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

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CONTENTS

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 element 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 '/' 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.

LIBER PRIMUS

1. **'Lauro Syluestri Cretica'**, p. 1, fig. facing p. 1.

L.: 'Thymelaea cretica, oleae folio subtus villoso. 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. β, 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. (1759*a*: 1310). The Tournefort polynomial in Linnaeus's annotation is not cited in either edition of *Species plantarum*; another Tournefort name, *Acer orientalis, hederae 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* (1767*a*: 128) and simultaneously in *Systema naturae* 12th ed. (1767*b*: 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. *Pocock orient.* 191. *t.* 85.
Acer cretica. *Alp. exot.* 9. *t.* 8. *Duham. arb.* 1. *p.* 28. *t.* 10, *f.* 9
Habitat in Oriente. ♄.

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- virens. 11. ACER foliis ovatis integerrimis ſempervirentibus. *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 (1970*a*: 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 *Echinospartum 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 *Echinospartum 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

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

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Colutea Scorpioide odorata.

Pulche·r

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

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 e 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.: *Staehelina 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. (1759*a*: 1229). The species was transferred to the genus *Staehelina* in *Systema naturae* 12th ed. (1767*b*: 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, Styracisfolio'**, p. 33, fig. p. 32.

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

Comments: Linnaeus includes the Alpino element in the protologue of *Staehelina arborescens* in *Mantissa plantarum* (1767*a*: 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 *Staehelina 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 *Staehelina* 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. β. 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-

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

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

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

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.

124. VERBASCUM *(ſpinoſum)* caule fruticoſo ſpinoſo.
Verbaſcum creticum ſpinoſum frutescens. *Lob. illuſt. 113.*
Leucojum creticum ſpinoſum incanum luteum *Bauh. 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 'Galastivida 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 Syluestris arboreus'**, p. 39, fig. p. 38.

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

13. DIANTHUS caule frutiçoſo, foliis ſubulatis. *arboreus.*]
Caryophyllus creticus arboreus, juniperi folio. *Tournef. cor.* 23.
Caryophyllus arboreſcens creticus. *Bauh. pin.* 208. *prodr.* 104.
Betonica coronaria arborea cretica. *Bauh. hiſt.* 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 *Betonica 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.

