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# Seaweeds of the western coast of tropical Africa and adjacent islands: a critical assessment. IV. Rhodophyta (Florideae) 5. Genera P

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**GEORGE W. LAWSON**

*Department of Botany, The Natural History Museum, Cromwell Road, London SW7 5BD*

**WILLIAM J. WOELKERLING**

*School of Botany, La Trobe University, Bundoora, Victoria 3083, Australia*

**JAMES H. PRICE**

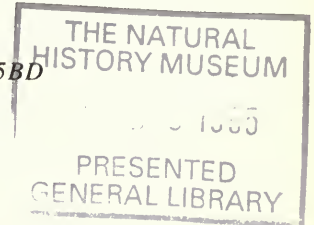
*Department of Botany, The Natural History Museum, Cromwell Road, London SW7 5BD*

**WILLEM F. PRUD'HOMME VAN REINE**

*Research Institute Rijksherbarium/Hortus Botanicus, P.O. Box 9514, 2300 RA Leiden, The Netherlands*

**DAVID M. JOHN**

*Department of Botany, The Natural History Museum, Cromwell Road, London SW7 5BD*



## CONTENTS

Introduction .....	99
Species list .....	100
Numerical list of references .....	115
References .....	117

**SYNOPSIS.** This paper assembles and, so far as is possible without extended field and herbarium studies, examines critically the validity of records of marine and brackish-water Rhodophyta (Florideae) for the western coast of tropical Africa. The mainland coastline from the northern boundary of Western Sahara southwards to the southern boundary of Namibia, the oceanic islands from the Salvage Islands southwards to Ascension and St Helena, and all islands close to the African mainland coast are included in the area covered. Each species entry includes all traced records, the names which have previously been applied to it for the area, and additional comments or evaluation, as necessary.

## INTRODUCTION

The area dealt with in this part is identical with that covered in parts published previously (Lawson & Price, 1969; John, Lawson, Price, Prud'homme van Reine & Woelkerling, 1994; Price, John & Lawson, 1978, 1986, 1988, 1992; John, Price, Maggs & Lawson, 1979). Country names employed and their earlier equivalents, and the names of island groups included, are listed in the legend for the map in Fig. 1. Genera with the initial letter P and constituent species are listed in alphabetical order.

Each main species entry consists of:

- (i) **The major bold heading**, representing the currently accepted name and authorities.
- (ii) **Subsidiary italicized headings at intervals within the entry.**

These are in square brackets and essentially subdivide the overall entry. They represent the different ways in which the species has been referred to in literature for the area. Incorrect citations have been maintained in these subsidiary headings so that there shall be no doubt as to which record we attribute to which taxon; only when clarification was required have changes been made in subhead citation, in which case an explanation is given in intermediary or terminal notes.

(iii) **The distributional data**, with countries and island groups arranged in alphabetical order. More generalized statements of distribution follow the specific country list. Complete distribution patterns require a scan of records under all names by which a species is known for this or adjacent areas. Hence, generalized distribution statements are included verbatim since it is not always clear for precisely which countries within the area they establish records. In all these cases,



numbers within parentheses after the names refer to corresponding numbers in the references. A question mark following the number indicates that doubt is attached to the record. In the present reference list, for agreement with previous parts, references have not been renumbered but simply omitted or added and additionally numbered as appropriate for the present part. Reference numbers are therefore only partially interchangeable between different parts of the overall list. Presentation of the references follows that from the previous part in having first a numerical sequence giving only authors and dates, followed by a separate listing of the full references in alphabetical order. 'References' also include manuscript and expeditionary sources, as well as works currently in press.

(iv) **Additional qualifying notes**, were required in many cases. These notes appear below whole entries or individual parts of entries to which they specifically refer. References in the notes are cited by the reference number (see pp. 115–116) when they contain species records, and by authors' name and publication date when they do not.

Species nomenclature has been revised as far as possible and the complete author citation is given for each currently accepted combination. The subsidiary italicized headings and any other discarded combinations that require reference are included as cross-referencing entries to the currently accepted names in the overall list. The necessarily preliminary nature of this treatment has been emphasized for each previously-published part and applies no less here. Critical updating of the overall text is kept firmly in mind for the whole work. We would appreciate notification of any detected errors and omissions from any of the parts.

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## SPECIES LIST

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**Pachymenia carnosa** (J. Agardh) J. Agardh  
Angola (312A).  
Namibia (36B;312A;348;523;525).  
[As *Pachymenia carnosa* J. Ag.]  
Namibia (166;500).

**Pachymenia cornea** (Kützing) Chiang  
Namibia (525).

**Palmaria palmata** (Linnaeus) O. Kuntze  
?Ghana (350;586).  
[As *Fucus sobiliferus* fl. dan. cum varietatibus]  
Ghana (271?).

*Note.* It is most unlikely that this nomenclatural equivalence represents the presence of the cold water species *Palmaria palmata* in the Gulf of Guinea. Clarification of the record would require examination of material from the original collection which may be in Copenhagen (C: University Herbarium), but it is possible (see Lawson & John, 1982) that the Isert specimens from 'Danish Guinea' (now Ghana), on which Hornemann's (271) record is based, may have been lost when part of the collection was destroyed by fire in 1807.

**Paragoniolithon** Adey, Townsend & Boykins  
See notes to *Spongites*.

**Petrocelis cruenta** J. Agardh  
See the note under *Mastocarpus stellatus* (Stackhouse) Guiry.

**Peyssonnelia armorica** (P. & H. Crouan) Weber-van Bosse  
Canaries (568).

[As *Cruoriella armorica* P. & H. Crouan]  
Canaries (13;108;113;130;227).

[As *Cruoriopsis rosenvingii* Børgesen]  
Canaries (70;188;191;375).

*Note.* See the entry for *Cruoriopsis* sp.

**Peyssonnelia capensis** Montagne  
Angola (98;108;130;352;393;394;424;426;427).

*Note.* For comments on this species see (431), (434), and (693).  
Palminha (426) attributes the existence in Angola of this hitherto South African form to its being carried northwards by the Benguela Current. According to Cordeiro-Marino (108), this taxon is well-characterized as to thallus structure and location/form of calcareous glomeruli. It has been compared by many authors to *P. squamaria* (S.G. Gmelin) Decaisne which entirely lacks glomeruli. Womersley (712) states that specimens from tropical-subtropical waters that lack cystoliths are doubtfully attributable to *P. capensis*, and are more similar to *P. squamaria*.

**Peyssonnelia coriacea** J. Feldmann  
'... norte de Africa' (517).

*Note.* This probably relates only to Mediterranean Africa or Morocco. See also (130).

**Peyssonnelia dubyi** P. & H. Crouan  
Canaries (598;633;667).  
Cape Verde Islands (38;38D;145;259;273;598;713).  
Salvage Islands (38B;38D;375).

*Note.* In view of the misidentifications of *Petrocelis cruenta* J. Agardh from Portugal under this name, it is possible that similar confusion existed in the establishment of these records (see 33).

**Peyssonnelia harveyana** J. Agardh  
Canaries (598;664).

[As *P. harveyana* Crouan]  
Angola (41;42;500).  
Cape Verde Islands (41;42;683).  
[As *P. cf. harveyana* Crouan]  
Cape Verde Islands (652;713).

*Note.* See Marcot & Boudouresque (1976) for further information on the type specimen collected by the Crouan brothers.

**Peyssonnelia inamoena** Pilger  
Angola (352).  
Cameroun (139;350;454;500;561;586).

Canaries (598;633;634;635;666;667).  
Ghana (299;300;350;376;377;586).

Príncipe (350;586).

Sénégal (38D;59).

'Atlantique africain intertropical sous ses forme typique' (130).

'... atlantique tropicale' (59).

'From the Cameroons' (561).

'... Golfo da Guiné' (108).

'in warm temperate and tropical seas' (350;586;642;712).

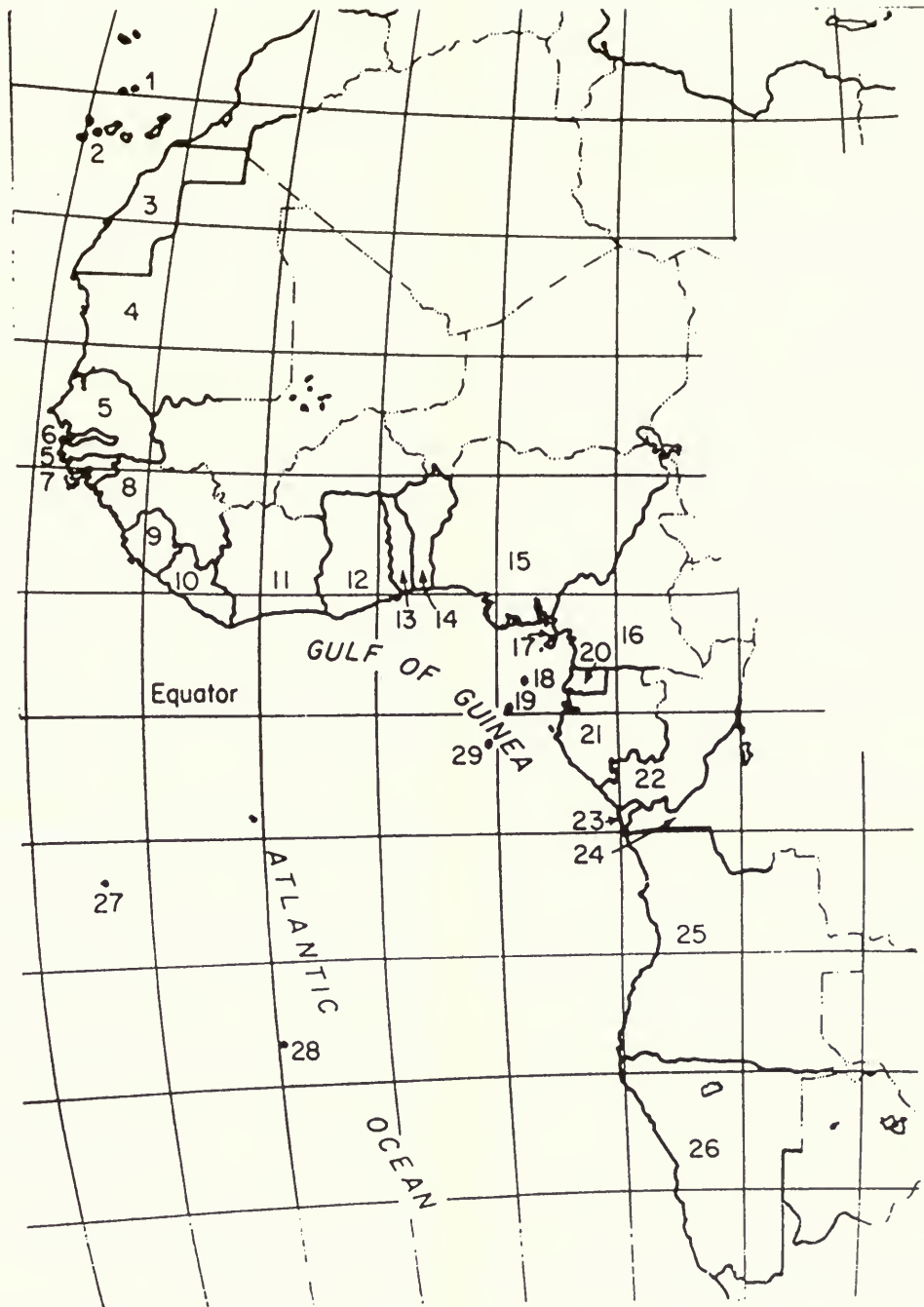
'Macaronesia' (653).

'Subtropical Africa [Sénégal (N. of Gambia); Mauritania; former W. Sahara]' (598).

'Tropical Africa (N. Gambia – Congo river)' (598).

[As *Peyssonnelia rubra* J. Agardh]  
Príncipe (41;42;535).

*Note.* According to Womersley (712), the type (454: 311) is from Gross-Batanga, Cameroons, West Africa. There is some doubt as to whether *Peyssonnelia inamoena* and *P. rubra* (Greville) J. Agardh are separate entities. Denizot (130) in his monograph on the non-coraline encrusting red algae states: 'La distinction entre cette



**Fig. 1** The coastline of tropical West Africa and the offshore islands.

1, Salvage Islands; 2, Canary Islands; 3, Western Sahara [=former Spanish Sahara, Spanish West Africa] (includes the often quoted Rio de Oro, the southern region of the country, but excludes Ifni); 4, Mauritanie; 5, Sénégal; 6, Gambia; 7, Guinea-Bissau [=Portuguese Guinea]; 8, Guinée; 9, Sierra Leone; 10, Liberia; 11, Côte d'Ivoire; 12, Ghana; 13, Togo; 14, Benin [=Dahomey]; 15, Nigeria; 16, Cameroun; 17,\* Bioko [=Macias Nguema Biyogo, Fernando Póo]; 18, Príncipe; 19, São Tomé; 20,\* Equatorial Guinea [=Spanish Guinea]; 21, Gabon; 22,\*\* Republic of the Congo; 23, Cabinda; 24, Zaire [=Congo Republic]; 25, Angola; 26, Namibia [=South West Africa]; 27, Ascension Island; 28, Saint Helena; 29, Pagalu [=Annobón]. The Cape Verde Islands, which lie immediately to the west of Dakar (Sénégal), have been omitted from this map but are included in the species list that follows.

\* Nos 17 (Bioko) and 20 (Spanish Guinea, = Rio Muni) are now jointly administered as Equatorial Guinea. Bioko is entered separately, where appropriate, in the species list.

\*\* Loango, a name much used by earlier collectors such as Welwitsch, was formerly a coastal region of West Africa. Its application appears to have included much of the coastline of the Republic of the Congo (22), as well as of Cabinda (23) and Zaire (24). Because by far the longest and rockiest part of the Loango coast lies now within the Republic of the Congo we have attributed all marine algal records from Loango to the Congo.

espèce et *P. rubra*, la forme la plus voisine, est à peu près exclusivement fondée sur l'absence de cystolithes'. See also Schneider & Searles (642) for a discussion of these two species in the western Atlantic. A number of collections examined from West Africa have proved to be not *P. rubra* as reported but *P. inamoena* (e.g., Welwitsch Herb. Angolense No. 123 Loanda [Angola] with male organs, No. 233 S. Vincenti, No. 256 Príncipe).

***Peyssonnelia magna*** Ercegovic  
Cape Verde Islands (652;713).

***Peyssonnelia polymorpha*** (Zanardini) Schmitz  
Canaries (13;70;177;188;191;227;379;584;598;694).

Cape Verde Islands (652;713).

Côte d'Ivoire (350;586).

Sierra Leone (295?;350;586).

'... Atlantique (. . . Canaries. . .)' (33).

'... in warm temperate and tropical seas, probably widespread' (350;586).

'Tropical Africa (N. Gambia – Congo river)' (598).

***Peyssonnelia rosa-marina*** Boudouresque & Denizot  
Cape Verde Islands (652;683;713).

***Peyssonnelia rosenvingii*** Schmitz  
?Sierra Leone (30;350;586).

*Note.* This single record from West Africa is regarded as very doubtful by (350) and (586).

***Peyssonnelia rubra*** (Greville) J. Agardh  
Angola (500;535).

Canaries (38D;70;77;191;226;227;390;392;448;535;584;598;663).

Cape Verde Islands (535;652;683;713).

Príncipe (535).

Sénégal (535?).

'... Atlantic Ocean (European, African and American coasts, Canary Islands. . .)' (177).

'Probably in most warmer seas. . .' (535).

'... Sans doute répandu dans toutes les mers chaudes' (188).

'... Temperate and subtropical shores of the Atlantic. Probably in all warmer seas of the world' (375).

[As *Peyssonnelia rubra* J. Agardh]

Angola (41;42).

Canaries (89).

Cape Verde Islands (41;42).

Príncipe (41;42).

[As *Peyssonnelia rubra* Greville]

Canaries (493).

*Note.* See comments under *Peyssonnelia inamoena* Pilger.

***Peyssonnelia squamaria*** (S.G. Gmelin) Decaisne

'... Atlantic Ocean (European and African coasts, Canary Islands). . .' (177).

'Nordwestafrika' (499).

'... Wärmere Teile des Atlantischen Ozeans. . .' (499).

*Note.* See comments under *Peyssonnelia capensis* Montagne.

***Peyssonnelia*** spp.

Angola (352).

Ascension (37).

Canaries (128A;303;306B).

Gabon (294).

Ghana (299;376;377).

Liberia (129).

Sénégal (529;531).

*Note.* Two species reported (294) for Gabon: sp. A, a sterile crust of assurgent and dichotomously divided filaments arising from an

ill-defined hypothallus; sp. B, a sterile crust with a two-layered hypothallus of subquadrate cells bearing dichotomously divided rows of cells. Sourie (529) noted that there were perhaps two, neither common, species of *Peyssonnelia* amongst his Sénégal collections, one encrusting, the other foliaceous.

***Phelebothamnium ellipticum*** (Montagne) Kützing  
See *Callithamnium ellipticum* Montagne.

***Phycophora triangulans*** (Turner) Kützing  
See *Bryothamnion triquetrum* (Gmelin) Howe.

***Phyllophora gelidioides*** P. & H. Crouan ex Karsakoff  
Canaries (70;71;139;191;227;490;540;547;598;635;709).  
'Endemic for Canaries' (653).

***Phyllophora palmettoides*** var. *nicaeensis* J. Agardh  
See *Schottera nicaeensis* (Lamouroux ex Duby) Guiry & Hollenberg.

***Phyllophora*** sp.  
Sénégal (282).

*Note.* See *Cryptonemia seminervis* (C. Agardh) J. Agardh. Jardin (282) stated: 'espèce sans doute nouvelle', and later (283: 205) 'Aux algues que j'ai indiquées dans mes *Herborisations sur la côte occidentale d'Afrique*, pour la Sénégal il faut ajouter le *Cryptonemia luxurians* J. Ag., que j'avais inscrite sans le nom de *Phyllophora* et qui vient d'être déterminée par le savant algologue G. Lespinasse, de Bordeaux'.

***Phyllymenia belangeri*** (Bory) Setchel & Gardner  
Namibia (36B;348).

*Note.* See also (102) and (570) for names under which this alga has been recorded in South Africa.

***Phymatolithon*** Foslie, nom. cons.

The concept of *Phymatolithon* adopted here follows Woelkerling (1988: 197–203). Historical data on the genus are summarized by Woelkerling & Irvine (1986) and Woelkerling (1988). The relationships of *Phymatolithon* and *Leptophytum*, a genus of uncertain status (Woelkerling, 1988: 217–281; Wilks & Woelkerling, 1994: 199–201), require brief comment. Some authors (Chamberlain, 1990; Chamberlain & Irvine, 1994 [701]: 166; Chamberlain & Keats, 1994) maintain two genera even though the type specimen of *Leptophytum* is missing and thus the name lacks the nomenclatural foundation necessary for stability. Several sets of criteria have been used to separate the two genera, but Wilks & Woelkerling (1994: 199–201) concluded that none of the proposed features could be used reliably for delimiting two such genera.

***Phymatolithon bisporum*** (Foslie) Afonso-Carrillo  
Canaries (11;18;582;598;633;634;700).

Cape Verde Islands (598).

'... Lacia el sur tienen su limite en el Golfo di Guinea' (582).

'Subtropical Africa [Sénégal (N. of Gambia); Mauritania; former W. Sahara]' (598).

'Macaronesia s.s.' (653).

[As *Leptophytum bisporum* (Foslie) Adey]

Canaries (6;70;139;205;212;227;248;363;366;387;493).

Cape Verde Islands (366).

Mauritania (349;366).

Sénégal (248;366).

[As *Lithophyllum bisporum* Foslie]

Canaries (191).

*Note.* This species originally was described as *Lithothamnion bisporum* Foslie (205: 18), based on material from Puerto Orotava, Tenerife, Canary Islands. According to Woelkerling (700: 39), only tiny fragments of the holotype remain in TRH. There has been no



detailed study of the holotype in a modern context, and thus the status and disposition of the species are uncertain, as are records from the West African region.

**Phymatolithon calcareum** (Pallas) Adey & McKibbin

Ascension (474).  
Canaries (227;582;584;598).  
Mauritanie (349).

[As *Lithothamnium calcareum* (Pallas) Areschoug]

Canaries (188;191;226;359;362;363;365;375).

Mauritanie (70;188;356;359;360;361;363)

[As *Lithothamnium crassum* Philippi]

Canaries (547).

[As *Lithothamnium calcareum* f. *crassa* (Philippi) Lemoine]

Canaries (363).

[As *Lithophyllum calcareum* (Pallas) Areschoug]

Canaries (229).

*Note.* *Phymatolithon calcareum* is the type species of *Phymatolithon*. Woelkerling & Irvine (1986) neotypified the species with material from Falmouth Harbour, England and provided a detailed account of the collection; the neotype is in BM. Chamberlain & Irvine (701: 212) present further information on the species in Europe, and they list the distribution as Norway to N. Spain, W. Baltic and the Mediterranean but not the West African region. Consequently, all specimens on which published records from the West African region are based need to be checked to determine whether they are conspecific with *P. calcareum*. *Lithothamnium calcareum* f. *crassa* (Philippi) Lemoine is based on *Lithothamnium crassum* Philippi, the type of which (see 206: 180–184) belongs to *Lithophyllum*, and John et al. (1994: 61) have noted that *Lithophyllum duckerii* Woelkerling is a nom. nov. for *L. crassum* Philippi. The specimens upon which Lemoine's (362) report is based need to be re-examined to determine the taxon to which they belong.

**Phymatolithon lenormandii** (Areschoug) Adey

Canaries (227;582;598;633;634;649;701).

Cape Verde Islands (713).

[As *Lithothamnium lenormandii* (Areschoug) Foslie]

Canaries (6;70;188;191;202;353;356;359;362;363;493;499).

[As *Lithothamnium lenormandi* (Areschoug) Foslie f. *squamulosa* (Foslie) Foslie]

Canaries (499).

[As *Lithothamnium lenormandi* (Areschoug) Foslie f. *sublaevis* Foslie]

Canaries (70;363).

[As *Lithothamnium lenormandi* Foslie]

Canaries (109).

*Note.* This species, originally described as *Melobesia lenormandii* Areschoug (1852: 514), is based on material from Arronanches, France, and was lectotypified by Woelkerling (1988: 219). Chamberlain & Irvine (701: 224–230), who have seen the lectotype (in LD), provide a detailed account of the species in the British Isles, noting that it is highly variable. The species is recorded from a number of parts of the world (701: 227), but most records, including those from the West African region, need to be verified. Data on the types of *Lithothamnium lenormandi* f. *squamulosa* (Foslie) Foslie [basonym: *Lithothamnium squamulosum* Foslie (1895: 183)] and *Lithothamnium lenormandi* f. *sublaevis* Foslie (1895: 179) are provided by Woelkerling (700: 206, 211); neither has been examined in a modern context, and thus the status and disposition of both and their relationships to *Phymatolithon lenormandii* f. *lenormandii* are uncertain.

**Phymatolithon polymorphum** (Linnaeus) Foslie

See *Phymatolithon purpureum* (P. & H. Crouan) Woelkerling & Irvine.

**Phymatolithon polymorphum** f. *sublaevis* Foslie

Angola (541).

*Note.* According to Woelkerling (700: 211), *Phymatolithon polymorphum* f. *sublaevis* is a superfluous name for *P. polymorphum* f. *papillata* Foslie (1895: 115). The lectotype of *P. polymorphum* f. *papillata*, designated by Woelkerling (700: 168) and housed in TRH, has not been examined in detail in a modern context. Thus the status and disposition of the taxon is uncertain, as is the record from Angola.

**Phymatolithon purpureum** (P. & H. Crouan) Woelkerling & Irvine

[As *Phymatolithon polymorphum* (Linnaeus) Foslie]

Cape Verde Islands (541;598).

[As *Lithothamnium polymorphum* (Linnaeus) Areschoug]

Cape Verde Islands (366).

[As *Lithothamnium polymorphum* Areschoug]

Cape Verde Islands (38).

[As *Lithothamnium polymorphum* Linnaeus]

Cape Verde Islands (145).

*Note.* This species was originally described as *Lithothamnium purpureum* P. & H. Crouan (1867: 150), based on material from Brest, France, and was lectotypified by Woelkerling & Irvine (1986: 71). The lectotype is housed in CO. Chamberlain & Irvine (701: 230–234) provide a detailed account of the species in the British Isles and indicate that it occurs from Arctic Russia to Morocco, Iceland, the Faroes and the western Baltic; no mention is made of tropical West Africa. Misapplication of the specific epithet *polymorphum* for material referable to *purpureum* is discussed by Woelkerling & Irvine (1986: 68–69). All specimens on which published records from the West African region are based need to be checked to determine whether they are conspecific with *Phymatolithon purpureum*. According to Lemoine (366), the specimens that Dickie identified from Moseley's São Vicente (Cape Verde Islands) collections are *Lithophyllum africanum* (= *Spongites africanum* (Foslie) Afonso-Carrillo).

**Phymatolithon tenuissimum** (Foslie) Adey

Canaries (227;582;598).

São Tomé (350;586).

'Gulf of Guinea' (582).

'... in warm temperate and tropical parts of the eastern Atlantic Ocean' (350;586).

'... Morocco, West Africa, Canary Islands' (642).

'... Tropical Africa (N. Gambia – Congo river)' (598).

[As *Lithothamnium tenuissimum* Foslie]

Canaries (70;188;191;362;363;535;650).

Mauritanie (359).

São Tomé (6;134;188;198;212;359;362;535;650;700).

'Golfe de Guinée: São Tomé' (70).

*Note.* This species was originally described as *Lithothamnium tenuissimum* Foslie (198: 20), based on material from São Tomé. The holotype in TRH (see 700: 222; 535: 130) has not been examined in detail in a modern context, and thus the status and disposition of the species are uncertain, as are all records from the West African region. Foslie (696: 5) questioned whether *Lithothamnium californicum* Foslie was specifically distinct from *Phymatolithon tenuissimum*, but without a comparative study of the relevant types, the question cannot be resolved.

**Phymatolithon** sp.

Canaries (478).

**Platoma bairdii** (Farlow) Kuckuck

Canaries (18;598).

*Note.* According to Afonso-Carrillo et al. (18), their material agreed with the description of Dixon & Irvine (1977): '... La presencia de *P. bairdii* en las Islas Canarias incrementa considerablemente el área de distribución de esta especie'.

**Platoma cyclocolpum** (Montagne) Schmitz

Canaries (708).

[As *Platoma cyclocolpa* (Montagne) Schmitz]

Canaries (17;30;34;70;128A;134;226;227;232B;315;329;375;379;390;584;598;633;634;635).

Sierra Leone (30?,350,586).

[As *Platoma cyclocolpa* Schmitz]

Canaries (191;375;489;556).

Salvage Islands (38B;556).

‘. . . im wämeren atlantischen Ocean’ (511).

[As *Halymenia cyclocolpa* Montagne]

Canaries (44;318;401;402;403;407).

[As *Nemastoma (Platoma) multifida* (J. Agardh) J. Agardh]

Canaries (24).

[As *Nemastoma multifida* J. Agardh]

‘Tropical Atlantic’ (410).

Note. Lawson & John (350, 586) commented that Aleem’s (30) drift record from Sierra Leone is doubtful for a plant not previously recorded from the mainland coast of West Africa.

**Platoma marginiferum** (J. Agardh) Batters

Canaries (635).

Note. According to Masuda & Guiry (1995), the correct name for this taxon is *Itonoa marginifera* (J. Agardh) Masuda & Guiry.

**Platysiphonia** Børgesen

For comparative comments on the genus see Ballantine & Wynne (159A).

**Platysiphonia caribaea** Ballantine & Wynne

Canaries (646).

**Platysiphonia delicatula** (Clemente) Cremades

Canaries (634;635).

Cape Verde Islands (652;713).

[As *Platysiphonia miniata* (C. Agardh) Børgesen]

Canaries (38C;598;646).

Cape Verde Islands (598;639;683).

Côte d’Ivoire (287;288;350;586).

Ghana (287;292;299;350;375;586).

Mauritanie (38C;349;556).

Namibia (348).

Salvage Islands (38B;556).

‘. . . widespread in warm temperate and tropical seas’ (350;586).

‘. . . widely distributed . . . reported from . . . western and southern Africa. . .’ (159A).

[As *Sarcomenia miniata* C. Agardh]

Canaries (547).

**Platysiphonia intermedia** (Grunow) Silva & ClearySee *Sarcomedia intermedia* Grunow.**Platythamnion plumula** (Ellis) Boudouresque et al.

See *Pterothamnion plumula* (Ellis) Nägeli and the note to *Antithamnion plumula* (Ellis) Thuret.

**Pleonosporium borneri** (J.R. Smith) Nägeli

Canaries (633;634;663;665;667).

Mauritanie (624).

Salvage Islands (38B;38C;556;598).

‘. . . Atlantique, du Maroc a l’Angleterre. . .’ (196).

‘. . . Atlantique (de l’Angleterre au Maroc)’ (33).

‘. . . vonden englisch-französischen Küste. . .’ (497;499).

‘Subtropical Africa [Sénégal (N. of Gambia); Mauritania, former W. Sahara]’ (598).

‘Tropical Africa (N. Gambia – Congo river)’ (598).

**Pleonosporium caribaeum** (Børgesen) R. Norris[As *Mesothamnion caribaeum* Børgesen]

Canaries (13;227;598;633;634).

**Pleonosporium harveyanum** (J. Agardh) De Toni

Namibia (348).

**Pleonosporium** sp.

Angola (352).

Note. Tentative determination based on vegetative material only.

**Plocamium** Lamouroux

Considerable pertinent information on the genus in South Africa is presented by Simons (519). Not all the South African species treated are relevant here but there is a substantial floristic overlap and the individual species entries include some records for Namibia.

**Plocamium beckeri** Simons

Angola (298;352;487;524;707).

**Plocamium biserratum** DickieSee *Plocamium concinnum* Areschoug.**Plocamium cartilagineum** (Linnaeus) Dixon

Canaries (13;38B;38D;227;253;306B;392;583;584;598;633;634;635;648;662;663;710).

Cape Verde Islands (38B;38D).

Mauritanie (38B;38D;349;624).

Salvage Islands (38B;38D;598).

Sénégal (38B;38D;253;350;586).

Western Sahara (38B;38D;349;598).

‘. . . Atlántico oriental (Noruega – Senegal). . .’ (253).

‘. . . Norway (Nordland) to Sénégal . . . Canary Isles. . .’ (172).

‘Subtropical Africa [Sénégal (N. of Gambia); Mauritania; former W. Sahara]’ (598).

‘Tropical Africa (N. Gambia – Congo river)’ (598).

[As *Plocamium coccineum* (Hudson) Lyngbye]

Ascension (37).

Canaries (2;5;70;191;229;252;375;401;499;517).

Cape Verde Islands (239;252).

Mauritanie (252).

Sénégal (55;56;59;99;122;252;350;408;529;586).

‘. . . Atlántico (desde las Faeroes a Canarias)’ (517).

‘. . . Atlantique (de la Norvege a la Mauritanie). . .’ (33).

‘. . . atlantique nord, jusqu’en Mauritanie. . .’ (222).

‘. . . der Westküste Afrikas und den Atlantischen Inseln. . .’ (239).

‘. . . Faeröes to the Canary Islands. . .’ (70).

