl. Aeg.-Arab. 16.

HABITAT : I. Sinai (Herb. Kew !); Arabia Petraea (Bové 18).

II. Yaman (ex Boiss.).

IV. Maskat (Auch. 5460).

DISTRIB. : Northern Punjab, Rajputana, westwards to Northern Africa.

2. *E. Royleanus* Nees ex Rich. Tent. Fl. Abyss. II, 474.

HABITAT : II. Mt. Sidr (Fischer 118 !); Wady Djara (Ehrenb. !).

FL. : Feb. (Fischer).

DISTRIB. : India, Arabia, tropical Africa.

#### 7. *Arthraxon* Beauv.

1. *A. lanceolatus* Hochst. in Flora XXXIX (1856) 188., var. *serrulatus* Hack. in DC. Monogr. VI, 348.

HABITAT : II. Regma, near Hodjela, 800 m. (S. 951) ; Ussil, 1,400 m. (S. 1953) ; Menacha, 2,300 m. (S. 1580) ; Hille, Jebel Bura (S. 361 !).

FL. : Feb. 1889 (S.).

FR. : Jan.-Feb. 1889 (S.).

DISTRIB. of type : India, Abyssinia, Arabia, Japan.

### 8. *Andropogon* L.

1. *A. sorghum* Brot. Fl. Lusit. I. 88, var. *rubrocernuus* Kcke.

HABITAT : II. Hodjela, 600 m. (S. 88) ; Ussil, 1,000-1,200 m. (S.).

Vern. name: *Kubri* (S.).

2. *A. sorghum* Brot. var. *saccharatus* Kcke. und Wern. Getr. I, 310.—*Holcus Dochna* Forsk. descr. 174.

HABITAT : II. Shukra, cultivated (S.).

3. *A. sorghum* Brot. var. *usorum* Nees Fl. Afr. Austr. 87 ; Kcke. und Wern. Getr. I, 312.

HABITAT : II. Above Menacha, 2,600 m., cultivated in the rainy season (S.) ; east of Marraua (S. 162, 164).

Vern. name : *Gjendab ahmar* (S.).

4. *A. sorghum* Brot. var. *yemensis* Kcke.

HABITAT : II. East of Marraua (S. 162) ; Shukra (S. 60).

5. *A. sorghum* Brot. var. *niger* Ard. in Saggi Sc. I, 134 ; Hack. in DC. Monogr. VI, 514.

HABITAT : II. At the foot of Jebel Bura (S.).

6. *A. sorghum* Brot. var. *albida* Kcke.

HABITAT : II. Ussil, 1,000-1,300 m., cultivated in the rainy season (S.).

Vern. name : *Ahnessi* (S.).

7. *A. sorghum* Brot. var. *bicolor* L. Mant. 2, 301.

HABITAT : II. Aden, cultivated as cattle fodder at Shaikh Othman (S.) ; east of Marraua (S. 163).

Vern. name : *Gherb* (S.).

8. *A. sorghum* Brot. var. *aethiops* Kcke. und Wern. Getr. 313.

HABITAT : II. In the lowland of the Tehama (S.).

9. *A. sorghum* Brot. var. *arabicus* Kcke.

HABITAT : II. Above Menacha, 2,600 m. cultivated in the rainy season (S.).

Vern. name : *Gia'aidi* (S.).

10. *A. sorghum* Brot. var. *subglabrescens* Hack. in DC. Monogr. VI, 519.

HABITAT : II. Oasis of Lahadj (Defl. 123 !).

FL. : Dec. 1889 (Defl.).

FR. : Dec. 1889 (Defl.).

11. *A. sorghum* Brot. var. *Ankolib* Hack. in DC. Monogr. VI, 519.

HABITAT : II. Yaman (S.).

OBSERV. : Lunt's 159 collected at Al Hawi in Hadramaut alt. 660 m. is aff. to this var.

12. *A. halepensis* Brot. Fl. Lusit. I (1804) 89.

HABITAT : I. Arabia Petraea (Herb. Kew !); Ghor es Safieh, cultivated (Hart).

DISTRIB. : Throughout the tropics.

13. *A. Aucheri* Boiss. Diagn. Ser. I, V, 77.

HABITAT : II. Yaman (Defl. !).

DISTRIB. : India, tropical Africa, Arabia.

14. *A. Aucheri* Boiss. var. *sorghum quinque plumis* Hack. in DC. Monogr. VI, 561.—*A. quinqueplumis* Hochst. ex A. Rich. Tent. Fl. Abyss. II, 450.

HABITAT : II. Badjil, 200 m. (S. 529); Taifa (Botta !).

III. El Hami (S. 203 !).

FL. : 10th Jan. 1889 (S.).

FR. : 10th Jan. 1889 (S.), Apr. 1881 (S.).

15. *A. hirtus* L. Sp. Pl. 1046.

HABITAT : I. Wady Zewerah (Lowne); summit of Mt. Hor (Hart).

IV. Maskat, Mt. Chebeck (Auch. 5462).

DISTRIB. : Tropics.

16. *A. hirtus* L. Sp. Pl. 1046, var. *genuinus* Hack. in DC. Monogr. VI, 619.

HABITAT : I. Arabia Petraea (McDonald !); Wady Farrun and neighb. (Lord !); Sinai (S. 114 !); Desert of Sinai (Bové 15 !); foot of Mt. Sinai (Schimp. 101 !); Mt. Sinai (H. K. !).

II. Jebel Bura, 600 m. (S. 278); Regma near Hodjela, 800 m. (S. 973); foot of Jebel Melhan, 600 m. (S. 654); Ussil, 1,400 m. (S. 1347); Menacha, 2,00-2,500 m. (S. 1538, 1708).

FL. : May 1835 (Schimp.).

FR. : Mar. 1886 (S.), May 1868 (Lord), May 1835 (Schimp.), June 1832 (Bové).

Vern. name : *Hammara* (Bové), *hamra* (Schimp.).



**17. *A. caesius*** Nees ex Hook. & Arn. Bot. Beech. Voy. 244.—*A. schoenanthus* L. Sp. Pl. 1046, var. *caesius* Hack. in DC. Monogr. VI. 610, 611.

HABITAT : II. Wolledje (S. 627).

FL. : Jan. 1889 (S.).

FR. : Jan. 1889 (S.).

DISTRIB. : Tropical Africa, Arabia, southern India.

Vern. name : *Qusseba* (S.).

**18. *A. distachyus*** L. Sp. Pl. 1046.

HABITAT : I. Sinai (Auch. 2954 !).

II. Above Menacha, 2,500 m. (S. 1435 !).

FR. : Feb. 1889 (S.).

DISTRIB. : Mediterranean.

**19. *A. foveolatus*** Del. Fl. Aeg. 160, t. 8, fig. 2.

HABITAT : I. Akaba (Hart) ; desert of Sinai (very rare) (Bové !).

II. Aden, Shukra, Serrya (Defl.) ; Aden (Birdwood 131 !, S. 79 !, Lunt 337 !) ; desert near Jedda (Schimp. 790 !) ; Jedda (Zolrab 216 !) ; El Gidam (Ehrenb. !).

III. El Hami (S. 173).

IV. Maskat (Auch. 5461 !).

FR. : Jan. 1825 (Ehrenb.), Apr. 1894 (Lunt), June 1832 (Bové), Nov. 1835 (Schimp.).

DISTRIB. : Africa and tropical Asia.

**20. *A. pertusus*** Willd. Sp. Pl. IV, 922.

HABITAT : II. Foot of Jebel Bura, 600 m. (S. 478) ; Aggara near Hodjela, 600 m. (S. 393) ; Menacha, 2,500 m. (S. 1959)

FL. : Jan., Feb., Mar. (S.).

FR. : Jan., Feb., Mar. (S.).

DISTRIB. : Sicily, tropical Asia, tropical Africa, Australia.

**21. *A. annulatus*** Forsk. Fl. Aeg.-Arab. 173.

HABITAT : II. Badjil, 190 m. (S. 1960) ; Aggara near Hodjela, 600 m. (S. 900).

IV. From the valley on the 3rd Mar. (Pelly !).

FL. : Jan. 1889 (S.).

FR. : Jan. 1889 (S.), Mar. (Pelly).

DISTRIB. : Northern Africa, Arabia, India, Australia.

**22. *A. laniger*** Desf. Fl. Atlant. II, 379.

HABITAT : II. Little Aden, Beyt-el-Amir, Massana (Defl.) ; Jedda (Schimp. 789 !) ; neighb. of Jedda (Fischer 132 !) ; Wady Saylet near Beyt-el-Amir (Defl. 241 !).

IV. Maskat (Bornm. 704 !, Auch. 5462 !).

FL. : Jan. & Feb. (Fischer), Jan. 1893 (Bornm.), Jan. 1890 (Defl.).

FR. : Jan. 1836 (Schimp.), Jan. & Feb. (Fischer), Jan. 1893 (Bornm.), Jan. 1890 (Defl.).

DISTRIB. : Orient, India, N. Africa.

**23. A. contortus** L. Sp. Pl. (1753) 1045.—*Heteropogon contortus* Roem. & Schult. Syst. Veg. II, 836.

HABITAT : II. Jebel Bura, 600-800 m. (S. 908) ; Wolledje (S. 760 !).

FL. : Jan. 1889 (S.).

FR. : Jan. 1889 (S.).

DISTRIB. : Mediterranean region and tropics and subtropics generally.

**24. A. Jwarancusa** Jones in As. Res. IV (1795) 109.—*Cymbopogon Jwarancusa* Schult. Mant. II (1824) 458.

HABITAT : Arabia (Herb. Kew !).

DISTRIB. : India, tropical Africa.

**25. A. sehima** Steud. Syn. Pl. Glum. I, 369.

HABITAT : II. Yaman (ex Stapf).

DISTRIB. : Tropical Africa, Yaman, tropical Arabia, Deccan Peninsula.

### 9. Themeda Forsk.

**1. T. triandra** Forsk. Fl. Aeg.-Arab. CXXIII et 178, var. **glauca** Hack. in DC. Monogr. VI, 663.

HABITAT : II. Menacha, 2,200 m. (S. 1499 !).

FR. : Feb. 1889 (S.).

DISTRIB. : Yaman.

### 10. Tragus Hall.

**1. T. racemosus** Scop. Introd. 73 ; All. Fl. Pedem. II, 241.

HABITAT : II. Yaman (Schimp. 792 !); desert near Jedda (Schimp. 793 !, Fischer 138 !, Zohrab 36 !); Aggara near Hodjela, 600 m. (S. 1050 !); Wady Bahara (Schimp. 792 !); Menacha, 2,200 m. (S. 1594).

FL. : Feb. (Fischer).

FR. : Jan. 1836 (Schimp.), Feb. 1889 (S.), Feb. 1837 (Schimp.).

DISTRIB. : Mediterranean region, Afghanistan.

**2. T. occidentalis** Nees Agrost. Bras. 286.

HABITAT : II. Ussil, 1,400 m. (S. 1049a).

DISTRIB. : Mediterranean.

**3. T. brevicaulis** Boiss. Diagn. Ser. I, XIII, 44.

HABITAT : II. Yaman (Boiss.).

DISTRIB. : Persia, Arabia.

**11. Latipes Kunth.**

1. *L. senegalensis* Kunth Rev. Gram. I, 261, t. 42 (1830).

HABITAT : II. Yaman (Ehrenb. 232 !); Shukra (S. 139 !).

III. Dhofar Mts. : Coasts Dhofar (Bent 52 !).

FR. : Mar. 1881 (S.).

DISTRIB. : Tropical Africa, Arabia.

**12. Eriochloa H. B. & K.**

1. *E. polystachya* H. B. & K. Nov. Gen. et Sp. I, 95:

HABITAT : II. Shaikh Othman (S. 123); Aggara near Hodjela, 600 m. (S. 1058).

FR. : Feb. 1889 (S.), Dec. 1888 (S.).

DISTRIB. : Mexico.

2. *E. acrotricha* Hack. ex Thell. in Viertelj. Naturforsch. Ges. Zürich, LII, 435.

HABITAT : II. Tropical Arabia (ex Stapf).

DISTRIB. : Trópicá Africa, tropical Arabia, occasionally in India.

