STUDIES IN EAST MEDITERRANEAN SPECIES OF SALVIA: IV

I. C. HEDGE

In this paper, one new species is described: *S. huberi* Hedge; *S. trigonocalyx* Woron., *S. cataonica* Boiss. & Hausskn., *S. purpurascens* Post, *S. amana* Bornm., *S. bithynica* Briq. & Post are reduced to synonyms of other species; *S. sylvestris* L. and *S. nemorosa* L. are discussed and typified; some other misunderstood or interesting species are discussed.

SECTION EUSPHACE BENTH.

S. divaricata Montbr. & Auch. in Ann. Sc. Nat. ii, 37 (1836).

Syn.: *S. trigonocalyx* Woron. in Monit. Jard. Bot. Tiflis, xxii, 10 (1912) *e descr.*

Although I have not seen the original specimen of *S. trigonocalyx*, I have been able to examine a photograph of the type. It was described from the Turkish province of Artvin at a locality called Gorgotohan (which I have not been able to locate) when Artvin was within the boundaries of Russia. On the basis of the original description and the photograph of *S. trigonocalyx*, there is little doubt that it is synonymous with the rare Anatolian *S. divaricata* which is unique among the South-West Asiatic species on account of the very long (c. 3 cm.) pedicels.

Salvia huberi Hedge, **sp. nov.**

Affinis *S. rosifoliae* Sm. sed foliis angustioribus minoribus, calycibus et floribus minoribus, verticillastris 2–4–floris, pedicellis brevioribus divergit; a *S. cedronellae* Boiss. indumento pilis eglandulosis, floribus rubro-lilacinis valde recedit.

Suffrutex caulibus 20–35 cm. altis. *Caules* erecti vel adscendentes inferne lignescentes, ex toto pilis brevibus albis eglandulosis breviter hirsuti, obtuse quadrangulares. *Folia* pinnata, petiolata; segmentum terminale anguste oblanceolato-spathulatum, 15–20 mm. longum, 6–9 mm. latum, non stipitatum, margine dentatum (dentibus utrinque 5–8), apice subobtusum, griseo-viride, subtus pilis brevibus eglandulosis et glandulosis sessilibus aureis provisum, molliter hirsutum supra simile sed indumento breviore et minus denso provisum; nervatura vix prominens; segmenta lateralia terminali minora, oblongo-elliptica c. 10×3 mm., apicem versus serrata, inferiora parva, c. 7×2 mm., lineari-oblonga, subintegra. Petiolus c. 10 mm. longus, basin versus ciliis 3 mm. longis provisus. *Axis inflorescentiae* 10–15 cm. longus, breviter hirsutus. *Verticillastra* 2–4–flora, c. 4–nata, internodiis 2·5–3·5 cm. longis. *Folia floralia* minuta sessilia ovato-lanceolata, pilis brevibus eglandulosis et pilis paucis capitatis glandulosis vestita. *Pedicelli* in parte inferiore inflorescentiae c. 6 mm. longi, erecti, sursum decrescentes. *Calyx* tubuloso-infundibularis 8–10 mm. longus, purpurascenti-suffusus, ad tertiam partem bilabiatus, 14-nervosus, pilis longis glandulosis et pilis longis eglandulosis et glandulis sessilibus obsitus; labium superius tridentatum, dente intermedio lateralibus paulo breviore, dentibus brevibus subulatis; labium inferius in dentes duos ovato-triangulares acutos 2–3 mm. longos fissum; calyx in fructu paulo auctus c. 11 mm. longus. *Corolla* calyce duplo longior,

rubro-lilacina, superne pubescens, 16–20 mm. longa, ad trientem bilabiata; tubus intus basi dense piloso-annulatus; galea emarginata pilis eglandulosis longis provisa; labium inferius galea paulo brevius, lobo mediano rotundato-reniformi c. 8 mm. lato, lobis lateralibus ovatis obtusissimis. *Connectiva* antherarum c. 6 mm. longa, curvata ad basin inter se non cohaerentia; theca fertilis c. 3 mm. longa; staminodia evoluta. *Stylus* c. 6 mm. longus, exsertus. *Nuculae* nigricantes, laeves, ovatae, 2·5 mm. longae. *Floret* Jul.