‘. . . in oceano Atlantico a littore Faeroearum usque ad insulas Canarias. . .’ (25;132).

‘Nordwestafrika’ (499).

[As *Plocamium coccineum* Lyngbye]

Canaries (44;439;547).

Cape Verde Islands (41;42).

Sénégal (38).

‘. . . Des îles Feroë au Sénégal. . .’ (89).

[As *Plocamium coccineum* (Hudson) Areschoug]

Canaries (141A).

[As *Plocamium vulgare* Lamouroux]

Namibia (348).

Sénégal (99).

**Plocamium coccineum** auct.See *Plocamium cartilagineum* (Linnaeus) Dixon.



**Plocamium concinnum** Areschoug

Cape Verde Islands (38;132;141A;191;408;500;597;598;713).

[As *Plocamium biserratum* Dickie]

Cape Verde Islands (27;43;145;652).

*Note.* Askenasy (38) commented 'Connu seulement des îles du Cap Vert. . . Les descriptions de Dickie et d'Areschoug concordent parfaitement l'une avec l'autre. Le nom de Dickie est très caractéristique pour cette algue'.

**Plocamium condensatum** KützingSee note under *Plocamium rigidum* Bory.**Plocamium corallorhiza** (Turner) Harvey

Cape Verde Islands (191;405;598).

Namibia (348).

[As *Plocamium corallorhiza* Harvey]

Cape Verde Islands (38).

'... communes aux îles du Cap Vert et à l'Afrique méridionale. . .' (38).

**Plocamium cornutum** (Turner) Harvey

Namibia (36B;348;523).

[As *Plocamium cornutum* Harvey]

Namibia (167;453).

*Note.* Simons (519) commented that *P. cornutum* is comparatively easy to recognize because of its crowded pinnae which appear to arise on all sides of the somewhat terete axis which is sparingly branched. He goes on to say 'Occasionally forms approach the habit of *P. rigidum* but generally the latter can be distinguished by their terminal arrangement of pinnae in second groups of three'.

**Plocamium froelichian** Kützing

'Senegambia' (25;132;296;318;324).

'aus dem tropischen Atlantischen Ocean' (316).

*Note.* J. Agardh (25) placed this species in 'Species inquirendae' and De Toni (132) in 'Species incertae'.

**Plocamium glomeratum** J. Agardh

Namibia (36B;348;519).

**Plocamium nobile** J. AgardhSee comments under *Plocamium suhrii* Kützing and *P. telfairiae* (Harvey) Harvey ex Kützing.**Plocamium raphelisianum** P. Dangeard

Mauritanie (192;349).

Sénégal (192;349).

Western Sahara (192;349).

'Subtropical Africa [Sénégal (N. of Gambia); Mauritania; former W. Sahara]' (598).

*Note.* According to Lawson & John (349) Cap Vert (Sénégal) represents the southernmost limit of the species.

**Plocamium rigidum** Bory

Namibia (36B;348;519;523).

*Note.* Simons (519) commented: 'This species is very variable and its limits are difficult to establish. Generally, the thallus is fairly rigid. In its more typical form it resembles *P. cornutum*, but, whereas in the latter species all the pinnae alternate in pairs and are more or less awl-shaped, in *P. rigidum* the pinnae are somewhat more triangular and in the upper parts occur in threes. There are some rather more delicate forms which seem otherwise to be indistinguishable from the type. It is possible such forms were referred by Grunow (242) to *P. rigidum* var. *tenuior*. There is too a rather more membranous form with somewhat more triangular pinnae but attempts to find any distinguishing character from *P. rigidum* have not succeeded'. According to Delf & Michell (128), South African material named *Plocamium condensatum* Kützing is a tetrasporic form of (the cystocarpic) *P. rigidum*.

**Plocamium suhrii** Kützing

Angola (298;352;487).

Namibia (167;348;500).

[As *Plocamium nobile* J. Agardh]

Namibia (500).

*Note.* For a discussion of problems concerning this entity see Simons (519).

**Plocamium telfairiae** (Harvey) Harvey ex Kützing

Ghana (290;350;376;491;590).

'Tropical Africa (N. Gambia – Congo river)' (598).

'Widespread in many temperate and tropical seas' (350;586).

[As *Plocamium telfairiae* Harvey ex Kützing]

Ghana (299;377).

*Note.* Simons (519: 192) commented that Yendo (1915) suggested this species is synonymous with *P. nobile* J. Ag. See also note under *P. suhrii* Kützing.

**Plocamium vulgare** LamourouxSee *Plocamium cartilagineum* (Linnaeus) Dixon.**Plocamium** spp.

Angola (298;352).

Canaries (5).

Sénégal (529;531).

**Plumaria bipinnata** (Collins & Hervey) De Toni[As *Plumaria bipinnatum* (Collins & Hervey) De Toni]

Canaries (71).

*Note.* According to Gil-Rodríguez & Afonso-Carrillo (227) this is a synonym of *Gymnothamnion elegans* (Schousboe ex C. Agardh) J. Agardh.

**Plumaria schousboei** (Bornet) SchmitzSee *Gymnothamnion elegans* (Schousboe ex C. Agardh) J. Agardh.**Plumaria** sp.

Canaries (71).

Salvage Islands (38B;231).

**Pneophyllum** Kützing

The concept of *Pneophyllum* adopted here follows Penrose & Woelkerling (1991) and Penrose & Chamberlain (1993: 303). Chamberlain (702: 131) provides an up-to-date generic description and other data, and Chamberlain (94: 352–355) and Woelkerling (1988: 145–150) provide additional background information on the genus.

**Pneophyllum amplexifrons** (Harvey) Y. Chamberlain & R.E. Norris

Cape Verde Islands (598).

[As *Melobesia amplexifrons* Harvey]

Cape Verde Islands (38,408).

[As *Lithophyllum amplexiformis*]

Cape Verde Islands (598).

*Note.* This species was originally described as *Melobesia amplexifrons* Harvey (1849: 110), based on material from Port Natal, South Africa. The lectotype, in TCD, was designated by Woelkerling & Campbell (1992: 98). A detailed account of the species has been presented by Chamberlain & Norris (1994) who confirmed its occurrence in South Africa, Mozambique and Madagascar, and discussed reports from India, Japan, southern Australia, New Zealand, Indonesia, New Guinea, Guadeloupe and California. Foslie (206: 28) suggested that *Lithophyllum zosterocolum* Foslie (199: 5) may be conspecific with *Pneophyllum amplexifrons*, but this has not been confirmed by a comparative examination of relevant type collections. The type of *Lithophyllum zosterocolum* is in TRH (see 700: 239 for further information). All specimens on which West African records

of this species are based need to be checked to determine whether they are conspecific with *Pneophyllum amplexifrons*.

**Pneophyllum confervicola** (Kützing) Y. Chamberlain

Canaries (598;663).

Salvage Islands (598).

[As *Pneophyllum conferviculum* (Kützing) Y. Chamberlain f.

*minuta* (Foslie) Chamberlain]

Mauritanie (624).

[As *Fosliella minutula* (Foslie) Ganeson]

Canaries (38B).

[As *Melobesia minutula* Foslie]

Salvage Islands (231;375;556).

[As *Hapalidium phyllactidium* (Kützing) Kützing]

Canaries (439).

*Note.* This species was originally described as *Phyllactidium confervicola* Kützing (316: 295), based on material from near Trieste, Italy. The holotype is in L; Woelkerling & Verheij (1995) provide further details. Based on a comparative study of the types and other specimens, Chamberlain (94) concluded that *Melobesia minutula* Foslie was a heterotypic synonym of *Pneophyllum confervicola*. Chamberlain (702: 138) reports the species to occur from Norway to the Mediterranean and in Madeira, the southern USSR, India, Pacific Mexico and the central Pacific, but not from tropical West Africa. Consequently, all specimens on which published records from the West African region are based need to be checked to determine whether they are conspecific with *Pneophyllum confervicola*.

**Pneophyllum fragile** Kützing

Canaries (649;702).

[As *Fosliella lejolisii* (Rosanoff) Howe]

Canaries (14;226;227;582;584).

Ghana (350;377).

'Gulf of Guinea' (582).

'... widespread in boreal-antiboreal to tropical seas' (350).

[As *Melobesia lejolisii* Rosenv. (sic!)]

Canaries (696).

[As *Pneophyllum lejolisii* (Rosanoff) Y. Chamberlain]

Canaries (94;634).

Ghana (586).

Mauritanie (624).

'... widespread in boreal-antiboreal to tropical seas' (586).

*Note.* *Pneophyllum fragile*, the type species of *Pneophyllum*, is based on material from an unspecified locality in the Mediterranean. The holotype is in L (see Woelkerling & Verheij, 1995) and detailed accounts of it have been provided by Chamberlain (94) and Penrose & Woelkerling (1991). Based on a comparative study of the types, Penrose & Woelkerling (1991: 496) concluded that *Melobesia lejolisii* Rosanoff (1866: 62) was a heterotypic synonym of *Pneophyllum fragile*, a conclusion followed by Chamberlain (702: 143). With the exception of Chamberlain (702), all West African records involve the specific epithet *lejolisii*, and specimens involved need to be checked to determine whether they are conspecific with *P. fragile*.

**Pneophyllum lejolisii** (Rosanoff) Y. Chamberlain

See *Pneophyllum fragile* Kützing.

**Polycavernosa dentata** (J. Agardh) G. Lawson & D. John

See note under *Gracilaria dentata* J. Agardh.

**Polyneura denticulata** J. Feldmann

Sénégal (55;59;290).

'... ouest africaines...' (59).

'Subtropical Africa [Sénégal (N. of Gambia); Mauritania; former W. Sahara]' (598;654).

*Note.* It is not clear if this species has been validly published as it is cited by Bodard (55) as '*Polyneura denticulata* Feldm. (nomen)' and by Bodard & Mollion (59) as '*... J. Feldmann mscr.*'.

**Polyneura venosa** (Harvey) Papenfuss

See *Hymenema venosa* (Linnaeus) Kylin.

**Polyneura** sp.

Sénégal (531).

*Note.* Most probably the same taxon as that reported under the (ms?) name of *Polyneura denticulata* J. Feldmann (q.v.).

**Polyopes constrictus** (Turner) J. Agardh

Namibia (348).

**Polysiphonia abscissa** Hooker f. & Harvey

See the notes to *Polysiphonia subtilissima* Montagne.

**Polysiphonia acanthotrichia** Kützing

See *Polysiphonia flexella* (C. Agardh) J. Agardh.

**Polysiphonia atlantica** Kapraun & J. Norris

Canaries (598;633;634;635).

Salvage Islands (598).

'Subtropical Africa [Sénégal (N. of Gambia); Mauritania; former W. Sahara]' (598).

'... temperate eastern Atlantic. . .' (308).

'... West Africa, . . .' (642).

[As *Polysiphonia macrocarpa* Harvey]

Canaries (2;13;16;38B;38C;71;128A;191;221;225;229;

235;237; 238;253;307;375;379;392;489;547;555;

556;610).

Mauritanie (38C;349;555;556).

Salvage Islands (38B;38C;227;231;375;555;556).

Western Sahara (38C;349;555;556).

'... South of England to the Canary Islands. . .' (71).

'... Atlántico (Inglaterra – Mauritania. . .). . .' (253).

'desde Inglaterra a les islas Canarias. . .' (238).

[As *Polysiphonia* cf. *macrocarpa*]

Canaries (38D).

Mauritanie (38D).

Salvage Islands (38D).

Western Sahara (38D).

[As *Polysiphonia pulvinata* Harvey]

Salvage Islands (231).

*Note.* Not the same plant as *Polysiphonia pulvinata* (Roth) Sprengel. Børgesen (71) and Womersley (560) firmly placed *P. pulvinata* Harvey in synonymy with *P. macrocarpa* Harvey (now *P. atlantica* Kapraun & Norris). According to Feldmann (193), *P. pulvinata* Harvey is not the same as *P. pulvinata* (C. Agardh) Bornet which latter is a synonym of *Polysiphonia hemisphaerica* Areschoug.

[As *Polysiphonia pulvinata* Sprengel]

Canaries (401).

*Note.* Kapraun et al. (310) commented on the suggested *Polysiphonia atlantica*-*P. subtilissima* relationship as follows: '*... Womersley (1979)[560] suggested that Polysiphonia atlantica (as P. macrocarpa) and P. subtilissima are closely related. Studies of these taxa in the western Atlantic, however, have shown them to have distinct developmental patterns. Whereas Polysiphonia subtilissima has radial development of branches in prostrate axes, P. atlantica gives rise to unilateral filaments from prostrate axes, producing a dorsiventral habit (Kapraun, 1977[307], 1979).*'

**Polysiphonia atrorubescens** (Dillwyn) Greville

See *Polysiphonia nigra* (Hudson) Batters.

**Polysiphonia breviarticulata** (C. Agardh) Zanardini

Canaries (71;191;227;235;634;642).

**Polysiphonia brodiaei** (Dillwyn) Sprengel

Salvage Islands (38B).

[As *Polysiphonia brodiaei* (Dillwyn) Greville]

Canaries (662).



Salvage Islands (231;375;598).

[As *Polysiphonia brodiaei* Dillwyn]

Salvage Islands (215;216).

***Polysiphonia camerunensis*** Pilger

Cameroon (139;350;454;586).

' . . . so far known only from the tropical parts of the eastern Atlantic Ocean. . . ' (350;586).

'Tropical Africa (N. Gambia – Congo river)' (598).

***Polysiphonia caretia*** Hollenberg

Canaries (698).

***Polysiphonia ceramiaeformis*** P. & H. Crouan

Canaries (698).

Salvage Islands (38B?;556?).

*Note.* Weisscher (556) indicated that the plant from Selvagem Pequena agreed with the description by Lauret (1970), who keyed out characteristic differences between *Polysiphonia ceramiaeformis* and *P. furcellata* (C. Agardh) Harvey, though earlier authors such as De Toni (139) considered them synonymous. Absence of fructification from the Salvage Island plant prevented certainty of identification.

***Polysiphonia coarctata*** Kützing

See *Polysiphonia furcellata* (C. Agardh) Harvey.

***Polysiphonia collabens*** (C. Agardh) Kützing

See *Streblodadia collabens* (C. Agardh) Falkenberg.

***Polysiphonia complanata*** (Clemente) J. Agardh

See *Pterosiphonia complanata* (Clemente) Falkenberg.

***Polysiphonia corymbifera*** (C. Agardh) Harvey

See *Polysiphonia urbana* Harvey.

***Polysiphonia dendritica*** Hooker & Harvey

See *Dipterosiphonia dendritica* (C. Agardh) Falkenberg.

***Polysiphonia denudata*** (Dillwyn) Greville ex Harvey

Canaries (598;698;699).

Cape Verde Islands (652?).

Mauritania (38B;38D;349).

Salvage Islands (38B;38D;598).

São Tomé (350;586).

Sénégal (350;586).

Western Sahara (38B;38D;349).

' . . . from boreal-antiboreal to tropical parts of the Atlantic Ocean' (350;586).

'Netherlands to Portugal and West Africa; . . . ' (711).

'Subtropical Africa [Sénégal (N. of Gambia); Mauritania; former W. Sahara]' (598).

('Tropical Africa (N. of Gambia – Congo river)' (598).

'West Africa' (310;642).

[As *Polysiphonia denudata* (Dillwyn) Kützing]

Angola (352).

São Tomé (93).

[As *Polysiphonia* cf. *denudata* (Dillwyn) Greville ex Harvey]

Cape Verde Islands (652).

[As *Polysiphonia variegata* (C. Agardh) Zanardini]

Mauritania (516).

Sénégal (99).

***Polysiphonia elongata*** (Hudson) Sprengel

[As *Polysiphonia elongata* (Hudson) Greville ex Harvey]

Canaries (38D;584;598;635;663).

Salvage Islands (38D;598).

[As *Polysiphonia elongata* (Hudson) Harvey]

Angola (239;500).

Canaries (38B;71;74;191;226;227;253;262;375;439;583).

Salvage Islands (38B).

' . . . Atlantic Ocean ( . . . African . . . coasts. . . ) . . . ' (177).

' . . . Atlántico (Noruega – Canarias. . . ) . . . ' (253).

[As *Polysiphonia elongata* (Hudson) Harvey f. *Ruchingeri* (Ag.) Børgesen]

Canaries (71).

[As *Polysiphonia elongata* Harvey]

Angola (41;42).

[As *Polysiphonia elongata* Greville]

'Atlantic ( . . . N. Africa). . . ' (410).

*Note.* Levring (375) reported the species from deep water (30–70 m) attached to stones and shells on Madeira – ' . . . it seems always to be the more or less denuded form, which apparently was also found in the Canaries'. According to Maggs & Hommersand (711) the authorities for this species are (Hudson) Sprengel.

***Polysiphonia erythraea*** (Schousboe) J. Agardh

Canaries (71;89;133;139;191;227;306B;375;547;598).

Salvage Islands (38B;215;231;375;598).

' . . . ex ostio fl. "Guadalquivir" usque ad insulas Canarias' (133).

' . . . mouth of the Guadalquivir southwards to the Canary Islands . . . ' (71).

[As *Polysiphonia erythraea* Schousboe]

Salvage Islands (216).

***Polysiphonia ferulacea*** Suhr ex J. Agardh

Cameroon (337;484;698).

Canaries (38B;598;662;698).

Cape Verde Islands (38;38B;100;183;213;598;652;713).

Côte d'Ivoire (287;288;295;350;586).

Ghana (153;213;299;338;350;376;377;491;537;586;695;703).

Liberia (129;287;350;586).

Nigeria (213;350;586).

St. Helena (644).

Salvage Islands (38B;598).

Sierra Leone (295;350;586).

'Tropical Africa (N. Gambia – Congo river)' (598).

' . . . West Africa. . . ' (642)

' . . . widespread amphi-atlantic species; temperate and tropical' (644).

' . . . Widespread in subtropical and tropical seas. . . ' (308).

' . . . widespread in warm temperate and tropical seas. . . ' (350;586).

[As *Polysiphonia ferulacea* J. Agardh]

Cape Verde Islands (38).

[As *Polysiphonia ferulacea* (Suhr) J. Agardh]

Canaries (38D;375).

Cape Verde Islands (38D).

Salvage Islands (38D).

[As *Polysiphonia ferulacea* Suhr]

Cape Verde Islands (652).

***Polysiphonia flexella*** (C. Agardh) J. Agardh

Canaries (26;38B;38D;71;128A;133;191;214;584;598;635;648;662;663;684;699).

Salvage Islands (38B;38D;598).

[As *Polysiphonia flexella* var. *acanthotrichia* (Kützing) Piccone]

Canaries (71;439;642).

[As *Dasya acanthophora* Montagne]

Canaries (44;401;407).

[As *Dasya solieri* J. Agardh ex Montagne]



Canaries (401).  
 [As *Dasya solieri* Ag.]  
 Canaries (44).  
 [As *Polysiphonia acanthotrichia* Kützing]  
 Canaries (317;318;322).  
 [As *Polysiphonia flexella* J. Agardh]  
 Canaries (13;226;227).  
 'Du golfe de Gascogne aux Canaries. . .' (89).  
 '... Gulf of Gascogne southwards to the Canary Islands. . .' (71).

**Polysiphonia flocculosa** (C. Agardh) Kützing  
 See *Polysiphonia subcontinua* (C. Agardh) J. Agardh.

**Polysiphonia** cf. **foetidissima** Cocks ex Bornet  
 Salvage Islands (38B;556;598).  
*Note.* Weisscher (556) expressed doubt concerning the identification of material from the Salvage Islands, but if correct this is a new record for Macaronesia.

**Polysiphonia fruticulosa** (Wulfen) Sprengel  
 Canaries (26;133;191;227;303;401;499;517;633;634;642;648;684).  
 '... Atlantico (de Inglaterra a Canarias. . .)' (517).  
 '... Atlantique: depuis les côtes anglaises jusqu'au Canaries.' (221).  
 '... English coast southwards to the Canary Islands. . .' (71).  
 '... Im Atlantischen Ozean von den englischen Küsten bis zum dem Kanaren. . .' (499).  
 '... in oceano Atlantico ab oris Angliae usque ad insulas Canarienses. . .' (133).  
 'Nordwestafrika' (499).  
 [As *Polysiphonia wulfenii* (C. Agardh) Kützing]  
 Cape Verde Islands (38).  
 Sénégal (408).  
 [As *Polysiphonia fruticosa* (Wulfen) Sprengel, orth. error]  
 Canaries (227).  
 [As *Polysiphonia nigrescens* Harvey]  
 Canaries (401).  
 [As *Polysiphonia fruticulosa* Sprengel]  
 Canaries (44).  
 [As *Rytiphlaea fruticulosa* Harvey]  
 Canaries (254;305).  
 [As *Polysiphonia fruticulosa* Sprengel a. *genuina* and b. *wulfenii*, forma *pusilla*]  
 'De la Grande-Bretagne aux Canaries. . .' (89).  
 [As *Boergeseniella fruticulosa* (Wulfen) Kylin]  
 Canaries (38C;38D;232B).  
 '... Atlantique (du Portugal aux Canaries). . .' (33).  
*Note.* See note under *Polysiphonia fucoides* (Hudson) Greville. Maggs & Hommersand (711) placed *P. fruticulosa* (Wulfen) Harvey under *Boergeseniella fruticulosa* (Wulfen) Kylin and reported it from 'British Isles to Morocco and Canaries'. In the view of the impossibility of transferring these records to an earlier part (Price et al., 1988), they are included here for completeness.

**Polysiphonia fucoides** (Hudson) Greville  
 [As *Polysiphonia nigrescens* (Greville) Harvey]  
 '... De Norvège aux Canaries (Montagne). . .' (89).  
 [As *Polysiphonia nigrescens* Harvey]  
 ?Canaries (44;227;401).  
 [As *Polysiphonia nigrescens* (Dillwyn) Greville]  
 Canaries (133).  
 [As *Polysiphonia nigrescens* (Dillwyn) Greville]  
 Canaries (239).

*Note.* According to Børgesen (71), the Montagne/Benitez record (44;401) could not be *Polysiphonia nigrescens* (now *P. fucoides*) but possibly relates to *P. fruticulosa* (Wulfen) Sprengel (now *Boergeseniella fruticulosa* (Wulfen) Kylin). Gil-Rodríguez & Afonso-Carrillo (227) also considered that the material reported by Montagne was actually *P. fruticulosa*.

[As *Polysiphonia violacea* (Roth) Greville]  
 Canaries (2?;38D;191;237;392;598).  
 [As *Polysiphonia violacea* (Roth) Greville ex Rosenvinge]  
 Canaries (71).  
 [As *Polysiphonia violacea* (Roth) Greville var. *subulata* (Ducluzeau) Hauck]  
 Canaries (38D).  
 Salvage Islands (38D).  
 [As *Polysiphonia violacea* (Roth) Sprengel]  
 Canaries (8;226;227;238;375).  
 [As *Polysiphonia myriococca* Montagne]  
 Canaries (439;598).  
 'Macaronesia s.s.' (653).  
*Note.* See comments under *Polysiphonia myriococca* Montagne.  
 [As *Polysiphonia subulata* (Ducluzeau) J. Agardh]  
 Canaries (38B;38C;662).  
 Salvage Islands (38B;598).  
*Note.* We follow Maggs & Hommersand (711) in assigning records of *Polysiphonia violacea* auct., non Harvey to synonymy under this species. For discussion on the complexity of the situation, see Maggs & Hommersand (711: 336) and Kapraun & Rueness (309).

**Polysiphonia funebris** De Notaris  
 Canaries (698?).

**Polysiphonia furcellata** (C. Agardh) Harvey  
 Canaries (38B;38C;38D;128A;133;227;305;306B;318;375;401;584;684).  
 Salvage Islands (38B;38D;598;684).  
 '... Atlantique (de l'Angleterre aux Canaries). . .' (33).  
 '... Atlantique nord, de l'Angleterre aux Canaries' (190).  
 'British Isles to Canaries. . .' (711).  
 [As *Polysiphonia furcellata* Harvey]  
 Canaries (44;191;254).  
 '... De l'Angleterre aux Canaries. . .' (89).  
*Note.* Kützing's (318) species *Polysiphonia laevigata* and *P. coarctata* were placed by Børgesen (71) in the synonymy of this species. See also 663, and the note under *P. ceramiaeformis* P. & H. Crouan.

**Polysiphonia gonatophora** Kützing  
 Canaries (439;663).

*Note.* According to Børgesen (71), this record possibly relates to *Polysiphonia erythraea* (Schousboe) J. Agardh. He had not seen the specimen collected by Liebethuth from Tenerife. Since Kützing described two different forms under this name at different times, one with four pericentrals (316) and another with six (318) (J. Agardh (26) thought the 4-pericentralled one was close to *P. erythraea*), Børgesen could not confirm the identification without seeing Liebethuth's specimen. According to Prud'homme van Reine et al. (663), Liebethuth's material is neither in the Erbario Patavinum (PAD) nor in the Naturhistorisches Museum Wien (W) and thus is most probably lost.

**Polysiphonia gorgoniae** Harvey  
 ?Cape Verde Islands (38;150;598).  
 Mauritanie (624).

**Polysiphonia harveyi** Bailey  
 ?Canaries (698;699).

**Polysiphonia havanensis** Montagne

Canaries (38B;556;598).

Salvage Islands (38B;556;598).

*Note.* Weisscher (556) commented that the CANCAP plant agreed with the description in Børgesen (61) except that the sporangia were in a continuous row, terminal on erect axes. Ardré (33) considered the type of *P. havanensis* Montagne to be very similar to *P. macrocarpa* Harvey, but reasons for keeping the taxa separate were restated by Womersley (560). Although Kapraun (307) indicated similarities between *P. havanensis* sensu Børgesen (62) and *P. sertularioides* (Grateloup) J. Agardh, Womersley (560) found these species to be clearly distinct since specimens of the latter from the Mediterranean had rhizoids cut proximally off pericentrals. See also the accounts in Lauret (1967) and Kapraun et al. (310). Prud'homme van Reine et al. (663) deleted this species from records of marine algae in Macaronesia although noting 'not all published records have been checked by us'.

**Polysiphonia incompta** HarveySee *Streblacladia comptoclada* (Montagne) Falkenberg.**Polysiphonia irregularis** Zanardini mscr.See *Herposiphonia? parvula* (Suhr ex Kützing) De Toni.**Polysiphonia laevigata** KützingSee *Polysiphonia furcellata* (C. Agardh) Harvey.**Polysiphonia lepadicola** (Lyngbye) Kützing

Cape Verde Islands (38).

[As *Polysiphonia lepadicola* Lyngbye]

Cape Verde Islands (408;528).

*Note.* According to Viera-Rodríguez et al. (667), this species is a synonym of *Polysiphonia urceolata* (Lightfoot ex Dillwyn) Greville.

**Polysiphonia letestui** P. DangeardSee notes for *Bostrychia radicans* (Montagne) Montagne.**Polysiphonia macrocarpa** HarveySee *Polysiphonia atlantica* Kapraun & Norris.

*Note.* Kapraun & Norris (308) have reluctantly abandoned the name *Polysiphonia macrocarpa* Harvey for this taxon. Womersley (560) noted that *P. macrocarpa* Harvey is a later homonym of *P. macrocarpa* (C. Agardh) Sprengel (Basionym: *Hutchinsia macrocarpa* C. Agardh). Pending further studies, they proposed the name *P. atlantica* Kapraun & Norris for the taxon, which was in any case in great need of taxonomic and nomenclatural revision. Remaining unresolved is the identity of C. Agardh's *Hutchinsia macrocarpa* from the Antilles that has never been reported again. See *Polysiphonia havanensis* Montagne.

**Polysiphonia mottei** LauretSee *Polysiphonia nutans* Montagne.**Polysiphonia myriococca** Montagne

Canaries (26;44;71;133;191;227;318;321;401;407)

Salvage Islands (598).

*Note.* This species was reported by Piccone (439) from the Canaries based on material collected by Liebetruh. Prud'homme van Reine et al. (663) examined this material and consider *Polysiphonia violacea* auct. (now *P. fucoides* (Hudson) Greville) the correct name to apply to it, therefore deleting the record of *P. myriococca* from the marine algae of Macaronesia. Until the material upon which all published records are based is traced and examined *P. myriococca* is still recognized here.

**Polysiphonia nigra** (Hudson) Batters[As *Polysiphonia atrorubescens* (Dillwyn) Greville]

Namibia (348).

**Polysiphonia nigrescens** (Hudson) Greville ex HarveySee *Polysiphonia fucoides* (Hudson) Greville.**Polysiphonia nutans** Montagne

Canaries (26;44;71;227;318;321;375;598).

Salvage Islands (38B?;231;375;598).

'. . . Atlantique (. . . Canaries)' (33).

'Macaronesia' (653).

[As *Polysiphonia nutans* Montagne]

Canaries (191).

*Note.* According to an editorial note, presumably by G. Feldmann after J. Feldmann's death and published with the latter's *Polysiphonia* key (193), J. Feldmann had added a manuscript note in the margin of his entry step in the key to the effect that *P. sanguinea* (Agardh) Zanardini includes *P. purpurea* J. Agardh, *P. vestita* J. Agardh, *P. mottei* Lauret and *P. nutans* Montagne. Montagne (401) indicated in his comments that *P. nutans* resembles in different ways several others, notably *P. violacea*, *P. elongata* and *P. polyspora*.

**Polysiphonia obscura** (C. Agardh) J. AgardhSee *Lophosiphonia reptabunda* (Suhr) Kylin.**Polysiphonia opaca** (C. Agardh) Moris & De Notaris

Canaries (226;227;634;663;711).

[As *Polysiphonia opaca* (C. Agardh) Zanardini]

Canaries (38B;38D;71;110;190;191;375;392;439;490;546;556;584;598; 610;684).

Salvage Islands (38B;38D;231;375;556).

[As *Polysiphonia opaca* (C. Agardh) Zanardini var. (*aculeifera* Zanardini?)]

Canaries (390).

**Polysiphonia pacifica** HollenbergSee notes to *Polysiphonia subtilissima* Montagne.**Polysiphonia cf. paniculata** Montagne

Salvage Islands (38B).

*Note.* The Audiffred & Weisscher (38B) record is accompanied by the comment: 'This plant seems to be distinct from *P. paniculata* as described by Lauret (1970) by its rhizoids cut off from the distal end of pericentral cells, the extreme branches not being placed distichously, the straight pericentral siphons and the inward curled apices of the branches'.

**Polysiphonia parvula** Suhr ex Kützing [non Zanardini]See *Herposiphonia? parvula* (Suhr ex Kützing) De Toni.**Polysiphonia pennata** (C. Agardh) J. AgardhSee *Pterosiphonia pennata* (C. Agardh) Falkenberg.**Polysiphonia polyspora** (C. Agardh) J. Agardh

Canaries (133).

Senegambia (138;296).

'. . . Atlantique (du golfe de Gascogne au Sénégal). . .' (33).

'Subtropical Africa [Sénégal (N. of Gambia); Mauritania; former W. Sahara]' (598).

'Tropical Africa (N. Gambia – Congo river)' (598).

[As *Polysiphonia polyspora* J. Agardh]

Canaries (89).

Sénégal (89).

'. . . Du golfe de Gascogne au Sénégal. . .' (89).