**13. Panicum L.**

1. *P. fatmense* Hochst. et Steud. ex Steud. Nom. ed. II, II, 256 ; et Syn. Pl. Gram. 100 (*Eriochloa* sp.).

HABITAT : II. Aggara near Hodjela in maize fields, 700 m. (S. 1058 !); Unsert, near Mecca (Schimp. 806 !); Wady Fatimah (Fischer 174 !); Jedda (Zohrab 241, 316 !).

FL. : Feb. (Fischer).

FR. : Feb. 1889 (S.).

DISTRIB. : India, Arabia.

2. *P. sanguinale* L. Sp. Pl. 57.—*Digitaria sanguinalis* Scop. Fl. Carn. ed. II, I, 52.

HABITAT : II. Wady Fatimah, near Mecca (Schimp. 803 !); Wady Fatimah (Fischer 120 !).

IV. Near Maskat (Last !).

FL. : Feb. (Fischer).

FR. : Feb. 1836 (Schimp.).

DISTRIB. : Cosmopolitan.

3. *P. sanguinale* L. var. *fenestratum* Schweinf. in Bull. Herb. Boiss. (1894) App. II, 18.

HABITAT : II. Foot of Jebel Melhan, 600 m. (S. 626); Aggara near Hodjela, 600 m. (S. 1049); Regmā near Hodjela, 900 m. (S. 949).

FL. : Jan. and Feb. 1889 (S.).

FR. : Jan. and Feb. 1889 (S.).

DISTRIB. : Arabia, Eritrea.

**4. *P. sanguinale* L. var. *horizontale* Schweinf.** in Bull. Herb. Boiss. (1894) App. II, p. 18.

HABITAT : II. Jebel Bura, 600 m. (S. 1330); Aggara, 600 m. (S. 1081); Menacha, 2,200 m. (S. 1595).

FL. : Jan. and Feb. 1889 (S.).

FR. : Jan. and Feb. 1889 (S.).

DISTRIB. : Yaman.

**5. *P. leersioides* Hochst.** in Flora XXXVIII (1855) 196.

HABITAT : II. Foot of Jebel Melhan, 600 m. (S. 762); Ussil, 1,200-1,800 m. (S. 1133, 1196); Regma near Hodjela, 900 m. (S. 985); Aggara, 600 m. (S. 895); Hillq, Jebel Bura (S. 322!).

FL. : Jan. and Feb. 1889 (S.).

FR. : Jan. and Feb. 1889 (S.).

DISTRIB. : Abyssinia, Arabia.

**6. *P. antidotale* Retz.** Obs. IV, 17.

HABITAT : II. Shaikh Othman (S. 122!).

FL. : Dec. 1888 (S.).

FR. : Dec. 1888 (S.).

DISTRIB. : Generally in warm regions.

**7. *P. atrosanguineum* Hochst. ex A. Rich** Tent. Fl. Abyss. II, 375.

HABITAT : II. Foot of Jebel Melhan, 600 m. (S. 769); Ussil, 1,200 m. (S. 1306).

FL. : Feb. 1889 (S.).

FR. : Feb. 1889 (S.).

DISTRIB. : Abyssinia, Arabia.

**8. *P. colonum* L.** Syst. ed. X, 870.

HABITAT : I. Ghor es Safieh (Hart).

II. Shukra (S. 75!); Unsert near Mecca (Schimp. 804! 963!); Jedda (Zohrab 218! 220! 315!); Aggara near Hodjela, in maize fields (S. 906!); Yaman, W. Fatimah (Fischer 176!); Shaikh Othman, Lahej (S.); foot of Jebel Melhan, 600 m. (S. 759); Ussil, 1,100 m. (S. 1025).

IV. Near Maskat (Last!).

FL. : Jan.-Mar. (S.).

FR. : Jan. 1889 (S.); Feb. 1836 (Schimp.), Mar. 1881 (S.), Jan.-Mar. (S.).

DISTRIB. : Warm regions.

**9. *P. coloratum* L.** Mant. I, 30.

HABITAT : II. Aggara, near Hodjela, 600 m. (S. 949).

FL. : Feb. 1889 (S.).  
 FR. : Feb. 1889 (S.).  
 DISTRIB. : N. Africa, Arabia.

**10. *P. commutatum*** Nees in *Linnaea* VII (1832) 274.  
 HABITAT : II. Jebel Bura, above Hille, 800 m. (S. 396).  
 FL. : Jan. 1889 (S.).  
 FR. : Jan. 1889 (S.).

**11. *P. commutatum* var. *nodosum*** Hack. in Durand & Schinz,  
*Consp. Fl. Af.* V, 744.  
 HABITAT : II. Tropical Arabia (ex Stapf).  
 DISTRIB. : Tropical Africa, Algeria, tropical Arabia, Afghanistan,  
 Punjab.

**12. *P. controversum*** Steud. *Syn. Pl. Gram.* 60.  
 HABITAT : II. Aggara, near Hodjela, 600 m. (S. 895a).  
 FL. : Jan. 1889 (S.).  
 FR. : Jan. 1889 (S.).  
 DISTRIB. : Abyssinia, Arabia.

**13. *P. eruciforme*** Sbth. & Sm. *Fl. Graec.* I. 44, t. 59.  
 HABITAT : II. Ussil, Wady Hedjan, 1,200 m. (S. 1278 !).  
 IV. Maskat (Auch. 5437 !).  
 FL. : Feb. 1889 (S.).  
 FR. : Feb. 1889 (S.).  
 DISTRIB. : Mediterranean region, India.

**14. *P. geminatum*** Forsk. *Fl. Aeg.-Arab.* 18.  
 HABITAT : II. Chalife, 200 m. (S. 210); Wady Fatimah (Fischer  
 191 !); Aggara near Hodjela (S. 893 !); near Unsert in Wady Fatimah  
 (Schimp. 807 !).

III. Dhofar Mts. : Coasts (Bent 26 !).

FL. : Feb. 1837 (Fischer).  
 FR. : Feb. 1889 (S.), Feb. 1836 (Schimp.), Feb. 1837 (Fischer).  
 DISTRIB. : Tropical regions.  
 Vern. name : *Thalig* (S.).

**15. *P. repens*** L. *Sp. Pl. ed. II*, 87.—*P. Hygrocharis* Steud. *Syn.*  
*Pl. Gram.* 72.

HABITAT : II. Regma, near Hodjela, 850 m. (S. 950 !).  
 FL. : Jan. 1889 (S.).  
 FR. : Jan. 1889 (S.).  
 DISTRIB. : Warm regions.

**16. *P. leucanthum*** A. Rich. *Tent. Fl. Abyss.* II, 372.  
 HABITAT : II. Aden (Ellenbeck).  
 DISTRIB. : Yaman, Eritrea, Abyssinia.

**17. P. maximum** Jacq. Ic. Pl. Rar. I, t. 13.

HABITAT: II. Foot of Jebel Bura, 600 m. (S. 362, 274); Aggara near Hodjela, 600 m. (S. 911); Menacha, Wady Ssarif, 1,800 m. (S. 1698!); Ussil, 1,400 m. (S. 1166).

FR.: Mar. 1889 (S.).

DISTRIB.: Tropical America

**18. P. Meyerianum** Nees Fl. Afr. Austr. 32.

HABITAT: II. Aggara near Hodjela, in rivulets (S. 899!).

FL.: Jan. 1889 (S.).

FR.: Jan. 1889 (S.).

DISTRIB.: S. Africa, Arabia.

**19. P. miliaceum** L. Sp. Pl. 58.

HABITAT: II. Shukra, cultivated (S. 87!, Defl.).

DISTRIB.: Warm regions.

**20. P. pennatum** Hochst. in Flora XXXVIII (1855) 197 (*Paspali* sp.).

HABITAT: II. Aden (Lunt 306!); Ussil, Wady Chuoiet, 950 m. (S. 1193!).

FR.: Feb. 1889 (S.), Apr. 1894 (Lunt).

DISTRIB.: N. Africa, Arabia, W. Asia.

**21. P. plicatile** Hochst. in Flora XXXVIII (1855) 198.

HABITAT: II. Jebel Bura, 900 m. (S. 458); Ussil, 1,200 m. (S. 1329).

FL.: Jan. and Feb. 1889 (S.).

FR.: Jan. and Feb. 1889 (S.).

DISTRIB.: Tropical Africa, Arabia.

**22. P. prostratum** Lam. Ill. I, 171.

HABITAT: II. Near Unsert in Wady Fatimah (Schimp. 805!); Wady Fatimah (Fischer 130!); Wady Fatimah, near Mecca (Schimp. 805!), Aggara, near Hodjela in maize fields (S. 1034!); foot of Jebel Bura, Hille, 600 m. (S. 273).

FL.: Feb. 1889 (S.), Dec. 1888 (S.).

FR.: Feb. 1836 (Schimp.), Feb. 1889 (S.), Dec. 1888 (S.).

DISTRIB.: Tropics.

**23. P. ramosum** L. Mant. I, 29.

HABITAT: II. Aggara near Hodjela, in maize fields (S. 2007!); Jebel Bura, 600 m. (S. 397); foot of Jebel Melhan, 600 m. (S. 932); Regma near Hodjela, 900 m. (S. 966).

FL.: Jan. and Feb. 1889 (S.).

FR.: Jan. and Feb. 1889 (S.).

DISTRIB.: Arabia, Aethiopia, India.

**24. P. sagittifolium** Hochst. ex Steud. Syn. Pl. Gram. 54.

HABITAT : II. Aggara, near Hodjela. 600 m. (S. 1039).

FL. : Feb. 1888 (S.).

FR. : Feb. 1888 (S.).

DISTRIB. : Abyssinia, Arabia.

**25. P. abyssinicum** Hochst. in Flora (1841) I, Intell. 19.—*P. scalarum* Schweinf. Bull. Herb. Boiss. (1894) App. II, 20.

HABITAT : II. Menacha in Lucerne, 2,400 m. (S. 1472 !); Taifa (Schimp. 895 !).

FL. : Mar. 1889 (S.).

FR. : Mar. 1889 (S.).

DISTRIB. : Tropical Africa and tropical Arabia.

**26. P. turgidum** Forsk. Fl. Aeg.-Arab. 18.

HABITAT : I. Wady Elain, and in the Arabah ; Wady Zalegah ; Akaba (Hart) ; Wady Zewerah (Lowne 149 !); N. & S. Midian (Burton !); Wady Gennah and neighb. (Lord !); Arabia Petraea (McDonald !); Wady Hebran (Schimp. 152 !); Wady Se'wook and neighb. (Lord !).

II. Jedda (Zohrab 35 !); coast line near Hodeida (S.); Shukra (S. 106); Lahej, Shukra, Jebel Nakhai (Defl.); Little Aden (S.).

FR. : Apr.-May 1868 (Lord), Apr. 1835 (Schimp.).

DISTRIB. : N. Africa, Arabia, Orient.

Vern. name : *Zaram* (Burton).

**27. P. Crus Galli** L. Sp. Pl. 56.

HABITAT : IV. Maskat (ex Boiss.).

DISTRIB. : The whole world except the Arctic regions.

**28. P. Teneriffae** R. Br. Prod. 189.

HABITAT : I. Wadies Elain, Elihyeh and Arabah ; Akaba (Hart) ; Arabia Petraea (Bové, Auch.) ; Wady Shaikh (Boiss.).

II. Aden, Shukra (Defl.).

IV. Maskat (Auch. 5447).

DISTRIB. : Mediterranean, Orient, Arabia, India.

**29. P. remotum** Retz. Obs. IV, 17.

HABITAT : II. Shukra, Serrya (Defl.).

DISTRIB. : Arabia, India.

**30. P. desertorum** A. Rich. Tent. Fl. Abyss. II, 365.

HABITAT : II. Tropical Arabia (Fischer 191, Schimp. 807, S. 893).

DISTRIB. : Tropical Africa, tropical Arabia.

**31. P. insculptum** Steud. Syn. Pl. Gram. 49

HABITAT : II. Tropical Arabia (S. 895).

DISTRIB. : Tropical Africa, tropical Arabia.

14. *Cenchrus* L.

1. *C. montanus* Nees in Royle Ill. Bot. Himal. 416.