TURKEY. Prov. Erzurum: Yusufeli-Erzurum road, soil slopes, corolla pinkish-mauve, 1100 m., 9 July 1960, *Stainton & Henderson* 6104 (holo. E, iso. K); distr. Tortum, Tortum-Artvin, Steppe auf Kalkschiefer 8 km. nordöstlich Tortum, Blüten rot, 1450 m., 16 July 1958, *Huber-Morath* 15323 (H-M!). Prov. Artvin: Artvin-Yusufeli road, on granite rocks in gulley, sub-shrub 1 m. high, fls. pinkish-pale mauve, 1800 m., 8 July 1960, *Stainton & Henderson* 6070.

S. huberi (Plate 24) is most closely related to *S. rosifolia* Sm. The new species is distinguished by the fewer flowers to the verticils and by the smaller calyces and flowers. There is a constant difference in the calyx shape between the two species: in *S. rosifolia* the upper lip of the calyx is longer than the lower lip and the middle tooth of the upper lip is larger than the laterals; in *S. huberi* the upper lip is shorter than the lower and the middle tooth of the upper lip is shorter than the laterals. The calyx indumentum in the two *Stainton & Henderson* numbers has many long capitate glands whereas in *S. rosifolia* the calyx indumentum is without any capitate glandular hairs. However, this feature cannot be used as a definitive distinguishing character as in Huber-Morath's specimen some of the shoots have a capitate glandular indumentum whereas others have an eglandular indumentum of long white hairs. As regards corolla size, the range in all the material I have seen is:- *S. rosifolia* (18–) 23–26 (–28) mm., *S. huberi* 16–20 mm. The inflorescence in *S. rosifolia* is generally compacted and in *S. huberi* the verticils are clearly distinct.

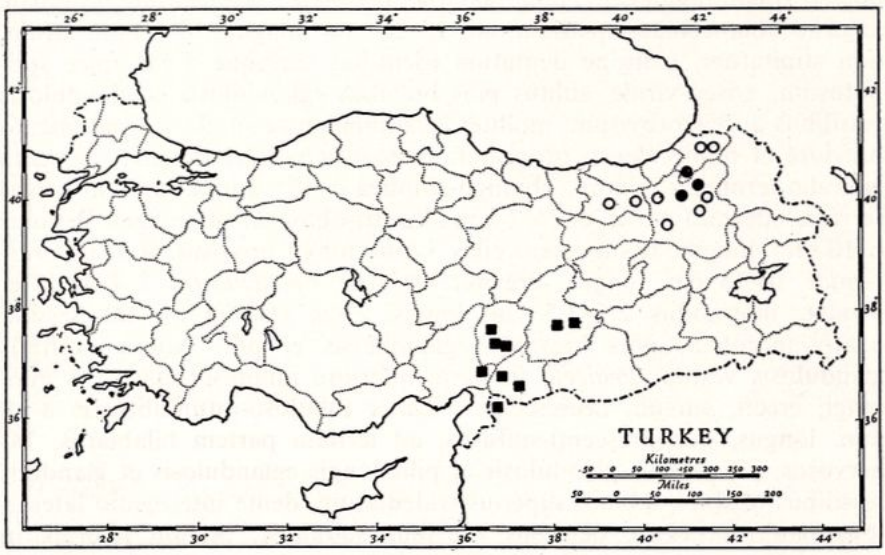

FIG. 1. Distribution of ○ *Salvia rosifolia* Sm., ● *S. huberi* Hedge and ■ *S. pilifera* Montb. & Auch.

As can be seen from fig. 1 both *S. rosifolia* and *S. huberi* are restricted to the north-east of Turkey. The new species occurs in the centre of the distributional area of *S. rosifolia*. It is another instance of geographical proximity in two closely related species of pinnate-leaved *Salvias* (cf. Hedge in Notes R.B.G. Edinb. xxii, 174: 1957).