*Note.* Bornet (89) stated: 'Cette algue n'est peut-être qu'une variété du *Polysiphonia variegata* dont elle se distingue surtout par la grosseur et la rigidité de ses branches qui égalent souvent celles du *P. elongata*. . . elle semble localisée dans cette région de l'Océan [Biarritz to Canaries and Sénégal], d'où je n'ai pas vue la *P. variegata*', although Ardré (33), who apparently believed as Feldmann (193) did that *P. denudata* and *P. variegata* were conspecific, considered *P. polyspora* to be distinguished from *P. denudata* by its greater robustness.



**Polysiphonia pulvinata** (Roth) Sprengel

[As *Polysiphonia pulvinata* (Roth) C. Agardh]  
Canaries (318).

[As *Polysiphonia pulvinata* Sprengel]

Canaries (44;254;401).

*Note.* Sprengel's *Polysiphonia pulvinata* is not the taxon described under the same name by Harvey (see 560). The application of *P. pulvinata* (Roth) Sprengel to forms with six (as in Roth's taxon) or four (some subsequent authors) pericentrals has been discussed by Kapraun & Rueness (309). Areschoug had earlier (1850) used the name *P. pulvinata* Roth for Scandinavian material, but later (1876) applied the new name *P. hemisphaerica* Areschoug to that material. Kapraun & Rueness (309) were unable to locate a Roth type and therefore could not decide on conspecificities. See also *P. sertularioides* (Grateloup) J. Agardh and comments on *P. pulvinata* Harvey under *P. atlantica* Kapraun & J. Norris.

**Polysiphonia pulvinata** Harvey

See *Polysiphonia atlantica* Kapraun & J. Norris.

**Polysiphonia purpurea** J. Agardh

See *Polysiphonia nutans* Montagne.

**Polysiphonia reptabunda** Suhr

See *Lophosiphonia reptabunda* (Suhr) Kylin.

**Polysiphonia rigens** Schousboe ex C. Agardh

See *Dipterosiphonia rigens* (Schousboe ex C. Agardh) Falkenberg.

**Polysiphonia sanguinea** (C. Agardh) Zanardini

See *Polysiphonia nutans* Montagne.

**Polysiphonia scopulorum** Harvey

[As *Lophosiphonia scopulorum* (Harvey) Womersley]

Canaries (38D;556;598;633;639;648).

Salvage Islands (38B;38D;231;375;556;598).

**Polysiphonia scopulorum** var. **villum** (J. Agardh) Hollenberg

'... widely recorded from subtropical and temperate countries. . .' (560).

[As *Polysiphonia villum* J. Agardh]

Cape Verde Islands (38?;145?;598).

*Note.* Dickie (145) was not certain of the correct identification.

**Polysiphonia secunda** auct.

See *Herposiphonia secunda* f. *secunda* (C. Agardh) Wynne.

**Polysiphonia sertularioides** (Grateloup) J. Agardh

Canaries (226;227;584;598;665).

'... Im Atlantischen Ozean von englischen Küsten an südwärts. . .' (499).

'Nordwestafrika' (499).

'... probably a widely distributed species. . .' (560).

[As *Polysiphonia sertularioides* auct. ?]

Angola (261;263;264).

[As *Polysiphonia pulvinata* Kützing]

'et atlantico usque ad ins Canarias' (318).

*Note.* Papenfuss (434) discusses the status of records of this species from South Africa and concludes, so far as can be ascertained, that it does not occur in that country since all the material concerned is attributable to *Polysiphonia incompta*. If the Angola record cited above is correct then it represents the southernmost limit of the species along the West African coast. Gil-Rodríguez and Afonso-Carrillo (226) state: 'Especie distribuida por las costas mediterráneas, citada por primera vez para las Islas Canarias'. This species and *Polysiphonia flaccidissima* Hollenberg, the latter well-known from the New World, may be conspecific (see 308, 560).

**Polysiphonia simpliciuscula** P. & H. Crouan

See *Ophiocladus simpliciusculus* (P. & H. Crouan) Falkenberg.

**Polysiphonia souriei**, J. Feldmann, nomen nudum

Sénégal (529).

'Subtropical Africa [Sénégal (N. of Gambia); Mauritania; former W. Sahara]' (598).

*Note.* Sourie (529) commented: '... espèce nommée, mais non encore décrite par J. Feldmann'.

**Polysiphonia sphaerocarpa** Børgesen

Canaries (38B;128A;556;598;698).

Salvage Islands (38B;556;598;650).

Sénégal (38B).

'... apparently a member of the pan-tropical flora' (307;308).

'Macaronesia s.s.' (653).

'... widespread in tropical Atlantic. . .' (308).

'... widespread in tropical seas' (642).

*Note.* For a discussion on *P. sphaerocarpa*, see Verlaque (650).

**Polysiphonia stricta** (Dillwyn) Greville

Canaries (227;401)

[As *Polysiphonia stricta* Greville]

Canaries (44;71).

[As *Polysiphonia urceolata* (Lightfoot in Dillwyn) Greville]

Canaries (307;598;633;634;635;666;667).

Cape Verde Islands (598).

*Note.* This species forms an ill-defined complex (see 307) with Kapraun & Rueness (309) commenting that it includes (as *P. urceolata*) numerous morphological forms throughout the North Atlantic range which has led to different taxonomic treatments by authors and it is 'not known if the physiologically and morphologically distinguishable populations. . . represent ecotypes, genetically related sibling species, or some combination of these'. Gil-Rodríguez & Afonso-Carrillo (227) comment: 'Montagne (1840) menciona esta especie para Canarias; sin embargo, Boergesen (1930) considera dudota esta determinación'. See also notes under *Polysiphonia subtilissima* Montagne.

**Polysiphonia subcontinua** (C. Agardh) J. Agardh

Canaries (598).

'... Atlantischer Ozean. . . südwärts bis zu den Kanaren. . .' (498;499).

'... eadem ad insulas Canariensis?' (133).

[As *Polysiphonia flocculosa* (C. Agardh) Kützing]

Canaries (26;71;128A;190;191;226;227;584;634?;635;662).

[As *Polysiphonia flocculosa* Kützing]

Canaries (89).

**Polysiphonia subtilissima** Montagne

Angola (352).

Annobon (456;457).

Ascension (475).

Bioko (346;350;586).

Cameroun (139;350;454;586).

Cape Verde Islands (652;713).

Côte d'Ivoire (350;586).

Gambia (296;350;586).

Ghana (350;376;377;491;586).

Liberia (129;350;586).

St. Helena (644).

Sierra Leone (295;350;586).

[As *Polysiphonia* sp.]

Cote d'Ivoire (288).

Liberia (288).



*Note.* Womersley (560) commented that this appears to be a widespread species, often found in conditions of reduced salinity. He also stated: ‘. . . it seems likely that *P. absissa* [widely reported from the southern hemisphere] should be united with *P. subtilissima* and probably with *P. pacifica* var. *pacifica* [from the Pacific]’, and went on to conclude that these taxa form, with the northern *Polysiphonia urceolata* (Lightfoot ex Dillwyn) Greville [now *P. stricta*], ‘a complex of closely related taxa and may prove to comprise only one (or two) species’. So far as the relationships between *P. subtilissima* and *P. macrocarpa* are concerned these, although closely related, appear to show some consistent differences. Commenting on Womersley’s (560) conclusions that *P. absissa*, *P. subtilissima*, *P. stricta* (as *P. urceolata*) and *P. pacifica* Hollenberg comprise a complex of closely related taxa, Kapraun et al. (310) could not assess the matter as regards *P. absissa* and *P. pacifica* but considered the European/N. Atlantic *P. stricta* (an ill-defined complex) to be distinct from New World *P. subtilissima* (Kapraun, 1980). See also remarks in Maggs & Hommersand (711: 358).

**Polysiphonia subulata** (Ducluzeau) J. Agardh  
See *Polysiphonia fucooides* (Hudson) Greville.

**Polysiphonia subulifera** (C. Agardh) Harvey  
Canaries  
(71;101;226;227;303;306B;493;584;598;633;634;635).  
‘. . . Atlantic ocean (from England to Canary Islands)’ (177).  
‘. . . Atlantique nord (de l’Angleterre aux Canaries)’ (190).  
‘. . . English coast southwards to the Canary Islands. . .’ (71).

*Note.* See Maggs & Hommersand (711: 360) on resemblance to *Boergeseniella fruticulosa* (Wulfen) Kylin.

**Polysiphonia tenella** J. Agardh  
See *Herposiphonia secunda* f. *tenella* (C. Agardh) Wynne.

**Polysiphonia tepida** Hollenberg  
Canaries (38D).  
[As *Polysiphonia* cf. *tepida* Hollenberg]  
Canaries (598).  
Cape Verde Islands (598).  
‘Macaronesia’ (700).

*Note.* Audiffred & Prud’homme van Reine (38D), who reported this taxon from the Madeiran archipelago and with a question mark from Gran Canaria, commented that some of their specimens had only six pericentrals, thus contrasting with the description of Kapraun (307) that gives seven or eight.

**Polysiphonia tripinnata** J. Agardh  
Canaries (598;662;665;667).  
Salvage Islands (38B;38D;598).  
‘Macaronesia’ (653).  
*Note.* Lauret (1967) regarded this taxon as a variety (var. *tripinnata* (J. Agardh) Lauret) of *Polysiphonia opaca* (Agardh) Zanardini. He later (1970) decided to recognize the species *Polysiphonia tripinnata* J. Agardh and gave a table of distinctive differences between the two species.

**Polysiphonia urbana** Harvey  
Namibia (348).

**Polysiphonia urceolata** (Lightfoot ex Dillwyn) Greville  
See under *Polysiphonia lepadicola* (Lyngbye) Kützing, *P. subtilissima* Montagne, and *P. stricta* (Dillwyn) Greville.

**Polysiphonia variegata** (C. Agardh) Zanardini  
See *Polysiphonia denudata* (Dillwyn) Greville ex Harvey.

**Polysiphonia vestita** J. Agardh  
See *Polysiphonia nutans* Montagne.

**Polysiphonia villum** J. Agardh  
See *Polysiphonia scopulorum* var. *villum* (J. Agardh) Hollenberg.

**Polysiphonia violacea** auct.  
See *Polysiphonia fucooides* (Hudson) Greville.

**Polysiphonia virgata** (C. Agardh) Sprengel  
Namibia (36B).  
*Note.* Wynne (36B), in recording *Polysiphonia virgata* (C. Agardh) Sprengel from Namibia, commented (pp. 321–322): ‘This name is being used for this taxon with the realization that it has been assigned to other genera in recent years, for example, *Carradoria* (Simons, 1976 [524]) and *Tayloriella* (Seagrief 1984 [570]). However, an assignment of this taxon to either of these genera is inappropriate. . . The absence of trichoblasts seems to be the sole basis for Papenfuss’ (1940b [429]) transfer of this species to *Tayloriella* of Kylin (1938). . . It is clear that *P. virgata* is not congeneric with *Tayloriella*. . . *Carradoria* must be regarded as a superfluous substitute name for *Hutchinsia* (Farr et al., 1979) and thus illegitimate’.

**Polysiphonia wulfenii** (C. Agardh) Kützing  
See *Polysiphonia fruticulosa* (Wulfen) Sprengel.

**Polysiphonia** spp.  
Angola (352).  
Ascension (474).  
Bioko (346).  
Benin (293;350;586).  
Canaries (71;225;301;306B;489;490;634;684;696).  
Cape Verde Islands (652).  
Côte d’Ivoire (288).  
Gabon (294).  
Ghana (290;297;299;342;376;491).  
Guinée (529).  
Liberia (288;350;586).  
Mauritanie (349;624).  
St Helena (644).  
Salvage Islands (38B;231;375;556).  
Togo (293).

**Polystrata dura** Heydrich  
‘Macaronesia s.s.’ (653).

**Polystrata fosliei** (Weber-van Bosse) Denizot  
Cape Verde Islands (130;598).  
*Note.* Denizot (130) commented on this record as follows: ‘. . . échantillon reconnu par Mme. Lemoine et très amiablement communiqué par elle, confié par M. Cadenat’. According to Lemoine (366) ‘Les concrétions draguées à 40–42 mètres au Nord de l’île Maïo par M. Cadenot sont constituées par des thalles superposés de douze espèces calcaires; en surface j’ai reconnu une Squamariacée à thalle calcifié inédite qui sera décrite par M. Denizot. . .’

**Porolithon Foslie**  
Following Penrose & Woelkerling (1992: 87) and Chamberlain (702: 114), *Porolithon* is treated here as a heterotypic synonym of *Hydrolithon*. Although *Hydrolithon* was included in an earlier paper in this series (Price et al., 1992: 131), the following taxa were not dealt with at that time and are included here for the sake of completeness.

**Porolithon aequinoctiale** (Foslie) Foslie  
São Tomé (139;211;350;586).  
‘. . . in tropical parts of the eastern Atlantic Ocean. . .’ (350;586).  
‘. . . oras occidentales Africae (F. Quintas)’ (139).  
‘Tropical Africa (N. Gambia – Congo river)’ (598).

[As *Lithophyllum (Porolithon) aequinoctiale* Foslie]

São Tomé (6;138;211).

‘. . . ved Rotas-øen, St. Thomas, ved vestkysten af Afrika (F. Quintas, Jard. Bot. Coimbra, 23 delvio)’ (211).

[As *Lithophyllum aequinoctiale* Foslie]

São Tomé (212;535;700).

*Note.* This species was originally described as *Lithophyllum aequinoctiale* Foslie (211: 46), based on material from São Tomé. The holotype in TRH (see 700: 20 for further information) has not been studied in detail in a modern context and thus the status and generic disposition of the species are uncertain, as are all records from the West African region.

**Porolithon africanum** (Foslie) Foslie

See *Spongites africanum* (Foslie) Afonso-Carrillo et al.

**Porolithon boergesenii** (Foslie) Lemoine

See *Hydrolithon boergesenii* (Foslie) Foslie.

**Porolithon boergesenii** var. **africana** (Foslie) Lemoine

See *Hydrolithon boergesenii* (Foslie) Foslie.

**Porolithon mamillare** (Harvey) Foslie

See *Neogoniolithon mamillare* (Harvey) Setchell & Mason.

**Porolithon oligocarpum** (Foslie) Foslie

Canaries (10;128A;139;211;253;367;493;582;583;663).

Cape Verde Islands (253;367).

‘. . . golfe de Guinée. . .’ (367).

‘Gulf of Guinea’ (582).

‘Atlántico Oriental (Azores, Canarias y Cabo Verde)’ (253)

[As *Lithophyllum oligocarpum* Foslie]

Canaries (205;700).

[As *Porolithon onkodes* (Heydrich) Foslie var. *oligocarpa* (Foslie) Lemoine]

Canaries (70;191;362;363;499).

*Note.* This taxon was originally described as *Lithophyllum oligocarpum* Foslie (205: 22), based on material from Puerto Orotava, Tenerife, Canary Islands. The holotype in TRH (see 700: 163) has not been studied in detail in a modern context and thus the status and generic disposition of the species are uncertain, as are all records from the West African region. Lemoine (362) treated *Porolithon oligocarpum* as a variety of *P. onkodes*, but this has not been confirmed by a comparative analysis of relevant type collections.

**Porolithon onkodes** (Heydrich) Foslie

Canaries (366;368;598).

Cape Verde Islands (366;368;598).

Ghana (350;586).

São Tomé (350;586).

‘Pantropical’ (366).

‘. . . probably pantropical’ (350;586).

‘Tropical Africa (N. Gambia-Congo river)’ (598).

*Note.* *Porolithon onkodes*, the type species of *Porolithon*, was originally described as *Lithothamnion onkodes* Heydrich (1897: 6), based on material from Tami Island, New Guinea. The lectotype, designated by Adey et al. (1982), is in TRH (see 700: 164 for additional information). Based on a study of the type and other collections, Penrose & Woelkerling (1992: 83) transferred *Porolithon onkodes* to *Hydrolithon* as a distinct species (i.e., *H. onkodes* (Heydrich) Penrose & Woelkerling) and regarded *Porolithon* to be a heterotypic synonym of *Hydrolithon*. These conclusions are followed here. All specimens on which the above published records from the West African region are based now need to be checked to determine whether they are conspecific with *Hydrolithon onkodes*.

**Porolithon** sp.

Canaries (17;382).

Ghana (129;695).

**Predaea feldmannii** Børgesen

Cape Verde Islands (CANCAP Expedition, pers. com., W. F. Prud’homme van Reine).

Ghana (39A;290;299;315;350;376;377;580;586;613;642;644).

St. Helena (39A;85;315;580;613;704).

‘. . . in warm temperate and tropical seas’ (350;586).

‘Tropical Africa (N. Gambia – Congo river)’ (598;654).

*Note.* For background information and details of the two morphologically separate forms, one wide and one narrow, see Kraft & John (315). Diagnoses of both *P. feldmannii* and *P. weldii* Kraft & Abbott (latter from Hawaii) are based essentially on the narrow form.

**Predaea huismanii** Kraft

Canaries (646;699).

**Predaea masonii** (Setchell & Gardner) G. De Toni

Canaries (635).

Ghana (299;315;350;586;613;642).

‘. . . in warm temperate and tropical parts of the Atlantic Ocean’ (350;586).

‘Tropical Africa (N. Gambia – Congo river)’ (598).

**Predaea pusilla** (Berthold) J. Feldmann

Canaries (648).

**Pseudobranchioglossum senegalense** Bodard

Sénégal (55;56;59;290).

‘. . . ouest africaines. . .’ (59).

‘Subtropical Africa [Sénégal (N. of Gambia); Mauritania; former W. Sahara]’ (598).

‘Tropical western Africa’ (654).

**Pseudogloiophloea verae** (Dickinson) Papenfuss

See *Scinaia verae* (Dickinson) Huisman.

**Pseudolithophyllum** Lemoine

Following Woelkerling (1988: 103), the genus *Pseudolithophyllum* is treated here as a heterotypic synonym of *Lithophyllum*. Eight species ascribed at some stage to *Pseudolithophyllum* have been recorded from the western coast of tropical Africa and adjacent islands; seven of these have been dealt with under *Lithophyllum* and the eighth under *Mesophyllum*.

**Pseudolithophyllum esperi** Lemoine

See *Lithophyllum esperi* (Lemoine) South & Tittley. One additional reference under the binomial *Pseudolithophyllum esperi* is Canaries (366).

**Pseudolithophyllum expansum** (Philippi) Lemoine

Canaries (359;363).

Mauritania (88;363).

Sénégal (248;365).

‘Subtropical Africa [Sénégal (N. of Gambia); Mauritania; former W. Sahara]’ (598).

[As *Lithophyllum expansum* Philippi]

Canaries (211; 493).

Mauritania (356?)

Salvage Islands (439;448).

[As *Lithophyllum expansum* f. *exigua* Foslie]

Canaries (70).

*Note.* *Pseudolithophyllum expansum* is treated here as a heterotypic synonym of *Mesophyllum lichenoides* (q.v.). The above references are additional to those given in the entry for *Mesophyllum lichenoides* (Ellis) Lemoine. Data on the holotype of *Lithophyllum expansum* f. *exigua* are provided by Woelkerling (700: 88) under the correct basionym (*Lithothamnion expansum* f. *exigua* Foslie). The



type has not been examined in a modern context, and thus the status and disposition of this taxon are unknown.

**Pseudolithophyllum irregulare** (Foslie) Adey

See *Lithophyllum irregulare* (Foslie) Huvé ex Steentoft. One additional reference under that binomial is Canaries (598).

**Pseudolithophyllum leptothalloideum** (Pilger) De Toni

See *Lithophyllum leptothalloideum* Pilger.

**Pseudolithophyllum lobatum** (Lemoine) Verlaque & Boudouresque

See *Lithophyllum lobatum* Lemoine. Two additional references under that binomial are Canaries (79) and Sénégal (366).

**Pseudolithophyllum mildbraedii** (Pilger) De Toni

See *Lithophyllum mildbraedii* Pilger. One additional reference under that binomial is Annobon (397).

**Pseudolithophyllum orbiculatum** (Foslie) Lemoine

See *Lithophyllum orbiculatum* (Foslie) Foslie.

**Pseudolithophyllum vickersiae** (Lemoine) Afonso-Carrillo

See *Lithophyllum vickersiae* Lemoine. The following are additional references.

Canaries (598).

[As *Lithophyllum incrustans*]

Canaries (363).

[As *Lithophyllum vickersiae* Lemoine]

Canaries (363).

[As *Lithothamnion vickersiae* Lemoine]

Canaries (645).

**Pterocladia angolensis** Welwitsch mss.

*Note.* A diagnoses of this alga was prepared by Welwitsch but is only in manuscript. A specimen in the BM has been variously attributed to *Gelidium corneum* and *G. melanoideum* and bears the label 'Iter Benguellense' No. 73. *Pterocladia angolensis* Welw. in lit. ad Sonder. In Porto de Benguella ad Patellas freq. Conf. J. Ag. Spec. Alg. Vol. II Pt I, p. 422, June 1860, leg. Welwitsch'.

**Pterocladia? benguellensis** Welwitsch mss.

*Note.* A specimen in the BM bears the name '(*Pterocladia?*) *Benguellensis* Welw. msp.' and 'Iter Benguellense No. 75' from 'ad Patellas ab Oceano atl. ejectas prope Benguela. June 1859 leg. Dr. Welwitsch'. The specimen appears to be a species of *Gelidium*, near to *G. corneum* sensu Børgesen.

**Pterocladia capillacea** (S.G. Gmelin) Bornet ex Bornet & Thuret

Canaries (2;5;8;9;13;16;38D;67;68;108;128A;141A;188;226;227;237;306B;375;379;392;439;441;489;490;517;546;584;598;610;633;702;710).

Cameroun (269;288;295;337;344;350;484;586).

Cape Verde Islands (38D;100;183;598).

Côte d'Ivoire (288;350;586).

Gabon (294;350;586).

Gambia (296;350;586).

Ghana (42A;152;288;344;350;586).

Guinea-Bissau (529).

Liberia (129;288;350;586).

Mauritanie (188;344;349;529).

Salvage Islands (38B;38D;598).

Sénégal (38D;121;122;344;513;529;530)

Sierra Leone (295;350;586)

Western Sahara (349;529)

'... Atlantico de Noruega a Canarias' (17)

'... Atlantique (de l'Angleterre au Rio de Oro). . .' (33).

'... Atlantique nord (de l'Angleterre a la Mauritanie). . .' (188).

'... Atlantique nord: jusq'au Rio de Oro. . .' (222).

'De Norvège aux Canaries. . .' (89).

'... from boreal-antiboreal to tropical seas' (350;586).

'Subtropical Africa [Sénégal (N. of Gambia); Mauritania; former W. Sahara]' (598).

'Tropical Africa (N. Gambia – Congo river)' (598).

'Widespread in temperate seas, extending into the subtropics' (712).

[As *Gelidium capillaceum* Kützing, or (Gmelin) Kützing]

Canaries (387).

Cape Verde Islands (38;483).

'... De Norvège aux Canaries. . .' (38).

[As *Gelidium corneum* (Hudson) Lamouroux var. *capillaceum* (Gmelin) C. Agardh]

Canaries (401).

[As *Gelidium corneum* (Hudson) Lamouroux var. *pinnatum* (Hudson) Montagne]

Canaries (401).

[As *Pterocladia capillacea* Bornet]

Canaries (547).

Salvage Islands (215).

[As *Pterocladia capillacea* (Gmelin) Bornet]

Canaries (191;441;499).

Cape Verde Islands (499).

'Nordwestafrika' (499).

[As *Pterocladia capillacea* f. *densa* auct]

Sénégal (121).

[As *Pterocladia capillacea* f. *pinnata* (Hudson)]

Canaries (390;441).

[As *Pterocladia capillacea* (Hudson) Bornet & f. *pinnata* (Hudson)]

[As *Pterocladia pinnata* (Hudson) Papenfuss]

Canaries (303).

Cape Verde Islands (423).

Cameroun (337;537).

[As *Pterosiphonia capillacea*]

Gabon (294).

*Note.* According to Stewart (1968), *Pterocladia capillacea* reported from the Canaries is conspecific with *P. pyramidale*, *P. complanata*, *P. mexicana*, *P. robusta*, *P. okamurai* f. *okamurai*, and *P. okamurai* f. *densa*, *P. tenuis* and *P. densa* from the Pacific. Prud'homme van Reine et al. (663) state that Piccone's specimens should have been named *Gelidium arbuscula* Bory ex Børgesen.

**Pterocladia lucida** (Turner) J. Agardh

[As *Pterocladia lucida* R. Brown]

St Helena (142;260;391).

[As *Pterocladia lucida* (R. Brown) J. Agardh]

St Helena (644;704).

*Note.* Considerable uncertainty surrounds the identity of this material. Akatsuka (1986) divided the species into two groups based on the morphology of surface cells and the shape of the tetrasporangial pinnules. One group was related to all other members of the genus whereas the other was considered sufficiently distinct to warrant the creation of the genus *Pterocladiastrum*. Without further examination of the minute St Helena plants it is not clear to which group to attach them to.

**Pterocladia melanoidea** (Schousboe ex Bornet) Dawson

Canaries (633;634;710).

Sénégal (710).



**Pterocladia pinnata** (Hudson) Papenfuss

See *Pterocladia capillacea* (S.G. Gmelin) Bornet ex Bornet & Thuret.

**Pterocladia** sp.

Canaries (5).  
Ghana (299;376).  
Sénégal (529).

**Pterosiphonia** Falkenberg

For comments upon generic relationships in *Pterosiphonia*, *Tayloriella*, *Symphocladia* and *Acrosiphoniella*, based on Pacific taxa but including relevant data, see Wynne (1985).

**Pterosiphonia cloiophylla** (C. Agardh) Falkenberg

Namibia (348).  
[As *Pterosiphonia gloiophylla*]  
Namibia (487).

**Pterosiphonia complanata** (Clemente) Falkenberg

Congo (350;586).  
Mauritanie (33;349;529).  
Western Sahara (476).  
'... am der africanischen Nordwestküste. . .' (179).  
'... Atlantique (de l'Angleterre a la Mauritanie)' (33).  
'... Atlantique nord, jusqu'en Mauritanie. . .' (222).  
'British Isles to Mauritania' (711).  
'Subtropical Africa [Sénégal (N. of Gambia); Mauritania; former W. Sahara]' (598).  
[As *Polysiphonia complanata* J. Agardh]  
Congo (Loango) (249;250).  
*Note.* Hariot's doubtful record for Congo was given incorrectly in 350 as Gabon.

**Pterosiphonia gloiophylla** (C. Agardh) Falkenberg

See *Pterosiphonia cloiophylla* (C. Agardh) Falkenberg.

**Pterosiphonia parasitica** (Hudson) Falkenberg

Angola (352).  
'... [Africa] north of the Gulf of Guinea. . .' (but not within the Gulf of Guinea) (352).  
'... Atlantischen Ozean. . . südwärts bis zur nordwestafrikanischen Küste. . .' (499).  
[As *Pterosiphonia parasitica* Schmitz]  
Canaries (238).  
'... desde las costas de Francia a las islas Canarias. . .' (238).

**Pterosiphonia pennata** (C. Agardh) Falkenberg

Canaries (227;392;584;598;633;642).  
'Subtropical Sénégal (N. of Gambia); Mauritania; former W. Sahara]' (598).  
'Tropical Africa (N. Gambia to Congo river)' (598).  
[As *Pterosiphonia pennata* (Roth) Falkenberg]  
Angola (213;352;500).  
Canaries (71;108;191;334;547).  
Cameroun (337;350;586).  
Ghana (154;213;338;344;350;537;586).  
Mauritanie (349).  
Nigeria (213;350;586).  
Western Sahara (349).  
'... Atlantique (. . . Canaries). . .' (33).  
'... de la France aux Canaries' (190).  
'... from the coast of France southwards to the Canary Islands. . .' (71).  
'... widely distributed in the Atlantic. . . but its distribution is difficult to assess at present due to confusion between a

group of morphologically similar species.' (711).  
'... widespread in warm temperate and tropical seas.' (350;586).

[As *Polysiphonia pennata* J. Agardh]  
Angola (41;42).  
Canaries (547).  
[As *Pterosiphonia pennata* (Falkenberg) Schmitz]  
Canaries (174).  
[As *Pterosiphonia pennata* (Roth) Falkenberg]  
Angola (500).  
Canaries (213;226;303;517;546).  
'... Atlantico (desde las costas de Francia a las islas Canarias). . .' (517).  
'Lusit-Africano-Médit.' (529).

**Pterosiphonia** sp.

Angola (352).

**Pterothamnion crispum** (Ducluzeau) Nägeli

Canaries (699).  
*Note.* See notes under *Pterothamnion plumula* (Ellis) Nägeli.

**Pterothamnion plumula** (Ellis) Nägeli

Canaries (598).  
[As *Antithamnion plumula* (Ellis) Thuret]  
'... Atlantique (de la Norvege aux Canaries. . .)' (33).  
'... Atlantique: des côtes anglaises jusqu'au Maroc et Canaries. . .' (222).  
'... Atlantischer ozean, von den skandinavischen Küsten bis zum Kap der Guten Hoffnung. . .' (499).  
'... Atlantischer ozean von den skandinavischen Küsten südwärts bis zum Kap' (497).  
'Nordwestafrika' (499).  
[As *Antithamnion plumula* Thuret]  
Canaries (236).  
*Note.* Gayral (222) recognized *Pterothamnion plumula* var. *crispum* (Ducluzeau) Hauck which Athanasiadis (1990) and Maggs & Hommersand (711) call *P. crispum* (Ducluzeau) Nägeli. See Schneider & Searles (642) for confusion with *Antithamnionella elegans* (Berthold) Price & D. John. For discussion on the recognition of the genus *Pterothamnion*, see Athanasiadis & Kraft (1994) who comment: 'Comparative studies of the type and other species of the genera *Pterothamnion* Nägeli, *Platythamnion* J. Agardh and *Glandothamnium* Wollaston state the recognition of a single genus *Pterothamnion*. . .'

**Ptilota gunneri** Silva, Maggs & L. Irvine

[As *Ptilota plumosa* (Hudson) C. Agardh]  
Canaries (71?;90;227?;401).  
[As *Ptilota plumosa* C. Agardh]  
Canaries (44).

*Note.* Montagne (401) stated: 'Nous ne citons cette espèce, qui ne se trouve pas dans notre collection, que d'après l'autorité de M. Bory qui l'énumère parmi les Thalassiophytes des Canaries'. The Benítez (44) record is taken from Montagne (401). Børgesen (71) believed that the record is referable to *Spyridia aculeata* (Schimper) Kützing, and Gil-Rodríguez & Afonso-Carrillo (227) repeat Bory's record mentioning Børgesen's doubt.

**Ptilota plumosa** (Hudson) C. Agardh

See *Ptilota gunneri* Silva et al.

**Ptilothamnion micropterum** (Montagne) Bornet

Canaries (65;71;109;133;401;492;495).  
'... ad insulas canarias. . .' (133).  
[As *Callithamnion micropterum* Montagne]  
Canaries (27;89;109;318;320;402;407).  
[As *Callithamnion micropterum* (Montagne) Montagne]  
Canaries (24;320;407).

[As *Callithamnion pluma* (Dillwyn) C. Agardh var. *micropterum* Montagne]

Canaries (109;171;401).

[As *Ptilothamnion micropterum* Bornet (*Callithamnion*) Montagne]

Canaries (492).