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

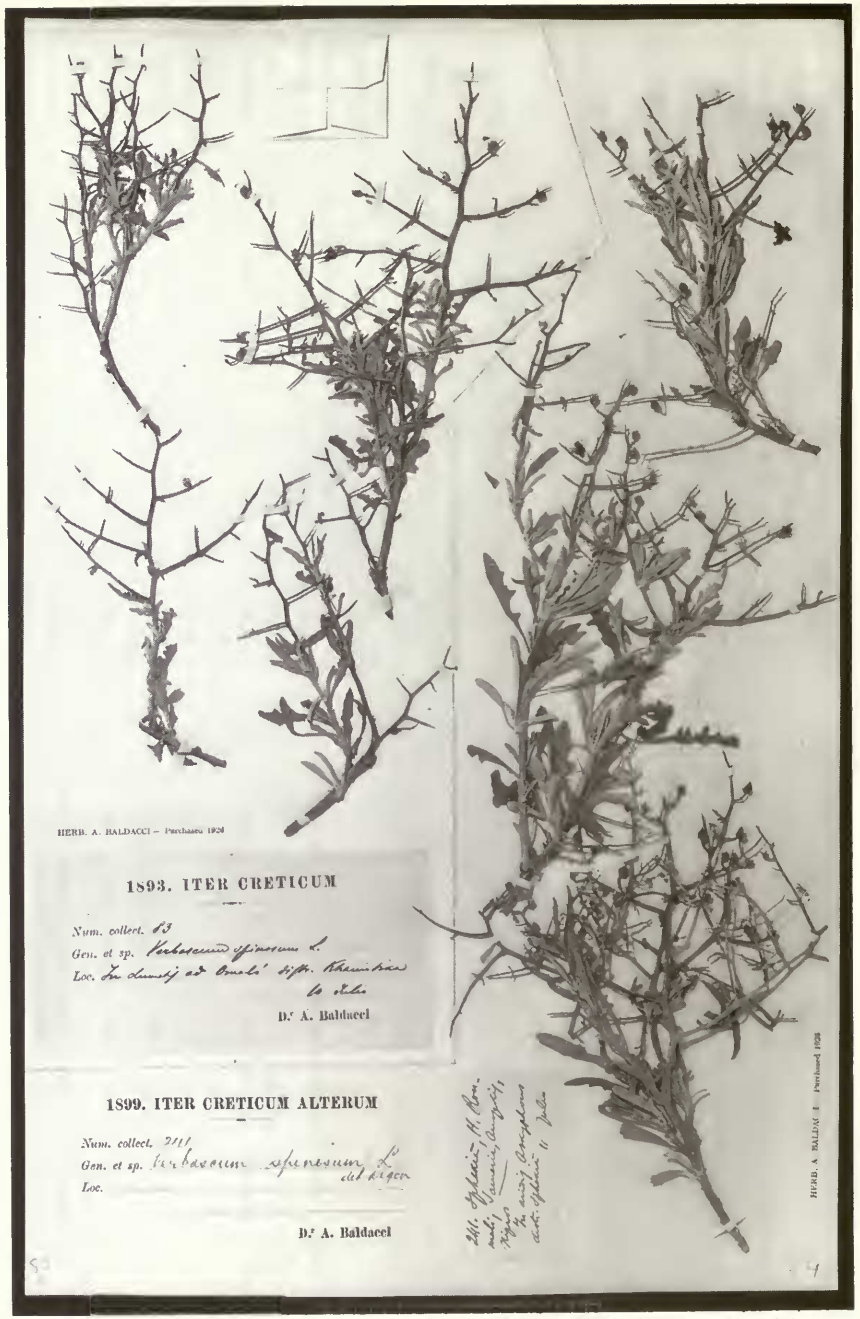

Fig. 8 The epitype of *Verbascum spinosum* L.: *Baldacci* 241 (BM), i.e. the material to the right of the pencil line.

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 echioides* 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 mu
.cronatis.
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. cent.* 2. *p.* 18. *t.* 10.
β. Limonium græcum, juniperi folio. *Tournef. cor.* 25.
Echinus ſ. Tragacantha altera. *Alp. exot.* 57. *t.* 56.
Habitat in Græciæ & Mediæ *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 Azerbaydzhan 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. **'Tytymalus Cyparissius'**, p. 65, fig. p. 64.

L.: 'Euphorbia aleppica.'
S.: *Euphorbia aleppica* L.

aleppica. 38. EUPHORBIA umbella quinquefida: dichotoma, involucellis ovato-lanceolatis mucronatis, foliis inferioribus ſetaceis. *Diſſ. euph.* 37.
Tithymalus foliis inferioribus capillaceis; ſuperioribus myrto ſimilibus. *Moriſ. hiſt.* 3. *p.* 338.
Tithymalus cypariſſius. *Alp. exot.* 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. **'Phylitis ramosa'**, p. 67, fig. p. 66.

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

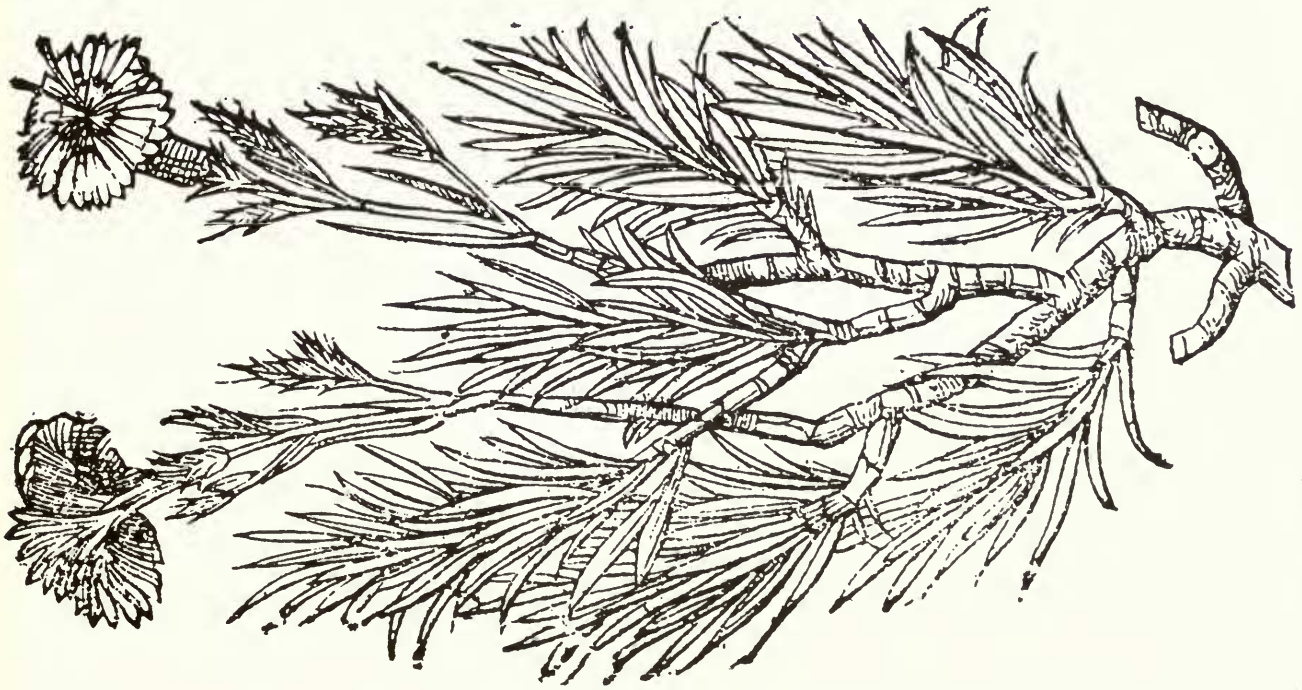

Fig. 9 The lectotype of *Dianthus arboreus* L.: figure illustrating *Betonica coronaria arborea cretica* in Bauhin, Cherler & Chabrey, *Hist. pl.* **3**: 328 (1651).