It is a pleasure to name this species in honour of Dr. A. Huber-Morath of Basle whose frequent expeditions to Turkey have resulted in the discovery of many interesting new species.

S. recognita Fisch. & Mey. in Ann. Sc. Nat. ii, 33 (1854).

TURKEY. Prov. Kayseri: Erdschias Dağ, Erde auf Schuttabhängen des Pelikartyny, 2200 m., June 1902, *Zedebauer* s.n. (W! as *S. ringens* F. & M.).

S. ringens was recorded as a Turkish plant by Penther and Zedebauer (Ann. Naturhist. Hofmus. Wien, xx, 412: 1905). However, this record is based on a misidentification as the plant is undoubtedly *S. recognita*. The distribution of *S. ringens* is unique among the South-West Asiatic species. It grows in the Balkans (Greek mainland, Bulgaria, Macedonia, Thessaly and Albania) and in the Cis- and Trans-Caucasus. It is quite absent in the intervening area. I have seen a reasonable amount of material from the west of its range and several sheets from the Caucasus and there are no obvious reasons for specific separation.

S. pilifera Montb. & Auch. in Ann. Sc. Nat. Sér. 2, vi, 40 (1836).

Syn.: *S. cataonica* Boiss. & Hausskn. in Boiss., Fl. Orient. iv, 602 (1879).

S. purpurascens Post in Journ. Linn. Soc. xxiv, 438 (1888) non Mart. & Gal. in Bull. Acad. Brux. xi, 11, 65 (1844) *e descr.*

S. amana Bornm. in Notizbl. Bot. Gard. Berlin, vii (63), 28 (1917); Rech. fil. in Arkiv für Botanik, v, 1, 370 (1960).

TURKEY. Prov. Maraş: Maraş-Göksun road, 24 km. from Maraş, in shade of bushes, flowers blue, 1300 m., 14 June 1960, *Stainton & Henderson* 5527 (E! K!); Akher (Ahir) Dağ 2000–2300 m., July 1907, *Haradjian* 1683 (E! G! W!); Ahir Dağ, fls. blue-purple with white markings, c. 40 mm. long, red purple calyces, stems often trailing up to 1 m. long, limestone rocks, c. 1500 m., 8 May 1934, *E. K. Balls* 988 (E!); Beryt (Berit) Dağ, 1000–1200 m., *Haussknecht* s.n. 1865 (holo. *S. cataonica* Boiss. & Hausskn.—G!). Prov. Malatya (?): Cappadocia ad Euphratem, *Aucher-Eloy* 1927 (holo. *S. pilifera*—G!); 5 km. östlich Malatya, 13 Juni 1949, 1320 m., *A. Huber-Morath* 8973 (H.M.!). Prov. Gaziantep: entre Aintab et le village d'Haruniye, 3–500 m., Juin 1911, *Haradjian* 3569 (E! G! W!); distr. Islâhiye, Fevzipaşa-Gaziantep, macchie 38 km. östlich Fevzipaşa, 860 m., 19 Mai 1957, *A. Huber-Morath* 14206, (H-M!). Prov. Adana: in montis Amani regionibus inferioribus, Haruniye-Alexandrette (Iskenderun), 200–400 m., *Ina Meincke* 275 (holo. *S. amana*–fragment at B!). SYRIA(?); montagnes du Kurd Dağ, 1250–1500 m., Mai 1907, *Haradjian* 1131 (E! G! W!).

S. pilifera can, on herbarium sheets, look a very different plant depending on whether sterile shoots, young flowering shoots or fruiting stems are represented. The leaves of the sterile, often prostrate shoots have a very

dense sericeous indumentum especially in young leaves; usually the lowest leaves of fertile shoots have a similar indumentum. The very dense indumentum was stressed by Boissier and Haussknecht in their description of *S. cataonica*. Examination of the single specimen of it showed that it was an inadequate specimen consisting of three sterile shoots with sericeous leaves and one old fruiting shoot with one or two small mature leaves which do not have a dense indumentum. In the calyx indumentum, which consists of long and short eglandular hairs and very short capitate black-headed glandular hairs, in calyx dimensions and in size and texture of the nuts, *S. cataonica* is identical with *S. pilifera*.