*Note.* Boudouresque et al. (1984) synonymize *P. micropterum* with *P. pluma*, but Schiffner (1931) regarded the former as a good species strongly differentiated from *P. pluma*. See also comments under *Ptilothamnion pluma* (Dillwyn) Thuret.

***Ptilothamnion pluma* (Dillwyn) Thuret**

Canaries (38B;71;190;191;226;227;303;584;598;698;711).

Salvage Islands (38B;598).

' . . . Atlantique (de l'Angleterre aux Canaries). . . ' (33;196).

' . . . North Sea southwards to the Canary Islands' (71).

[As *Callithamnion pluma* C. Agardh]

Canaries (44;401).

*Note.* In a discussion of the genus *Ptilothamnion*, Dixon (171) pointed out that Feldmann & Feldmann (188) and Feldmann (190) question the status of *P. micropterum* (Montagne) Bornet. A figure in Feldmann (190) shows a prostrate axis of several fronds, some with entirely simple, others with a proportion of bifid laterals. As this was the previous basis for distinction between the two species, the

implication would be that *P. micropterum* could be regarded as a synonym of *P. pluma*. Further examination of the type materials revealed fronds of various types on both species, even though Kützing's illustration (320: pl. 1) of Montagne's original *Callithamnion micropterum* showed no second order laterals. Bifid laterals are probably more frequent in specimens from the Mediterranean and Canaries than from the British Isles but the wide variation found in all localities does not justify taxonomic discrimination on this basis. Dixon (171) concluded that *P. pluma*, *P. micropterum*, and possibly *P. lucifugum* should be regarded as a single species under the name *Ptilothamnion pluma* (Dillwyn) Thuret.

***Pycnothamnion crustaceum* P. Dangeard**

Sénégal (122).

'Subtropical Africa [Sénégal (N. of Gambia); Mauritania; former W. Sahara]' (598).

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# A new species of *Odontorrhynchos* (Orchidaceae, Spiranthinae) from Bolivia

DARIUSZ L. SZLACHETKO

BRN 296861

Gdańsk University, Department of Plant Ecology and Nature Protection, 80–441 Gdańsk, Al.  
Legionow 9, Poland

## CONTENTS

Introduction .....	123
<i>Odontorrhynchos monstrosus</i> Szlach .....	123
References .....	125

**SYNOPSIS.** A new species of *Odontorrhynchos*, *O. monstrosus* Szlach., is described from Bolivia.

## INTRODUCTION

The genus *Odontorrhynchos* includes five species found mainly in the subtropical zone of South America and the Andes. It was described by Correa (1953), based on *Stenorhynchos castillonii* Haum. Garay (1982) added a further four species to the genus.

*Odontorrhynchos* is closely related to *Brachystele* Schltr., from which it differs primarily in the structure of the rostellum and viscidium. The rostellum in *Odontorrhynchos* is ligulate, rounded at the apex, with a large, oval viscidium on its inner surface which, after slipping from the rostellum, leaves three teeth of different size. The central tooth is large and slightly receding in relation to the lateral ones. In *Brachystele*, the rostellum is small and frequently wedged between the robust lateral stigma lobes. A small viscidium arises on the external surface of the rostellum which is greatly lingually introverted outwards and so appears to arise on the internal surface. The rostellum remnant is notched or reduced to a thin, rapidly drying, membranaceous fovea. Apart from this, *Brachystele* usually boasts a well formed column foot and oblique bases of the lateral sepals, whereas in *Odontorrhynchos*, the column foot is reduced and the bases of the lateral sepals are straight.

So far, only *O. chlorops* (Rchb.f.) Garay has been recorded from Bolivia. A new, previously undescribed Bolivian species was found among herbarium material of this genus deposited at The Natural History Museum.

## ODONTORRHYNCHOS MONSTROSUS SZLACH.

Planta habitu ad *O. chloropsem* vergens, sed labello indiviso in formam huic *Spiranthidi* simili, valde incrassato, in centro e plicis carnis duobus jam dignoscenda. Type: Bolivia, far

below Quime, near bridge in gorge, 18 April 1949, Brooke 5498 (BM-holotype). Fig. 1.

*Stem* 54.0 cm high, 7.0 mm in diameter at base, 3.5 mm in diameter below inflorescence, erect, stout, glandular above one-fifth, densely along inflorescence, covered by cauline bracts. *Leaves* 4, forming a basal rosette, separated from the flowering stems, petiolate; petiole up to 10.0 cm long, narrow; blade up to 15.0 cm long and 4.5 cm wide, oblong- to elliptic-lanceolate, acute. *Cauline bracts* 10, herbaceous, with hyaline margins, tubular, acute, lower and middle longer than, upper as long as internodes, middle and upper minutely and densely glandular at margins. *Inflorescence* 18.0 cm long, many-flowered, multi-lateral, dense, cylindrical. *Floral bracts* 14.0 mm long, ovate-lanceolate, acuminate, 3-nerved, herbaceous, densely glandular along margins, glabrous in the centre, lower longer than, upper shorter than flowers. *Flowers* medium-sized, subsessile, tubular, densely glandular outside, green. *Pedicel* 1.0 mm long, twisted. *Ovary* 9 mm long. *Dorsal sepal* 8.2 mm long, 5.2 mm wide, triangular-ovate, cuspidate, 3-veined, fleshy, concave in the centre. *Lateral sepals* 9.0 mm long, 3.5 mm wide, oblong-falcate, cuspidate, 3-veined, fleshy. *Petals* 8.0 mm long, 2.0 mm wide, spatulate, acute, single-veined, free from dorsal sepal, fleshy, sparsely glandular along the outside margins. *Lip* 9.0 mm long, 5.5–6.0 mm wide, sessile, elliptic-oval in general outline, with no constriction, fleshy, thinner at apex, concave at the base, and with two horn-like appendages near the basal lobules, pleated and crenated in apical part, with two fleshy crests in the centre, completely free from one another or fused together at their apices; lip surface papillate outside and in the centre inside. *Column* 3.0 mm long, erect, massive; column foot 3.0 mm long, short, massive, oblique, adnate to the ovary. *Anther* 2.6 mm long, ovate. *Rostellum* 1.2 mm long, triangular, rounded at apex, 3-dentate after removal of viscidium, the middle tooth the longest, lateral teeth short, reduced. *Viscidium* 1.5 mm long, oval, massive.

**ETYMOLOGY.** *monstrosus* (Lat.) – monster; in reference to

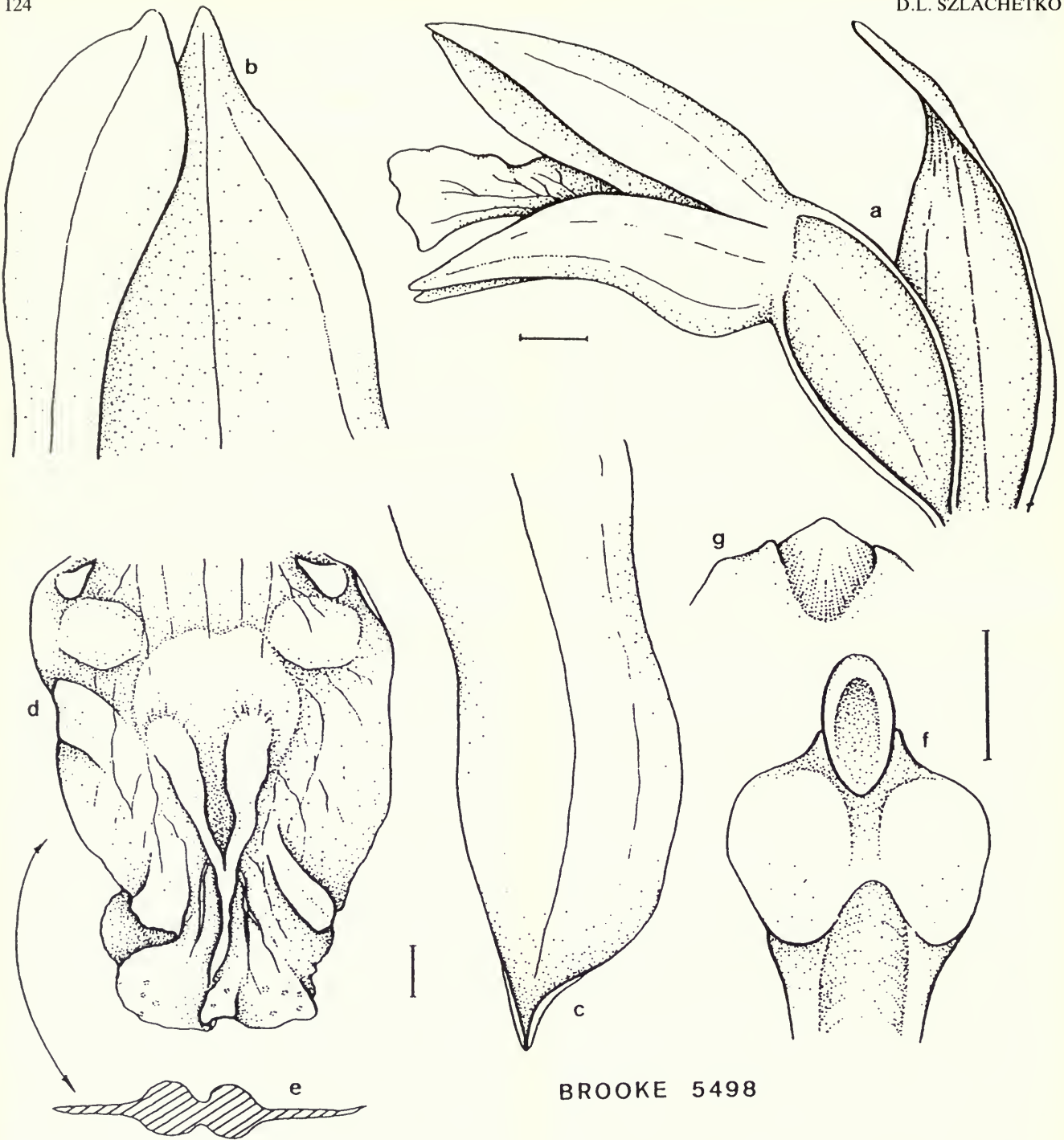


Fig. 1 *Odontorrhynchos monstrosus* Szlach. a: flower and floral bract; b: dorsal sepal and petal; c: lateral sepal; d: lip, flattened; e: cross section of lip; f: column, bottom view; g: rostellum remnant. Each scale indicates 1 mm. (Drawn from the holotype, The Natural History Museum).

the lip shape, which is reminiscent of the head of a monster.

*Odontorrhynchos monstrosus* is known so far only from the type collection, which was found 1828 m above sea-level, among rocks by a river in a warm gorge. It differs from all other known species in the genus by its lip shape, which is unconstricted, elliptic-oval in general outline, pleated in the apical part, with two fleshy ridges in the centre, which may merge at the apex or remain free. At the base of the lip are

two, small, fleshy processes leaning towards the main vein. *O. monstrosus* appears to be most closely related to *O. chlorops* (Rchb.f.) Garay, sharing a very similar habit.

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# Linnaeus's interpretation of Prospero Alpino's *De plantis exoticis*, with special emphasis on the flora of Crete

NICHOLAS J. TURLAND c

BAN 295863

Department of Botany, The Natural History Museum, London SW7 5BD

## CONTENTS

Introduction .....	127
Liber primus .....	128
Liber secundus .....	146
Summary of new typifications .....	157
References .....	158

**SYNOPSIS.** Prospero Alpino's *De plantis exoticis*, first published in 1627, describes 135 plants, of which 84 are said to originate from the south Aegean island of Crete. This paper examines the treatment of Alpino's plants by Carolus Linnaeus, and the determinations later offered by Sprengel and later still by Baldacci and Saccardo. As far as is possible, the present author offers determinations based on current knowledge of the Cretan flora for the 84 Cretan plants. Of the 35 Linnaean binomials which include in their protologues a reference to one of Alpino's Cretan plants, 17 are lectotypified here, while 16 have already been typified and the relevant specimen or figure is cited. In addition, *Acer sempervirens* L. is neotypified here, and *Dianthus arboreus* L. is lectotypified, as are two names first published by Antonio Turra (*Bunias spinosa* and *Thymus tragoriganum*), which have been wrongly attributed to Linnaeus. It is argued that the names *Acer orientale* L., *Acer creticum* L., and *Cenchrus frutescens* L. should be proposed for rejection, and that the same should be considered for the name *Statice echinus* L. A summary of the names typified in this paper is provided.

## INTRODUCTION

*De plantis exoticis* was published in Venice in 1627, ten years after the death of its author, Prospero Alpino, by his son Alpino Alpino, who held a position at the botanic garden at Padua from 1631 to 1637. The work describes 135 plants, of which 84 are said to have come from the south Aegean island of Crete. The book is divided into two sections: *Liber primus* and *Liber secundus*, the former incorporating the great majority of the Cretan species.

Carolus Linnaeus includes many of Alpino's names in the synonymy of his own species. An Alpino figure can be an original element for a Linnaean binomial only if it is cited in the protologue of that name (cf. Greuter et al., 1994: 11, Art. 9.9 footnote). Some of Alpino's figures are included by Linnaeus in the synonymy of pre-starting point (pre-1753) polynomials, especially in *Hortus cliffortianus* (Linnaeus, 1738), but do not appear in the protologues of binomials in *Species plantarum* (Linnaeus, 1753) or later works, although the pre-starting point polynomial may be cited in the synonymy of a later binomial. The Alpino figure cannot be an original element for such a binomial. Occasionally, Linnaeus adds to the elements included within his concept of a species. For example, a binomial in the second edition of *Species plantarum* (Linnaeus, 1762, 1763) may have an Alpino ele-

ment included in synonymy which does not appear in the protologue of the same name in the first edition in 1753. Once again, the Alpino figure cannot be an original element for such a name.

Another, more indirect way in which Linnaeus's opinion as to the identity of Alpino's plants can be interpreted is by examining his annotations in his own copy of the 1656 reprint of *De plantis exoticis*, now lodged at the Linnean Society of London. On many of the plates he has written polynomials from Bauhin's *Pinax theatri botanici* (Bauhin, 1623) and Tournefort's *Institutiones rei herbariae* and *Corollarium institutionum rei herbariae* (Tournefort, 1700, 1703). These same polynomials may be cited by Linnaeus in the synonymy of his names, often together with the corresponding Alpino elements. Linnaeus's annotations from *De plantis exoticis* are quoted in the present paper.

After Linnaeus's time, other authors have commented on the identity of Alpino's plants, principally Sprengel (1807: 384–386) and Baldacci & Saccardo (1900). The latter deal only with those 84 plants which are mentioned by Alpino as originating in Crete. The determinations given by these authors are cited.

Every effort has been made here to offer determinations for the 84 Cretan plants among Alpino's figures. Taxonomy and nomenclature follow Turland, Chilton & Press (1993).

For those Linnaean binomials for which an Alpino figure is

cited in the protologue and is, therefore, an original element, the type specimen or figure is indicated. If the type has previously been designated, then full details are given; if not, the type is designated here. In cases where a chosen lectotype figure is stylized or simplified to the extent that its taxonomic position is unclear, an epitype specimen is designated to enable precise application of the name (cf. Greuter et al., 1994: 11, Art. 9.7). For all names typified in this paper, the relevant Linnaean protologues are reproduced, and the chosen lectotypes, epitypes and neotypes are illustrated.

Before designating a type for a previously untypified name, the author has carried out a careful examination of all the extant original visual elements for the name in question. Particular care is necessary when considering, for example, specimens in the Linnaean Herbarium at the Linnean Society of London (LINN). Some of these are often wrongly considered to be original elements for Linnaean names merely because Linnaeus annotated them with the relevant '*nomen triviale*' (specific epithet), when in fact they may not have been in his possession until after the publication of that name. Such specimens are not cited here.

The numbered sequence of *capita* in the original 1627 imprint of Alpino's book (1–78 in *Liber primus*, 1–58 in *Liber secundus*) has been followed in this paper, with all page numbers and figure captions quoted exactly as they are printed. A currently accepted name is always given in brackets following any cited name which is no longer in current use.

The following abbreviations are used, in order to minimize excessive repetition:

L.: = Linnaeus's annotations from his own copy of *De plantis exoticis*. The symbol '*l*' is used to indicate where Linnaeus begins a separate line in an annotation.

S.: = Determinations given by Sprengel (1807).

B. & S.: = Determinations given by Baldacci & Saccardo (1900). Of the 84 Cretan plants, 14 are listed in an appendix with no determination offered, and are marked 'indet.' here.

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## LIBER PRIMUS

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### 1. 'Lauro Sylvestri Cretica', p. 1, fig. facing p. 1.

L.: 'Thymelaea cretica, oleae folio subtus villosa. Tournef. cor. 41.'

B. & S.: *Daphne sericea* Vahl

Comments: Neither the Alpino element nor the Tournefort polynomial in Linnaeus's annotation appears to be mentioned in any of Linnaeus's works. It is not possible to identify the figure with certainty, and Baldacci and Saccardo's determination seems unlikely.

### 2. 'Cerasus Idea', p. 3, fig. p. 2.

S.: '*Pyrus cretica*' (see below).

B. & S.: *Sorbus graeca* (Spach) Kotschy (currently *Sorbus aria* subsp. *cretica* (Lindl.) Holmboe).

Comments: The Alpino element appears not to be mentioned in any of Linnaeus's works. The plant depicted is either *Sorbus aria* subsp. *cretica* or *S. umbellata* (Desf.) Fritsch. Sprengel may have intended to determine the following Alpino element (No. 3) as '*Pyrus cretica*', instead of the

present plant, since *P. cretica* Willd. is the basionym of *Amelanchier ovalis* subsp. *cretica* (Willd.) Maire & Petitm. and there does not appear to be any extant name in *Pyrus*, at the rank of species, for *Sorbus aria* subsp. *cretica*.

### 3. 'Chamecerasus Idea', p. 5, fig. p. 4.

L.: 'Mespilus cretica, folio circinato & quasi cordiformi. T. cor. 43.' B. & S.: *Amelanchier cretica* (Willd.) DC. (currently *Amelanchier ovalis* subsp. *cretica* (Willd.) Maire & Petitm.)

Comments: Neither the Alpino element nor the Tournefort polynomial in Linnaeus's annotation appears to be mentioned in any of Linnaeus's works. The figure obviously depicts *Amelanchier ovalis* subsp. *cretica*.

### 4. 'Adrachni, seu Portulaca Theophrasti', p. 7, fig. p. 6.

Comments: The Alpino element appears not to be mentioned in any of Linnaeus's works. It is not possible to identify the plant figured.

### 5. 'Acer Cretica', p. 9, fig. p. 8.

L.: 'Acer cretica. Tournef. cor. 43.'

B. & S.: *Acer creticum* L. (see below).

Comments: Linnaeus includes the Alpino element in the protologue of *Acer monspessulanum* in *Species plantarum* (1753: 1056), under the unnamed var.  $\beta$ , but in the second edition he transfers it to *A. creticum* (1763: 1497), which is an illegitimate renaming of *A. orientale* L., which he first published in *Systema naturae* 10th ed. (1759a: 1310). The Tournefort polynomial in Linnaeus's annotation is not cited in either edition of *Species plantarum*; another Tournefort name, *Acer orientalis, hederæ folio*, is cited instead. The lectotype of *A. monspessulanum* is a specimen in Herb. Linn. No. 1225.15 (LINN), designated as such by Murray (1979: 13, as '1225.1'). Alpino's figure appears to be a greatly stylized depiction of the shrub or tree currently called *Acer sempervirens* L., first published in *Mantissa plantarum* (1767a: 128) and simultaneously in *Systema naturae* 12th ed. (1767b: 674). His figure is correct in that the species has three-lobed leaves and sometimes pubescent twigs and petioles, but wrong in that the leaves should be opposite, not alternate.

*orientale*. A. A. fol. trilobis integerrimis pubescentibus. *Mill. dict.*

### 9. ACER foliis trilobis integerrimis pubescentibus. *Mill. creticum*, dict. 10.

*Acer orientalis, hederæ folio*, *Tournef. cor. 43. Pock orient. 191. s. 85.*

*Acer cretica. Alp. exot. 9. t. 8. Dubam. arb. 1. p. 28. s. 10, f. 9*

*Habitat in Oriente. f.*

The typification of *Acer orientale* is more problematic, since there appear to be no extant original visual elements, the name evidently based on *Acer foliis trilobis integerrimis subvillosis* Mill., *The gardeners dictionary* 7th ed.: *Acer* No. 10 (1759), said by Miller to grow in 'the Levant'. From this and the synonyms added by Linnaeus to the illegitimate *A. creticum* in 1763, it would seem that *A. orientale* is a species with pubescent leaves and petioles. Yaltirik (1967: 519) was unable to trace any original material for *A. orientale* and felt the name could not be applied to the eastern Mediterranean



species which earlier authors had consistently referred to as either *A. orientale* or *A. creticum*, on account of that plant always having glabrous leaf-blades, and instead adopted the name *A. sempervirens*. This treatment has been followed in later works, notably *Flora Europaea* (Tutin et al., 1968: 239) and the *Med-Checklist* (Greuter, Burdet & Long, 1984: 42).

semper- 11. ACER foliis ovatis integerrimis sempervirentibus.  
virens. Mill. *dict.* †  
Habitat in Oriente. †.

The name *Acer sempervirens* appears also to lack any extant original elements, and is based on another Miller name, *Acer follis ovatis integerrimis sempervirentibus* Mill., *The gardeners dictionary* 7th ed.: *Acer* No. 11 (1759), said by its author to have originated as seeds from the Levant. The plant which is currently called *A. sempervirens* is an eastern Mediterranean species similar and closely related to *A. monspessulanum*, with leaves sometimes ovate and more or less evergreen if the plants are heavily grazed, but tri-lobed and deciduous where out of reach of grazing animals. In the absence of any original material, it is necessary to choose a neotype for the name. The following specimen is here designated as such, since it exhibits not only ovate, entire leaves, thus agreeing with Linnaeus's concept of the species, but the tri-lobed leaves of ungrazed plants: Crete, 'Acer creticum L.', Omalos, 10 June 1938, *Ogilvie-Grant* 25 (K) (Fig. 1).

The typification of *Acer orientale* still remains unresolved. Murray (1970a: 145, b: 36; 1977: 7; 1979: 27) accepts the name and designates an element in Herb. Tournefort (P) as the type, but fails to indicate which specimen he has in mind. Several sheets of *Acer* exist in that herbarium in addition to the single element which appears to agree with *A. sempervirens* as currently understood (sheet No. 6083, IDC microfiche!). If Murray had explicitly cited No. 6083, his statements could have been accepted as effective designation of a neotype (cf. Greuter et al., 1994: 11, Art. 9.8). (It could not be a lectotype since not only is there no reference to Tournefort in the protologue, but the specimens in Tournefort's herbarium are not known to have been studied by Linnaeus and are not, therefore, original elements for Linnaean names.) Nevertheless, the fact remains that there is insufficient evidence to allow a reasonably confident correlation between *A. orientale* and a currently recognized taxon, and the name should be considered a 'nomen ambiguum'. *A. orientale* could have been based on an example of *A. sempervirens* with pubescent twigs and petioles: indeed Linnaeus's (1763) inclusion of the Alpino element in the synonymy of the illegitimate *A. creticum* lends credence to this hypothesis. It is also possible, though unlikely, that the name was based on one of the eastern Mediterranean, pubescent-leaved subspecies of *A. monspessulanum*. If *A. orientale* were to be neotypified on a specimen belonging to *A. sempervirens*, then the former would be the correct name for the species and the nomenclatural stability of nearly thirty years would be disrupted. A neotype belonging to *A. monspessulanum* subsp. *assyriacum* (Pojark.) Rech. f. or subsp. *oksalianum* Yalt. could be chosen without causing any disruption, but there seems insufficient justification for considering either of these names to be taxonomically synonymous with *A. orientale*. It therefore seems that there exist sufficient grounds to propose that the names *A. orientale* and *A. creticum* be rejected. A formal proposal has been submitted to *Taxon*.

6. 'Acacia secunda', p. 11, fig. p. 10.

B. & S.: *Cytisus creticus* Boiss. & Heldr. (currently *Chamaecytisus creticus* (Boiss. & Heldr.) Rothm.)

Comments: The Alpino element appears not to be mentioned in any of Linnaeus's works. The plant depicted is a good likeness of *Calicotome villosa* (Poir.) Link, but alternatively could be *Chamaecytisus creticus* or one of the other spiny leguminous shrubs which occur in Crete.

7. 'Aspalathus secundus', p. 13, fig. p. 12.

B. & S.: *Calicotome villosa* (Poir.) Link

Comments: The Alpino element appears not to be mentioned in any of Linnaeus's works. The plant depicted is scarcely distinguishable from that on page 10 and likewise could be either *Calicotome* or one of the other spiny leguminous shrubs in Crete.

8. 'Echinopoda', p. 15, fig. p. 14.

L.: 'Genista Spartium Spinosum alterum aphyllon, tribus aculeis semper junctis, floribus luteis. C.B. 394 T.C. 44.'

S.: *Genista lusitanica* L., *nom. confus.* (currently *Stauracanthus genistoides* (Brot.) Samp.) or *Spartium horridum* Vahl (currently *Echinopodium horridum* (Vahl) Rothm.)

B. & S.: *Genista acanthoclada* DC.

Comments: Neither the Alpino element nor the Tournefort polynomial in Linnaeus's annotation appears to be mentioned in any of Linnaeus's works. The figure is greatly stylized, but seems to depict a spiny leguminous shrub, possibly *Genista acanthoclada*. Neither *Echinopodium horridum* nor *Stauracanthus genistoides* are known to occur in Crete.

9. 'Colutea Scorpioide odorata', p. 17, fig. p. 16.

S.: *Coronilla argentea* L. (currently *C. valentina* L.)

B. & S.: *Coronilla argentea* L.

4. CORONILLA fruticosa, foliolis undenis: extimo ma-argentea, jore.  
'Colutea scorpioides odorata. Alp. exot. 17.  
Habitat in Creta. †

Comments: Linnaeus includes the Alpino element in the protologue of *Coronilla argentea* in *Species plantarum* (1753: 743). The only extant original element for this name appears to be the Alpino figure which, although somewhat stylized, is a good likeness of *C. valentina*, in the synonymy of which *C. argentea* is currently included. The figure is, therefore, here designated as the lectotype of *C. argentea* (Fig. 2).

10. 'Linum Arboreum', p. 19, fig. p. 18.

S.: *Linum arboreum* L.

B. & S.: *Linum arboreum* L.

12. LINUM foliis cuneiformibus, caulibus arborescenti- arboreum.  
Linum arboreum. Alp. exot. 19. t. 13;  
Habitat in Creta. †

Comments: Linnaeus includes the Alpino element in the protologue of *Linum arboreum* in *Species plantarum* (1753: 279-280). The only extant original element for this name

16 PROSPERI ALPINI

*Colutca Scorpioide odorata.*



Pulcher

Fig. 2 The lectotype of *Coronilla argentea* L.: Alpino, Pl. exot.: 16 (1627).



Fig. 1 The neotype of *Acer sempervirens* L.: Ogilvie-Grant 25 (K).



appears to be the Alpino figure, which is stylized, but because of its Cretan provenance is unlikely to be a depiction of anything other than *L. arboreum*. Therefore, the figure is here designated as the lectotype (Fig. 3) and in view of its lack of useful diagnostic features, the following specimen as the epitype: Iter Aegaeum VI [Crete], *Linum arboreum* L., 22 April 1942, *Rechinger* 12202 (BM) (Fig. 4).

11. '**Lycium Creticum**', p. 21, fig. p. 20.

L.: 'Berberis cretica, buxi folio. Tournef. cor. 45.' [error for '42'] / 'Rhamnus creticus, buxi folio minori. T. cor. 41 ?' / 'Berberis alpina cretica. CB 454'.

B. & S.: *Berberis cretica* L.

2. BERBERIS pedunculis unifloris. } *cretica*  
*Berberis cretica*, buxi folio. *Tournef. cor. 42*,  
*Berberis alpina cretica. Bauh. pin. 454*.  
*Lycium creticum. Alp. exot. 21. t. 20*,  
*Lycium c Candia. Pon. ital. 137*.  
*Habitat in Creta.* ♂

Comments: Linnaeus includes the Alpino element in the protologue of *Berberis cretica* in *Species plantarum* (1753: 331), together with the first Tournefort and Bauhin polynomials in his annotation. The only extant original elements for *B. cretica* appear to be Alpino's plant and the figure captioned 'Licio I. di Candia ouero Berberi alpina del Belli' in Pona, *Monte Baldo descritto*: 137 (1617)! Both illustrations obviously depict a species of *Berberis* in fruit and, since the provenance is Crete, this must be *B. cretica*, which is the only species known to occur there. The Alpino figure, being the more detailed, is here designated as the lectotype (Fig. 5) and since there are insufficient diagnostic characters shown to distinguish it from other species of *Berberis*, the following specimen is designated as the epitype: Iter Aegaeum VI [Crete], *Berberis cretica* L., 7 July 1942, *Rechinger* 14293 (BM) (Fig. 6), isoepitype at K.

12. '**Spartium Creticum**', p. 24, fig. p. 23.

B. & S.: *Cytisus creticus* Boiss. & Heldr. (currently *Chamaecytisus creticus* (Boiss. & Heldr.) Rothm.

Comments: The Alpino element appears not to be mentioned in any of Linnaeus's works. Baldacci and Saccardo's determination may well be correct, but the plant depicted could be one of the other leguminous shrubs which occur in Crete.

13. '**Spartium Spinosum**', p. 27, fig. p. 26.

L.: 'Barba jovis cretica, linariae folio, fl. luteo parvo. T.C. 44.'

S.: *Anthyllis hermanniae* L.

B. & S.: *Anthyllis hermanniae* L.

Comments: The Alpino element and the Tournefort polynomial in Linnaeus's annotation are included in the synonymy of *Anthyllis hermanniae* in *Species plantarum* 2nd ed. (1763: 1014), but are absent from the protologue in the first edition (1753: 720). Linnaeus also includes the Tournefort name with some doubt, indicated by a question mark, in the protologue of *Cytisus graecus* L. (currently *Anthyllis hermanniae*) in *Species plantarum* (1753: 740), as well as in the second edition (1763: 1043). The plant depicted by Alpino is obviously *A. hermanniae*.

14. '**Spartium Spinosum alterum**', p. 29, fig. p. 28.

Comments: The Alpino element appears not to be mentioned in any of Linnaeus's works.

15. '**Cyanus Arborescens Longifolia**', p. 31, fig. p. 30.

L.: 'Jacea frutescens, plantaginis folio, fl. albo. T. cor. 32'.

B. & S.: *Staelhelina fruticosa* (L.) L.

Comments: The Alpino element appears not to be mentioned in any of Linnaeus's works. However, the Tournefort polynomial in Linnaeus's annotation is included in the synonymy of *Centaurea fruticosa* L. in *Species plantarum* 2nd ed. (1763: 1286), but not in the protologue of that name in *Systema naturae* 10th ed. (1759a: 1229). The species was transferred to the genus *Staelhelina* in *Systema naturae* 12th ed. (1767b: 538). The plant depicted by Alpino is a moderately good likeness of *S. fruticosa*, except that the leaves are too narrow.