HABITAT: II. Jedda (Zohrab 37! 217!); in desert, near Jedda (Schimp. 796! 797!, Ehrenb. 235!); Gumfuda (Ehrenb. 235!); cult. ground near Shukra (Defl. 348!).

FR.: Feb. 1825 (Ehrenb.), Mar. 1890 (Defl.), Dec. 1835 (Schimp.).

DISTRIB.: Asia and tropical Africa.

15. *Pennisetum* Rich.

1. *P. cenchroides* A. Rich. in Pers. Syn. I, 72.

HABITAT: I. Wady Haroun, and the others leading into the Arabah from Edom; Wady Arabah and Ghor es Safieh (Hart); Wady Zewerah (Lowne!); Mt. Horeb (Auch. 2998!); Wady Arabah (Hart!); Wady Hebran (Schimp. 153!).

II. Jedda (Fischer 126!, Zohrab 19! 20! 29!); Wady Fatimah (Fischer 126!); Aden (Hook. 110!, Thomson!, Perry!); Menacha, 2,200 m. (S. 1951); Hodjela, 600 m. (S. 894); Moglaf, 300 m. (S. 605); foot of Jebel Bura, 600 m. (S. 392); Aden, Shaikh Othman (S. 1950); Shukra (S. 95, 938), Gumfuda (Ehrenb. 233!); Mor (Ehrenb. 234!); Aggara near Hodjela, 600 m. (S. 894!); neighb. of Shukra (Defl. 349! 409!); Jedda (Schimp. 973!).

III. Dhofar Mts., Hafa (Bent 45!); El Hami (S. 189, 172).

IV. Near Maskat (Last!).

FL.: Dec. 1888 (S.), Jan. and Feb. 1889 (S.).

FR.: Feb. 1889 (S.), Feb. 1857 (Thomson), Apr. 1835 (Schimp.), Mar. 1878 (Perry), Mar. 1881 (S.), Dec. 1888 (S.), Jan. and Feb. 1889 (S.), Dec. 1847 (Hook.)

DISTRIB.: Tropical regions.

Vern. name: *Ihbett* (Hille) (S.).

2. *P. depauperatum* Schweinf. Bull. Herb. Boiss. (1894) App. II, 26.

HABITAT: II. Kahil above Menacha, 2,500 m. (S. 1471!).

FR.: Feb. 1889 (S.).

DISTRIB.: Arabia.

3. *P. dichotomum* (Forsk.) Del. Fl. Eg. 159, t. 8, fig. 1.—*Panicum dichotomum* Forsk. Fl. Aeg.-Arab. p. 19.

HABITAT: I. Wadies Nasb and Elain; Debbet er Ramleh; frequent in the Arabah (Hart); Arabia Petraea (Bové); Mt. Horeb (Auch. 2999!); Wady Sewook (Lord!); Sinai (Figari!); Wady Nasb (Hart!); Sinai desert (Auch. 3000!); Wady Hebran (Schimp. 151!); Nakkeb (Schimp. 308!); Wady Farrun (Lord!).

II. Shukra (S. 62!); Oasis of Lahadj (Defl. 141!).

III. Sibeh, 240 m. (Lunt 11!).

IV. Maskat (Auch. 5432!).



FR. : Apr. 1835 (Schimp.), Apr. 1868 (Lord), Apr. and May (Figari), Mar. 1881 (S.), Dec. 1889 (Defl.).

DISTRIB. : Egypt, Arabia, India.

4. *P. glaucifolium* Hochst. in Flora, XXIV (1841) I. Intell. 19; et ex A. Rich. Tent. Fl. Abyss. II, 382.

HABITAT : II. Above Menacha, 2,700 m. (S. 1949).

FR. : Mar. 1889 (S.).

DISTRIB. : Abyssinia, Arabia.

5. *P. orientale* Rich. in Pers. Syn. I, 72.—*P. sinaicum* Decne. in Ann. Sc. Nat. Ser. 2, II (1834) 11.

HABITAT : I. Neighb. of Sinai (Bové 7, 19!, Figari!, Drake 83!); Abu Maurad and Mt. Sinai (Schimp. 115!); Wady Hebran (Schimp. 100!).

II. Menacha, 2,200 m. (S. 1502!).

FL. : Feb. 1889 (S.).

FR. : Feb. 1889 (S.), June 1832 (Bové).

DISTRIB. : Algeria, Arabia, Orient, India.

Vern. name : *Haussefe* (S.), *nassje* or *nessje* (Bové), *sabôte* (Drake), *hayheni* (Schimp.).

6. *P. quartinianum* A. Rich. Tent. Fl. Abyss. II, 384.

HABITAT : II. Menacha, 2,200-2,500 m. (S. 1699)

FL. : Mar. 1889 (S.)

FR. : Mar. 1889 (S.).

DISTRIB. : Abyssinia, Arabia.

7. *P. spicatum* Körnicke und Werner, Getr. I, 284.

HABITAT : II. In the lowland of the Tehama, generally cultivated (S. 174, 1071, 1952); Shukra (S.).

III. El Hami (S.).

Vern. name : *Dochn* (S.).

8. *P. americanum* (L.) K. Schum. in Engl. Pflanzenw. Ostaf. B. (1895) 51.—*P. typhoideum* Rich. in Pers. Syn. I, 72.

HABITAT : II. Lahadj (Defl. 183!), Shukra, Kamfer, Massana, Wady Moaden (cult.) (Defl.).

IV. Zor Hills (Cox and Knox).

FR. : Dec. 1889 (Defl.).

DISTRIB. : Tropics.

Vern. name : *Ilm* (Arabic, in Zor Hills).

9. *P. villosum* R. Br. Prod. in Salt. Abyss. App. 62, *nomen*; et in Fresen. Mus. Senckenh. II (1837) 134.

HABITAT : II. Northern slope of the Shibam, 2,600 m. (S. 1648);  
neighb. of Aden (Hunter 54 !); Menacha, 2,300 m. (S. 1582 !).

FR. : Feb. 1889 (S.).

DISTRIB. : Abyssinia, Arabia.

**10. P. Yemense** Defl. Voy. Yemen (1889) 217.

HABITAT : II. Yaman (Defl.).

DISTRIB. : Yaman.

**11. P. Ruppellii** Steud. Nom. ed. II, II, 298.

HABITAT : II. Haifan (Defl.); Jebel Bura, 600 m. (S. 247); foot  
of Jebel Melhan, 600 m. (S. 778); Menacha, 2,000-2,200 m. (S. 1502).

FL. : Dec. 1888 (S.), Jan. and Feb. 1889 (S.).

FR. : Dec. 1888 (S.), Jan. and Feb. 1889 (S.).

DISTRIB. : Abyssinia, Arabia.

Vern. name : *Ghorizzi* (J. Bura); *haussefe* (J. Melhan); *silet-aregj* (Menacha)  
(S).

**12. P. Pricurii** Kunth Rev. Gram. II. 411, t. 119.

HABITAT : II. Serrya (Defl.)

DISTRIB. : Tropical Africa, Arabia, India.

**16. Tricholaena** Schrad.

**1. T. longiseta** Hochst. ex Steud. Syn. Pl. Gram. 92.

HABITAT : II. Ussil, 1,300 m. (S.).

DISTRIB. : Abyssinia, Arabia.

**2. T. leucantha** Hochst. ex Steud. Syn. Pl. Gram. 92.

HABITAT : II. Below Ussil, 1,100 m. (S. 1283); foot of Jebel Melhan,  
600 m. (S. 792); foot of Jebel Bura, 600 m. (S. 399).

FR. : Jan. and Feb. 1889 (S.).

DISTRIB. : Abyssinia, Arabia.

**3. T. grandiflora** Hochst. in Flora XXIV (1841) Intell. 19, *nomen*;  
*et* ex A. Rich. Tent. Fl. Abyss. II, 445.

HABITAT : II. Jebel Bura, Coffee region (S. 425).

DISTRIB. : Abyssinia, Arabia.

Vern. name : *Hammere* (Hille) (S.).

**4. T. Teneriffae** Parl. in Webb. & Bert. Phyt. Canar. III, 425.

HABITAT : I. Wady Zewerah (Lowne 230 !); Wady Hebran (Schimp.  
150 ! 990 !); Wady Gennah (Lord !); Sinai (Auch. 3811 !); Arabia  
Petraea (McDonald !); Central and S. Midian (Burton !).

II. Island of Ketumbae (Ehrenb. !); Aden (Thomson,  
Hook. 109 !, Perry !, S. 13 !); Mt. Sidr. (Fischer 123 !); Wady Hedjan,  
near Ussil (S. 1283 !); Aden (Defl. 56 ! S. 13 !).

## IV. Maskat (Auch. 5447 !).

FR. : Feb. 1889 (S.), Apr. 1835 (Schimp.), Nov. 1888 (S.).

DISTRIB. : Mediterranean, Orient.

5. *T. Wightii* Nees & Arn. ex Steud. Syn. Pl. Gram. 93.

HABITAT : II. Ussil, Wady Hedjan (S. 1340 !).

FR. : Feb. 1889 (S.).

DISTRIB. : India, Arabia.

17. *Setaria* Beauv.1. *S. verticillata* Beauv. Agrost. 51.—*Panicum adhaerens* Forsk. descr. 20.

HABITAT : I. Near monastery of Mt. Sinai, cult. ground (Schimp. 300).

II. Regma near Hodjela, 900 m. (S. 980); Ussil, 1,400 m. (S. 1947); below Menacha, 2,000 m. (S. 1592); Wady Fatimah (Schimp. 997 !); Jedda (Zohrab 235 !); Serrya (Defl.).

FR. : Feb. 1836 (Schimp.), July 1835 (Schimp.), Jan. and Feb. (S.).

DISTRIB. : Cosmopolitan.

2. *S. viridis* Beauv. Agrost. 51.

HABITAT : I. Sinai (Holland!).

IV. Maskat (Auch. 5434).

DISTRIB. : Cosmopolitan.

18. *Ehrharta* Thunb.1. *E. abyssinica* Hochst. in Flora XXXVIII (1855) 193.

HABITAT : II. Menacha, 2,500 m. (S. 1705!).

FL. : Mar. 1889 (S.).

FR. : Mar. 1889 (S.).

DISTRIB. : Tropical Africa, Arabia.

19. *Oryza* L.1. *O. sativa* L. Sp. Pl. 333.

HABITAT : II. Yaman.

DISTRIB. : Cultivated.

2. *O. australis* (R. Br.) A. Br. ex Schweinf. Beitr. Fl. Aethiop. (1867) 300.

HABITAT : I. Arabia Petraea (ex Muschler).

DISTRIB. : Tropical and subtropical regions.

**20. Lygeum L.**

1. *L. spartum* Loeff. ex Linn. Cent. Pl. I, 4.

HABITAT : I. Arabia Petraea (ex Muschler).

DISTRIB. : Mediterranean.

**21. Phalaris L.**

1. *P. canariensis* L. Sp. Pl. 54.

HABITAT : I. Arabia Petraea (Herb. Kew!).

DISTRIB. : Warm and temperate regions of Europe, N. Africa, W. Asia and America.

2. *P. minor* Retz. Obs. III, 8.

HABITAT : I. Arabia Petraea (Herb. Kew!).

DISTRIB. : Greece, Orient, S. Africa.

3. *P. minor* Retz. var. *gracilis* (Parl.) Aschers.—Schweinf. III. Fl. d'Egypt (1887) 167, n. 1149.

HABITAT : I. Wady Hamme (Schimp. 247!, Boiss.).

DISTRIB. : Native of the Mediterranean countries; introduced in many other parts of the World.

Vern. name : *Chappa* (Schimp.).

4. *P. paradoxà* L. Sp. Pl. ed. II, 1665.

HABITAT : I. Arabia Petraea (Herb. Kew!).

DISTRIB. : Mediterranean, Orient.

**22. Aristida L.**

1. *A. mutabilis* Trin. & Rupr. in Mém. Acad. Pétersb. Sér. VI, VII (1849) 150 (*excl. var. aequilonga*).

HABITAT : II. Aden (Birdwood 102a!, Hook. 112!).

FR. : Dec. 1847 (Hook.).

DISTRIB. : Senegal, Kordofan, Egypt, Arabia, Punjab, Rajputana, Jodhpur, Southern India.