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* (1767*a*: 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 corol- *fruticoſum.*
lam æquantibus.
Lithoſpermum fruticoſum, corollis calyce majoribus, foliis lincaribus hiſpidis. *Sauv. monſp.* 50. 63.
Anchuſa anguſtifolia. *Bauh. 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.* ♄

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 *Staehelina* in *Systema naturae* 12th ed. (1767*b*: 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* (1767*a*: 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 ſuffruticoſo erecto, floribus verticillatis, foliis hiſpidis acuminatis.
Tragoriganum creticum. *Bauh. 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 cæruleſcentes.
Uſus *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.

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

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

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. (1759*a*: 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. *Bauh. pin.* 169. *prodr.* 92.
β. Hyoſcyamus creticus luteus minor. *Bauh. pin.* 169.
Hyoſcyamus aureus. *Alp. exot.* 99. *t.* 98.
Habitat in Creta. ⊙

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 lanceolato-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.

frutescens. 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. ♄

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. β.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. *creticum.*
Alyſſoides fruticoſum creticum, leucoji folio incano. *Tournef. cor. 15.*
Leucojum luteum, utriculato ſemine. *Alp. exot. 117. t. 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 Syluestre 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.

ſimpliciſſ- 1. ONOSMA foliis confertiſſimis lanceolato-linearibus piloſis.
Echium creticum. *Alp. exot. 130. t. 129. Meriſ. biſt. 3, p. 439. ſ. 11. t. 27. f. 3?*
Habitat in Sibiria. *Gmelin.* ♃.
Caules *ſpithamæi, ſimplices, lignoſi, interdum ad baſin uno alterove ramo.* Folia *confertiſſima ut fere baſi imbricata, digiti fere longitudine, anguſtiſſime lanceolata & fere linearia, baſi attenuata.* Racemi *ſæpius duo, caules terminantes, vix pedunculati.* Flores *Symphyti absque palis. Symphytum creticum Tournef. cor. eſſe nequit, cum folia pilis breviſſimis adſperſa.*

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 adspersa.' 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

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

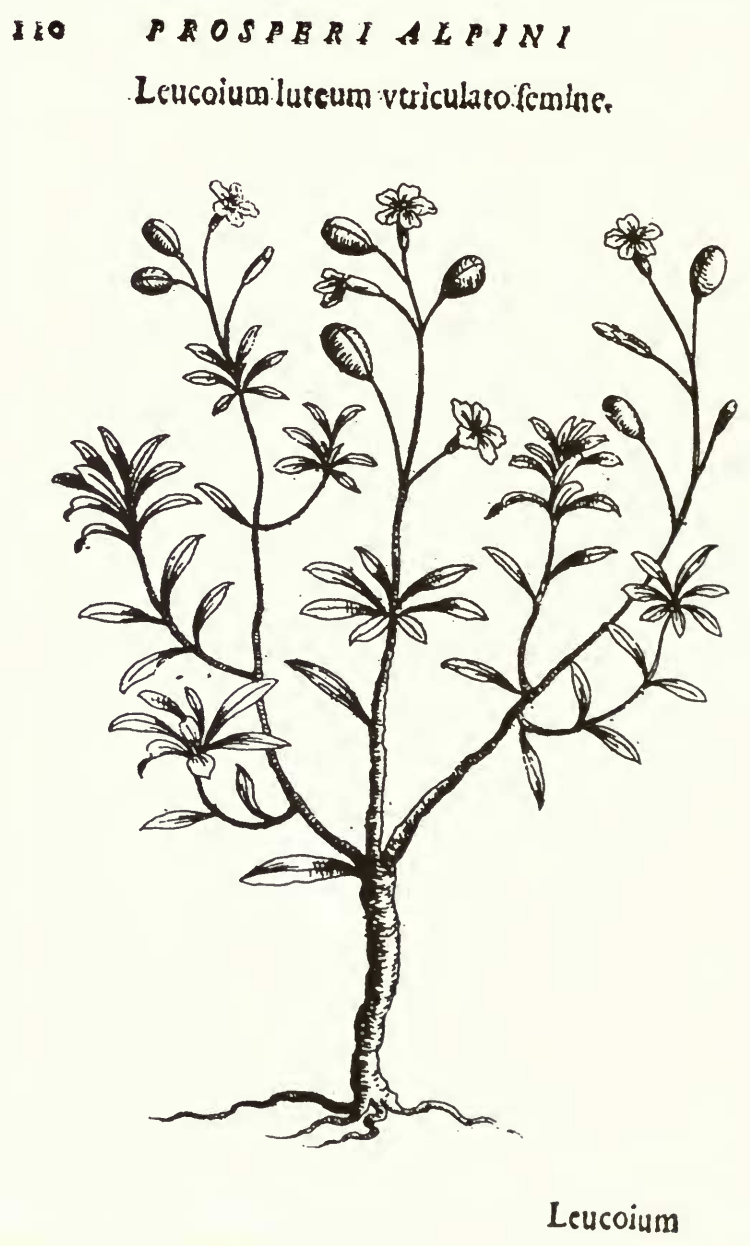

Fig. 14 The lectotype of *Alyssum creticum* L.: Alpino, *Pl. exot.*: 118 ['110'] (1627).