16. '**Cyanus Arborescens altera, Styrcisfolio**', p. 33, fig. p. 32.

L.: 'Staelhelina'.

S.: *Staelhelina arborescens* L., *nom. illegit. superfl.* (currently *Staelhelina petiolata* (L.) Hilliard & Burtt).

B. & S.: *Staelhelina arborescens* L.

Comments: Linnaeus includes the Alpino element in the protologue of *Staelhelina arborescens* in *Mantissa plantarum* (1767a: 111). This is an illegitimate superfluous name because a Schreber element cited in the synonymy by Linnaeus is in fact an earlier, validly published binomial with priority over *S. arborescens* L., namely *Staelhelina arborea* Schreb., *Icones et descriptiones plantarum minus cognitarum*: 1 (1766). The basionym of the currently accepted name is *Gnaphalium petiolatum* L., first published by Linnaeus in *Species plantarum* (1753: 854). This was transferred to the genus *Staelhelina* by Hilliard & Burtt (1973: 384), as a taxonomic synonym of both *S. arborescens* and *S. arborea*, over which its epithet has priority at the rank of species. The lectotype of *G. petiolatum* is a specimen in Herb. Clifford: 402, *Gnaphalium* No. 16 (BM), designated as such by Hilliard & Burtt (loc. cit.). The plant depicted by Alpino is obviously *S. petiolata*.

17. '**Scabiosa arborea**', p. 35, fig. p. 34.

L.: 'Scabiosa cretica frutescens, auriculae ursi folio. T. cor. 34.'

S.: *Scabiosa limonifolia* Vahl (currently *Pseudoscabiosa limonifolia* (Vahl) Devesa).

B. & S.: *Scabiosa cretica* L. (currently *Lomelosia cretica* (L.) Greuter & Burdet).

Comments: Linnaeus includes the Alpino element in the synonymy of *Scabiosa corollulis quinquefidis, foliis lanceolatis fere integerrimis* in *Hortus cliffortianus* (1738: 31–32), but does not appear to cite it explicitly in any of his other works, although he includes the *Hortus cliffortianus* name in the protologue of *Scabiosa cretica* in *Species plantarum* (1753: 100). In the same protologue, the Tournefort polynomial in Linnaeus's annotation is included under the unnamed var.  $\beta$ . The plant depicted by Alpino is obviously *Lomelosia minoana* (P.H. Davis) Greuter & Burdet, endemic to Crete and a close relative of *L. cretica* which is, in the current strict sense, endemic to the western Mediterranean region. The oblanceolate-spathulate leaves rule out the only similar spe-

18 PROSPERI ALPINI

Linum Arborescens



Ramum

Fig. 3 The lectotype of *Linum arborescens* L.: Alpino, *Pl. exot.*: 18 (1627).

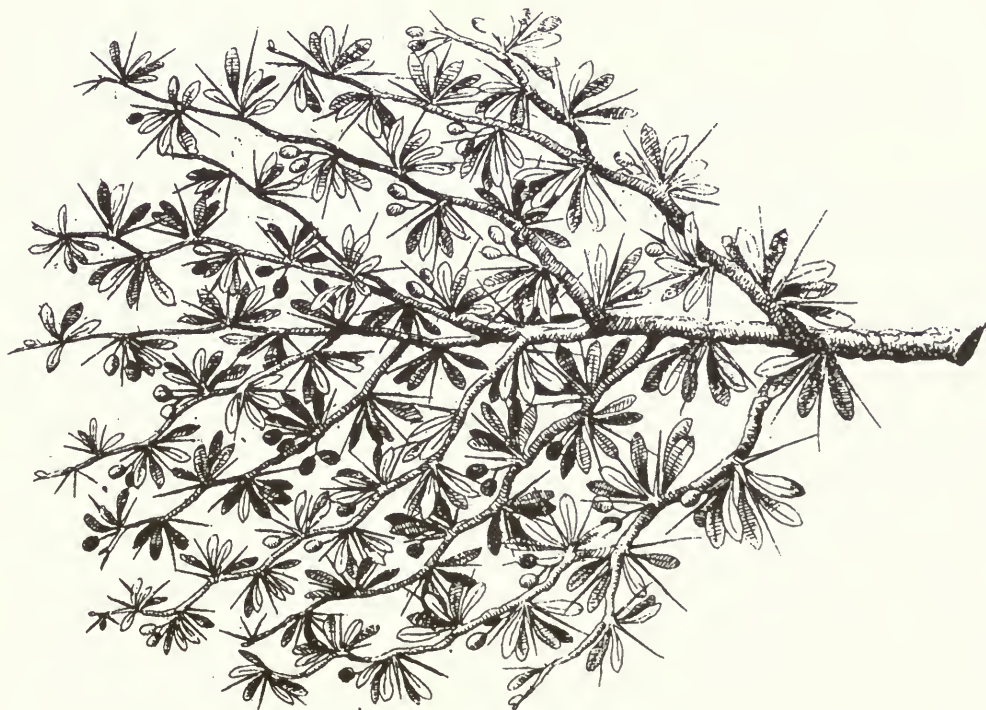


Fig. 4 The epitype of *Linum arborescens* L.: Rechinger 12202 (BM).



20 PROSPERI ALPINI

Lycium Creticum.



Tamethi

Fig. 5 The lectotype of *Berberis cretica* L.: Alpino, *Pl. exot.*: 20 (1627).



K. H. RECHINGER III: ITER AEGAEUM VI., 1942.  
 No. 14293.  
*Berberis cretica* L.  
 CRETA:  
 Distr. Myriopotasmos; Montes Falteriti (Ida),  
 ca. 1400 m. Distr. Myriopotasmos; Mts.  
 Falteriti; ca. 1400 - 1500 m.  
 7.VII.  
 6500.

Fig. 6 The epitype of *Berberis cretica* L.: Rechinger 14293 (BM).

cies in Crete, *L. albocincta* (Greuter) Greuter & Burdet, which has broader, much more rounded leaf-blades. *Pseudoscabiosa limonifolia* is endemic to Sicily.

18. 'Leucoium Spinosum', p. 37, fig. p. 36.

L.: 'Verbascum creticum spinosum frutescens. Tourn. cor. 8' / 'Leucojum cret. spinos. incan. luteum. C.B. 201.'

B. & S.: *Verbascum spinosum* L.

224. VERBASCUM (*spinosum*) caule fruticoso spinoso. *Verbasum creticum spinosum frutescens. Lob. illufl. 113. Leucojum creticum spinosum incanum luteum Baub. pin 201. Leucojum spinosum. Alp. exot. 36. Glastivida prima e candia. Pon. bald. 114. Habitat in Creta ♀.*

Comments: Linnaeus includes the Alpino element in the protologue of *Verbascum spinosum* in *Centuria II* (1756: 10), where the Bauhin and Tournefort polynomials in his annotation also appear, with the latter incorrectly ascribed to L'Obel. In *Species plantarum* 2nd ed. (1762: 254), the Tournefort name is correctly ascribed, and L'Obel's name, *Verbascum spinosum creticum*, is cited separately. The only extant original elements for *V. spinosum* appear to be Alpino's plant and the figure captioned 'Glastivida prima di Candia' in Pona, *Monte Baldo descritto*: 114 (1617)! Both figures obviously depict *V. spinosum*. Alpino's plant is here designated as the lectotype (Fig. 7) because it is more detailed and less stylized. In spite of this, it is not an accurate representation of the species and it seems appropriate to designate the following specimen as the epitype: Iter Creticum Alterum, *Verbascum spinosum* L., 11 July 1899, *Baldacci* 241 (BM) (Fig. 8).

19. 'Caryophylus Sylvestris arboreus', p. 39, fig. p. 38.

S.: *Dianthus juniperinus* Sm.

B. & S.: *Dianthus arboreus* L. (currently *D. juniperinus* subsp. *bauhinorum* (Greuter) Turland).

213. DIANTHUS caule fruticoso, foliis subulatis. *arboreus*] *Caryophyllus creticus arboreus, juniperi folio. Tournesf. cor. 23. Caryophyllus arborefcens creticus. Baub. pin. 208. prodr. 104. Beronica coronaria arborea cretica. Baub. bist. 3. p. 328. Habitat in Creta. ♀*

Comments: Linnaeus adds the Alpino element to the synonymy of *Dianthus arboreus* in *Mantissa plantarum altera* (1771: 385), not having mentioned it in the protologue of that name in *Species plantarum* (1753: 413). Greuter (1965: 192) referred the Alpino element to his *D. aciphyllus* var. *bauhinorum* Greuter. The figure obviously depicts one of the two shrubby *Dianthus* species which occur in Crete (*D. fruticosus* L. and *D. juniperinus*), and is indeed a good likeness of *D. juniperinus* subsp. *bauhinorum*. The name *D. arboreus* has been misapplied to both *D. fruticosus* and *D. juniperinus*, and its typification here seems worthwhile, in order to prevent any further misunderstanding. Greuter (op. cit.) treated it as a 'nomen ambiguum' and included it in the synonymy of his *D. aciphyllus* var. *bauhinorum*, but only in the greater part, since the polynomial *Caryophyllus creticus arboreus, juniperi folio* (Tournefort, 1703: 23), included in the protologue, in

fact belongs to *D. juniperinus*. Indeed, Linnaeus actually excluded this synonym from *D. arboreus* in *Mantissa plantarum altera* (1771: 385). The only extant original elements for *D. arboreus* appear to be a specimen in Herb. Burser XI: post 83, b (UPS-microfiche!) and the figure illustrating *Beronica coronaria arborea cretica* in Bauhin, Cherler & Chabrey, *Historia plantarum universalis* 3: 328 (1651)!, of which the following specimen is apparently a typotype (cf. Greuter, op. cit.: 192): *Benincasa* s.n., cultivated at Montbéliard by J. Bauhin (BAS). The specimen in the Burser Herbarium is sterile and of poor quality, and cannot be identified with any certainty, or be said to agree with the current usage of *D. arboreus*. Therefore, the Bauhin figure, which is a good likeness of *D. juniperinus* subsp. *bauhinorum*, is here designated as the lectotype of *D. arboreus* (Fig. 9).

20. 'Casia Latinorum', p. 41, fig. p. 40.

Comments: Linnaeus includes the Alpino element in the protologue of *Osyris alba* L. in *Species plantarum* (1753: 1022). The lectotype is a specimen in Herb. Linn. No. 1116.1 (LINN), designated as such by A.G. Miller (1993). The plant depicted by Alpino is greatly stylized and quite unrecognizable as *O. alba*.

21. 'Chamedaphnoides Cretica, idest Laureola Cretica humilis', p. 44, fig. p. 43.

L.: 'Thymelaea cretica, oleae folio utrinque glabro. T. cor. 41.'

S.: *Daphne oleoides* Schreb.

B. & S.: *Daphne oleoides* Schreb.

Comments: Neither the Alpino element nor the Tournefort polynomial in Linnaeus's annotation appears to be mentioned in any of Linnaeus's works. The figure appears to depict a *Daphne* species, but it is impossible to be sure whether it is intended to represent *D. oleoides* or another Cretan species, for example *D. gnidioides* Jaub. & Spach.

22. 'Poterium', p. 47, fig. p. 46.

B. & S.: *Astragalus creticus* Lam. (currently *Astracantha cretica* (Lam.) Podlech).

Comments: The Alpino element appears not to be mentioned in any of Linnaeus's works. The figure is somewhat stylized – particularly the two small flowers, which suggest Caryophyllaceae – but obviously depicts *Astracantha cretica*.

23. 'Poterium alterum densius ramificatum', p. 51, fig. p. 50.

L.: 'Tragacantha cretica incana, flore parvo lineis purpureis striato. T.C. 29.'

B. & S.: *Astragalus creticus* Lam. (currently *Astracantha cretica* (Lam.) Podlech).

Comments: Neither the Alpino element nor the Tournefort polynomial in Linnaeus's annotation appears to be mentioned in any of Linnaeus's works. Again, the figure obviously depicts *Astracantha cretica*, and is a better likeness than that on page 46.

24. 'Tragacantha', p. 53, fig. p. 52.



36 PROSPERI ALPINI

*Leucojum Spinosum*.



Pulcher.

Fig. 7 The lectotype of *Verbascum spinosum* L.: Alpino, *Pl. exot.*: 36 (1627).

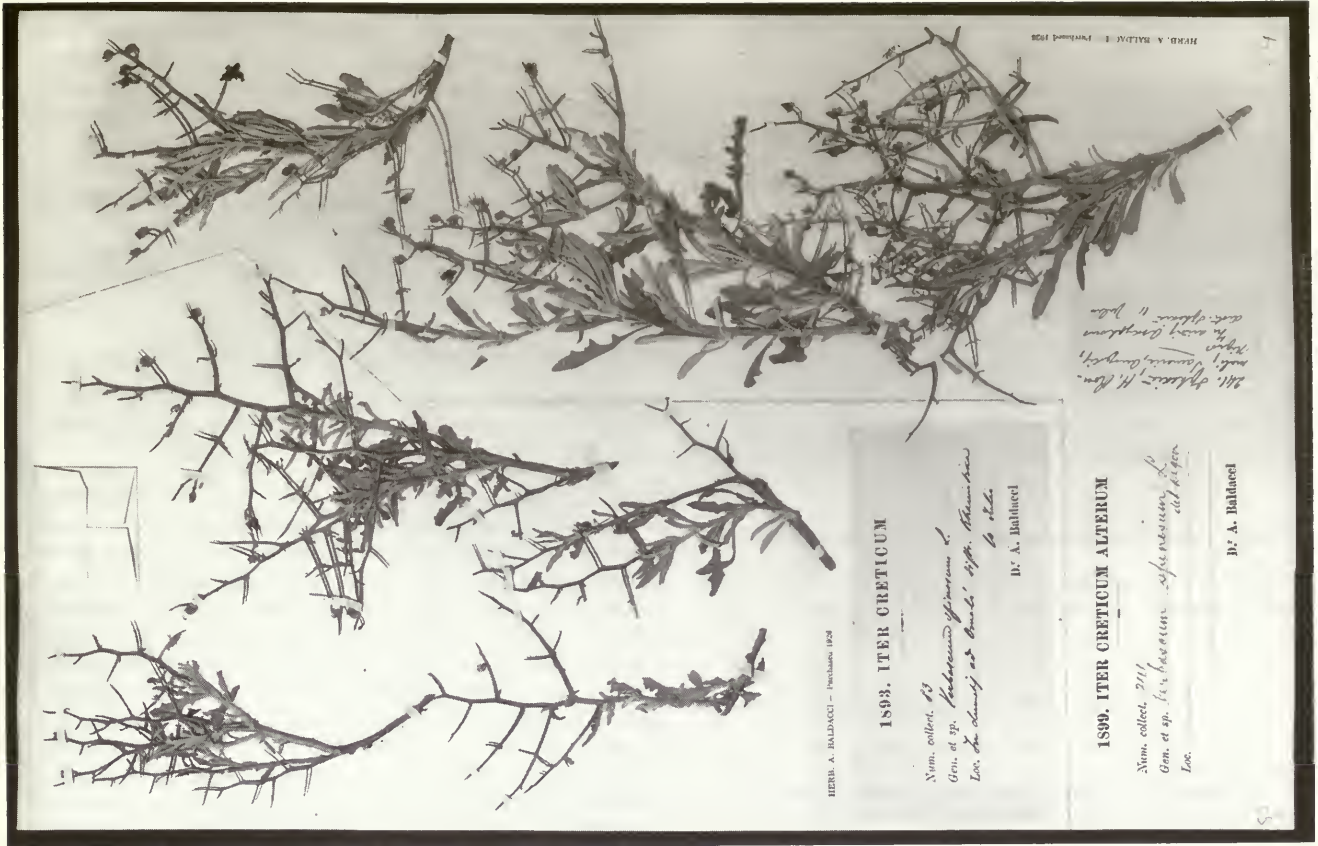


Fig. 8 The epitype of *Verbascum spinosum* L.: Baldacci 241 (BM), i.e. the material to the right of the pencil line.

Comments: The Alpino element appears not to be mentioned in any of Linnaeus's works.

25. '**Tragacantha altera**', p. 55, fig. p. 54.

L.: 'Tragacantha cretica, foliis minimis incanis, fl. majore albo. T. cor. 29.'

S.: *Astragalus echinoides* Willd. (currently *A. angustifolius* Lam.)

B. & S.: *Astragalus angustifolius* Lam.

Comments: Neither the Alpino element nor the Tournefort polynomial in Linnaeus's annotation appears to be mentioned in any of Linnaeus's works. The plant depicted is *Astragalus angustifolius*, rather than the only other spiny, pinnate-leaved leguminous dwarf shrub in Crete, *Astracantha cretica* (Lam.) Podlech, on account of its stems lacking a thick layer of wool. This wool is clearly visible in the two preceding figures.

26. '**Echinus, idest Tragacantha altera**', p. 57, fig. p. 56.

L.: 'Limonium creticum juniperi folio. T. cor. 25'

S.: *Statice echinus* L. (see below).

B. & S.: indet.

- Echinus.* 8. STATICE caule nudo paniculato, foliis subulatis mucronatis.  
Limonium foliis caulinis subulatis pungentibus. *Roy. Lugdb.* 192.  
Limonium orientale frutescens, caryophylli folio in aculeum rigidissimum abeunte. *Tournef. cor.* 25.  
Limonium cespitosum, foliis aculeatis. *Buxb. cens.* 2. p. 18. t. 10.  
β. Limonium graecum, juniperi folio. *Tournef. cor.* 25.  
Echinus f. *Tragacantha altera.* *Alp. exos.* 57. t. 56.  
*Habitat in Graecia & Mediae desertis.*

Comments: The Alpino element and the Tournefort polynomial in Linnaeus's annotation are included in the protologue of *Statice echinus* in *Species plantarum* (1753: 276), under the unnamed var. β (with Tournefort's name incorrectly cited as 'Limonium graecum ...'). The only extant original elements for *S. echinus* appear to be Alpino's plant and the figure illustrating *Limonium cespitosum, foliis aculeatis* in Buxbaum, *Plantarum minus cognitarum centuria II*: 18, t. 10 (1728)! There is no specimen in the van Royen Herbarium, Leiden (L), and a specimen in Herb. Linn. No. 395.13 (LINN), which bears the annotation 'Statice Echinus' in Linnaeus's hand, lacks a species number from *Species plantarum*, which almost certainly means that it was not received by Linnaeus until after 1753 and is not, therefore, relevant original material for *S. echinus*.

The plant depicted by Alpino is somewhat stylized but cannot be interpreted as representing any species in Crete other than *Acantholimon ulicinum* (Willd. ex Schult.) Boiss. Linchevskii (1967: 253) includes the name *Statice echinus* in the synonymy of the eastern Transcaucasian *Acantholimon tenuiflorum* Boiss., but only in the part consisting of the Buxbaum element. Buxbaum gives the provenance of his plant as 'desertis Mediae intra Hansem & Schamachiam', i.e. between Kirovabad and Shemakha in present-day Azerbaijan in eastern Transcaucasia. If Buxbaum's figure were designated as the lectotype of *S. echinus*, on the basis of Linchevskii's taxonomic opinion, the correct name for *A. tenuiflorum* would become *A. echinus* (L.) Boiss., since Linnaeus's specific epithet predates *tenuiflorum* (1846). More

serious nomenclatural disruption would result if the Alpino figure were designated as the lectotype, since the epithet of the more widespread species *A. ulicinum* (based on *Statice ulicina* Willd. ex Schult. (1820)) would instead be displaced. Therefore, *S. echinus* is not typified here and the option of proposing the name for rejection will be considered.

27. '**Tragacantha quarta, vel Spartium Spinosum alterum**', p. 59 ['56'], fig. p. 58 ['20'].

Comments: The Alpino element appears not to be mentioned in any of Linnaeus's works.

28. '**Scamonea Macroriza**', p. 61, fig. p. 60.

B. & S.: indet.

L.: 'Periploca orientalis, foliis longioribus et acutioribus. Tournef. cor. 2'.

Comments: Neither the Alpino element nor the Tournefort polynomial in Linnaeus's annotation appears to be mentioned in any of Linnaeus's works. The stylized nature of the figure renders accurate identification impossible, although the rootstock, leaf-shape and flower suggest *Calystegia sepium* (L.) R. Br. However, the Convolvulaceae have leaves arranged alternately, whereas in Alpino's figure they are in opposite pairs. The figure may instead depict the opposite-leaved, *Calystegia*-like *Cynanchum acutum* L. (Asclepiadaceae), although the flower is completely wrong and the stems are too short and are not shown to twine. In Linnaeus's own copy of Alpino's book (the 1656 reprint), the figures on pages 60 and 62 are transposed, so the present figure appears on page 62 under the caption 'Tythymalus Arboreus', together with Linnaeus's annotation.

29. '**Tythymalus Arboreus**', p. 63, fig. p. 62 ['46'].

B. & S.: *Euphorbia dendroides* L.

Comments: The Alpino element appears not to be mentioned in any of Linnaeus's works. The figure obviously depicts a species of *Euphorbia*, but if it is intended to be *E. dendroides* it is greatly stylized.

30. '**Tythymalus Cyparissius**', p. 65, fig. p. 64.

L.: 'Euphorbia aleppica.'

S.: *Euphorbia aleppica* L.

- aleppica.* 38. EUPHORBIA umbella quinquefida: dichotoma, involucrellis ovato-lanceolatis mucronatis, foliis inferioribus setaceis. *Diff. euph.* 37.  
Tythymalus foliis inferioribus capillaceis; superioribus myrto similibus. *Morif. hist.* 3. p. 338.  
Tythymalus cyparissius. *Alp. exos.* 65. t. 64.  
*Habitat in Creta, Aleppo. &*

Comments: Linnaeus includes the Alpino element in the protologue of *Euphorbia aleppica* in *Species plantarum* (1753: 458). The only extant original elements for *E. aleppica* appear to be the Alpino figure, which is a good likeness of the species, and a specimen in Herb. Linn. No. 630.46 (LINN!), which also clearly agrees with the current usage of the name. The specimen exhibits more of the diagnostic characters and is, therefore, here designated as the lectotype (Fig. 10).

31. '**Phyllitis ramosa**', p. 67, fig. p. 66.





Fig. 10 The lectotype of *Euphorbia aleppica* L.: Herb. Linn. No. 630.46 (LINN).

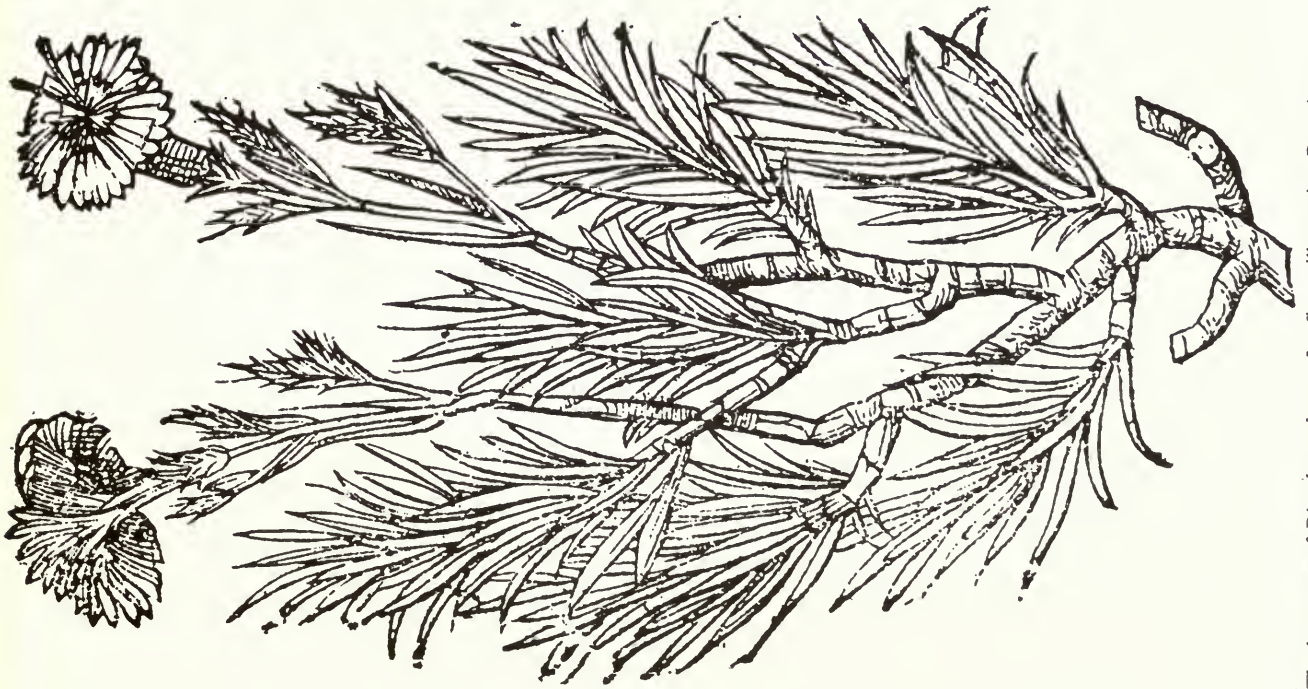


Fig. 9 The lectotype of *Dianthus arboreus* L.: figure illustrating *Betonica coronaria arborea cretica* in Bauhin, Chérel & Chabrey, *Hist. pl.* 3: 328 (1651).

S.: *Pteris longifolia* L. (currently *P. vittata* L.)

B. & S.: *Pteris longifolia* L.

Comments: Linnaeus includes the Alpino element in the protologue of *Pteris cretica* L. in *Mantissa plantarum* (1767a: 130). However, this species has never been recorded with certainty from Crete and the illustration almost certainly depicts *P. vittata*, of which it is a good likeness, this being the only *Pteris* known to occur on the island. The lectotype of *P. cretica* is *Arduino* s.n., a specimen in Herb. Linn. No. 1246.7 (LINN), designated as such by Tryon (1964: 192).

32. 'Anchusa Arborea', p. 69, fig. p. 68.

L.: 'Buglossum samium frutescens, foliis rosmarini obscure virentibus lividis et hirsutis. Tournef. cor. 6.'

S.: *Lithospermum fruticosum* L. (currently *Lithodora fruticosa* (L.) Griseb.)

B. & S.: *Lithospermum hispidulum* Sm. (currently *Lithodora hispidula* (Sm.) Griseb.)

6. LITHOSPERMUM fruticosum, staminibus corollae fruticiflorum lam. æquantibus.

Lithospermum fruticosum, corollis calyce majoribus, foliis linearibus hispidis. *Sauv. monsp.* 50. 63.

Anchusa angustifolia. *Baub. pin.* 255.

β. Anchusa arborea. *Alp. exot.* 67. t. 68.

Buglossum samium frutescens, foliis rosmarini obscure virentibus lucidis & hirsutis. *Tournef. cor.* 6.

Habitat in Gallia, Samo & Europa australi. β

Comments: Linnaeus includes the Alpino element in the protologue of *Lithospermum fruticosum* in *Species plantarum* (1753: 133), under the unnamed var. β, together with the Tournefort polynomial in his annotation. The Alpino figure is stylized, but cannot be interpreted as depicting any species in Crete other than *Lithodora hispidula*. In choosing a lectotype for *Lithospermum fruticosum*, the Alpino figure should be avoided, since it clearly disagrees with the current usage of the name (*Lithodora fruticosa* is endemic to the western Mediterranean region and is not known to occur in Crete). The other three extant original elements appear to be specimens in Herb. Linn. No. 181.9 (LINN!), Herb. Linn. No. 68.1 (S-photocopy!) and Herb. Burser XIV(2): 17 (UPS-microfiche!), all of which clearly agree with *L. fruticosa* as currently understood. The most complete specimen is that at LINN, and it is here designated as the lectotype of *Lithospermum fruticosum* (Fig. 11).

33. 'Solanum somniferum Antiquorum', p. 71, fig. p. 70.

B. & S.: *Physalis somnifera* L. (currently *Withania somnifera* (L.) Dunal).

Comments: Linnaeus includes the Alpino element in the synonymy of *Physalis caule fruticoso tereti, foliis ovatis integerrimis, floribus confertis* in *Hortus cliffortianus* (1738: 62), but does not appear to cite it explicitly in any of his other works, although he includes the *Hortus cliffortianus* name in the protologue of *Physalis somnifera* in *Species plantarum* (1753: 182). The plant depicted by Alpino is obviously *Withania somnifera*.

34. 'Dorycnium', p. 74, fig. p. 73.

L.: 'Convolvulus arg. angustif. umbellatus. T. coroll. 1.'

B. & S.: *Convolvulus oleifolius* Desr.

Comments: Linnaeus includes the Alpino element in the protologue of *Convolvulus cneorum* L. in *Species plantarum* (1753: 157–158), under the unnamed var. γ, although the Tournefort polynomial in his annotation appears not to be mentioned in any of his works. The plant depicted is almost certainly *Convolvulus oleifolius* Desr. (*C. cneorum* is a central Mediterranean species not known to occur in Crete). The lectotype of *C. cneorum* is the figure captioned 'Convolvulus Creticus rectus s. Dorycnium quorundam, Ponae' in Morison, *Plantarum historiae universalis oxoniensis* 2: s. 1, t. 3, f. 1 (1680), designated as such by Sa'ad (1967: 126).

35. 'Chamaepeuce', p. 77, fig. p. 76.

L.: 'Jacea cretica frutescens, elichrysi folio, fl. magno purpurascente. T. cor. 32.'

B. & S.: *Chamaepeuce mutica* DC. (currently *Ptilostemon chamaepeuce* (L.) Less.)

Comments: Linnaeus includes the Alpino element in the protologue of *Serratula chamaepeuce* L. in *Species plantarum* (1753: 819). The Tournefort polynomial in Linnaeus's annotation is included in the synonymy of *Centaurea calycibus inermibus: squamis lanceolatis, foliis linearibus confertis integerrimis* in *Hortus cliffortianus* (1738: 420–421), but does not appear to be cited explicitly in any of Linnaeus's other works, although the *Hortus cliffortianus* name is included in the protologue of *Serratula chamaepeuce*. Linnaeus transferred the species to the genus *Stachelina* in *Systema naturae* 12th ed. (1767b: 538). The Alpino figure is a good likeness of *Ptilostemon chamaepeuce* and was designated as the lectotype by Greuter (1975: 417).

36. 'Tragoriganum', p. 79, fig. p. 78.

B. & S.: *Satureja thymbra* L.

Comments: Linnaeus includes the Alpino element in the synonymy of *Thymus tragoriganum* Turra (currently *Satureja thymbra*) in *Mantissa plantarum* (1767a: 84). Various authors have wrongly attributed this binomial to Linnaeus. Its first valid publication is by Turra in *Farsetia plantae genus*: 11 (1765), and not Linnaeus in *Mantissa plantarum*, where explicit reference to Turra is given.

2. Thymus ( *Tragoriganum* ) caule suffruticosa erecto, floribus verticillatis, foliis hispidis acuminatis.

Tragoriganum creticum. *Baub. pin.* 223. *Raj. hist.* 1. p. 523. \*

Tragoriganum magnum. *Alp. exot.* 79. t. 78. \*

Tragoriganum II. altera species. *Clus. hist.* 1. p. 355.

Habitat in Creta. †

Planta suaveolens. Caules pedales, ramosi, hirsuti. Folia opposita petiolata, utrinque acuminata, hispida, rigidiuscula. Flores verticillati caeruleo-scentes.