2. *A. mutabilis* Trin. & Rupr. var. *meccana* Fenzl. in Kotschy Pl. Aeth. n. 103.

HABITAT : II. Mecca.

DISTRIB. : Yaman.

3. *A. adscensionis* L. Sp. Pl. ed. I. p. 82.

HABITAT : I. Wady Hebran (Schimp. 159!); neighb. of Mt. Sinai (Bové I2!, Schimp. 368!).

II. Aden; Beyt el-Amir; Shukra; Serrya (Def.).

IV. Maskat (Auch. 5446!).

FR. : Apr. 1835 (Schimp.), May 1835 (Schimp.), June 1832 (Bové).

DISTRIB. : Cosmopolitan.

4. *A. adscensionis* L. var. *pumila* Coss. in Coss. & Durieu Expl. Sc. Alger. II, 84.

HABITAT: I. Sinai desert (Auch. 2993 !); W. Sewook (Lord !); Wady Zewerah (Lowne !); foot of Jebel Musa, 1,500 m. (Kneuck. 2a1 !); N. & Central Midian (Burton !).

II. Aden (Perry, Thomson, Hook. 112 !); Yaman (Ehrenb. ! Traill. !); Jedda (Zohrab 26 !).

FR.: Feb. 1837 (Thomson), Mar. 1878 (Perry), Apr. 1868 (Lord), Apr. 1902 (Kneuck.), Dec. 1847 (Hook.).

DISTRIB.: Common in most dry and hot countries.

5. *A. acutiflora* Trin. et Rupr. in Mém. Acad. Pétersb. Sér. VI, VII (1849) 167.

HABITAT: I. Arabia Petraea (Bové).

DISTRIB.: Egypt, Arabia.

6. *A. hirtigluma* Steud. Nom. ed. II, I, 131.

HABITAT: I. Wady Hebran (Schimp. 164 !); Mt. Sinai (Schimp. 161 !); Wady Farran (Boiss. !); Arabia Petraea (McDonald !); Wady Zewerah (Lowne 221 !); Wady Gennah & Sewook (Lord !).

FR.: Apr. 1868 (Lord), Apr. 1835 (Schimp.), May 1835 (Schimp.).

DISTRIB.: Egypt, Syria, Arabia.

7. *A. brachypoda* Tausch in Flora XIX (1836) 506.

HABITAT: I. Sinai (Herb. Kew !).

DISTRIB.: Egypt, Arabia.

8. *A. plumosa* L. Sp. Pl. ed. II, 1666.

HABITAT: I. Arabia Petraea (Boiss. !, McDonald !); Wady Ghurundel & Ramleh (Lord !); El Tor (Schimp. 174 !); Ras Mohamemed, 60-80 m. (Kneuck. 487); Debbet er Ramleh; Wady el Tihyeh; Akaba, and along the Arabah to the Ghor (Hart).

FR.: Mar. 1846 (Boiss.), Apr. 1904 (Kneuck.).

DISTRIB.: Mediterranean region, Persia, Arabia.

9. *A. lanata* Forsk. Fl. Aeg.-Arab. (1789) p. LXI, no. 79, and p. 25. —*A. Forskalei* Tausch Flora (1836) 506.

HABITAT: I. Sinai (Herb. Kew !).

DISTRIB.: Egypt, Sinai, Syria.

10. *A. funiculata* Trin. et Rupr. in Mém. Acad. Pétersb. Sér. VI, VII (1849) 159.

HABITAT: II. Shukra (Defl.); El Gidan (Ehrenb. !); Jedda (Zohrab 164 !).

DISTRIB.: N. Africa, Arabia, Baluchistan.

**11. A. ciliata** Desf. in Schrad. N. Journ. III (1809) 255.

HABITAT : I. Wadies Ghurundel and Arabah ; Ghor es Safieh (Hart) ; foot of Jebel Musa (Kneuck. 249 ! ) ; Jebel Musa, 1,500 m. (Kneuck.) ; Wady Hebran (S. 165 ! ) ; Mt. Horeb (Auch. 2989 ! ) ; Mt. Sinai (Schimp. 161 ! ) ; Wady Sewook (Lord ! ) ; Wady Mokateb (Boiss. ! ) ; Arabia Petraea (McDonald ! ) ; neighb. of Sinai (Bové 20 ! ).

II. Aden, Khamfer (Defl.).

FR. : Mar. 1846 (Boiss.), Apr. 1868 (Lord), Apr. 1835 (Schimp.), Apr. 1902 (Kneuck.), May 1835 (Schimp.), June 1832 (Bové).

DISTRIB. : N. Africa, S. Africa, Arabia.

Vern. name : *Massjé* (Bové).

**12. A. obtusa** Del. Fl. Aeg. 175, t. 13, fig. 2.

HABITAT : I. Wadies Nasb, Sudr, and Ghurundel (Elain) ; Debbet er Ramleh (Hart) ; Wady Ghurundel (Post 49 ! ) ; Wady Hebran (Schimp. 163 ! ) ; Arabia Petraea (Figari ! ) ; Ramleh (Hart ! ).

II. Yaman (ex Boiss.).

IV. Central Arabia (Pelly ! ).

FR. : Mar. 1882 (Post), Apr. 1835 (Schimp.).

DISTRIB. : N. Africa, S. Africa, Arabia.

OBSERV. : Grows in tufts and forms the principal part of the grass of the desert (Pelly).

**13. A. paradisica** Edgew. in Journ. As. Soc. Beng. XVI (1847) II, 1219.—*A. caloptila* (Jaub. et Spach) ; Schweinf. in Boiss. Fl. Or. V (1884) 497.

HABITAT : I. Jebel Musa, 1,500 m (Kneuck.) ; Arabia Petraea (McDonald ! ) ; Sinai Peninsula (Holland ! ).

II. Ghissan (Ehrenb. 241 ! ) ; Aden (Anders ! , Balfour ! , Perry ! , Thomson ! , Hook, 108 ! , Lunt 307 ! 336 ! , S. 28 ! 48 ! ).

III. Plains of Dhofar (Bent 49 ! ) ; El Hami (S. 202 ! ).

IV. At the Persian Gulf (Auch. 5445).

FR. : Mar. 1881 (S.), Apr. 1861 (Thomson), Apr. 1881 (S.), Nov. 1888 (S.), Dec. 1847 (Hook.).

DISTRIB. : Persia, Afghanistan, Egypt, Arabia.

**14. A. pungens** Desf. Fl. Atlant. I, 109, t. 35.

HABITAT : I. Sinai.

DISTRIB. : N. Africa, Arabia, Turkestan, Siberia, Nubia.

**15. A. coerulescens** Desf. Fl. Atlant. I, 109.

HABITAT : I. Wady el Tihyeh (Hart) ; Arabia Petraea (Schimp. 368).

DISTRIB. : Mediterranean, Nubia, Abyssinia, Senegal, Cape of Good Hope, India, New Holland.

**16. *A. coerulescens* Desf. var. *breviaristata* Schweinf. Bull. Herb. Boiss. (1894) App. II, 27.**

HABITAT : II. Jebel Bura, 600 m. (S. 323); Ussil (S. 1134); foot of Jebel Melhan, 600 m. (S. 683); Menacha, 2,200 m. (S. 1524); Regma near Hodjela, 900 m. (S. 981); Aden (S. 26).

FR. : Jan.-Mar. 1889 (S.).

DISTRIB. : Arabia, Aethiopia.

**17. *A. coerulescens* Desf. var. *exilis* Schweinf.**

HABITAT : II. Menacha, 2,300 m. (S. 1957!).

OBSERV. : Doubtful species according to Stapf in H. K.

**18. *A. Schweinfurthii* Boiss. Fl. Or. V, 493.**

HABITAT : Arabia (ex Muschler).

DISTRIB. : Arabia, Egypt, Nubia, Abyssinia, Eritrea.

**19. *A. Schweinfurthii* Boiss. var. *Boissieri* Schweinf. Bull. Herb. Boiss. (1894) App. II, 28.**

HABITAT : II. Jedda (Zohrab 24, 211!); Shukra (S. 94!).

FR. : Mar. 1881 (S.).

DISTRIB. : Arabia, Aethiopia.

**20. *A. pumila* Decne. Ann. Sc. Nat. Ser. II, 85.**

HABITAT : I. Arabia Petraea, Wady Shaikh (Boiss.); foot of Mt. Sinai (Auch. 2993).

DISTRIB. : N. Africa, Arabia.

### 23. *Stipa* L.

**1. *S. arabica* Trin. & Rupr. in Mém. Acad. Pétersb. Sér. VI. Sc. Nat. V (1842) 77.—*S. barbata* Desf. Fl. Atlant. I, 97, t. 27.**

HABITAT : I. Neighb. of Sinai (Bové 13!); foot of Mt. Sinai (Schimp. 107!); Arabia Petraea (McDonald!).

DISTRIB. : Mediterranean, Arabia.

Vern. name : *Hammara* (Bové).

**2. *S. tortilis* Desf. Fl. Atlant. I (1798) 99, t. 31, fig. 1.**

HABITAT : I. Wady Lebweh (Post 44!); Arabia Petraea (McDonald!); Wady Hamme (Schimp. 395!); N., Central and S. Midian (Burton!).

FR. : Mar. 1882 (Post), Mar. 1835 (Schimp.).

DISTRIB. : Mediterranean, Orient, S. Africa.

**3. *S. parviflora* Desf. Fl. Atlant. I, 98, t. 29.**

HABITAT : I. Arabia Petraea (McDonald!); Mt. Sinai (Schimp. 102!, Lord!).

FR. : May 1835 (Schimp.).

DISTRIB. : Mediterranean.

4. *S. capillata* L. Sp. Pl. ed. II, 116.

HABITAT : I. Arabia Petraea.

DISTRIB. : Southern Europe, Northern Asia.

5. *S. Lagascae* Roem. & Schult. Syst. II, 333.

HABITAT : I. Arabia Petraea (Boiss.).

DISTRIB. : Mediterranean, Orient, Arabia.

#### 24. *Oryzopsis* Michx.

1. *O. miliacea* (L.) Aschers.-Schweinf. Ill. Fl. d'Egypt 169, n. 1173.

—*Piptatherum miliaceum* Coss. Plant. crit. p. 129.

HABITAT : I. Arabia Petraea (McDonald !); Raphidim (Schimp. 309 !); damp places of Sinai desert (Bové 14 !).

FR. : May 1835 (Schimp.), June 1832 (Bové).

DISTRIB. : Mediterranean, N. Atlantic Islands.

Vern. name : *Sab al Abu Hossein* (Schimp.).

2. *O. coerulescens* Hack. in Denkschr. Acad. Wien, I (1885) 75.

HABITAT : I. Arabia Petraea.

DISTRIB. : Asia Minor, Arabia.

3. *O. holciformis* Hack. in Denkschr. Acad. Wien, I (1885) 8.

HABITAT : I. Sinai region (Figari !); Mt. Catherine (Schimp. 312 !).

FR. : Mar. (Figari); May 1835 (Schimp.).

DISTRIB. : Arabia, Persia.

#### 25. *Piptatherum* Beauv.

1. *P. multiflorum* Beauv. Agrost. 18.

HABITAT : I. Wady es Sheikh; wadies on both sides of the Arabah and in the main valley (Hart); Arabia Petraea (Schimp. 309, Boiss.).

DISTRIB. : Europe, Siberia, Arabia.

#### 26. *Heleochoa* Host.

1. *H. dura* Boiss. Fl. Or. V, 477.

HABITAT : II. Yaman (Traill !).

III. Dhofar Mts., Hafa (Bent 32 !); near El Hami (S. 174 !).

FL. : Apr. 1881 (S.).

FR. : Apr. 1881 (S.).

DISTRIB. : Baluchistan, Arabia.

2. *H. schoenoides* (L.) Host. Gram. Austr. I (1801) 23, t. 30.

HABITAT : I. Sinai (Herb. Kew !).

DISTRIB. : Mediterranean, Persia.



27. *Sporobolus* R. Br.