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-rosette 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. **'Eringium 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 Spinosus'**, 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

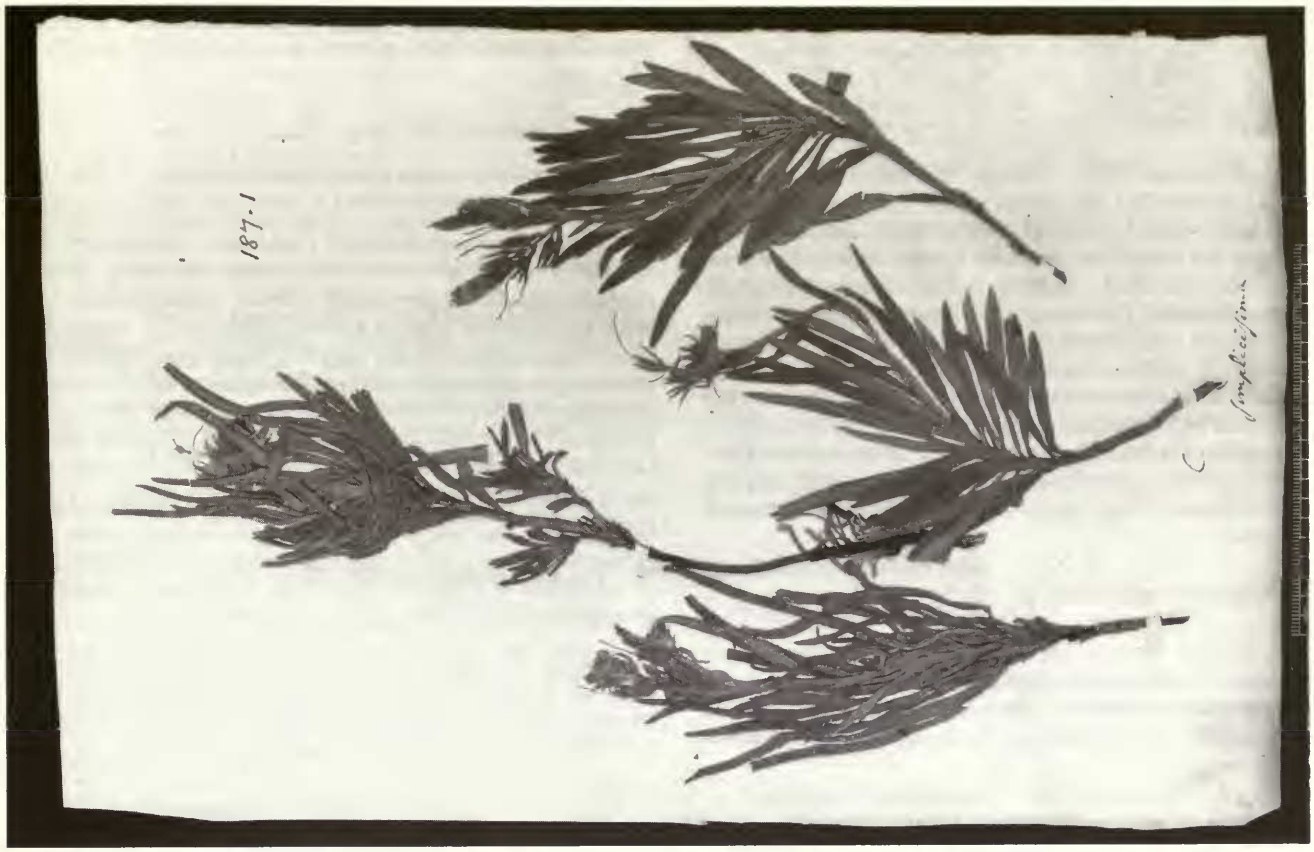

Fig. 16 The lectotype of *Onosma simplicissimum* L.: Herb. Linn. No. 187.1 (LINN).

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.
Stœbe ſpinoſa cretica. *Moriſ. hiſt.* 3. *p.* 136.
Cyanus ſpinoſus. *Alp. exot.* 163. *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 involucral 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* (1767*a*: 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*.

LIBER SECUNDUS

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. **'Hyosciamus albus Aegyptius'**, p. 193, fig. p. 192.

Comments: Linnaeus includes the Alpino element in the protologue of *Hyoscyamus muticus* L. in *Mantissa plantarum* (1767*a*: 45), but with some doubt, since he cites the reference

muticus. 6. HYOSCYAMUS foliis petiolatis ovatis acutangulis, calycibus muticis, bracteis indivisis.
Hyoscyamus albus ægyptius. *Alp. exot.* 193. *t.* 192?
Habitat in Ægypto, Arabia. ♂.
Caulis *pedalis, crassitie digiti, erectus, teretiusculus, subpubescens:* Ramis *axillaribus, brevioribus.* Folia *alterna, petiolata, ovata, obtuse sinuata, acutius utrinque biangulata, acuta, lævia, integerrima, pallescentia:* Petiolis *pubescentibus.* Floralia *folia subpetiolata, ovata s. ovato-oblonga, integra, alternis floribus bina, alternis solitaria.* Racemus *secundus apice incurvato.* Calyx *campanulato-infundibuliformis, quinquefidus: laciniis latiusculis, minimeque spinosis.* Corolla *calyce paulo longior, non vero latior, subcampanulata, quinquefida: laciniis 3 superioribus latioribus; inferioribus 2 minoribus, profunde separatis; color corollæ 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.