Ufus *Thymi vulgaris* Lin.

There appear to be two extant original elements for *Thymus tragoriganum*: the Alpino figure and the figure captioned 'Tragoriganum II. altera species' in Clusius, *Rariorum plantarum historiae* 1: 355 (1601)! Both figures are moderately good likenesses of *Satureja thymbra*, albeit somewhat stylized. Alpino's figure, being the less stylized of the two, is here designated as the lectotype of *T. tragoriganum* (Fig. 12).

37. 'Thymbra', p. 81, fig. p. 80.



78 PROSPERI ALPINI  
Tragoriganum.



Tragori-

Fig. 12 The lectotype of *Thymus tragoriganum* Turra: Alpino, *Pl. exot.*: 78 (1627).



Fig. 11 The lectotype of *Lithospermum fruticosum* L.: Herb. Linn. No. 181.9 (LINN).

Comments: The Alpino element appears not to be mentioned in any of Linnaeus's works.

38. '**Stratiotes millefolia Cretica**', p. 84, fig. p. 83.

S.: *Achillea cretica* L.

B. & S.: *Achillea cretica* L.

Comments: The Alpino element appears not to be mentioned in any of Linnaeus's works. The figure is greatly stylized, but most probably does indeed depict *Achillea cretica*.

39. '**Gaidaro thymum**', p. 87, fig. p. 86.

L.: 'Stachys spinosa cretica. C.B. 236. T. cor. 11.'

B. & S.: *Stachys spinosa* L.

Comments: The Alpino element does not appear to be mentioned in any of Linnaeus's works, although the Bauhin polynomial in Linnaeus's annotation is included in the protologue of *Stachys spinosa* in *Species plantarum* (1753: 581–582). Both the Bauhin and Tournefort polynomials in Linnaeus's annotation are included in the synonymy of *Stachys ramulis spina terminatis* in *Hortus cliffortianus* (1738: 310), but do not appear to be cited explicitly in any of Linnaeus's other works, although the *Hortus cliffortianus* name is included in the protologue of *Stachys spinosa*. The figure is slightly stylized but obviously depicts *S. spinosa*.

40. '**Ladanum Creticum**', p. 89, fig. p. 88.

L.: 'Cistus ladanifera cretica, flore purpureo. T. cor. 19'.

S.: *Cistus creticus* L.

B. & S.: *Cistus creticus* L.

Comments: Linnaeus includes the Alpino element in the synonymy of *Cistus ladanifera cretica, flore purpureo*, which is ascribed to Tournefort, in *Materia medica* (1749: 92). He also cites it in the synonymy of *Cistus creticus* in *Species plantarum* 2nd ed. (1762: 738), together with the Tournefort polynomial from his annotation, but neither name is included in the protologue of that species in *Systema naturae* 10th ed. (1759a: 1077). The figure almost certainly depicts one of the Cretan species of *Cistus*, but it is impossible to be certain which one.

41. '**Chamecistus**', p. 93, fig. p. 92.

B. & S.: *Cistus parviflorus* Lam.

Comments: The Alpino element appears not to be mentioned in any of Linnaeus's works. Baldacci and Saccardo may indeed be correct in their determination, but it is not possible to be certain whether the figure depicts a species of *Cistus*, *Fumana* or *Helianthemum*.

42. '**Pseudo cistus ledum**', p. 95, fig. p. 94.

Comments: The Alpino element appears not to be mentioned in any of Linnaeus's works.

43. '**Pseudo cistus ledum alter**', p. 97, fig. p. 96.

B. & S.: indet.

Comments: The Alpino element appears not to be mentioned in any of Linnaeus's works. The figure does not seem to depict any known Cretan plant.

44. '**Hyosciamus Aureus**', p. 99, fig. p. 98.

L.: 'Hyoscyamus creticus luteus major. C.B. 169. prod. 92. Tournef. cor. 5.'

B. & S.: *Hyoscyamus aureus* L.

- aureus*. 3. HYOSCYAMUS foliis petiolatis, floribus pedunculatis. *Hort. cliff. 56. Roy. Lugdb. 422.*  
*Hyoscyamus creticus luteus major. Bâub. pin. 169. prodr. 92.*  
 β. *Hyoscyamus creticus luteus minor. Bâub. pin. 169.*  
*Hyoscyamus aureus. Alp. exot. 99. t. 98.*  
*Habitat in Crcta. ©*

Comments: Both the Alpino element and the Bauhin polynomial in Linnaeus's annotation are included in the protologue of *Hyoscyamus aureus* in *Species plantarum* (1753: 180), the former under the unnamed variety β. In choosing a lectotype for *H. aureus*, Alpino's figure should be avoided since it is a stylized and inaccurate depiction of the species. The other five extant original elements for the name appear to be specimens in Herb. Linn. No. 244.4 (LINN!), Herb. Clifford: 56, *Hyoscyamus* No. 3 (2 sheets: fol. A and fol. B) and No. 3β (BM!), and the figure captioned 'Hyoscyamus Creticus luteus maior' in Bauhin, *Prodromus theatri botanici*: 92 (1620)! The Bauhin figure does not accurately depict the inflorescence of *H. aureus*, while the specimen in the Linnaean Herbarium and No. 3β in the Clifford Herbarium both belong to *H. albus* L. Of the remaining two specimens in the Clifford Herbarium, one (No. 3, fol. B) is sterile and cannot be identified with absolute confidence, whereas the other (No. 3, fol. A) is fertile, clearly belongs to *H. aureus* as currently understood, and is here designated as the lectotype (Fig. 13). Schönbeck-Temesy (1972: 70) designated a specimen in Herb. Linn. No. 244.3 (LINN) which indeed represents *H. aureus*. However, Linnaeus's annotation of this specimen does not include a species number from *Species plantarum*, which almost certainly means that it was not received by Linnaeus until after 1753 and is not, therefore, relevant original material for *H. aureus*. For this reason, Schönbeck-Temesy's typification is ineffective.

45. '**Rosmarinum stecadis facie**', p. 103, fig. p. 102.

L.: 'Teucrium frutescens, stoechadis arabicae folio & facie. T. cor. 14.'

S.: *Teucrium creticum* L.

B. & S.: indet.

Comments: Linnaeus includes the Alpino element in the protologue of *Teucrium creticum* in *Species plantarum* (1753: 563). The Tournefort polynomial in Linnaeus's annotation is included in the synonymy of *Teucrium foliis lanceolatis linearibus integerrimis sessilibus, floribus solitariis pedunculatis* in *Hortus cliffortianus* (1738: 302), but does not appear to be cited explicitly in any of Linnaeus's other works, although the *Hortus cliffortianus* name is included in the protologue of *Teucrium creticum*. The plant depicted by Alpino is somewhat stylized, but is obviously a species of *Teucrium*, although almost certainly not *T. creticum*, since that species has never reliably been recorded from Crete. Instead, it may be the eastern Mediterranean *T. brevifolium* Schreb. The lectotype of *T. creticum* is a specimen in Herb. Linn. No. 722.11 (LINN), designated as such by Ekim (1982: 56).

46. '**Arundo Graminea aculeata**', p. 105, fig. p. 104.



L.: 'Cenchrus'.

S.: *Cenchrus frutescens* L. (see below).

B. & S.: indet.

*fruticosa*. 5. CENCHRUS capitulis lateralibus sessilibus, foliis mucronatis, caule fruticoso.  
Arundo graminea aculeata. *Alp. exot.* 105. t. 104.  
Gramen orientale spicatum fruticosum spinosum, spicis echinatis in capitulum congestis. *Tournef. cor.* 39.  
*Habitat in America.* 5

Comments: Linnaeus includes the Alpino element in the protologue of *Cenchrus frutescens* in *Species plantarum* (1753: 1050). The only extant original element appears to be the Alpino figure, and the only other synonym given by Linnaeus is the unillustrated *Gramen orientale spicatum fruticosum spinosum, spicis echinatis in capitulum congestis* (Tournefort, 1703: 39). Linnaeus's habitat statement 'America' seems to be at odds with both the Cretan provenance of Alpino's plant and the 'orientale' in Tournefort's name. This is altered to 'Armenia' in *Species plantarum* 2nd ed. (1763: 1489).

The name *Cenchrus frutescens* is no longer in use, and its taxonomic application is unclear. Sibthorp & Smith (1806–1809: 76) consider it a very obscure species, but nevertheless give it from coastal sands in Crete, as well as southern Greece and the Greek islands. Raulin (1869: 572) also considers it a very doubtful species, gives it from maritime sands in Crete, and cites a note by Sieber (1822) claiming its identity with *Arundo donax* L. Rechinger (1943: 771) includes the name, with some doubt, in the synonymy of *Arundo plinii* Turra.

Neither *Arundo donax* nor *A. plinii* is recognizable in Alpino's plate. Instead, the plant depicted strongly resembles a growth form of *Phragmites australis* (Cav.) Trin. ex Steud. that occurs in Crete in places which are only seasonally wet, including maritime sands adjoining streams and marshes. Such plants have sprawling, branching stems, short internodes and leaves, sharply pointed leaf-apices, and appear never to flower. *Cenchrus frutescens* could be considered a taxonomic synonym of *P. australis*, if the Alpino plate were designated as the lectotype and a suitable Cretan specimen exhibiting the sterile growth form were designated as the epitype. However, under these circumstances, a change of name would be necessary for *P. australis*, which is based on *Arundo australis* Cav. in *Anales de historia natural, Madrid* 1: 100 (1799), since the earliest available epithet at the rank of species would be *frutescens* (1753). (*Arundo phragmites* L., *Sp. pl.* 1: 81 (1753) is also a taxonomic synonym of *P. australis*, but its epithet cannot, of course, be used within the genus *Phragmites* without forming a tautonym.) In order not to destabilize the nomenclature of *P. australis*, which is a widespread and well known species, the rejection of the name *C. frutescens* seems appropriate. A formal proposal has been submitted to *Taxon*.

47. 'Thlaspi clipeatum arborescens creticum', p. 107, fig. p. 106.

B. & S.: *Iberis sempervirens* L.

Comments: The Alpino element appears not to be mentioned in any of Linnaeus's works. The figure seems to depict a plant belonging to the Brassicaceae, but is so stylized that it is not possible to identify it even to the rank of genus.

48. 'Verbasculum saluifolium', p. 109, fig. p. 108.

L.: 'Phlomis cretica fruticosa, folio subrotundo, flore luteo. T.C. 10.'

B. & S.: *Phlomis lanata* Willd.

Comments: The Alpino element appears not to be mentioned in any of Linnaeus's works, although the Tournefort polynomial in Linnaeus's annotation is included in the protologue of *Phlomis fruticosa* L. in *Species plantarum* (1753: 584–585), under the unnamed var.  $\beta$ . The figure is a good likeness of *P. lanata*.

49. 'Rubea arborescens', p. 111, fig. p. 110.

L.: 'Rubia cretica frutescens tenuifolia. Tournef. cor. 4.'

B. & S.: *Crucianella maritima* L.

Comments: Neither the Alpino element nor the Tournefort polynomial in Linnaeus's annotation appears to be mentioned in any of Linnaeus's works. The figure exhibits the whorled leaves and spike-like, terminal inflorescences found in *Crucianella*, but is not an accurate depiction of *C. maritima* because it has leaves in whorls of five, not four, and lacks the imbricate, ovate bracts characteristic of that species. *C. maritima* is a western Mediterranean species and is not known to occur in Crete.

50. 'Horminum Creticum', p. 113, fig. p. 112.

B. & S.: *Salvia horminum* L. (currently *S. viridis* L.)

Comments: The Alpino element appears not to be mentioned in any of Linnaeus's works. The plant depicted by Alpino is somewhat stylized, but is obviously *Salvia viridis*.

51. 'Leontopodium', p. 115 ['113'], fig. p. 114 ['?106'].

L.: 'Plantago cretica minima tomentosa, caule adunco. Tournef. cor. 5.' / 'Holosteum s. Leontopodium creticum. C.B. 190'.

B. & S.: indet.

Comments: Linnaeus includes the Alpino element in the synonymy of *Plantago foliis linearibus, scapo brevissimo, spica subrotunda nutante*, in *Hortus cliffortianus* (1738: 36–37), but does not appear to cite it explicitly in any of his other works, although he includes the *Hortus cliffortianus* name in the protologue of *Plantago cretica* L. in *Species plantarum* (1753: 114). The Bauhin polynomial in Linnaeus's annotation is included in the same protologue, but not that of Tournefort, which is included in the synonymy of the aforementioned *Hortus cliffortianus* name as well as under *Plantago cretica* in *Species plantarum* 2nd ed. (1762: 165). The plant depicted by Alpino is stylized, but could be interpreted as being *P. cretica*.

52. 'Argentea', p. 117, fig. p. 116.

L.: 'Jacea cretica laciniata argentea, fl. parvo flavescente. T.C. 32'.

B. & S.: *Centaurea argentea* L.

Comments: The Alpino element appears not to be mentioned in any of Linnaeus's works, although the Tournefort polynomial in Linnaeus's annotation is included in the protologue of *Centaurea argentea* in *Species plantarum* (1753: 912–913). The

plant depicted by Alpino is somewhat stylized, but it seems likely that it is indeed *C. argentea*.

53. '*Leucoium luteum vtriculato semine*', p. 119 ['117'], fig. p. 118 ['110'].

L.: 'Alyssoides fruticosum creticum, leucoji folio incano. T.C. 15.'

S.: *Alyssum creticum* L. (currently *Lutzia cretica* (L.) Greuter & Burdet).

B. & S.: *Alyssum creticum* L.

9. ALYSSUM caule herbaceo erecto, foliis incanis lanceolatis integerrimis, filiculis inflatis. *erpticum*.

Alyssoides fruticosum creticum, leucoji folio incano.

Tournef. cor. 15.

Leucojum luteum, utriculato semine. *Alp. exot.* 117. z. 118.

Habitat in Creta.

Comments: Linnaeus includes the Alpino element in the protologue of *Alyssum creticum* in *Species plantarum* (1753: 651), together with the Tournefort polynomial in his annotation. There appear to be only one or two extant original elements for *A. creticum*: the Alpino figure and Loefling 476a, a specimen in Herb. Linn. No. 828.20 (LINN!). The specimen was probably sent to Linnaeus in October 1753 (López González, pers. comm., 1994) and cannot, with certainty, be considered relevant material for a name published in *Species plantarum* (1 May 1753). Moreover, Linnaeus has annotated the sheet with '9 creticum', but the material was collected in the Madrid region of Spain and clearly belongs to *Aurinia sinuata* (L.) Griseb., based on *Alyssum sinuatum* L., also first published in *Species plantarum* (loc. cit.). The Loefling specimen would make an unfortunate choice of lectotype for *Alyssum creticum* (if it were accepted as an original element), since this would disrupt the current usage of both this name and *A. sinuatum*. Therefore, Alpino's figure is here designated as the lectotype of *A. creticum* (Fig. 14), with the following specimen as the epitype, since the plant depicted is stylized and an inaccurate representation of *Lutzia cretica*, in that the flowers can clearly be seen to have five petals instead of four: Iter Aegaeum VI [Crete], *Alyssum creticum* L., 2 March 1944, Bickerich sub Rechinger 15302 (BM) (Fig. 15).

The provenance of Loefling's specimen is interesting, since *Aurinia sinuata* is nowadays known only from south-eastern Italy and the western part of the Balkan peninsula. Clusius (1576: 420–421) may have been the first to record the species from Spain: 'Crescit quibusdam Castellae locis incultis & secus vias', and the later publication of the same description and illustration (Clusius, 1601: 134) is cited by Linnaeus in the protologue of *Alyssum sinuatum*, and is probably the basis of his habitat statement 'Hispaniae incultis, ad vias'. There is good evidence, therefore, that the species once occurred in Spain. It would appear that when Linnaeus received Loefling's specimen, he misidentified it as *A. creticum*, and accordingly added Spain to his habitat statement for that name in *Species plantarum* 2nd ed. (1763: 910).

54. '*Leucoium Caeruleum marinum*', p. 121, fig. p. 120.

Comments: The Alpino element appears not to be mentioned in any of Linnaeus's works.

55. '*Verbasculum Sylvestre Creticum*', p. 123, fig. p. 122.

S.: *Celsia arcturus* (L.) L. (currently *Verbascum arcturus* L.)  
B. & S.: *Celsia arcturus* (L.) L.

Comments: The Alpino element is included in the synonymy of *Verbascum arcturus* in *Species plantarum* 2nd ed. (1762: 254), but not in the protologue of that name in the first edition (1753: 178). The species was transferred to the genus *Celsia* by Linnaeus in *Systema naturae* 13th ed. (1774: 469). The plant depicted by Alpino is obviously *V. arcturus*.

56. '*Cardus pinea Teophrasti cum radice*', p. 126, fig. p. 124;  
'*Cardui pineae Figura altera sine radice*', fig. p. 125.

L.: 'Cnicus carlinae folio, acaulos, gummifer aculeatus, fl. purpureo. T.C. 33.' / 'Carlina acaulis gummifera. C.B. 380.' [on p. 124].

S.: *Acarna gummifera* (L.) Willd. (currently *Atractylis gummifera* L.)

B. & S.: *Carlina gummifera* (L.) Less. (currently *Atractylis gummifera*).

Comments: Linnaeus includes both Alpino elements in the protologue of *Atractylis gummifera* in *Species plantarum* (1753: 829), together with the Tournefort and Bauhin polynomials in his annotation. Alpino's figures are good depictions of the large capitulum of *A. gummifera*, but the linear leaves shown in the figure on page 124 are inaccurate. The lectotype is a specimen in Herb. Linn. No. 971.1 (LINN), designated as such by Petit (1987: 412).

57. '*Echium Creticum*', p. 130, fig. p. 129.

L.: 'Symphytum creticum, echii folio angustiore, longis villis horrido, flore croceo. Tournef. cor. 6.'

S.: *Onosma simplicissimum* L.

B. & S.: *Onosma simplicissimum* L.

<sup>simplicissimum</sup> 1. ONOSMA foliis confertissimis lanceolato-linearibus pilosis.

Echium creticum. *Alp. exot.* 130. z. 129. *Morif. hist.* 3, p. 439. f. 11. t. 27. f. 3?

Habitat in Sibiria. *Gmelin.* 2.

Caules spithamei, simplices, lignosi, interdum ad basin uno alterove ramo. Folia confertissima ut fere basi imbricata, digiti fere longitudine, angustissime lanceolata & fere linearia, basi attenuata. Racemi saepius duo, caules terminantes, vix pedunculati. Flores Symphyti absque palis. *Symphyteum creticum* Tournef. cor. esse nequit, cum folia pilis brevissimis adpersa.

Comments: Linnaeus includes the Alpino element in the protologue of *Onosma simplicissimum* in *Species plantarum* 2nd ed. (1762: 196) where, in the description, he comments on the Tournefort polynomial in his annotation: 'Symphytum creticum Tournef. cor. esse nequit, cum folia pilis brevissimis adpersa.' Alpino's plant is obviously a member of the Boraginaceae, but cannot with certainty be referred to any particular Cretan species. In choosing the lectotype for *O. simplicissimum*, the figure should be avoided, since it is clearly not an *Onosma* and anyway *O. simplicissimum* is a mainly Siberian and central Asian species not known to occur in Crete. The only other extant original elements for this name appear to be a specimen in Herb. Linn. No. 187.1 (LINN!) and the figure captioned 'Buglossum creticum, flore luteo minus, Nobis' in Morison, *Plantarum historiae universalis oxoniensis* 3: s. 11, t. 28, f. 12 (1699)! The figure is very stylized, presumably again based on a Cretan plant, and is



110 PROSPERI ALPINI

*Leucoium luteum* var. *reticulato* femine.



*Leucoium*

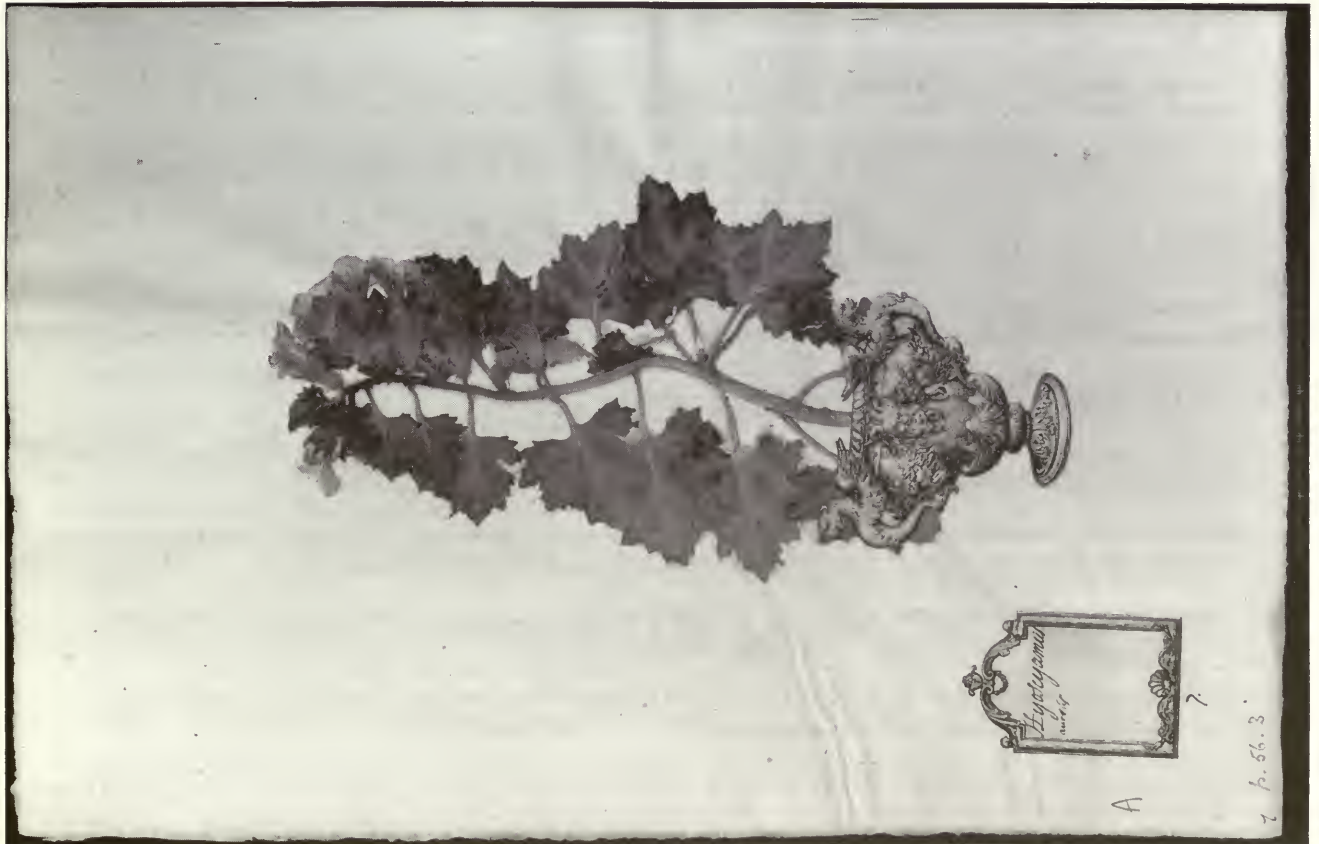


Fig. 13 The lectotype of *Hyoscyamus aureus* L.: Herb. Clifford: 56, *Hyoscyamus* No. 3, fol. A (BM).

Fig. 14 The lectotype of *Alyssum creticum* L.: Alpino, *Pl. exot.*: 118 [110] (1627).

barely recognizable as an *Onosma*. In contrast, the specimen in the Linnaean Herbarium clearly belongs to *O. simplicissimum* and is, therefore, here designated as the lectotype (Fig. 16).

58. ‘**Nardus Montana Cretica**’, 133, fig. p. 132.

B. & S.: *Valeriana asarifolia* Dufr.

Comments: The Alpino element appears not to be mentioned in any of Linnaeus’s works. The figure obviously depicts *Valeriana asarifolia*.

59. ‘**Viscaria maxima Cretica**’, p. 136, fig. p. 135.

B. & S.: indet.

Comments: The Alpino element appears not to be mentioned in any of Linnaeus’s works. The figure appears to depict a member of the Caryophyllaceae, and the large basal leaf-rossette and whorled inflorescence strongly suggest *Silene gigantea* (L.) L.

60. ‘**Anchusa humilis**’, p. 139, fig. p. 138.

B. & S.: *Anchusa cespitosa* Lam.

Comments: The Alpino element appears not to be mentioned in any of Linnaeus’s works. The plant depicted may be *Anchusa cespitosa* but, if so, is inaccurate, since the flowers are clearly those of a member of the Fabaceae.

61. ‘**Equisetum Montanum Creticum**’, p. 141, fig. p. 140.

S.: *Ephedra fragilis* Desf.

B. & S.: *Ephedra campylopoda* C.A. Mey. (currently *E. foeminea* Forssk.)

Comments: The Alpino element appears not to be mentioned in any of Linnaeus’s works. The plant depicted is obviously *Ephedra foeminea*, which is closely related to *E. fragilis* and is the only representative of the genus known to occur in Crete.

62. ‘**Marrubium nigrum Creticum**’, p. 143, fig. p. 142.

B. & S.: *Ballota nigra* L.

Comments: The Alpino element appears not to be mentioned in any of Linnaeus’s works. The figure does not appear to depict *Ballota nigra* or indeed any other known Cretan plant.

63. ‘**Saxiphraga**’, p. 145, fig. p. 144.

B. & S.: indet.

Comments: The Alpino element appears not to be mentioned in any of Linnaeus’s works. The plant depicted may be a member of the Lamiaceae, but there are insufficient diagnostic features to enable full identification.

64. ‘**Polium Gnaphaloides**’, p. 147, fig. p. 146.

B. & S.: *Diotis candidissima* Desf. (currently *Otanthus maritimus* (L.) Hoffmanns. & Link).

Comments: The Alpino element appears not to be mentioned in any of Linnaeus’s works. The figure almost certainly depicts *Otanthus maritimus*, albeit somewhat stylized.

65. ‘**Santulina flore amplo**’, p. 149, fig. p. 148.

B. & S.: *Santolina rosmarinifolia* L.

Comments: The Alpino element appears not to be mentioned in any of Linnaeus’s works. The plant depicted is obviously a member of the Asteraceae, but does not appear to correlate with any known Cretan species. *Santolina rosmarinifolia* is a western Mediterranean species and is not known to occur in Crete.

66. ‘**Holosteum**’, p. 151, fig. p. 150.

B. & S.: *Plantago cretica* L.

Comments: The Alpino element appears not to be mentioned in any of Linnaeus’s works. The plant depicted may be a *Plantago*, but it is greatly stylized if it is indeed *P. cretica*.

67. ‘**Eryngium trifolium**’, p. 153, fig. p. 152.

B. & S.: *Eryngium ternatum* Poir.

Comments: The Alpino element appears not to be mentioned in any of Linnaeus’s works. Baldacci and Saccardo are correct: the figure is somewhat stylized, but obviously depicts *Eryngium ternatum*.

68. ‘**Daucus stellatus**’, p. 155, fig. p. 154.

Comments: The Alpino element appears not to be mentioned in any of Linnaeus’s works.

69. ‘**Anthilis**’, p. 157, fig. p. 156.

L.: ‘Quamoclit minima humifusa palustris, herniariae folio. Tournef. cor. 4.’

B. & S.: *Cressa cretica* L.

Comments: Linnaeus includes the Alpino element in the protologue of *Cressa cretica* in *Species plantarum* (1753: 223), together with the Tournefort polynomial in his annotation. The plant depicted by Alpino is a good likeness of *C. cretica*, albeit slightly simplified. The lectotype is a specimen in Herb. Linn. No. 317.1 (LINN), designated as such by Verdcourt (1963: 33).

70. ‘**Carduus Eryngioides capite spinoso**’, p. 159, fig. p. 158.

S.: *Centaurea eryngioides* Lam.

Comments: The Alpino element appears not to be mentioned in any of Linnaeus’s works.

71. ‘**Cyanus tomentosus**’, p. 161, fig. p. 160.

L.: ‘Jacea tomentosa, foliis undulatis. T. inst. 445’.

Comments: Neither the Alpino element nor the Tournefort polynomial in Linnaeus’s annotation appears to be mentioned in any of Linnaeus’s works.

72. ‘**Cyanus Spinusus**’, p. 163, fig. p. 162.

L.: ‘Jacea cretica aculeata incana. T. inst. 445’.

S.: *Centaurea spinosa* L.

B. & S.: *Centaurea spinosa* L.

Comments: Linnaeus includes the Alpino element in the protologue of *Centaurea spinosa* in *Species plantarum* (1753: 912), together with the Tournefort polynomial in his annotation. The plant depicted by Alpino is somewhat stylized, but





Fig. 16 The lectotype of *Onosma simplicissimum* L.: Herb. Linn. No. 187.1 (LINN).

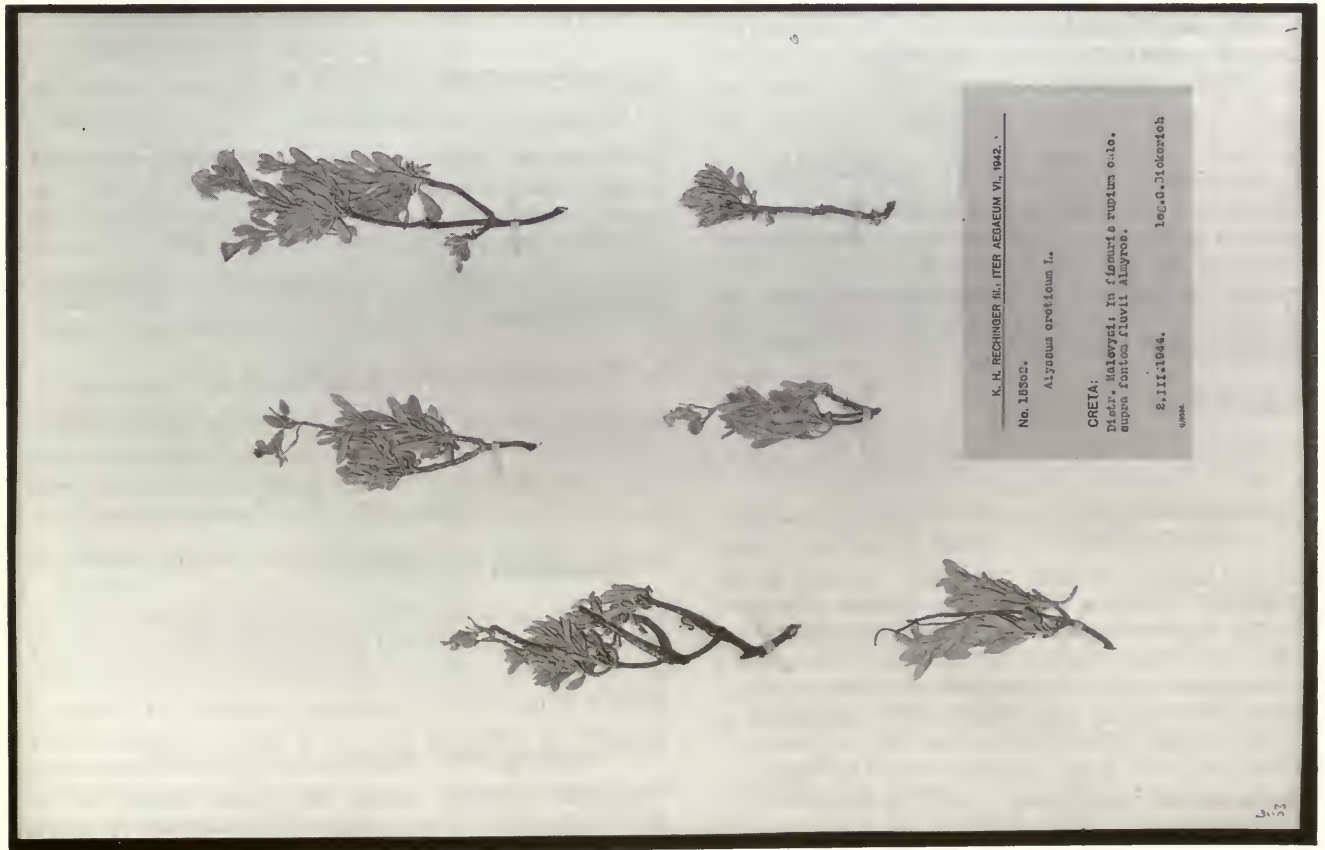


Fig. 15 The epitype of *Alyssum creticum* L.: Bickerich sub Rechinger 15302 (BM).