1. *S. hamiensis* Schweinf. in Bull. Herb. Boiss. (1894) App II, 29.  
 HABITAT : III. El Hami (S. 196).  
 FL. : Apr. (S.).  
 FR. : Apr. (S.).  
 DISTRIB. : Arabia.
2. *S. robustus* Kunth Rev. Gram. p. 425, t. 126 (1829-35) et Enum. Pl. I, 213, Suppl. p. 168.  
 HABITAT : II. Aden (Birdwood !).  
 DISTRIB. : Niger, Cape Verde Islands, Gaboon Coast, Abyssinia, Eritrea, Senegambia, Suakim.
3. *S. capensis* Kunth Enum. Pl. I, 212.  
 HABITAT : II. Plateau of Hagjera, 2,300-2,500 m. (near Menacha) (S. 1739 ! 1704).  
 FR. : Mar. 1889 (S.).  
 DISTRIB. : S. Africa, Arabia.
4. *S. minutiflorus* Link Hort. Berol. I, 88.  
 HABITAT : IV. Near Maskat (Last !).  
 DISTRIB. : India.  
 OBSERV. : Last's plant is near the above species.
5. *S. glaucifolius* Hochst. in Flora, XXV, part I (1842), Beibl. 133.  
 HABITAT : II. Aden (Birdwood !).  
 DISTRIB. : Tropical Africa, Punjab, Sind, W. Peninsula of India.
6. *S. indicus* R. Br. Prod. 170.  
 HABITAT : II. Menacha, 2,300 m. (S. 1739A !).  
 DISTRIB. : All warm countries.
7. *S. setulosus* (Trin.) Schweinf. Bull. Herb. Boiss. (1894) App. II, 28.  
 HABITAT : III. El Hami (S. 174 !).  
 DISTRIB. : Arabia, Aethiopia.
8. *S. arabicus* Boiss. Diagn. ser. I, XIII, 47.  
 HABITAT : I. Arabia Petraea (Herb. Kew !).  
 IV. Maskat (Auch. 5425).  
 DISTRIB. : Arabia.
9. *S. spicatus* Kunth Rev. Gram. I, 67.  
 HABITAT : I. Ain Musa (Hart).  
 II. Aden (Birdwood 130 !); Hodeidah (S. 157), Jedda

(Schimp. 826 !); Yaman (Bové !); El Gidan (Ehrenb. !).

III. At the hot springs of el Hami (S. 159 !); Gharbbabaja. 70 m. (Lunt 238 !).

IV. Near Maskat (Auch. 5420 !, Bornm. 701 !).

FR. : Apr. 1881 (S.).

DISTRIB. : N. Africa, Arabia, India.

Vern. name : *Elef* (S.).

**10. S. minutus** Schweinf. Bull. Herb. Boiss. (1894) App. II, 29.

HABITAT : II. Jedda (Zohrab 209).

DISTRIB. : Arabia, Aethiopia.

### 28. Polypogon Desf.

**1. P. monspeliensis** (L.) Desf. Fl. Atlant. I, 66.—*Phalaris cristata* Forsk. Fl. Aeg.-Arab. p. 17.

HABITAT : I. Wady Farran (Lord !); Sinai (Auch. 2981 ! Holland !); Arabia Petraea (McDonald !); S. Midian (Burton !); Wady Elain; Ghor es Safieh (Hart).

FR. : May 1868 (Lord).

DISTRIB. : Mediterranean, Abyssinia.

**2. P. maritimus** Willd. in Ges. Naturf. Fr. Neue Schr. III (1801) 442.

HABITAT : I. Sinai (Herb. Kew !).

DISTRIB. : Southern Europe, Mediterranean.

### 29. Agrostis L.

**1. A. alba** L. Sp. Pl. 63, var. *scabriglumis* Boiss. Fl. Or. V, 514.

HABITAT : I. Neighb. of Sinai (Bové 17 !).

FR. : June 1932 (Bové).

DISTRIB. : Northern temperate regions.

Vern. name : *Hammara* (Bové).

**2. A. hirtella** Hochst. ex Steud. Syn. Pl. Gram. 173.

HABITAT : II. Above Menacha, 2,500 m. (S. 1413).

FL. : Feb. 1889 (S.).

FR. : Feb. 1889 (S.).

DISTRIB. : Abyssinia, Arabia.

**3. A. verticillata** Vill. Prosp. 16.

HABITAT : I. Arabia Petraea (McDonald !; Schimp. 289).

II. Ussil, 950 m. (S. 1167 !).

FR. : Feb. 1889 (S.).

DISTRIB. : Europe, Arabia.

**4. A. Schimperiana** Hochst. ex Steud. Syn. Pl. Gram. 170.

HABITAT : II. Above Menacha, 2,500 m. (S. 1413 !).

DISTRIB. : Abyssinia, Arabia.

**30. Lagurus** L.**1. L. ovatus** L. Sp. Pl. 81.

HABITAT : I. Arabia Petraea (ex Muschler, Herb. Kew !).

DISTRIB. : Mediterranean.

**31. Crypsis** Ait.**1. C. aculeata** (L.) Ait. Hort. Kew. I, 48.

HABITAT : I. Arabia Petraea (ex Muschler, Herb. Kew !).

DISTRIB. : Temperate and tropical countries.

**32. Trisetum** Pers.**1. T. pumilum** Kunth Rev. Gram. I, 102.

HABITAT : I. Arabia Petraea (Auch. ex Cosson).

DISTRIB. : Mediterranean.

**2. T. glumaceum** Boiss. Fl. Or. V (1884) 534.

HABITAT : I. Sinai (Boiss. !).

DISTRIB. : Egypt, Arabia, Syria.

**3. T. arenarium** Labill. Ic. Pl. Syr. Dec. V, 10.—*Trisetaria linearis* Forsk. Fl. Aeg.-Arab. p. LX & 67.

HABITAT : I. Arabia Petraea (Herb. Kew !).

DISTRIB. : Egypt, Arabia, Syria.

**33. Avena** L.**1. A. sativa** L. Sp. Pl. 79, var. *abyssinica* Hochst. ex A. Rich. Tent. Fl. Abyss. II, 415.

HABITAT : II. El Hausan near Menacha, 2,400 m. (S. 1769).

FL. : Mar. 1889 (S.).

FR. : Mar. 1889 (S.).

DISTRIB. : Abyssinia, Arabia.

**2. A. sterilis** L. Sp. Pl. ed. II, 118.

HABITAT : I. Arabia Petraea (Boiss.).

DISTRIB. : Mediterranean, Orient.

**3. A. barbata** Brot. Fl. Lusit. I, 108.

HABITAT : I. Arabia Petraea (McDonald! Schimp. 277); Sinai (Holland, Auch. 2924 !).

DISTRIB. : Mediterranean, Asia Minor, Arabia.

**4. A. Wiestii** Steud. Gram. p. 231.

HABITAT : I. Arabia Petraea (Boiss.).

DISTRIB. : Mediterranean, Orient.

**5. A. fatua** L. Sp. Pl. 80.

HABITAT : I. Arabia Petraea (Auch. 2924).

DISTRIB. : Central and Southern Europe, N. Africa, Abyssinia, Northern Asia.

### 34. *Tristachya* Nees.

**1. T. barbata** Nees Fl. Afr. Austr. 269.

HABITAT : II. Yaman, near Ferihe (Schimp. 788).

DISTRIB. : Arabia, Afghanistan.

### 35. *Danthonia* DC.

**1. D. Forskalii** Trin. Sp. Gram. t. 49.

HABITAT : I. Arabia Petraea, Ramla (Boiss.); between Tor and Sinai (Kneuck. 251); Wady Nasb; Debbet er Ramleh; Wady Arabah, near the Ghor (Hart).

II. Jedda (Zohrab 295 !); Wady Fatimah (Schimp. 1038 !); near Taifa (Schimp. 787 !).

IV. Central Arabia : From the sand ridges, 27th and 28th Feb. (Pelly !).

FR. : Feb. 1836 (Schimp.); Feb. (Pelly).

DISTRIB. : Egypt, Arabia.

Vern. name : *Chagaret-el-ghemel* (Bové).

### 36. *Cynodon* Rich.

**1. C. dactylon** Pers. Syn. Pl. I, 85.

HABITAT : I. Mt. Sinai (Schimp. 311 !); Wady Nasb (Drake 70 !); Ghor es Safieh (Hart).

II. Neighb. of Lahadj (Defl. 310 !); Jedda (Zohrab 9 !); Aggara near Hodjela, 600 m. (S. 1011).

FL. : Feb. 1889 (S.).

FR. : Jan. 1890 (Defl.), May 1835 (Schimp.).

DISTRIB. : Cosmopolitan.

Vern. name : *Nikil* (Schimp.), *Nejeel* (Drake), *Ohbell* (S.).

**2. C. dactylon** Pers. var.

HABITAT : I. Wady Ghurundel (Hart).

### 37. *Schoenefeldia* Kunth.

**1. S. gracilis** Kunth Rév. Gram. 283, t. 53 (1830).

HABITAT : II. Badjil, 190 m. (S. 595).

DISTRIB. : Tropical Africa, Arabia.

**38. Enteropogon Nees.**

**1. E. macrostachyum** Munro ex Benth. in Journ. Linn. Soc. XIX (1881) 101.

HABITAT: II. Jebel Bura, above Hille, 900 m. (S. 297); Ussil, 1,000 m. (S. 311); Wady Madfar, near Hodjela, 700 m. (S. 983); foot of Jebel Melhan, 600 m. (S. 703).

FL. : Jan. and Feb. 1889 (S.).

FR. : Jan. and Feb. 1889 (S.).

DISTRIB. : Abyssinia, Arabia.

**39. Chloris Sw.**

**1. C. virgata** Swartz. Fl. Ind. Occ. I, 203.—*C. barbata* L. var. *meccana* Aschers. et Schweinf. Ill. Fl. d'Egypt. 170, n. 1194.

HABITAT. II. Near Mecca (Schimp. 802 !); Wady Fatimah in cult. ground (Fischer 127A !); Jedda (Zohrab 252 !); Mt. Kessr (Fischer 129A !).

FL. : Feb. 1837 (Fischer).

FR. : Feb. 1837 (Fischer), Feb. 1836 (Schimp.).

DISTRIB. : Arabia, Egypt, S. Africa, S. America.

**2. C. leptostachya** Hochst. ex A. Rich. Tent. Fl. Abyss. II, 407.

HABITAT: II. Regma near Hodjela, 800 m. (S. 959 !).

FR. : Jan. 1889 (S.).

DISTRIB. : Abyssinia.

**3. C. tenella** Koen. ex Roxb. Hort. Beng. 82.

HABITAT: II. Wady Djara (Ehrenb. 236 !); Regma near Hodjela 800 m. (S. 967 !).

FR. : Jan. 1889 (S.), Feb. 1825 (Ehrenb.).

DISTRIB. : Arabia, India.

**4. C. myriostachya** Hochst. in Flora XXXVIII (1855) 204.

HABITAT: II. Hille, 600 m. (S. 385 !).

FR. : Jan. 1889 (S.).

DISTRIB. : Arabia, tropical Africa.

**40. Melanocenchris Nees.**

**1. M. plumosa** Hochst. in Flora XXXVIII (1855) 273.

HABITAT: II. Foot of Mt. Kessr near Harames (Schimp. 794 !); foot of Mt. Kessr (Fischer 129 !); cult. ground in Wady Fatimah (Fischer 127 !).

FL. : Feb. 1837 (Fischer).

FR. : Feb. 1836 (Schimp.), Feb. 1837 (Fischer).

DISTRIB. : Abyssinia, Arabia.

**41. Lepidopironia A. Rich.**

**1. L. cenchriformis** A. Rich. Tent. Fl. Abyss. II, 442, t. 101 (1850).

HABITAT : II. Jebel Bura, Hille (S. 385 ! 391) ; Aggara, near Hodjela, 600 m. (S. 898).

FR. : Jan. 1889 (S.).

DISTRIB. : Abyssinia, Arabia.

**42. Tetrapogon Desf.**

**1. T. villosus** Desf. Fl. Atlant. II, 388, t. 255.

HABITAT : I. Wady Zewerah (Herb. Kew ! ) ; Wady Gennah (Lord ! ) ; Arabia Petraea (McDonald ! ) ; Wady Hebran (Schimp. 155 ! ) ; Mt. Sinai (Bové 2 ! , Figari ! ) ; Sinai desert (Auch. 3001 ! ) ; Central Midian (Burton ! ).