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 septemangularibus serratis hispidis* 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. **'Hypomaratrum spherocephalum'**, 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* (1767*a*: 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).

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 Ægypto, in Ethiopia, in Syria & in Judæa.*
Celeb. Donati ſemina ex Ægypto in Italiam miſit anno 1761.
Planta cubitalis, ramoſa, glabra. *Folia* petiolata, lanceolata, ſubdentata, alterna, glauca. *Rami* ſubnudi ſpinis decompoſitis terminati. *Flores* ſparſi, rari, ſolitarii, ſubrubri. *Fructus* ovato-acuminati.
Folia comeduntur in Ægypto uti *Braſſica oleracea.*

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.

Fig. 17 The lectotype of *Centaurea spinosa* L.: Herb. Clifford: 422, *Centaurea* No. 15 (BM).

Hyoſciàmus albus Aegyptius.

Duis

Fig. 18 The lectotype of *Hyoscyamus muticus* L.: Alpino, *Pl. exot.*: 192 (1627).

Fig. 19 The epitype of *Hyoscyamus muticus* L.: Plantae Sinaiticae, ex Herb. Postian. apud Colleg. Syriens. Protest, No. 106 (BM).

Fig. 20 The lectotype of *Bunias spinosa* Turra: Alpino, *Pl. exot.*: 200 (1627).

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.: *Acarna cancellata* (L.) All. (currently *Atractylis cancellata* L.)
B. & S.: *Atractylis cancellata* L.

cancellata. 4. ATRACTYLIS involucris cancellatis ventricosis linearibus dentatis, calycibus ovatis, floribus floscu-losis.
Atractylis foliis linearibus dentatis, calycibus conniventibus. *Hort. cliff.* 395. *Roy. lugdb.* 137.
Acarna capitulis globosis. *Bauh. pin.* 379.
Eryngium parvum palmare, foliis serratis. *Morif. hist.* 3. *p.* 166. *f.* 7. *t.* 36. *f.* 16.
Carduus parvus. *Bauh. hist.* 3. *p.* 93. *Raj. hist.* 316.
Carduus minimus. *Alp. exot.* 254.
Habitat in Hispaniæ, Siciliæ, Cretæ *agris.* ⊙
Receptaculum *tectum paleis* coalitis. Pappus *plumosus, basi quasi monophyllos sub florescentia, corollulis longior. Lœfling.*

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 incisis* in *Hortus upsaliensis* (1748: 157), under the unnamed var. β, 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).