- Spinosa.* 15. **CENTAUREA** calyce subciliato, ramis spinosis.  
*Hort. cliff.* 422. \*  
*Jacea cretica aculeata incana.* *Tournef. inst.* 445.  
*Stoebe spinosa cretica.* *Morif. hist.* 3, p. 136.  
*Cyanus spinosus.* *Alp. exot.* 165, t. 162.  
*Habitat in Creta*

is a good likeness of *C. spinosa*. The three other extant original elements for this name appear to be specimens in Herb. Linn. No. 1030.20 (LINN!), Herb. Clifford: 422, *Centaurea* No. 15 (BM!) and the figure captioned 'Stoebe spinosa Cretica, Park. Cyanus peren: spinosus Creticus. Ponae' in Morison, *Plantarum historiae universalis oxoniensis* 3: s. 7, t. 25, f. 2 (1699)! Both of the specimens obviously belong to *C. spinosa* and show more of the diagnostic characters than either of the two figures. The specimen in the Clifford Herbarium is here designated as the lectotype of *C. spinosa* (Fig. 17) because, unlike that in the Linnaean Herbarium, it bears numerous capitula, with clearly visible involucre bracts, which are so important in the taxonomy of *Centaurea*.

73. '**Melanthium odoratum**', p. 165, fig. p. 164.

B. & S.: indet.

Comments: The Alpino element appears not to be mentioned in any of Linnaeus's works. The plant depicted by Alpino is greatly stylized and does not appear to represent any known Cretan plant.

74. '**Gallium Montanum Creticum**', p. 167, fig. p. 166.

L.: 'Aparine cretica [error for 'graeca'] saxatilis incana tenuifolia. *Tournef. cor.* 4.' / [deleted:] 'Cruciata cretica, fruticosa, flore albo. *Tournef. cor.* 4.'

S.: *Galium graecum* L.

B. & S.: *Galium graecum* L.

Comments: Linnaeus includes the Alpino element in the protologue of *Galium graecum* in *Mantissa plantarum* (1767a: 38), together with the first, undeleted Tournefort polynomial in his annotation. The plant depicted by Alpino's is obviously a member of the Rubiaceae and a moderately good likeness of *G. graecum*, but it is impossible to be sure if it is indeed that species. The lectotype is a specimen in Herb. Linn. No. 129.32 (LINN), designated as such by Ehrendorfer & Schönbeck-Temesy (1982: 826).

75. '**Spica Trifolia**', p. 169, fig. p. 168.

L.: 'Melilotus cretica humillima humifusa, fl. albo magno. T.C. 28.'

S.: *Trifolium uniflorum* L.

B. & S.: *Trifolium uniflorum* L.

Comments: Linnaeus includes the Alpino element in the protologue of *Trifolium uniflorum* in *Species plantarum* (1753: 771), together with the Tournefort polynomial in his annotation. The plant depicted by Alpino is stylized, but a moderately good likeness of *T. uniflorum*. The lectotype is a specimen in Herb. Linn. No. 930.50 (LINN), designated as such by Jafri (1980: 227).

76. '**Spicae trifoliae altera figura**', p. 171, fig. p. 170.

B. & S.: indet.

Comments: The Alpino element appears not to be mentioned in any of Linnaeus's works. The figure appears to depict a member of the Fabaceae, but it is impossible to identify it more fully.

77. '**Asciroides**', p. 173, fig. p. 172.

L.: 'Hypericum creticum amplissimo folio nitido. T. cor. 18.'  
 B. & S.: *Hypericum hircinum* L.

Comments: Linnaeus includes the Alpino element in the synonymy of *Hypericum flore pentagyno, foliis ovato-oblongis glabris integerrimis* in *Hortus cliffortianus* (1738: 380), but does not appear to cite it explicitly in any of his other works, although he includes the *Hortus cliffortianus* name in the protologue of *Hypericum ascyron* L. in *Species plantarum* (1753: 783–784). The Tournefort polynomial in Linnaeus's annotation appears not to be mentioned in any of Linnaeus's works. The plant depicted by Alpino does not resemble a *Hypericum* or indeed any other known Cretan plant.

78. '**Cnicus singularis**', p. 175, fig. p. 174.

B. & S.: *Carduncellus caeruleus* (L.) C. Presl

Comments: The Alpino element appears not to be mentioned in any of Linnaeus's works. Baldacci and Saccardo may well be correct in their determination: the plant depicted is a very good likeness of *Carduncellus caeruleus*.

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## LIBER SECUNDUS

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1. No. 1 does not illustrate a plant.

2. '**Ligustrum nigrum**', p. 179, fig. p. 178.

S.: *Syringa persica* var. *laciniata* L.

Comments: The Alpino element appears not to be mentioned in any of Linnaeus's works.

3. '**Datura Contarena**', p. 182, fig. p. 181 ['167'].

Comments: The Alpino element appears not to be mentioned in any of Linnaeus's works.

4. '**Conuoluulus Arabicus**', p. 186, fig. p. 185.

S.: *Convolvulus paniculatus* L. (currently *Ipomoea mauritanica* Jacq.)

Comments: The Alpino element appears not to be mentioned in any of Linnaeus's works.

5. '**Rhaponticum**', p. 188, fig. p. 187.

Comments: Linnaeus includes an Alpino element with the same polynomial but from a different work (Alpino, 1719) in the protologue of *Rheum rhaponticum* L. in *Species plantarum* (1753: 371–372).

6. '**Hyoscyamus albus Aegyptius**', p. 193, fig. p. 192.

Comments: Linnaeus includes the Alpino element in the protologue of *Hyoscyamus muticus* L. in *Mantissa plantarum* (1767a: 45), but with some doubt, since he cites the reference



**muticus.** 6. *HYOSCYAMUS* foliis petiolatis ovatis acutangulis, calycibus muticis, bracteis indivisis.

*Hyoscyamus albus aegyptius.* *Alp. exot.* 193. t. 192?

*Habitat in Aegypto, Arabia.* ♂.

*Caulis pedalis, crassitie digiti, erectus, teretissimus, subpubescens: Ramis axillaribus, brevioribus. Folia alterna, petiolata, ovata, obtuse sinuata, acutius utrinque biangulata, acuta, laevia, integerrima, pubescentia: Petiolis pubescentibus. Floralia folia subpetiolata, ovata s. ovato-oblonga, integra, alternis floribus bina, alternis solitaria. Racemus secundus apice incurvatus. Calyx campanulato-infundibuliformis, quinquefidus: laciniis latiusculis, minimeque spinosis. Corolla calyce paulo longior, non vero latior, subcampanulata, quinquefidus: laciniis 3 superioribus latioribus; inferioribus 2 minoribus, profunde separatis; color corollae primum extus viridis, demum albidus; intus atropurpureus, laciniis infimis 2 albidis; ultimo corolla tota alba immaculata evadit. Stamina 5 declinata, purpurea, corolla paulo longiora. Pistillum longius, declinatum. H. U.*

3. *Bunias (spinosa)* filiculis ovato-acutis, ramis spinosis floriferis. *Brassica spinosa.* *Bauh. pin.* 111. *prodr.* 54. t. 54.\* *Bauh. hist.* 2. p. 835.\* *Raj. hist.* 1. p. 797. *Alp. exot.* 201. t. 200.\* *Habitat in Aegypto, in Ethiopia, in Syria & in Judaea. Celeb. Donati femina ex Aegypto in Italiam militi anno 1761. Planta cubitalis, ramosa, glabra. Folia petiolata, lanceolata, subdentata, alterna, glauca. Rami subnudi spinis decompositis terminati. Flores sparsi, rari, foliarii, subrubri. Fructus ovato-acuminati. Folia comeduntur in Aegypto uti Brassica oleracea.*

with a question mark. The only extant original element for this name appears to be Alpino's figure, which is indeed recognizable as a species of *Hyoscyamus*, but is stylized if intended to depict *H. muticus*. (The calyx is too short in relation to the corolla-tube and the spikes are insufficiently dense.) The figure is here designated as the lectotype of *H. muticus* (Fig. 18), and the following specimen as the epitype: *Plantae Sinaiticae*, ex Herb. Postian. apud Colleg. Syriens. *Protest.*, *Hyoscyamus muticus* L., Suez to Wadi Sudr, 28 February 1883, No. 106 (BM) (Fig. 19).

7. 'Cassabel Darrizà', p. 195, fig. p. 194.

Comments: The Alpino element appears not to be mentioned in any of Linnaeus's works.

8. 'Mosch, idest, *Bamia Muschata*', p. 197, fig. p. 196.

S.: *Hibiscus abelmoschus* L. (currently *Abelmoschus moschatus* Medik.)

Comments: Linnaeus includes the Alpino element in the synonymy of *Hibiscus foliis peltato-cordatis septemangulibus serratis hispida* in *Flora zeylanica* (1747: 119) and *Hortus upsaliensis* (1748: 206), but appears not to cite it explicitly in any of his other works, although he includes both the *Flora zeylanica* and *Hortus upsaliensis* names in the protologue of *Hibiscus abelmoschus* in *Species plantarum* (1753: 696).

9. 'Hypomaratum spheroccephalum', p. 199, fig. p. 198.

Comments: The Alpino element appears not to be mentioned in any of Linnaeus's works.

10. 'Brassica Spinosa', p. 201, fig. p. 200.

S.: *Bunias spinosa* Turra (currently *Zilla spinosa* (Turra) Prantl).

Comments: Linnaeus includes the Alpino element in the synonymy of *Bunias spinosa* in *Mantissa plantarum* (1767a: 96). Various authors have wrongly attributed this binomial to Linnaeus. Its first valid publication is by Turra in *Farsetia plantae genus: 11* (1765), and not Linnaeus in *Mantissa plantarum*, where explicit reference to Turra is given.

There appear to be three extant original elements for *Bunias spinosa*: the Alpino figure and figures captioned 'Brassica spinosa' in Bauhin, *Prodromus theatri botanici*: 54

(1620)! and Bauhin, Cherler & Chabrey, *Historia plantarum universalis* 2: 835 (1651)! The Bauhin figures are identical, though one is reversed, and depict a sterile plant which cannot with any certainty be referred to *Zilla spinosa*. The Alpino figure is a much better likeness, and is here designated as the lectotype of *Bunias spinosa* (Fig. 20), with the following specimen as the epitype since the detail shown in the flowers is poor: Egypt, *Zilla spinosa* (Turra) Prantl, Suez, Wadi Iseili, tributary c. 24 km E. of Katamiya observatory, 13 June 1964, Osborn s.n. [ex Chicago Natural History Museum] (BM) (Fig. 21).

11. 'Sideritis Sambuci folia', p. 203, fig. p. 202.

S.: *Scrophularia sambucifolia* L.

Comments: Linnaeus includes the Alpino element in the synonymy of *Scrophularia sambucifolia* L. in *Species plantarum* 2nd ed. (1763: 865), but not in the protologue of that name in the first edition (1753: 620–621).

12. 'Scabiosa Centauroides', p. 205, fig. p. 204.

Comments: Linnaeus includes the Alpino element in the synonymy of *Scabiosa corollulis quadrifidis, foliis pinnatis, pinnis lanceolatis serratis* in *Hortus cliffortianus* (1738: 30), but appears not to cite it explicitly in any of his other works, although he includes the *Hortus cliffortianus* name in the protologue of *Scabiosa alpina* L. (currently *Cephalaria alpina* (L.) Roem. & Schult.) in *Species plantarum* (1753: 98).

13. 'Linaria semper virens', p. 207, fig. p. 206.

Comments: The Alpino element appears not to be mentioned in any of Linnaeus's works.

14. 'Borago echioides', p. 209, fig. p. 208.

Comments: The Alpino element appears not to be mentioned in any of Linnaeus's works.

15. 'Laserpitium', p. 211, fig. p. 210.

S.: *Ferula assa-foetida* L.

Comments: The Alpino element appears not to be mentioned in any of Linnaeus's works.

16. 'Lotus Aegyptia', p. 214, fig. p. 213; 'Loti Aegyptiae, quatuor prima folia, florem totum claudentia', fig. p. 216; 'Flos Loti Aegyptiae medijs foliolis arcuum modo inflexis', fig. p. 218; 'Flos Loti Aegyptiae folijs expansis ad naturalem fere magnitudinem', fig. p. 220; 'Loti Aegyptiae caput, in quo semina continentur', fig. p. 222; 'Loti Aegyptiae folium integrum', fig. p. 224; 'Loti Aegyptiae Radix', fig. p. 226.

S.: *Nymphaea lotus* L.

192 PROSPERI ALPINI  
Hyoscyamus albus Aegyptius.



Duds

Fig. 18 The lectotype of *Hyoscyamus muticus* L.: Alpino, *Pl. exot.*: 192 (1627).



Fig. 17 The lectotype of *Centaurea spinosa* L.: Herb. Clifford: 422, *Centaurea* No. 15 (BM).



260 PROSPERI ALPINI

*Brassica Spinosa.*



Alias

Fig. 20 The lectotype of *Bunias spinosa* Turra: Alpino, *Pl. exot.*: 200 (1627).



Fig. 19 The epitype of *Hyoscyamus muticus* L.: *Plantae Sinaiticae*, ex Herb. Postian. apud Colleg. Syriens. Protop., No. 106 (BM).

Comments: Linnaeus includes all the Alpino elements except the figure captioned 'Loti Aegyptiae folium integrum' (page 224) in the protologue of *Nymphaea lotus* L. in *Species plantarum* (1753: 511). The lectotype of *N. lotus* is the figure captioned 'Lotus Aegyptia' on page 213 of Alpino, designated as such by Verdcourt (1989: 179).

17. '*Colocassia macroriza, idest longae Radicis*', p. 231, fig. p. 230.

Comments: The Alpino element appears not to be mentioned in any of Linnaeus's works.

18. '*Colocassia Strogyloriza, idest rotundae radicis*', p. 237, fig. p. 236.

Comments: The Alpino element appears not to be mentioned in any of Linnaeus's works.

19. '*Sinapi Marinum Aegyptium*', p. 251, fig. p. 250.

Comments: The Alpino element appears not to be mentioned in any of Linnaeus's works.

20. '*Marum Aegyptiorum*', p. 253, fig. p. 252.

Comments: The Alpino element appears not to be mentioned in any of Linnaeus's works.

21. '*Cardus minima*', p. 255, fig. p. 254.

S.: *Acarua cancellata* (L.) All. (currently *Atractylis cancellata* L.)

B. & S.: *Atractylis cancellata* L.

**cancelatâ.** 4. ATRACTYLIS involucri cancellatis ventricosis linearibus dentatis, calycibus ovaris, floribus flocculosis.  
*Atractylis foliis linearibus dentatis, calycibus conniventibus.* *Hort. cliff.* 395. *Roy. lugdb.* 137.  
*Acarua capitulis globosis.* *Bauh. pin.* 379.  
*Eryngium parvum palmare, foliis serratis.* *Morif. bist.* 3. p. 166. f. 7. t. 36. f. 16.  
*Carduus parvus.* *Bauh. bist.* 3. p. 93. *Raj. bist.* 316.  
*Carduus minimus.* *Alp. exot.* 254.  
*Habitat in Hispaniâ, Siciliâ, Cretæ agris.* ☉  
*Receptaculum tetrum paleis coalitis. Pappus plumosus, basi quasi monophyllos sub florescentia, corollulis longior. Læstling.*

Comments: Linnaeus includes the Alpino element in the protologue of *Atractylis cancellata* in *Species plantarum* (1753: 830). The plant depicted is stylized, but may indeed be *A. cancellata*. The other six extant original elements for the name appear to be specimens in Herb. Linn. No. 971.5 (LINN), Herb. Linn. No. 333.5 (S), Herb. Clifford: 395, *Atractylis* No. 1 (BM) and Herb. van Royen, Leiden No. 900,143–160 (L), and the figures captioned 'Carduus parvus' in Bauhin, Cherler & Chabrey, *Historia plantarum universalis* 3: 93 (1651) and 'Eryngium parvum foliis serratis, Nobis. Carduus parvus, I.B.' in Morison, *Plantarum historiae universalis oxoniensis* 3: s. 7, t. 36, f. 16 (1699). The specimen in the Clifford Herbarium agrees with the current usage of *A. cancellata*, is of good quality, with several capitula, and is here designated as the lectotype (Fig. 22) by Dr D.P. Petit (Université de Limoges). Alavi (1983: 212) designated a specimen in Herb. Linn. No. 971.4 (LINN). However, this specimen was received by Linnaeus from Allioni in 1757, and

cannot, therefore, have any relevance as an original element for a name published in 1753. For this reason, Alavi's typification is ineffective.

22. '*Hysopus Graecorum tempore hyemali*', p. 257, fig. p. 256; '*Hyssopus Graecorum, tempore hyemali*', fig. p. 258.

L.: '*Clinopodium creticum fruticosum, foliis lanceolatis.* T. cor. 12' [on p. 256].

Comments: Neither the Alpino element nor the Tournefort polynomial in Linnaeus's annotation appears to be mentioned in any of Linnaeus's works.

23. '*Nigella alba, flore simplici*', p. 261, fig. p. 260.

B. & S.: *Nigella sativa* L.

Comments: Linnaeus includes the Alpino element in the synonymy of *Nigella petalis subtricuspidatis foliis subpilosis* in *Hortus upsaliensis* (1748: 154), but does not appear to cite it explicitly in any of his other works, although he includes the *Hortus upsaliensis* name in the protologue of *Nigella sativa* in *Species plantarum* (1753: 534). The plant depicted by Alpino certainly appears to a species of *Nigella*, but there are insufficient diagnostic features shown to enable full identification.

24. '*Ranunculus creticus, echinatus latifolius*', p. 263, fig. p. 262.

S.: *Ranunculus muricatus* L.

B. & S.: *Ranunculus muricatus* L.

Comments: Linnaeus includes the Alpino element in the synonymy of *Ranunculus seminibus aculeatis, foliis simplicibus palmatis incisus* in *Hortus upsaliensis* (1748: 157), under the unnamed var.  $\beta$ , and in the synonymy of *Ranunculus muricatus* L. in *Species plantarum* 2nd ed. (1762: 780), but not in the protologue of that name in the first edition (1753: 555), although the *Hortus upsaliensis* name is cited there. The plant depicted by Alpino is somewhat stylized, but the only known Cretan species of *Ranunculus* it can possibly be is *R. muricatus*.

25. '*Chinopodium Creticum*', p. 265, fig. p. 264.

S.: *Satureja graeca* L.

B. & S.: *Micromeria graeca* (L.) Benth. ex Rchb. (currently *Satureja graeca*).

Comments: Linnaeus includes the Alpino element in the protologue of *Satureja graeca* in *Species plantarum* (1753: 568). The plant depicted by Alpino may indeed be a species of *Satureja*, but it shows insufficient diagnostic characters to establish its identity with a particular species, and *S. graeca* is anyway only doubtfully present in Crete. The lectotype is a specimen in Herb. Linn. No. 723.4 (LINN), designated as such by Morales Valverde (1991: 143). The Linnaean annotation of this specimen is confusing and the relevance of the material as an original element for *S. graeca* is not immediately apparent. Linnaeus has written 'Satureja' at the top of the sheet, '10 montana' at the bottom and, on the reverse, 'Clinopodium creticum. Alp. exot. 265' and 'Calamintha cretica, angusto folio oblongo. T. 194'. The number '10' ought to refer to a species of *Satureja* in *Species plantarum*,





Fig. 22 The lectotype of *Atractylis cancellata* L.: Herb. Clifford: 395, *Atractylis* No. 1 (BM).

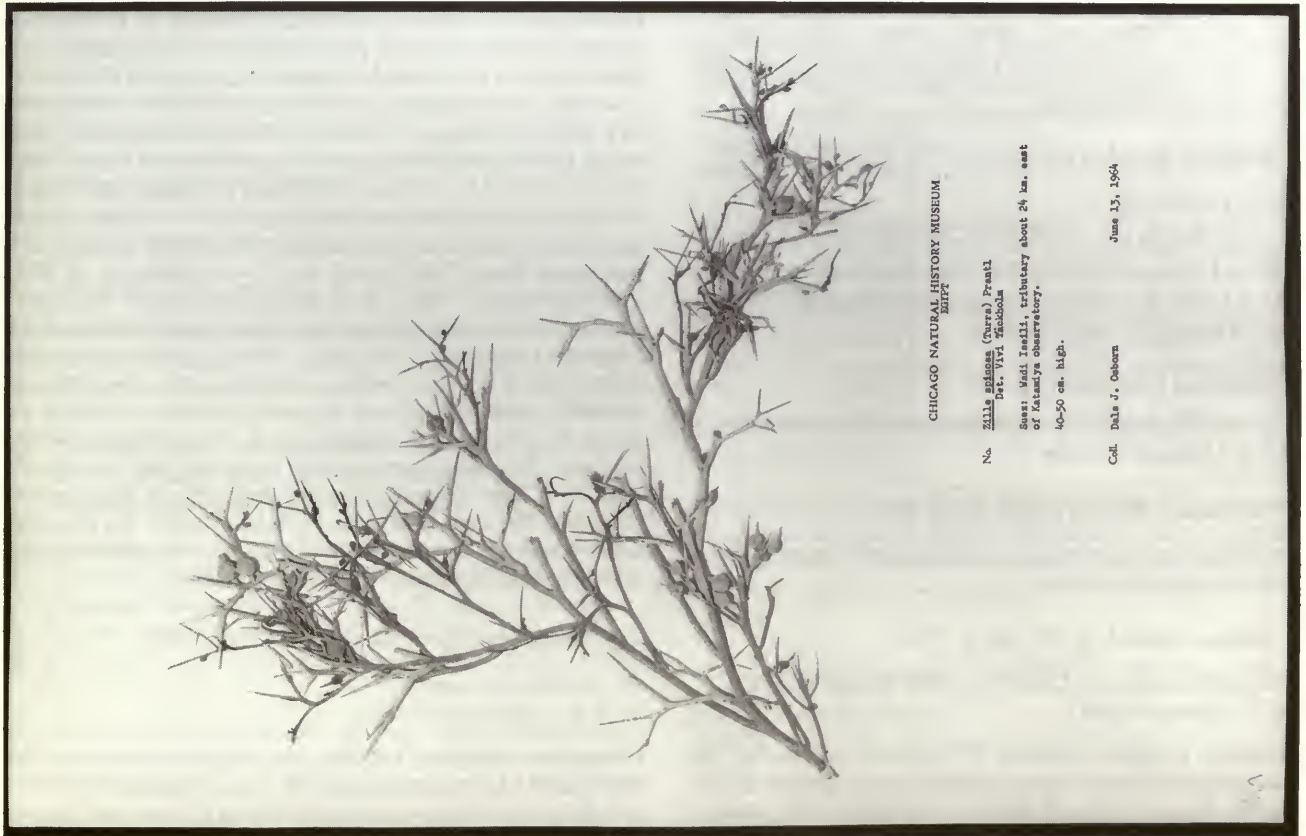


Fig. 21 The epitype of *Bunias spinosa* Turra: *Osborn* s.n. (BM)

CHICAGO NATURAL HISTORY MUSEUM  
BMPT

No. 2115 *Bunias* (Turra) Prantl  
Det. Vitz. Zandvoort

Guest Wadi Isaili, tributary about 24 km. east  
of Katanaya observatory,  
40-50 cm. high.

Coll. Dale J. Osborn  
June 13, 1964

but evidently does not, since only nine are included there. The inclusion of the Alpino polynomial and reference on the reverse of the sheet provide the link with *S. graeca*, to which the specimen clearly belongs taxonomically; it is definitely not *S. montana* L., which was also first published in *Species plantarum* (loc. cit.). The second polynomial on the reverse of the sheet is from Tournefort (1700: 194), but is not cited by Linnaeus in the protologue of either *S. graeca* or *S. montana*, and does not appear to be explicitly cited in any of his other works.

26. 'Rubea Argentea', p. 267, fig. p. 266.

B. & S.: indet.

Comments: The Alpino element appears not to be mentioned in any of Linnaeus's works. The figure appears to depict a member of the Rubiaceae, but is too stylized to allow identification even to the rank of genus.

27. 'Trifolium Corniculatum Creticum', p. 269, fig. p. 268 ['264'].

S.: *Lotus edulis* L.

B. & S.: *Lotus edulis* L.

Comments: Linnaeus includes the Alpino element in the synonymy of *Lotus edulis* in *Systema naturae* 12th ed. (1767b: 504), but not in the protologue of that name in *Species plantarum* (1753: 774), or in synonymy in the second edition (1763: 1090). The plant depicted by Alpino is a good likeness of *L. edulis*.

28. 'Trifolium falcatum', p. 271 ['257'], fig. p. 270 ['256'].

B. & S.: *Hymenocarpus circinnatus* (L.) Savi

Comments: The Alpino element appears not to be mentioned in any of Linnaeus's works. The figure obviously depicts *Hymenocarpus circinnatus*.

29. 'Melilotus quaedam Cretica', p. 273, fig. p. 272 ['260'].

B. & S.: *Lotus edulis* L.

Comments: The Alpino element appears not to be mentioned in any of Linnaeus's works. The figure certainly appears to depict a *Lotus*, but there are insufficient diagnostic features shown to enable full identification.

30. 'Trifolium Vesicarium', p. 275, fig. p. 274.

Comments: The Alpino element appears not to be mentioned in any of Linnaeus's works.

31. 'Scorzonera illirica', p. 277, fig. p. 276.

Comments: The Alpino element appears not to be mentioned in any of Linnaeus's works.

32. 'Ebenus Cretica', p. 279, fig. p. 278.

S.: *Anthyllis cretica* (L.) Lam. (currently *Ebenus cretica* L.)

B. & S.: *Ebenus cretica* L.

Comments: Linnaeus includes the Alpino element in the protologue of *Ebenus cretica* in *Species plantarum* (1753: 764). The figure is stylized, but is recognizable as *E. cretica*. The lectotype is a specimen in Herb. Linn. No. 929.1

(LINN), designated as such by Turland (1993: 44).

33. 'Iacea maxima', p. 282, fig. p. 281.

S.: *Centaurea babylonica* (L.) L.

Comments: Linnaeus includes the Alpino element in the synonymy of *Serratula babylonica* L. in *Species plantarum* 2nd ed. (1763: 1148–1149), but not in the protologue of that name in *Systema naturae* 10th ed. (1759a: 1199). He transferred the species to the genus *Centaurea* in *Mantissa plantarum altera* (1771: 460).

34. 'Scordotis', p. 284, fig. p. 283.

L.: 'Cataria cretica humilis scordioides. Tournef. cor. 13.' / 'Scordium alterum lanuginosius verticillatum. C.B. 248'.

S.: *Nepeta scordotis* L.

B. & S.: *Scutellaria sieberi* Benth.

157. NEPETA (*Scordotis*) foliis cordatis obtusis, floribus verticillatis.

*Scordium alterum lanuginosius verticillatum.* *Bauh. pin. 248.*

*Scordotis.* *Alp. exot. 284. t. 283. Clus. bisp. 2. p. 312.*

*Habitat in Creta. Miller. 24*

*Planta pedalis. Caulis pilosus. Folia opposita, petiolata, cordata, obtusa, crenata, rugosa, tomentosa, crassiuscula. Flores verticillati. Bractæ lanceolatae, erectae, pilosae, longitudine calycis. Calycis pilosi. Corollae albæ: Labro concavo crenato punctis purpurascensibus. Filamenta subincarnata.*

Comments: Linnaeus includes the Alpino element in the protologue of *Nepeta scordotis* in *Centuria II* (1756: 20), together with the Bauhin polynomial in his annotation. The plant depicted by Alpino is stylized and a poor likeness of *N. scordotis*, but is certainly not *Scutellaria sieberi*, as Baldacci and Saccardo suggest. The only other extant original elements for *N. scordotis* appear to be specimens in Herb. Linn. No. 726.23 and No. 726.24 (LINN!). The former specimen is in agreement with the current usage of *N. scordotis*, but is generally smaller and less densely villous than more recent specimens from Crete which have been examined at BM. This is probably a result of its having been grown in cultivation in the botanic garden at Uppsala, as indicated by Linnaeus's annotation 'HU' (for *Hortus Upsaliensis*) on the sheet. The latter specimen is clearly not *N. scordotis*, as currently understood, and is most probably referable to either *N. italica* L. or a species in the *N. sibthorpii* Benth. complex. Therefore, the specimen in Herb. Linn. No. 726.23 (LINN) is here designated as the lectotype of *N. scordotis* (Fig. 23). The type indication by Siddiqi (1985: 96) does not constitute valid lectotypification, since both sheets in the Linnaean Herbarium are referred to as 'type'.

35. 'Staebe plantaginifolia', p. 287, fig. p. 286.

S.: *Catananche lutea* L.

B. & S.: *Catananche lutea* L.

Comments: Linnaeus includes the Alpino element in the protologue of *Catananche lutea* in *Species plantarum* (1753: 812–813). The figure is a good likeness of *C. lutea*, and is only slightly stylized in that the capitula are too small. The



lectotype is a specimen in Herb. Linn. No. 961.3 (LINN), designated as such by Alavi (1983: 326).

36. 'Marù Creticum', p. 289, fig. p. 288.

L.: 'Majorana cretica, origani folio, villosa, saturejae odore, flore purpurascens. T. cor. 13.'

S.: *Origanum maru* L. (currently *O. syriacum* L.)

B. & S.: indet.

Comments: Linnaeus includes the Alpino element in the protologue of *Origanum maru* in *Species plantarum* 2nd ed. (1763: 825), together with the Tournefort polynomial in his annotation. The plant depicted by Alpino indeed appears to be a species of *Origanum*, but not *O. syriacum*, which is not known to occur in Crete. Its general appearance and Alpino's statement 'flosculi purpurei' eliminate all Cretan species except *O. microphyllum* (Benth.) Vogel, of which it is a good likeness. The lectotype of *O. maru* is a specimen in Herb. Linn. No. 743.12 (LINN), designated as such by Ietswaart (1980: 88), who simultaneously (op. cit.: 87) designated it as the type of *O. syriacum*, which was first published by Linnaeus in *Species plantarum* (1753: 590). The specimen is indeed relevant original material for *O. maru*, but not for *O. syriacum*, since Linnaeus's annotation of the sheet merely consists of the name 'Maru'. Ietswaart's error was pointed out by Harley (1982: 86).