II. Aden (Thomson, Lunt 349 ! , Balfour, Perry, Beevor 94 ! , S. 11) ; Mt. Sidr (Fischer 122 ! ) ; Shukra (S. 133).

FL. : Feb. (Fischer).

FR. : Apr. 1894 (Lunt), Apr. 1835 (Schimp.), May 1868 (Lord), June 1833 (Bové).

DISTRIB. : N. Africa, Arabia.

Vern. name : *Kammara* (Bové).

**2. T. macranthus** Benth. in Journ. Linn. Soc. XIX (1881) 106.

DISTRIB. : Arabia (ex Index Kew.).

**3. T. triangularis** Hochst. Pl. Arab. Schweinf. n. 967.

HABITAT : II. Foot of Jebel Bura, 600 m. (S. 297) ; foot of Jebel Melhan, 600 m. (S. 799) ; Regma, near Hodjela, 900 m. (S. 967) ; Aggara near Hodjela, 600 m. (S. 1958).

FR. : Jan. 1889 (S.).

DISTRIB. : Arabia, Abyssinia, Rajputana, Sind, Khandesh, S. India.

**43. Dinebra Jacq.**

**1. D. retroflexa** (Vahl) Panzer in Denkschrift. Acad. Münch. (1814) 270, t. 12.—*D. arabica* Jacq. Fragm. Bot. p. 77, t. 121.

HABITAT : I. Arabia Petraea (Herb. Kew ! ).

DISTRIB. : Egypt, Arabia, India.

**44. Eleusine Gaertn.**

**1. E. verticillata** Roxb. Hort. Beng. 8.

HABITAT : II. Regma near Hodjela, 900 m. (S. 979 ! ) ; at the foot of Jebel Melhan, 600 m. (S. 798).

FR. : Jan. 1889 (S.).

DISTRIB. : Cosmopolitan.

**2. E. floccifolia** Spreng. Syst. 1, 350.—*Cynosurus floccifolius* Forsk. Descr. 21, 22.

HABITAT: II. Menacha, 2,300—2,900 m. (S. 1700 !); Jebel Shibam at Menacha, 2,900 m. (S. 1671).

FR.: Mar. 1889 (S.).

DISTRIB.: Arabia.

Vern. name: *Chassere* (S.).

**3. E. flagellifera** Nees in Linnaea XVI (1842) 220.

HABITAT: II. Jedda (Ehrenb. 230!, Zohrab 10!, Fischer 124!); desert near Jedda (Schimp. 800!).

IV. Maskat (Auch. 5468, 5469).

FL.: Dec. and Jan. 1837 (Fischer).

FR.: Jan. 1836 (Schimp.), Dec. and Jan. 1837 (Fischer).

DISTRIB.: W. Asia, tropical Africa.

**4. E. glaucophylla** Munro ex Benth. in Journ. Linn. Soc. XIX (1881) 107.

HABITAT: II. Aggara near Hodjela, 600 m. (S. 1174); foot of Jebel Bura at Hille, 600 m. (S. 477); Aden (Lunt 309!, Hook. 107!); Jedda (Fischer 206!); Yaman (Defl. 521!); Mor (Ehrenb. 229!).

III. Shukra (S. 71a).

IV. Maskat (Auch. 5468!).

FL.: Jan. 1889 (S.), Mar. 1837 (Fischer).

FR.: Jan. 1889 (S.), Apr. 1894 (Lunt), Dec. 1847 (Hook.).

DISTRIB.: Tropical Africa, Arabia.

**5. E. indica** Gaertn. Fruct. I, 8.

HABITAT: II. Northern slope of Jebel Bura, 900 m. (S.).

IV. Maskat (Auch. 5466!).

FL.: Jan. 1889 (S.).

FR.: Jan. 1889 (S.).

DISTRIB.: Cosmopolitan in tropics and subtropics.

**6. E. coracana** Gaertn. Fruct. I, 8, t. 1.

HABITAT: II. Jedda (Zohrab 314!); near Shukra (S. 68!, Defl. 347!).

FR.: Mar. 1881 (S.), Mar. 1890 (Defl.).

DISTRIB.: S. America, India, Egypt.

Vern. name: *Keneb* (S.).

**7. E. obtusiflora** (Hochst.) Schweint. Aschers. Beitr. Fl. Aeth. 299.

HABITAT: II. Jebel Bura at Hille, 600 m. (S. 195); Regma at Hodjela, 900 m. (S. 1289); below Ussil, 1,200 m. (S. 1202).

FL.: Jan.-Feb. 1889 (S.).

FR.: Jan.-Feb. 1889 (S.).

8. *E. multiflora* Hochst. in Flora XXIV (1841) I. Intell. 20 *nomen* ;  
*et in* A. Rich. Tent. Fl. Abyss. II, 412.

HABITAT : II. Above Menacha, near Kahil, 2,500 m. (S. 1462 !).

FR. : Feb. 1889 (S.).

DISTRIB. : Abyssinia, Arabia.

9. *E. aristata* Ehrenb. ex Boiss. Fl. Or. V, 557.

HABITAT : II. Jedda (Zohrab 166 !); Shukra (S. 71 !); Aggara near  
 Hodjela, 600 m., in maize fields (S. 1174 !).

FR. : Jan. 1889 (S.), Mar. 1881 (S.).

DISTRIB. : Widely spread along the Red Sea within the tropics.

OBSERV. : "*Dactyloctenium glaucophyllum*, Courbon in Ann. Sc. Nat.  
 ser. 4, v, 18, (1862) p. 133, has the nodes densely and long pilose, its  
 stem 'climbing', etc. and can hardly have been the above species."  
 (C. B. Clarke).

19. *E. Tocussa* Fresen. in Mus. Senckenb. II (1837) 141.

HABITAT : II. Wady Djara (Ehrenb. 227 !).

III. Lokham near Mokalla, 60 m. (Lunt 78 !).

DISTRIB. : Abyssinia, Arabia.

OBSERV. : Cultivated as food for cattle (Lunt).

Vern. name : *Dokhn* (Lunt).

#### 45. *Dactyloctenium* Willd.

1. *D. aegyptiacum* Willd. Enum. Hort. Berol. (1809) 1029.

HABITAT : II. Liht (Ehrenb. 231 !); Wady Djara (Ehrenb. 228 !);  
 Wolledje, Jebel Bura (S. 1928 !); Jebel Bura, 600 m. (S. 250); Jedda  
 (Zohrab 219 !); Aggara near Hodjela, 600 m. (S. 1024); Regina near  
 Hodjela, 900 m. (S. 1929); Wady Fatimah near Mecca (Schimp. 801 !);  
 Wady Fatimah (Fischer 130 !).

FL. : Feb. 1837 (Fischer), Dec. 1888 (S.), Jan.-Feb. 1889 (S.).

FR. : Jan. 1889 (S.), Feb. 1836 (Schimp.), Feb. 1837 (Fischer), Dec.  
 1888 (S.), Jan.-Feb. 1889 (S.).

DISTRIB. : Widely spread throughout the tropics.

Vern. name : *Kerassi* (S.).

#### 46. *Leptochloa* Beauv.

1. *L. uniflora* Hochst. ex A. Rich. Tent. Fl. Abyss. II, 409.

HABITAT : II. Ussil, 1,400 m. (S. 1348).

DISTRIB. : Abyssinia, Arabia.

2. *L. obtusifolia* Hochst. in Flora XXXVIII (1855) 203.

HABITAT : II. Hille, Jebel Bura (S. 495 !).

FR. : Jan. 1889 (S.).

DISTRIB. : Abyssinia, Arabia.



**47. Pappophorum Schreb.**

1. *P. molle* (Lehm.) Kunth Enum. Pl. I, 255.

HABITAT : II. Jebel Bura, Hille (S. 395 !); Ussil, 1,100 m. (S. 1341 !); Shukra (S. 134).

FR. : Jan. 1889 (S.), Feb. 1889 (S.).

DISTRIB. : S. Africa, Aethiopia, Arabia.

OBSERV. : According to Stapf S. 395 is near *P. elegans*.

2. *P. brachystachyum* Jaub. & Späch Illust. IV, 34.—*Enneapogon brachystachyum* Stapf in Fl. Cap. VII, 654.

HABITAT : I. S. Midian (Burton !); Sinai (Figari !).

II. Yaman (ex Boiss.).

FR. : Apr. (Figari).

DISTRIB. : N. Africa, Arabia.

3. *P. cenchroides* Lichst. in Roem. & Schult. Syst. II, 616; Schweinf. in Bull. Herb. Boiss. (1894) App. II, 36.

HABITAT : II. Below Ussil, 1,100 m. (S. 1341 !).

DISTRIB. : S. Africa, Arabia.

**48. Boissiera Hochst. et Steud.**

1. *B. Pumilio* (Trin.) Hack. in Denkschrift. Math.-nat. Classe Kais. Akad. Wiss. Wien (1885) II, 9.—*B. bromoides* Hochst. ex Steud. in Flora (1838) 25.

HABITAT : I. Foot of Mt. Sinai (Schimp. 402 !); Arabia Petraea (McDonald !); Sinai (Figari !).

FR. : Apr. 1835 (Schimp.).

DISTRIB. : Egypt, Arabia, Persia, Afghanistan.

**49. Arundo Tourn.**

1. *A. Donax* L. Sp. Pl. 81.

HABITAT : II. El Hausan, near Menacha, 2,400 m. (S. 1954).

DISTRIB. : Mediterranean, Orient.

Vern. name : *Hallal* (S. ).

**50. Phragmites Trin.**

1. *P. maxima* Blatt. & McCann in Bomb. Grasses (in Press).—*Arundo maxima* Forsk. Fl. Aeg.-Arab. 24.

HABITAT : I. Wady el Ain (Hart !); N. Midian (Burton !).

III. Dhofar Mts : Stream near coast (Bent 204 !).

DISTRIB. : Cosmopolitan.

2. *P. maxima* Blatt. & McCann, var. *isiaca* (Del.) Cosson in Coss. Dur. Explor. Sci. Algér. II (1854-1867) 125.

HABITAT : I. W. es-Slô, W. Tarfa, forming gigantic tufts (ex Kneuck.).

DISTRIB. : Cosmopolitan.

**3. *P. maxima*** Blatt. & McCann, var. *stenophylla* Boiss. Fl. Or. V (1884) 563.

HABITAT : I. Sinai (ex Muschler).

DISTRIB. : Cosmopolitan.

#### 51. *Ammochloa* Boiss.

**1. *A. palaestina*** Boiss. Diagn. Pl. Or. Ser. I, XIII (1853) 51.

HABITAT : I. Sinai (Herb. Kew!).

DISTRIB. : N. Africa, Sinai, Syria.

#### 52. *Lamarckia* Moench.

**1. *L. aurea*** (L.) Moench. Meth. Pl. Marb. (1794) 201.

HABITAT : I. Arabia Petraea (Herb. Kew!).

DISTRIB. : Mediterranean countries from the Canaries to the Punjab and Abyssinia.

#### 53. *Koeleria* Pers.

**1. *K. phleoides*** Pers. Syn. I, 97.

HABITAT : I. Arabia Petraea (Häussk.).

DISTRIB. : Mediterranean.

**2. *K. sinaica*** Boiss. Diagn. Ser. I, XIII, 53.

HABITAT : I. Sinai (Auch. 3061!).

DISTRIB. : Arabia.

#### 54. *Melica* L.

**1. *M. cupani*** Guss. Suppl. Fl. Sic. Prodr. 17, var. *pannosa* Boiss.

HABITAT : I. Top of Mt. Catherine (Schimp. 104!).

FR. : May 1835 (Schimp.).

DISTRIB. of type : Mediterranean region, Orient, Himalayas.

#### 55. *Sphenopus* Trin.

**1. *S. divaricatus*** (Gouan) Reichb. Fl. Germ. Excurs. I (1830) 45.

HABITAT : I. Arabia Petraea (Herb. Kew!).

DISTRIB. : Mediterranean.