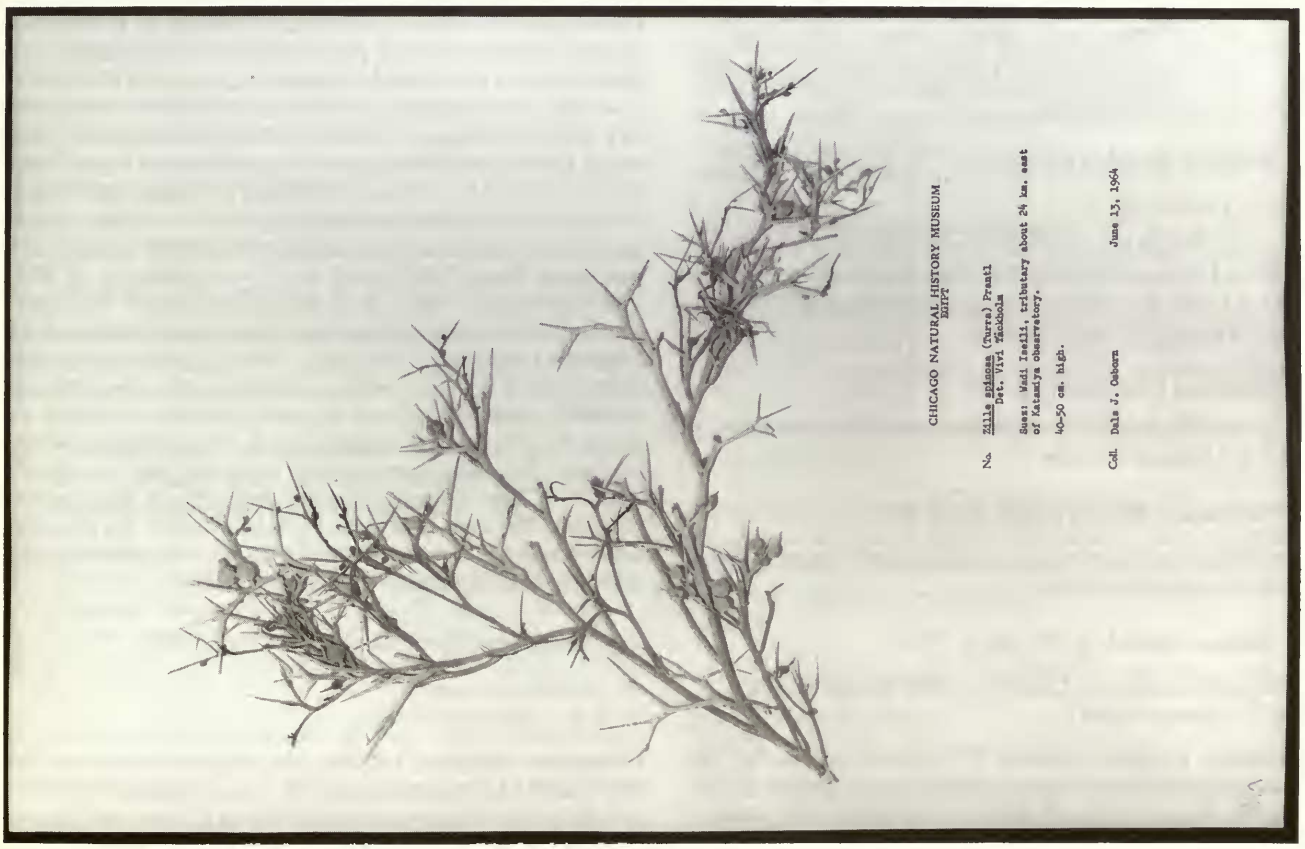

Fig. 21 The epitype of *Bunias spinosa* Turra: *Osborn* s.n. (BM)

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. (1767*b*: 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. (1759*a*: 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. hiſp. 2. p. 312.*
Habitat in Creta. *Miller.* 24
Planta pedalis. *Caulis* piloſus. *Folia* oppoſita, petiolata, cordata, obtuſa, crenata, rugoſa, tomentoſa, craſſiuſcula. *Flores* verticillati. *Bracteæ* lanceolatæ, erectæ, piloſæ, longitudine calycis. *Calyces* piloſi. *Corollæ* albæ : Labro concavo crenato punctis purpuraſcentibus. *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 plantaginis folio'**, 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 purpurascente. 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 fertiljs 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 lævi. *Cannabina.*
Cannabis foliis pinnatis. *Hort. cliff.* 457. *Roy. lugdb.* 221.
Cannabis lutea fertilis. *Alp. exot.* 300. *t.* 298. *Morif. hift.* 3. *p.* 432. *f.* 8. *t.* 25. *f.* 4.
Luteola herba ſterilis. *Bauh. pin.* 100.
Cannabis lutea cretica. *Alp. exot.* 296. *t.* 295.
Cannabis lutea ſterilis. *Alp. exot.* 301. *t.* 300.
Luteola herba foliis cannabinis. *Bauh. pin.* 100.
Habitat in Creta. ♄

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 Spinosus 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).