37. 'Saxiphraga altera', p. 292, fig. p. 291.

S.: *Saponaria cretica* L. (currently *Petrorhagia cretica* (L.) P.W. Ball & Heywood).

B. & S.: *Tunica cretica* (L.) Fisch. & C.A. Mey. (currently *Petrorhagia cretica*).

Comments: Linnaeus includes the Alpino element in the protologue of *Saponaria cretica* in *Species plantarum* 2nd ed. (1762: 584–585). The plant depicted is stylized and not clearly recognizable as belonging to the Caryophyllaceae, and anyway *Petrorhagia cretica* is not known to occur in Crete. The lectotype is a specimen in Herb. Linn. No. 580.4 (LINN), designated as such by Davis (1956: 164).

38. 'Galium Montanum alterum', p. 294, fig. p. 293.

L.: 'Cruciata cretica fruticosa, fl. albo. Tournef. cor. 4.'

Comments: Neither the Alpino element nor the Tournefort polynomial in Linnaeus's annotation appears to be mentioned in any of Linnaeus's works.

39. 'Canapis lutea Cretica ex Ioanne Pona', p. 296, fig. p. 295; 'Cannabis lutea fertilis Contareni', fig. p. 298; 'Canabis lutea sterilis Contareni', fig. p. 300.

L.: 'Cannabina cretica fructifera. Tourn. cor. 52' [on p. 295]; 'Cannabina cretica fructifera. T. cor. 52.' [on p. 298]; 'Cannabina cretica florifera. T. cor. 52.' [on p. 300].

S.: *Datisca cannabina* L. [pp. 295, 298 & 300].

B. & S.: indet. [p. 295]; *Datisca cannabina* L. [pp. 298 & 300].

Comments: Linnaeus includes all three Alpino elements in the protologue of *Datisca cannabina* L. in *Species plantarum* (1753: 1037). He cites the Tournefort polynomial *Cannabina cretica florifera*, from his annotation, in the synonymy of *Cannabina foliis pinnatis* in *Hortus cliffortianus* (1738: 57),

1. DATISCA caule laevi.

*Cannabis foliis pinnatis. Hort. cliff. 457. Roy. lugdb. 221.*

*Cannabina.*

*Cannabis lutea fertilis. Alp. exot. 300. t. 298. Morif.*

*bif. 3. p. 432. f. 8. t. 25. f. 4.*

*Luteola herba sterilis. Baub. pin. 100.*

*Cannabis lutea cretica. Alp. exot. 296. t. 295.*

*Cannabis lutea sterilis. Alp. exot. 301. t. 300.*

*Luteola herba foliis cannabinis. Baub. pin. 100.*

*Habitat in Creta. 2*

but does not appear to cite it explicitly in any of his other works, although the *Hortus cliffortianus* name is included in the protologue of *D. cannabina*. Linnaeus seems accidentally to have transposed the Tournefort polynomials in his annotations on pages 298 and 300: in Tournefort (1703: 52), Alpino's *Cannabis lutea, fertilis Contareni* is cited as a synonym of *Cannabina cretica florifera*, while Alpino's *Cannabis lutea, sterilis Contareni* is cited under *Cannabis cretica fructifera*. The plant depicted by Alpino on page 295 is stylized but recognizable as a fruiting female individual of *D. cannabina*. That on page 298 is a poor likeness of a flowering shoot of a male plant, while that on page 300 is a much better likeness of a flowering shoot of a female plant. The three other extant original elements for *D. cannabina* appear to be specimens in Herb. Linn. No. 1196.1 (LINN!) and Herb. Clifford: 457, *Cannabis* No. 2 (BM!), and the figure captioned 'Cannabis lutea fertilis Contareni Prosp. Alp. de exot.' in Morison, *Plantarum historiae universalis oxoniensis* 3: s. 11, t. 25, f. 3 (1699)! Morison's figure is clearly copied from that of Alpino on page 300. As potential choices of lectotype, the two specimens not only agree with the current usage of the name, but show more of the diagnostic features than any of the four figures. Each specimen consists of part of a flowering shoot from a male plant: that in the Linnaean Herbarium is a median section, with racemes borne in the axils of pinnate leaves, while that in the Clifford Herbarium is the apical part, with fascicles of flowers borne in the axils of reduced, simple leaves. The specimen in the Linnaean Herbarium is more clearly recognizable as *D. cannabina* and is, therefore, here designated as the lectotype (Fig. 24).

40. 'Tithymalus Spinus Creticus', p. 303, fig. p. 302.

B. & S.: *Euphorbia acanthothamnos* Heldr. & Sart. ex Boiss.

Comments: The Alpino element appears not to be mentioned in any of Linnaeus's works. The plant depicted is greatly stylized, but is recognizable as *Euphorbia acanthothamnos*.

41. 'Oenanthe Stellata Cretica', p. 305, fig. p. 304.

B. & S.: indet.

Comments: The Alpino element appears not to be mentioned in any of Linnaeus's works. The figure may be a greatly stylized depiction of the variable *Oenanthe pimpinelloides* L. Certainly the leaves and fusiform root-tubers agree with that species.

42. 'Trifolium Clipeatum argenteum', p. 307, fig. p. 306.

S.: *Trifolium clypeatum* L.

B. & S.: *Trifolium argenteum* L. (see below).

Comments: Linnaeus includes the Alpino element in the protologue of *Trifolium clypeatum* in *Species plantarum* (1753: 769–770). The plant depicted is a good likeness of a



Fig. 24 The lectotype of *Datisca cannabina* L.: Herb. Linn. No. 1196.1 (LINN).



Fig. 23 The lectotype of *Nepeta scordotis* L.: Herb. Linn. No. 726.23 (LINN).



25. **TRIFOLIUM spicis ovatis**, calycibus patulis: la: *clypeatum*.  
 cinia infima maxima lanceolata, foliolis ovatis. *Hort.*  
*cliff.* 373. \* *Roy. lugdb.* 377.  
*Trifolium clypeatum argenteum. Alp. exot.* 307. t. 306.  
*Habitat in Oriente.* ☉

fruiting plant of *T. clypeatum*, which apparently has not been recorded from Crete since the early nineteenth century (cf. Rechinger, 1943: 365). Baldacci and Saccardo's determination is presumably an error, since there appears to be no such name as *Trifolium argenteum* L. The only other extant original element for *T. clypeatum* appears to be a specimen in Herb. Linn. No. 930.41 (LINN!). This material agrees with the current usage of the name and, since it exhibits more characters than the figure, is here designated as the lectotype (Fig. 25). Zohary (1972: 262) stated of the species 'Typus: Hb. Cliff. 373', an ambiguous statement which could be interpreted as referring to Linnaeus's *Trifolium spicis ovatis*, *calycibus patulis: lacinia infima maxima, foliis petiolatis* or *Trifolium* No. 4 in *Hortus cliffortianus* (1738: 373). There exists a specimen in the Clifford Herbarium at BM which is purported to correspond to this name, but there is nothing in the annotation on the sheet to form such a link, so it is very doubtful that the specimen has any relevance as an original element for *T. clypeatum*. For this reason, Zohary's statement cannot be regarded as constituting effective typification. Even if the specimen were relevant, it would be a most unfortunate choice of lectotype, since it does not agree with the current usage of the name and belongs instead to the related *T. scutatum* Boiss.

43. 'Caucalis Lusitanica', p. 309, fig. p. 308.

Comments: The Alpino element appears not to be mentioned in any of Linnaeus's works.

44. 'Echium nigrum flore eleganti', p. 311, fig. p. 310.

Comments: The Alpino element appears not to be mentioned in any of Linnaeus's works.

45. 'Iacea Hispanica', p. 313, fig. p. 312.

L.: 'Cyanus hispanicus, fl. dilute caeruleo. T. inst. 446.'

Comments: Neither the Alpino element nor the Tournefort polynomial in Linnaeus's annotation appears to be mentioned in any of Linnaeus's works.

46. 'Hedysarum argenteum', p. 315, fig. p. 314.

S.: *Coronilla globosa* Lam. (currently *Securigera globosa* (Lam.) Lassen).

B. & S.: *Coronilla globosa* Lam.

Comments: The Alpino element appears not to be mentioned in any of Linnaeus's works. The plant depicted is obviously a member of the Fabaceae, but there are insufficient diagnostic characters shown to enable identification even to the rank of genus.

47. 'Marrubium Hispanicum', p. 317, fig. p. 316.

Comments: The Alpino element appears not to be mentioned in any of Linnaeus's works.

48. 'Sisum', p. 319, fig. p. 318.

Comments: The Alpino element appears not to be mentioned in any of Linnaeus's works.

49. 'Bupthalmum peregrinum', p. 321, fig. p. 320.

S.: *Chrysanthemum trifurcatum* Desf. (currently *Leucanthe-mopsis trifurcata* (Desf.) Alavi).

Comments: The Alpino element appears not to be mentioned in any of Linnaeus's works.

50. 'Quinque folium siliquosum', p. 323, fig. p. 322.

L.: 'Sinapistrum aegyptiacum heptaphyllum, flore carneo majus spinosum. T. inst. 231.'

S.: *Cleome pentaphylla* L. (currently *C. gynandra* L.)

Comments: Linnaeus includes the Alpino element in the synonymy of *Cleome floribus gynandris* in *Flora zeylanica* (1747: 108), but does not appear to cite it explicitly in any of his other works. He includes the *Flora zeylanica* name in the protologue of *C. gynandra* L. in *Species plantarum* (1753: 671), and in the synonymy of *C. pentaphylla* in *Species plantarum* 2nd ed. (1763: 938), but not in the protologue of the latter name in *Flora jamaicensis* (1759b: 18). He includes the polynomial in his annotation, ascribed to Hermann and Sloane but not Tournefort, in the protologue of *C. heptaphylla* L. in *Species plantarum* 2nd ed. (1763: 937-938).

51. 'Hyosciamus Virginianus', p. 325, fig. p. 324.

S.: *Oenothera biennis* L.

Comments: Linnaeus includes the Alpino element in the synonymy of *Oenothera biennis* in *Species plantarum* 2nd ed. (1762: 492), but not in the protologue of that name in the first edition (1753: 346).

52. 'Bellis Spinosa', p. 327, fig. p. 326.

S.: *Balsamita ageratifolia* Desf., nom. illegit. (currently *Plagiopus flosculosus* (L.) Alavi & Heywood).

*flosculosum.* 14. **CHRYSANTHEMUM** flosculis omnibus uniformibus hermaproditis. *Hort. cliff.* 417. *Roy. lugdb.* 174.  
*Bellis major spinosa, petalis carens f. nuda. Morif. hist.*  
*3. p. 29. f. 6. t. 9. f. 16.*  
*Bellis spinosa, foliis agerati. Baub. pin. 262.*  
*Bellis spinosa. Alp. exot. 327. t. 326.*  
*Habitat in Africa.*

Comments: Linnaeus includes the Alpino element in the protologue of *Chrysanthemum flosculosum* L. in *Species plantarum* (1753: 890). The other extant original elements for this name appear to be specimens in Herb. Clifford: 417, *Chrysanthemum* No. 6 (BM!) and Herb. Burser XIV(2): 81 (UPS-microfiche!), as well as the figure captioned 'Bellis major spinosa petalis carens siue nuda, nobis. Bellis spinosa Prosp. Alp.' in Morison, *Plantarum historiae universalis oxoniensis* 3: s. 6, t. 9, f. 16 (1699)! Although these elements all agree with the current usage of the name, the specimens exhibit more of the diagnostic features than either of the figures, which are somewhat stylized. The specimen in the Burser Herbarium consists of three separate fragments: two sterile leafy shoots and a single flowering shoot bearing only a few capitula. That in the Clifford Herbarium consists of a flowering shoot with few leaves but several capitula and

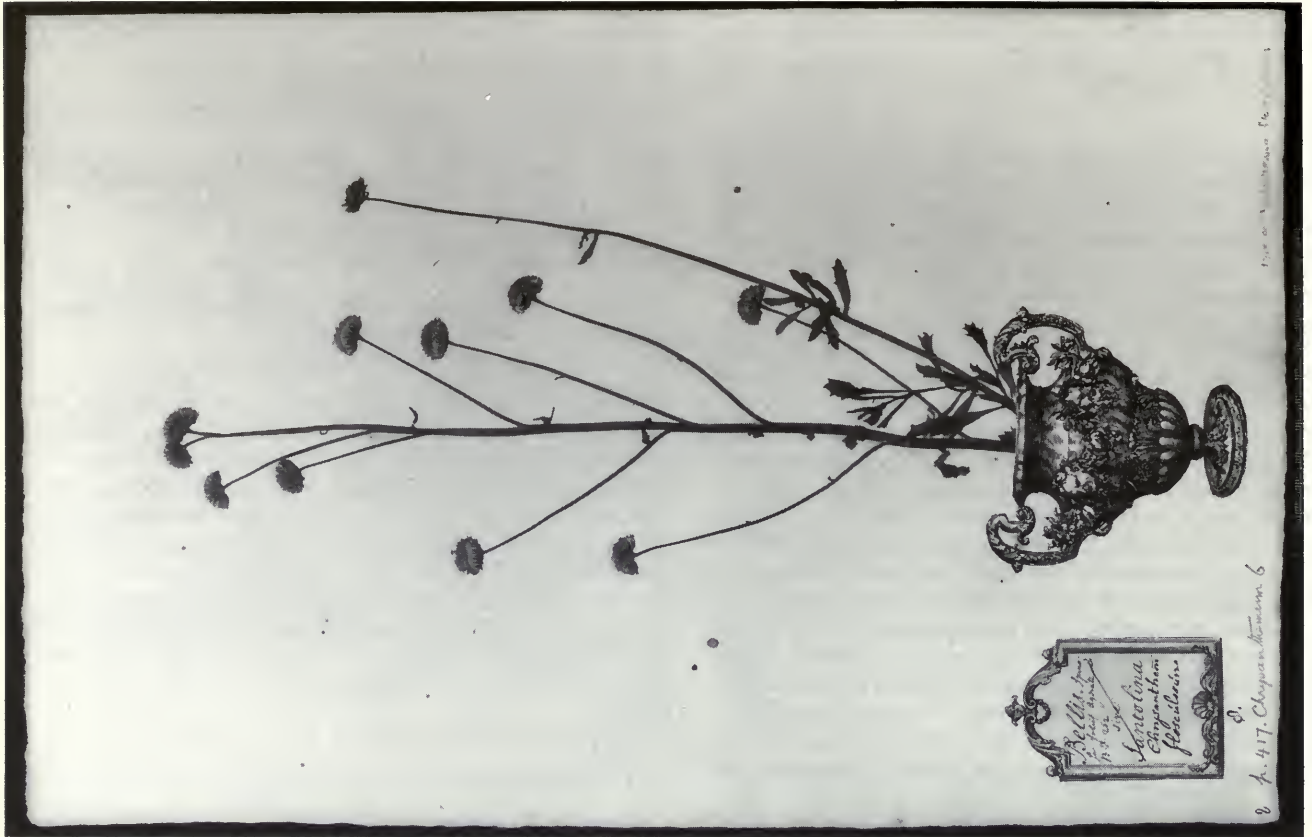


Fig. 26 The lectotype of *Chrysanthemum flosculosum* L.: Herb. Clifford: 417, *Chrysanthemum* No. 6 (BM).

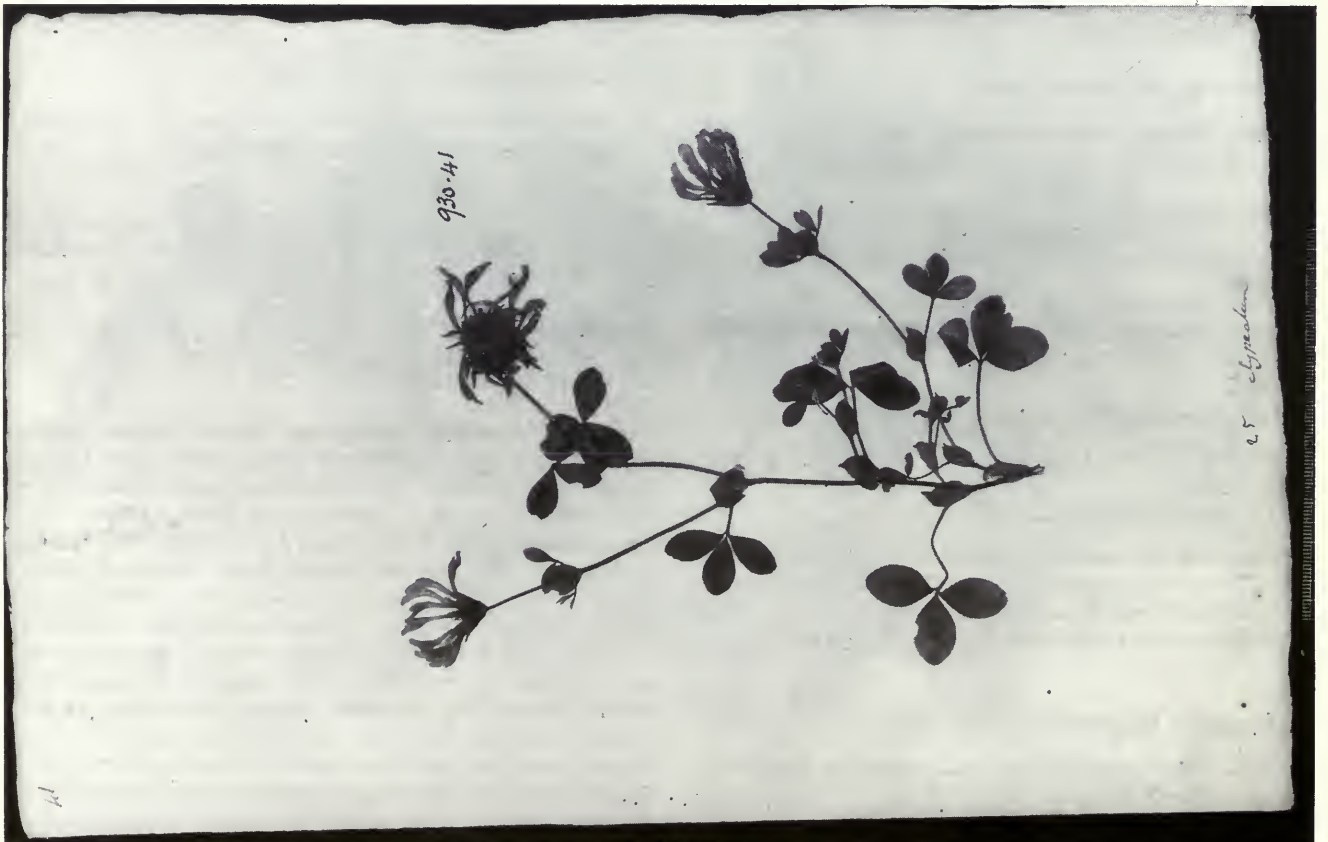


Fig. 25 The lectotype of *Trifolium clypeatum* L.: Herb. Linn. No. 930.41 (LINN).



seems, on balance, to exhibit better the diagnostic characters of the species. This specimen is, therefore, here designated as the lectotype of *C. flosculosum* (Fig. 26).

53. '*Meum Alexiterium*', p. 329, fig. p. 328.

Comments: The Alpino element appears not to be mentioned in any of Linnaeus's works.

54. '*Sium minimum*', p. 332, fig. p. 331.

L.: 'Cardamine'.

S.: *Cardamine impatiens* L.

Comments: Linnaeus includes the Alpino element in the synonymy of *Cardamine foliis pinnatis, pinnis laciniatis* in *Flora suecica* (1745: 203), but appears not to cite it explicitly in any of his other works, although he includes the *Flora suecica* name in the protologue of *Cardamine impatiens* in *Species plantarum* (1753: 655).

55. '*Arum Montanum*', p. 335, fig. p. 334.

Comments: The Alpino element appears not to be mentioned in any of Linnaeus's works.

56. '*Glaux*', p. 338, fig. p. 337.

Comments: The Alpino element appears not to be mentioned in any of Linnaeus's works.

57. '*Campanula Pyramidalis minor*', p. 341, fig. p. 340.

S.: *Campanula alpini* L. (currently *Adenophora liliifolia* (L.) A. DC.)

9, 10. **CAMPANULA** foliis lanceolatis serratis lævi-Alpini, bus, floribus racemosis secundis nutantibus, calycibus serratis.

*Campanula pyramidalis minor*. Alp. exot. 340.  
Habitat in Summano aliisque Italia Alpibus, Arduini. 24.

Folia serraturis distansibus, valde acuminatis. Pistillum corolla longius. Calycis foliola serraturis saepe duabus utrinque, acuminatis.

Comments: Linnaeus includes the Alpino element in the protologue of *Campanula alpini* in *Species plantarum* 2nd ed. (1763: 1669). The plant depicted is slightly stylized, but is a moderately good likeness of *Adenophora liliifolia*. The only other extant original element for *C. alpini* appears to be a specimen in Herb. Linn. No. 221.19 (LINN!), which also agrees with the current usage of the name and exhibits more of the diagnostic features than Alpino's figure. Therefore, the specimen is here designated as the lectotype (Fig. 27).

58. '*Rapunculus Petreus*', p. 344, fig. p. 343.

L.: 'Phyteuma'.

Comments: The Alpino element appears not to be mentioned in any of Linnaeus's works.

## SUMMARY OF NEW TYPIFICATIONS

*Acer sempervirens* L., *Mant. pl.*: 128 (1767); *Syst. nat.* 12th ed., 2: 674 (1767).



Fig. 27 The lectotype of *Campanula alpini* L.: Herb. Linn. No. 221.19 (LINN).

NEOTYPE. Crete, '*Acer creticum* L.', Omalos, 10 June 1938, Ogilvie-Grant 25 (K) (Fig. 1).

*Alyssum creticum* L., *Sp. pl.* 2: 651 (1753).

LECTOTYPE. '*Leucoium luteum vtriculato semine*', Alpino, *Pl. exot.*: 119 ['117'], fig. p. 118 ['110'] (1627) (Fig. 14).

EPITYPE. Iter Aegaeum VI [Crete], *Alyssum creticum* L., 2 March 1944, Bickerich sub Reehinger 15302 (BM) (Fig. 15).  
≡ *Lutzia cretica* (L.) Greuter & Burdet

*Attractylis cancellata* L., *Sp. pl.* 2: 830 (1753).

LECTOTYPE. (Designated by Petit). Herb. Clifford: 395, *Attractylis* No. 1 (BM) (Fig. 22).

*Berberis cretica* L., *Sp. pl.* 1: 331 (1753).

LECTOTYPE. '*Lycium Creticum*', Alpino, *Pl. exot.*: 21, fig. p. 20 (1627) (Fig. 5).

EPITYPE. Iter Aegaeum VI [Crete], *Berberis cretica* L., 7 July 1942, Reehinger 14293 (BM) (Fig. 6), isoeotype at K.

*Bunias spinosa* Turra, *Farsetia*: 11 (1765).

LECTOTYPE. 'Brassica Spinosa', Alpino, *Pl. exot.*: 201, fig. p. 200 (1627) (Fig. 20).

EPITYPE. Egypt, *Zilla spinosa* (Turra) Prantl, Suez, Wadi Iseili, tributary c. 24 km E. of Katamiya observatory, 13 June 1964, Osborn s.n. [ex Chicago Natural History Museum] (BM) (Fig. 21).

≡ *Zilla spinosa* (Turra) Prantl

**Campanula alpini** L., *Sp. pl.* 2nd ed., 2: 1669 (1763).

LECTOTYPE. Herb. Linn. No. 221.19 (LINN) (Fig. 27).  
= *Adenophora liliifolia* (L.) A. DC.

**Centaurea spinosa** L., *Sp. pl.* 2: 912 (1753).

LECTOTYPE. Herb. Clifford: 422, *Centaurea* No. 15 (BM) (Fig. 17).

**Chrysanthemum flosculosum** L., *Sp. pl.* 2: 890 (1753).

LECTOTYPE. Herb. Clifford: 417, *Chrysanthemum* No. 6 (BM) (Fig. 26).

≡ *Plagiis flosculosus* (L.) Alavi & Heywood

**Coronilla argentea** L., *Sp. pl.* 2: 743 (1753).

LECTOTYPE. 'Colutea Scorpioide odorata', Alpino, *Pl. exot.*: 17, fig. p. 16 (1627) (Fig. 2).

= *Coronilla valentina* L.

**Datisca cannabina** L., *Sp. pl.* 2: 1037 (1753).

LECTOTYPE. Herb. Linn. No. 1196.1 (LINN) (Fig. 24).

**Dianthus arboreus** L., *Sp. pl.* 1: 413 (1753).

LECTOTYPE. Figure illustrating *Betonica coronaria arborea cretica* in Bauhin, Cherler & Chabrey, *Hist. pl.* 3: 328 (1651) (Fig. 9).

N.B. Greuter (1965: 192) indicates the following specimen as a typtotype: *Benincasa* s.n., cultivated at Montbéliard by J. Bauhin (BAS).

= *Dianthus juniperinus* subsp. *bauhinorum* (Greuter) Turland

**Euphorbia aleppica** L., *Sp. pl.* 1: 458 (1753).

LECTOTYPE. Herb. Linn. No. 630.46 (LINN) (Fig. 10).

**Hyoscyamus aureus** L., *Sp. pl.* 1: 180 (1753).

LECTOTYPE. Herb. Clifford: 56, *Hyoscyamus* No. 3, fol. A (BM) (Fig. 13).

**Hyoscyamus muticus** L., *Mant. pl.*: 45 (1767); *Syst. nat.* 12th ed., 2: 170 (1767).

LECTOTYPE. 'Hyosciamus albus Aegyptius', Alpino, *Pl. exot.*: 193, fig. p. 192 (1627) (Fig. 18).

EPITYPE. Plantae Sinaiticae, ex Herb. Postian. apud Colleg. Syriens. Protest., *Hyoscyamus muticus* L., Suez to Wadi Sudr, 28 February 1883, No. 106 (BM) (Fig. 19).

**Linum arboreum** L., *Sp. pl.* 1: 279 (1753).

LECTOTYPE. 'Linum Arboreum', Alpino, *Pl. exot.*: 19, fig. p. 18 (1627) (Fig. 3).

EPITYPE. Iter Aegaeum VI [Crete], *Linum arboreum* L., 22 April 1942, Reching 12202 (BM) (Fig. 4).

**Lithospermum fruticosum** L., *Sp. pl.* 1: 133 (1753).

LECTOTYPE. Herb. Linn. No. 181.9 (LINN) (Fig. 11).  
≡ *Lithodora fruticosa* (L.) Griseb.

**Nepeta scordotis** L., *Cent. pl.* II: 20 (1756).

LECTOTYPE. Herb. Linn. No. 726.23 (LINN) (Fig. 23).

**Onosma simplicissimum** L., *Sp. pl.* 2nd ed., 1: 196 (1762).

LECTOTYPE. Herb. Linn. No. 187.1 (LINN) (Fig. 16).

**Thymus tragoriganum** Turra, *Farsetia*: 11 (1765).

LECTOTYPE. 'Tragoriganum', Alpino, *Pl. exot.*: 79, fig. p. 78 (1627) (Fig. 12).

= *Satureja thymbra* L.

**Trifolium clypeatum** L., *Sp. pl.* 2: 769 (1753).

LECTOTYPE. Herb. Linn. No. 930.41 (LINN) (Fig. 25).

**Verbascum spinosum** L., *Cent. pl.* II: 10 (1756).

LECTOTYPE. 'Leucoium Spinosum', Alpino, *Pl. exot.*: 37, fig. p. 36 (1627) (Fig. 7).

EPITYPE. Iter Creticum Alterum, *Verbascum spinosum* L., 11 July 1899, Baldacci 241 (BM) (Fig. 8).

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**BOOK REVIEW**

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**Y. Kimura & V.P. Leonov (Eds) 1994. C.P. Thunberg's Drawings of Japanese Plants. Maruzen Co., Ltd., Tokyo. Pp vii + 594. Price outside Japan US\$333.**

This very substantial book (all 4.8 kg of it) was inspired by a set of 355 paintings based on herbarium collections made by Carl Peter Thunberg in Japan. These were acquired for the Herbarium in St. Petersburg by Carl Johann Maximowicz, another key figure in eastern Asian botany, and have all been reproduced in monochrome. Three hundred and five of the plates had never been published before. The illustrations are supplemented with some extensive notes made by Maximowicz (both as photographs of the originals and a detailed transcription by N. Zabinkova), background essays on Thunberg, Maximowicz and the history of the illustrations by Y. Kimura, V.I. Grubov and M.E. Kirpicznikov, W.T. Stearn, and T.A. Tchernaja, and two commentaries on the individual illustrations by B. Nordenstam and H. Ohba.

Thunberg was probably the most successful student of Linnaeus, responsible for making some of the first major collections and writing the first major Floras in two areas of particular biological interest: South Africa – *Flora Capensis* published between 1807 and 1823, and Japan – *Flora Japonica* published in 1784. Because of their pioneering nature, both of these are of interest to plant taxonomists working in areas quite far removed from the area immediately covered. Thus any work adding to our knowledge of the work of this pioneer is of considerable interest. The very existence of a work such as this compendium and the amount of scholarship that it reflects is a clear confirmation of this importance.

The quality of reproduction of the paintings is well up to the standard that has become expected of Japanese publishers. The painting were prepared from herbarium specimens

and Bertil Nordenstam has written a detailed commentary correlating painting and specimen and indicating any discrepancies between the two. Photographs of some of the specimens demonstrate the similarity of plate and specimen very clearly. Thus at least sometimes the plates can be used in place of a visit to Uppsala to see the herbarium itself which in itself can be used to help justify the acquisition of this work by botanical institutes working on the flora of the Far East. This is complemented by a detailed account by Hideaki Ohba of the current nomenclature of each taxon represented. On top of this core information source, there are also the accompanying essays which provide background information that is essential for understanding Thunberg's work in Japan and thus the exact origins of so many important type collections. These also provide valuable information on Maximowicz, the great Russian plant taxonomist, who also collected extensively in Japan and the Far East and published a vast number of new taxa. There is overlap in the content matter of the various essays, adequate to confirm the high level of scholarship of the writers – their facts agree nicely – but at the same time providing an interesting insight into national styles of writing. There seems to be a greater need for explicit praise in some cultures than others; not everyone goes in for the scholarly English understatement of William Stearn who provides yet another of his wonderful biographies of major figures in the history of plant taxonomy.

**M.G. Gilbert**

Missouri Botanical Garden/The Natural History Museum





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## CONTENTS

- 99 **Seaweeds of the western coast of tropical Africa and adjacent islands: a critical assessment.**  
IV. Rhodophyta (Florideae) 5. Genera P  
*G.W. Lawson, W.J. Woelkerling, J.H. Price, W.F. Prud'homme Van Reine and D.M. John*
- 123 **A new species of *Odontorrhynchos* (Orchidaceae, Spiranthinae) from Bolivia**  
*D.L. Szlachetko*
- 127 **Linnaeus's interpretation of Prospero Alpino's *De plantis exoticis*, with special emphasis on the flora of Crete**  
*N.J. Turland*
- 161 **Book review**  
*M.G. Gilbert*