#### 56. *Halopyrum* Stapf.

**1. *H. mucronatum*** Stapf in Hook. Ic. Pl. t. 2448 (1896).—*Desmazeria uniolooides* Defl. Voy. Yemen 220.

HABITAT : II. Eastern shore of the isthmus of Barriere Gate, on small dunes and sandhills forming large bushes with stolons often reaching 90 cm. and more (S. !); Hodeidah (Defl. 31!); Yaman, in salt marshes (Bové 257!).

Without locality (Defl. ! Birdwood !).

FR. : Jan. 1831 (Bové), Mar. 1887 (Defl.).

DISTRIB. : S. Arabia, N. India.

### 57. *Eragrostis* Host.

1. *E. coelachyrum* Benth. in Hook. Ic. Pl. t. 1368.

HABITAT : II. Near Jedda (Schimp. 799 !); Jedda (Fischer 133 !, Zohrab 18 ! 212 !).

FL. : Jan. 1837 (Fischer).

FR. : Jan. 1837 (Fischer), Dec. 1835 (Schimp.).

DISTRIB. : Egypt, Arabia.

2. *E. pilosa* (L.) P. Beauv. Essai Agrost. (1812) 71.

HABITAT : I. Ghor es Safieh (Hart).

II. Neighb. of Shukra, cult. ground (Defl. 351 !).

FR. : Mar. 1890 (Defl.).

DISTRIB. : Warm regions.

3. *E. minor* Host. Fl. Austr. I (1827) 135.—*E. poaeoides* P. Beauv. Essai Agrost. (1812) 71.

HABITAT : I. Ghor es Safieh (Hart); near Bestam (Schimp. 266 !).

II. Near Mecca (Schimp. 999 !).

IV. Near Maskat (Last !).

FR. : Aug. 1835 (Schimp.).

DISTRIB. : Throughout the Mediterranean region from the Canaries to Persia; also extending to middle Europe.

4. *E. major* Host. Gram. IV, t. 24.—*E. megastachya* Link Hort. Berol. I, 187.

HABITAT : I. Ghor es Safieh (Hart).

II. El-Gelil; Serrya (Defl.); Aden (Birdwood !); Aggara near Hodjela, 600 m. (S. 1029); Regma near Hodjela, 800 m. (S. 955); below Ussil, 950 m. (S. 1204, 1280); Jedda (Zohrab 12 ! 195 ! 200 ! 223 !) Shukra (S. 143).

FL. : Jan. 1889 (S.).

FR. : Feb. 1889 (S.), Mar. 1881 (S.).

DISTRIB. : Tropical and subtropical regions.

Vern. name : *Ssechégge* (Ussil).

5. *E. bipinnata* (L.) Muschler in Fl. von el-Tor in Verhdlg. Bot. Ver. Prov. Brdgb. IL (1907) 74.—*E. cynosuroides* (Retz.) Roem. & Schult. Syst. Veget. II (1817) 577.—*Cynosurus durus* Forsk. Fl. Aeg.-Arab. p. 21.

HABITAT : I. Wady Arabah (Hart !); Ain Fabal, near El Faba, Ghor es Safieh (Hart).

II. Lahej (Defl.); Aden (Birdwood 133 !).

DISTRIB. : Egypt to India and southwards to E. tropical Africa.

6. **E. decidua** Hochst. in Flora XXXVIII (1855) 324.

HABITAT : II. Menacha, 2,300 m. (S. 2008).

DISTRIB. : Abyssinia, Arabia.

7. **E. ciliaris** Link Hort. Berol. I, 192.

HABITAT : II. Aden (Anders. ! Hildebrandt !, Birdwood !); Jebel Melhan, 600 m. (S. 634); Shukra (S. 144A); Wolledje (S. 634 !); Jedda (Fischer !); Gumfuda (Ehrenb. !).

FL. : Jan. 1889 (S.), Feb. (Fischer), Feb. 1825 (Ehrenb.).

FR. : Jan. 1889 (S.), Feb. 1825 (Ehrenb.).

DISTRIB. : Common throughout tropical Africa and America, and in N. India.

8. **E. ciliaris** Link var. **brachystachya** Boiss.

HABITAT : II. Jedda (Zohrab 15 !, Schimp. 798 !); Gumfuda (Ehrenb. !).

III. El Hami (S. 176 !).

FL. : Feb. 1825 (Ehrenb.), Apr. 1881 (S.).

FR. : Jan. 1836 (Schimp.), Apr. 1881 (S.).

9. **E. plumosa** Link Hort. Berol. I, 192.

HABITAT : II. Yaman (ex Boiss.).

IV. Near Maskat (Last !).

DISTRIB. : Tropical Africa and Asia.

10. **E. Braunii** Schweinf. in Bull. Herb. Boiss. (1894) App. II, 38.

HABITAT : II. South western slope of Shibam near Menacha, 2,500 m. (S. 1948).

FL. : Mar.

DISTRIB. : Yaman, Eritrea.

Vern. name : *Thaf-thafu* (Schimp.).

11. **E. aulacosperma** Fres. Mus. Senckenb I. 144, 145, var. **perennis** Schweinf. in Bull. Herb. Boiss. (1894) App. II, 39.

HABITAT : II. Ussil, 1,100 m. (S. 1323); northern slope of Shibam near Menacha, 2,500-2,600 m. (S. 1452, 1654, 1946).

FL. : Feb. 1889 (S.).

FR. : Feb. 1889 (S.).

12. **E. rigidifolia** Hochst. mssr. in sched. Schimp. Abyss. 1854, n. 374, 189.

HABITAT : II. Below Ussil, 950 m. (S. 1307).

FR. : Feb. 1889 (S.).

DISTRIB. : Aethiopia, Arabia.

**13. E. yemenica** Schweinf. in Bull. Herb. Boiss. (1894) App. II, 41.

HABITAT : II. Below Ussil, 1,100 m. (S. 1332).

FL. : Feb. 1889 (S.).

FR. : Feb. 1889 (S.).

DISTRIB. : Yaman.

**14. E. mabrana** Schwein. in Bull. Herb. Boiss. (1894) App. II, 42.

HABITAT : III. El Hami (S. 208).

FL. : Apr.

DISTRIB. : Arabia.

**15. E. Barrelieri** Dav. in Morot. Journ. de Bot. VIII (1894) 289, & in Bull. Herb. Boiss. II (1894) 651.

HABITAT : II. Jedda (Zohrab !), Aden (Birdwood !).

### 58. *Aeluropus* Trin.

**1. A. arabicus** Steud. Nom. ed. II, I, 30.

HABITAT : I. Sinai (ex Muschler).

II. Aden, Sheikh Othman and Shukra (Defl., S. 127) ; Aden (Thomson, Anders., Hook. !, Lunt 343 !) ; Perim Island (Herb. Kew !) ; Hodeidah (S. 156) ; Shukra (S. 141).

FL. : Dec. 1888 (S.), Mar. 1881 (S.), Apr. 1894 (Lunt).

FR. : Dec. 1888 (S.), Mar. 1881 (S.).

DISTRIB. : Egypt, Abyssinia, Arabia.

Vern. name : *Schöchham* (Tehama).

**2. A. villosus** Trin. ex C. A. Mey. Verz. Pfl. Cauc. 18.

HABITAT : I. El Tor (Schimp. 204 !, Bové 9 !); N. Midian (Burton).

II. Yaman (Schimp. 1000 !); Yaman : Salt marshes (Bové 258 !); Jedda (Fischer 134 !, Zohrab 16 ! 210 !); Hodeidah (S. 155 !).

III. Common on salt ground, Ghail-babagir, 70 m. (Lunt 233 !).

FL. : Feb. (Lunt), Nov.-Jan. (Fischer), Dec. 1888 (S.).

FR. : Feb. (Lunt), Mar. 1835 (Schimp.), June 1832 (Bové), Dec. 1888 (S.).

DISTRIB. : Mediterranean and Caspian regions, Upper Egypt, Nubia, Central and S. Arabia, Persia, Afghanistan, Sind, Punjab, W. Peninsula of India, Ceylon.

Vern. name : *Neghil* (Bové).

**3. A. littoralis** Parl. Fl. Ital. I, 461.

HABITAT : II. Sandy plain between Barriere Gate and Shaikh Othman (Defl.).

DISTRIB. : Spain, France, Italy, Greece, Asia Minor, Algeria, Tunis, Egypt, Arabia (not Sind).

4. *A. uttorans* Parl. Fl. Ital. I, 461, var. *repens* Cosson Exp. Alg. 155.

HABITAT : I. Arabia Petraea (Bové, Schimp. 204).

### 59. *Dactylis* L.

1. *D. glomerata* L. Sp. Pl. 71, var. *hispanica* (Roth) Koch Syn. ed. I (1837) 808.

HABITAT : I. Arabia Petraea (ex Muschler).

DISTRIB. of type : Europe, Northern Asia.

### 60. *Schismus* Beauv.

1. *S. marginatus* P. Beauv. Agrost. 74, t. 15.

HABITAT : I. Wady Sewook (Lord !); Arabia Petraea (McDonald !).

DISTRIB. : Southern Europe, Central Asia, S. Africa.

2. *S. arabicus* Nees Fl. Afr. Austr. 422.

HABITAT : I. Wady Zewerah (Lowne !); Sinai (Figari !); Wady es-Sle, Oasis Feiran (Kneuck. 267); Arabia Petraea (Schimp. 371).

FR. : May 1847 (Figari).

DISTRIB. : Egypt, Sinai, Syria, Palestine.

### 61. *Poa* L.

1. *P. alpina* L. Sp. Pl. 67

HABITAT : I. Sinai (Auch. 2944 !).

DISTRIB. : Northern and Arctic regions.

2. *P. sinaica* Steud. Syn. Pl. Gram. 256.

HABITAT : I. Sinai (Figari !); Mt. Catherine (Schimp. 326 !).

FR. : May 1835 (Schimp.).

DISTRIB. : Arabia, Persia.

3. *P. annua* L. Sp. Pl. 68.

HABITAT : I. Ghor es Safieh (Hart).

II. Near Menacha, 2,500 m. (S. 1453 !); Taifa (Schimp. 968 !); Kahil near Menacha, 2,500 m. (S. 1453 !).

FL. : Feb. 1889 (S.).

FR. : Feb. 1889 (S.).

DISTRIB. : Cosmopolitan.

4. *P. pratensis* L. Sp. Pl. 67.

HABITAT : II. Above Menacha, near el Ejan, 2,500 m. (S. 1669 !).

FR. : Mar. 1889 (S.).

DISTRIB. : N, temperate regions.

5. *P. menachensis* Schweinf. in Bull. Herb. Boiss. (1894) App. II, 43.

HABITAT : II. North Western slope of Shibam, near Menacha, 2,000 m. (S. 1720).

FL. : Mar. 1889 (S.).

FR. : Mar. 1889 (S.)

DISTRIB. : Arabia.

6. *P. abyssinica* Jacq. Misc. II, 364.

HABITAT : II. Common weed in fields near Shukra (S. 144 !).

FR. : Mar. 1881 (S.).

DISTRIB. : Abyssinia, Arabia.

7. *P. persica* Trin. in Mém. Acad. Sc. Petérsb. Sér. VI, I (1831) 373.

HABITAT : I. Mt. Sinai (Schimp. 105 !).

FR. : May 1835 (Schimp.).

DISTRIB. : Arabia, Persia, Caucasia.

8. *P. soongarica* Boiss. Fl. Or. V, 611.

HABITAT : I. Arabia Petraea (Schimp. 105, Boiss.).

DISTRIB. : Northern Asia, Arabia.

## 62. *Festuca* (Tourn.) L.

1. *F. myurus* L. Sp. Pl. 74.

HABITAT : I. Mt. Catherine (Schimp. 347 !).

FR. : May 1835 (Schimp.).

DISTRIB. : Europe, Northern Asia, N. America.

2. *F. brevis* (Boiss. et Kotschy) Aschers.-Schweinf.-Muschler Fl. Egypt. I, 138.

HABITAT : I. Arabia Petraea (Herb. Kew !).

DISTRIB. : Egypt.

3. *F. brevis* Aschers.-Schweinf.-Muschler, var. *subdisticha* Aschers.-Schweinf.-Muschler Fl. Egypt. I, 138.

HABITAT : I. Arabia Petraea (Herb. Kew !).

DISTRIB. : Egypt.