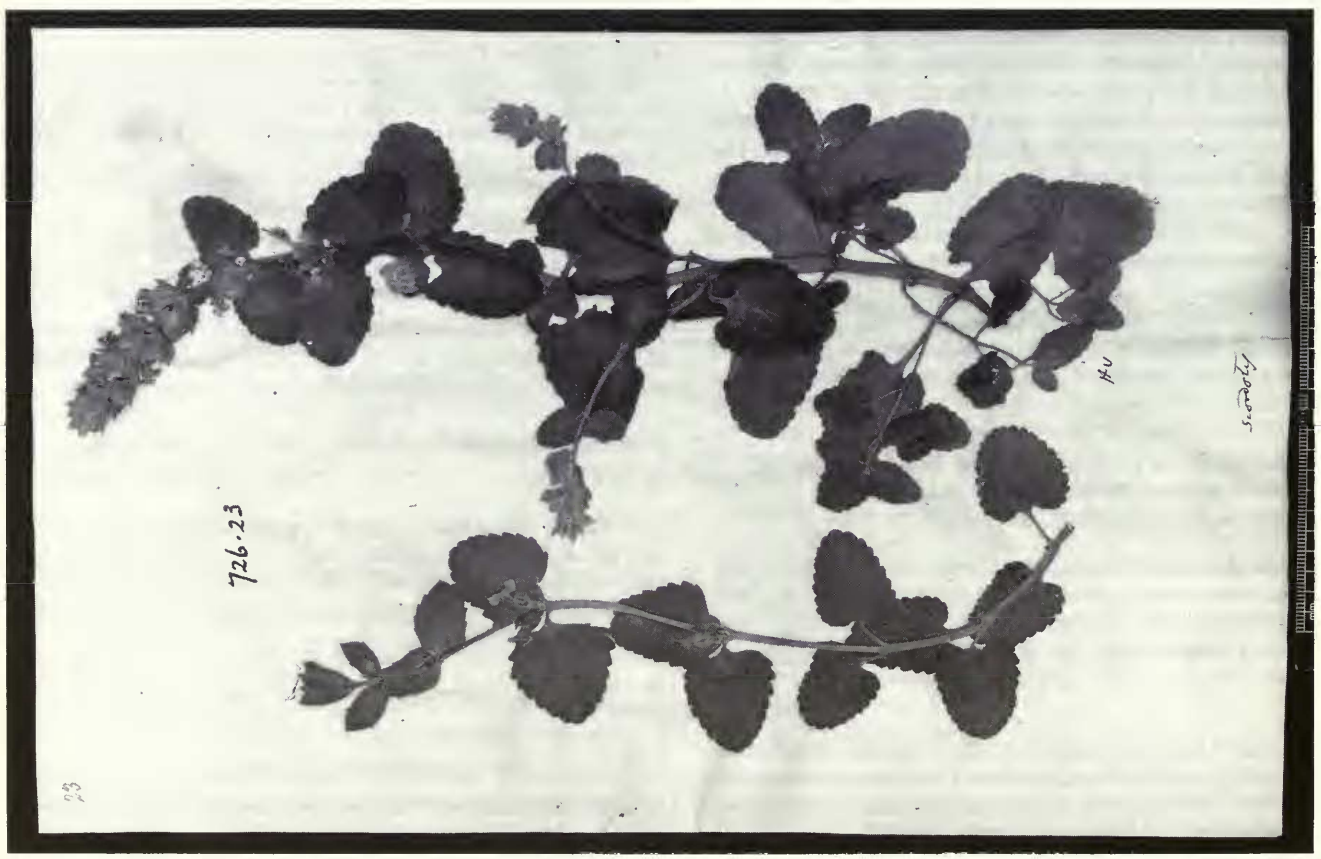

Fig. 23 The lectotype of *Nepeta scordotis* L.: Herb. Linn. No. 726.23 (LINN).

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. **'Buphtalmum peregrinum'**, p. 321, fig. p. 320.

S.: *Chrysanthemum trifurcatum* Desf. (currently *Leucanthemopsis 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* (1759*b*: 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 *Plagius flosculosus* (L.) Alavi & Heywood).

floſculoſum. 14. CHRYSANTHEMUM floſculis omnibus uniformibus hermaphroditis. *Hort. cliff.* 417. *Roy. lugdb.* 174.
Bellis major ſpinoſa, petalis carens f. nuda. *Morif. hiſt.* 3. *p.* 29. *ſ.* 6. *t.* 9. *f.* 16.
Bellis ſpinoſa, foliis agerati. *Bauh. 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

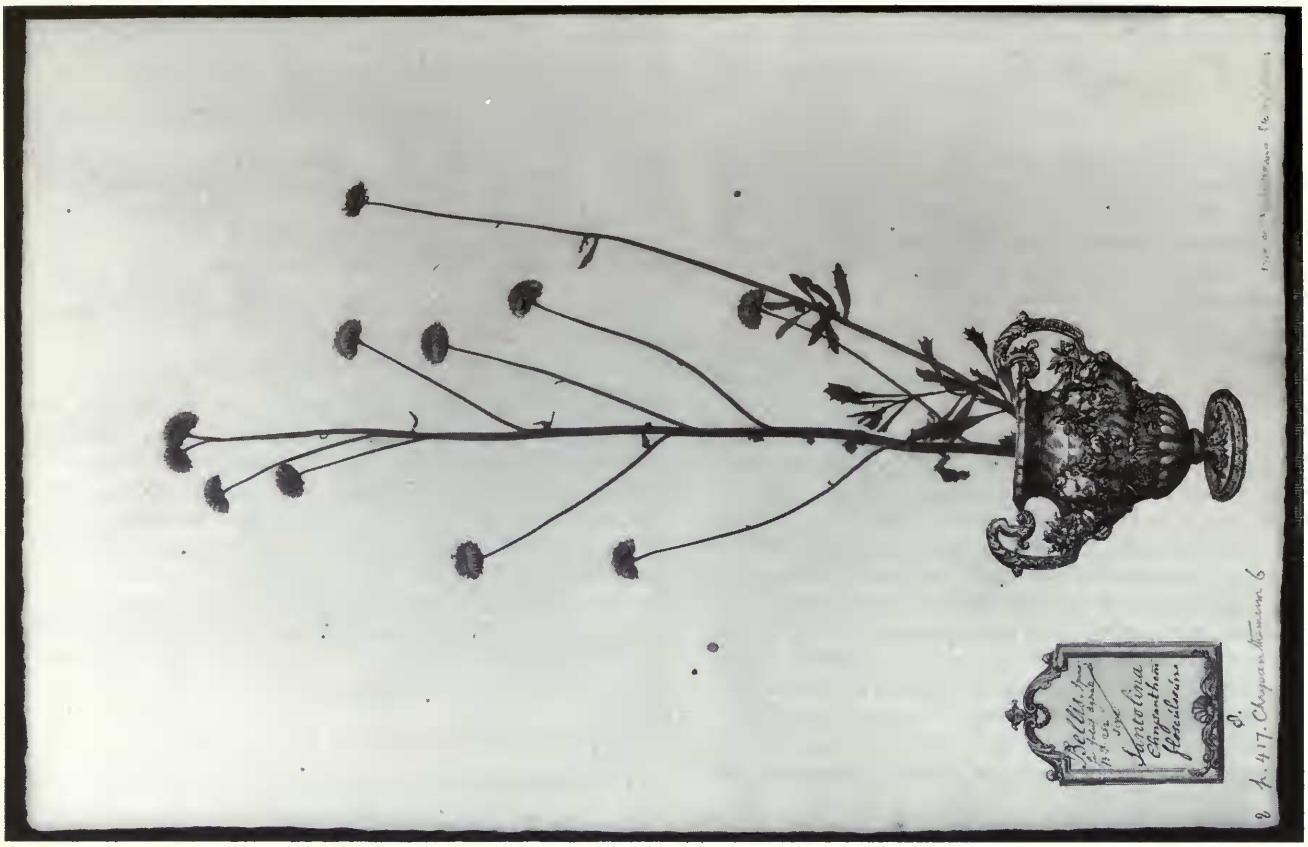

Fig. 26 The lectotype of *Chrysanthemum flosculosum* L.: Herb. Clifford: 417, *Chrysanthemum* No. 6 (BM).