4. *F. inops* var. *spiralis* Aschers.-Schweinf.-Muschler Fl. Egypt. I, 138.

HABITAT : I. Sinai (ex Muschler, Herb. Kew !).

DISTRIB. : Egypt, Cyrenaica, Syria.

5. *F. dertonensis* Aschers. & Graebner Syn. Mitteleurop. Fl. II, 1 (1898-1902) 559.

HABITAT : I. Arabia Petraea (Herb. Kew !).

DISTRIB. : Europe, N. Africa, Asia.

6. *F. uniglumis* Sol. in Ait. Hort. Kew. ed. I, I, 108.

HABITAT : I. Arabia Petraea (Herb. Kew !).

DISTRIB. : Europe, Mediterranean region.

7. *F. pectinella* Delile Ind. Sem. Hort. Monsp. (1836) 24.

HABITAT : I. Sinai (Herb. Kew !).

DISTRIB. : Egypt, Algeria, Syria, Palestine.

8. *F. divaricata* Desf. Fl. Atlant. I. 89, t. 22.

HABITAT : I. Arabia Petraea (Herb. Kew !).

DISTRIB. : Mediterranean region.

### 63. *Scleropoa* Griseb.

1. *S. maritima* Parl. Fl. Ital. I, 468.

HABITAT : I. Arabia Petraea (Herb. Kew !).

DISTRIB. : Mediterranean region.

2. *S. memphitica* Boiss. Diagn. Ser. I, XIII, 62.

HABITAT : I. Arabia Petraea (Auch. 3037).

DISTRIB. : Northern Africa, Syria.

### 64. *Cutandia* Willk.

1. *C. scleropoides* Willk. in Bot. Zeit. XVIII (1860) 130.

HABITAT : I. Arabia Petraea (Pinard, Boiss. !); Oasis Firan, 600-650 m. (Kneuck. 259); Sinai (Auch. 3037 !).

DISTRIB. : Mediterranean.

### 65. *Bromus* Dill. ex L.

1. *B. maximus* Desf. Fl. Atlant. I, 95, t. 26.

HABITAT : I. Oasis Firan (ex Kneuck.).

DISTRIB. : Europe, Mediterranean region and Caucasus.

2. *B. cognatus* Steud. Syn. Pl. Gram. 321.—*B. adoënsis* Hochst. ex Steud. Syn. Pl. Gram. 326.

HABITAT : II. Menacha and slopes of Shiḡam, 2,000-2,500 m. (S. 1459, 1578, 1711, 1714).

FL. : Feb. and Mar. 1889 (S.).

FR. : Feb. and Mar. 1889 (S.).

DISTRIB. : Abyssinia, Arabia.



3. **B. Japonicus** Thunb. ssp. **Sinaica** Hackel in Allg. Bot. Zeitschr. (1903) 167. "*Differt a typo spiculis lineari-oblongis, glumis fertilibus lanceolatis marginibus leniter et regulariter arcuatis nequaquam angulatis, apice acuto acute bidentatis.*"

*Dividitur in varietates 2 :*

$\alpha$  **Sinaicus genuinus**, *panícula contracta, ramis brevibus erecto patulis*, etc., l. c.

HABITAT : I. W. es-Slé, plain of Râha, W. esch-Sheth (ex Kneuck.)

$\beta$  **incanus**.

HABITAT : I. W. Tarfa, plain of Râha, Oasis Firan (ex Kneuck.).

DISTRIB. : Japan.

4. **B. tectorum** L.  $\times$  **Japonicus** Thunb.

HABITAT : I. W. Tarfa, ca. 1,100 m. (ex Kneuck.).

5. **B. fasciculatus** Presl Cyp. et Gram. Sic. 39.

HABITAT : I. Sinai region (Figari !).

FR. : May 1849 (Figari).

DISTRIB. : Eastern Mediterranean.

6. **B. rubens** L. Cent. Pl. I, 5.

HABITAT : I. Oasis of Firan, 600-650 m. (Kneuck. 291); Arabia Petraea (Boiss.).

FR. : Apr. 1902 (Kneuck.)

DISTRIB. : Mediterranean region.

7. **B. matritensis** L. Cent. Pl. I, 5.

HABITAT : I. Arabia Petraea (Neerg.).

DISTRIB. : Europe, N. Africa. Orient.

8. **B. patulus** Mert. & Koch in Roehl. Deutschl. Fl. I, 685, var. **villosa**.

HABITAT : I. Foot of Mt. Sinai (Schimp. 176b !); Arabia Petraea (McDonald !).

DISTRIB. : Europe, Orient, Afghanistan.

9. **B. pulchellus** Fig. & Not. Agr. Fragm. 16.

HABITAT : I. Sinai (Figari ex Boiss. vol. V, 656).

DISTRIB. : Arabia.

10. **B. hordaceus** L. Sp. Pl. 77, var. **glomeratus** Aschers.-Schweinf. Muschler Fl. Egypt. I, 146.

HABITAT : I. Arabia Petraea (Muschler).

DISTRIB. : Throughout the Mediterranean region,

**11. B. tectorum** L. Sp. Pl. 77.

HABITAT : I. Mt. Sinai (Bové 6 !); Wady Nasb (Drake 50 !); foot of Mt. Sinai (Schimp. 175 !); Wady Farrun and Wady Gennah (Lord !); Arabia Petraea (McDonald !).

IV. Central Arabia (Pelly !).

FR. : Apr. 1835 (Schimp.), May 1868 (Lord), June 1832 (Bové).

DISTRIB. : Europe, Orient, Northern Asia.

Vern. name : *Sufsouf* (Bové).

**12. B. tectorum** L. var. **anisantha** Hack. in Denkschrift. Akad. Wiss. Wien L., p. 77 (1885).

HABITAT : I. Foot of Jebel Musa, 1,500 m. (Kneuck. 290).

**66. Brachypodium** Beauv.**1. B. flexum** Nees Fl. Afr. Gram. 456.

HABITAT : II. Shibam, above Menacha, 2,600 m. (S. 1655).

FL. : Feb. and Mar. 1889 (S.).

FR. : Feb. and Mar. 1889 (S.).

DISTRIB. : S. Africa, Arabia, Eritrea.

**2. B. distachyum** Beauv. Agrost. 101.

HABITAT : I. Raphidim (Schimp. 252 !).

FR. : July 1835 (Schimp.).

DISTRIB. : Mediterranean, Orient.

**3. B. ramosum** Roem. & Schult. Syst. II, 737.

HABITAT : I. Arabia Petraea.

DISTRIB. : Mediterranean.

**67. Lolium** L.**1. L. multiflorum** Lam. Fl. Fr. III, 621.

HABITAT : I. Arabia Petraea (Boiss.!).

FR. : Apr. 1846 (Boiss.).

DISTRIB. : Temperate regions of Europe and Asia.

**68. Agropyrum** J. Gaertn.**1. A. squarrosus** Link Hort. Berol. I, 32.

HABITAT : I. Bestam (Schimp. 157 !).

DISTRIB. : Mediterranean.

**2. A. orientale** Roem. & Schult. Syst. II, 757.

HABITAT I Arabia Petraea (Figari !).

DISTRIB. : Orient, N. Africa.

69. *Triticum* L.

1. *T. vulgare* Vill. Hist. Plant. Dauph. II (1787) 133, var., Baker in Kew Bull. (1894) 343.

HABITAT: III. Cult. under date palms (Lunt 148!).

• Vern. name: *Burr* (Lunt).

2. *T. vulgare* Vill. var. *caesium* Alef. l. c. 330; Koern.-Werner. l. c. I, 47; Schweinf. l. c. 45.

HABITAT: II. Menacha (S. 1770b! 1581).

FL.: Mar. 1889 (S.).

Vern. name: *Berr maisseni* (S.).

3. *T. vulgare* Vill. var. *ferrugineum* Alef. Landw. Flora 330; Koern.-Werner l. c. I, 47; Schweinf. l. c. 45.

HABITAT: II. Menacha (S. 1770a!).

FL.: Mar. 1889 (S.).

OBSERV.: Winter wheat of four months duration (S.).

Vern. name: *Berr damâri* (S.).

4. *T. vulgare* Vill.; Koern.-Werner Handb. Getreid. I, 40, var. *erythrospermum* Koern. l. c. 46; Schweinf. in Bull. Herb. Boiss. (1894) App. II, 45.

HABITAT: II. Menacha, 2,300 m. (S. 1771!).

FL.: Mar. 1889 (S.).

DISTRIB.: Cosmopolitan.

OBSERV.: Winter wheat of four months duration (S.).

Vern. name: *Berr halba* (S.).

5. *T. durum* Desf. Fl. Atlant. I (1798) 114; Koern.-Werner Handb. Getreid. I, 64, var. *Megapolitana* Koern.?; Kneuck. in Allg. Bot. Zeitsch. IX (1903) 167.

HABITAT: I. Cult. in Oasis Firan (Kneuck.).

OBSERV.: Not quite sure, as ripe fruit is wanting (Kneuck.).

70. *Aegilops* L.

1. *A. bicornis* (Forsk.) Jaub. et Spach III. Pl. Orient. IV (1850) t. CCCIX.

HABITAT: I. Arabia Petraea (ex Muschler).

DISTRIB.: Cyrenaica, Marmarica, western Asia eastward to Mesopotamia.

2. *A. ovata* L. Sp. Pl. I (1753) 1050.

HABITAT: I. Arabia Petraea.

DISTRIB.: Europe, Arabia.

**71. Lepturus R. Br.**

1. *L. incurvatus* Trin. Fund. Agrost. (1820) 123.

HABITAT : I. Oasis Ain Musa (Kneuck. 528).

DISTRIB. : Throughout the Mediterranean region.

**72. Hordeum (Tourn.) L.**

1. *H. vulgare* L. Sp. Pl. 84.

HABITAT : I. Arabia Petraea (McDonald!).

IV. Zor Hills (Cox and Knox).

DISTRIB. : Cultivated.

Vern. name : *Hantah* (Arabic in Zor Hills).

2. *H. vulgare* L. subsp. *tetrastichum* Kcke. et Wern. Getr. I, 156  
var. *pallidum* Al.

HABITAT : II. Menacha, 2,400 m. (S. 1568).

3. *H. vulgare* L. subsp. *hexastichum*, var. *brachyurum*.

HABITAT : II. Near Menacha, 2,200 m. (S. 1684).

Vern. name : *Schair maissani* (S.).

4. *H. vulgare* L. subsp. *distichum* var. *deficiens* Steud.

HABITAT : II. At Menacha, on terraces, 2,300 m. (S. 1490) ; at Ejan,  
on the northern slope of the Shibam, 2,700 m. (S. 1644).

FR. : Feb. 1889 (S.).

Vern. name : *Schair habhuri* (S.).

5. *H. vulgare* L. var. *spontaneum* Kcke. Brauw. V (1882) 206.

HABITAT : I. Arabia Petraea (ex Muschler).

DISTRIB. : Everywhere in the Orient from Palestine to Persia.

6. *H. murinum* L. Sp. Pl. 85.

HABITAT : I. Plain of Râha, J. Arribe, Oasis Firan (ex Kneuck.).

DISTRIB. : Europe, N. Africa, Arabia, Orient.

7. *H. maritimum* With. Arr. Brit. Pl. 172.

HABITAT : I. Mt. Catherine, cult. ground (Schimp. 383 !); N. Midian  
(Burton!).

FR. : July 1835 (Schimp.).

DISTRIB. : Europe, N. Africa, Arabia, Orient.

8. *H. ithaburense* Boiss. Diagn. Ser. I, XIII, 70.

HABITAT : I. Arabia Petraea (Boiss.).

DISTRIB. : Asia Minor, Arabia, Orient.

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**73. Elymus L.**

**1. E. Caput-Medusae** L. Sp. Pl. 84.

HABITAT : I. Desert of Sinai (Bové 10!).

FR. : June 1832 (Bové).

DISTRIB. : Southern Europe, N. Africa, Orient.

**74. Zea L.**

**1. Z. mays** L. Sp. Pl. ed. I, 971.

HABITAT : II. Cultivated at Shaikh Othman (Yerbury *ex litt.*);  
Mokha (Yerbury).

DISTRIB. : Cultivated.

Vern. name : *Hind* (Yerbury).



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