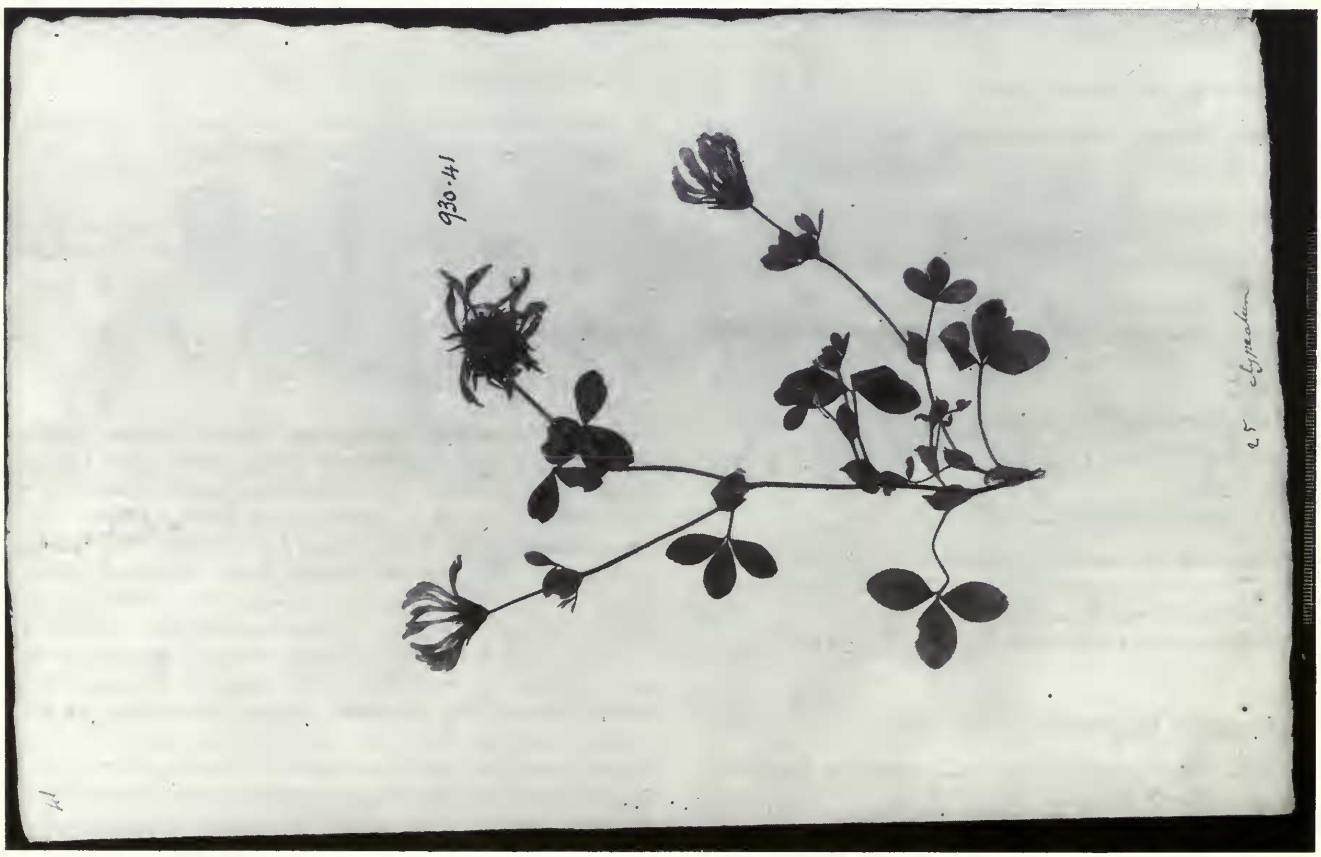

Fig. 25 The lectotype of *Trifolium clypeatum* L.: Herb. Linn. No. 930.41 (LINN).

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* Italiæ *Alpibus, Arduini.* ♃.
Folia *ſerraturis diſtantibus, valde acuminatis.* Piſtillum *corolla longius.* Calycis *foliola ſerraturis ſæpe 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 *Rechinger* 15302 (BM) (Fig. 15). ≡*Lutzia cretica* (L.) Greuter & Burdet

Atractylis cancellata L., *Sp. pl.* **2**: 830 (1753).

LECTOTYPE. (Designated by Petit). Herb. Clifford: 395, *Atractylis* 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, *Rechinger* 14293 (BM) (Fig. 6), isoepitype 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).
≡*Plagius 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 typotype: *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, *Rechinger* 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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