S. amana Bornm. was described from a specimen collected somewhere near Haruniye in the province of Adana. Although most of the type material was destroyed in Berlin during the last war, it was possible to examine a small scrap of the holotype and an adequate habit sketch made by Bornmüller. This showed that the calyx indumentum, shape and size were identical with *S. pilifera* and the only difference between the two lay in the leaf shape. *S. amana* was based largely on the single character of leaf shape: the three segments of the pinnate leaf being of more or less equal size and all clearly stipitate. Leaf form in *S. pilifera*, as in most of the pinnate-leaved Salvias, is very readily influenced by environment and little emphasis can be laid on it as a taxonomic character. In the specimens cited above, there is considerable variation in leaf size, and shape (± rotund-ovate in *Haradjian* 1131 to lanceolate in *Haradjian* 3569), in the presence or absence of petioles on the leaflets and in the relative sizes of the terminal and lateral leaflets.

I have not been able to examine the type material of *S. purpurascens* Post, but from the description, which is quite adequate, and the distribution given, (Gaziantep, Kurd Dağ and Maraş), there seems little doubt that it is *S. pilifera*. As mentioned earlier, the young flowering shoots of *S. pilifera* have a rather distinct facies: there are large, usually purple, floral leaves, the calcyes are reddish-purple, the inflorescence is somewhat compacted and the stem is purple on the four edges. These characters are stressed in the description of *S. purpurascens*.

The holotype of *S. pilifera* is a post-anthesis specimen: the floral leaves have mostly dropped off, the calcyes are expanded and the inflorescence elongated. Other than in leaf size and shape, the specimens cited above are fairly uniform. The most aberrant specimen is *Balls* 988 gathering: the calyx and inflorescence axis have a dense indumentum of long capitate glandular hairs.

The distribution of *S. pilifera* is shown on fig. 1.

SECTION DRYMOSPHACE BENTH.

S. forskahlei Linn. Mant. 26 (1767).

Syn.: *S. bithynica* Briq. & Post in Bull. Herb. Boiss. vii, 158 (1899). Bornmüller (Fedde, Rep. x, 465–468: 1912) suggested that *S. bithynica*, from the description, was probably synonymous with *S. forskahlei*. The type specimen of *S. bithynica*, described from Bardezag (which I cannot trace) in Bithynia, is now at Geneva. It is identical with *S. forskahlei*.

PLATE 124. *Salvia huberi* I. C. Hedge. *Stainton & Henderson* 6104.
Inset: calyx in side view, opened out, stamens and corolla.

SECTION PLETHIOSPHACE BENTH

S. amplexicaulis Lam. Tableau encyclopédique. i, 68 (1791).

TURKEY. Prov. Çanakkale: Renkioi (Erenköy), Dardanelles, June 1886, *J. Kirk* s.n. (E!).

This species is frequent in the Balkans. Its distribution there has been adequately and correctly given by Hayek (Prodr. Fl. Balc. ii, 312: 1929). Outside the Balkans, it occurs rarely in Hungary and Roumania. *S. amplexicaulis* has not previously been recorded from Asiatic Turkey although known from a few stations in European Turkey (see fig. 2). It is closely related to *S. nemorosa* L. and where the distributions of the two species overlap—southern Yugoslavia and Bulgaria—there is hybridisation between them.

S. nemorosa Linn. Sp. Pl. ed. ii, 35 (1762).

TURKEY. Prov. Kars: Kars-Selim, edge of fields in steppe, fls. violet-blue, many stemmed perennial, 1750 m., 23 Aug. 1957, *Davis & Hedge* (D. 32647); Kisir Dağ above Susuz, rocky igneous slopes. fls. violet-blue, bracts violet, 1800 m., 20 Aug. 1957, *Davis & Hedge* (D. 32584); Gölebert near Ardahan, igneous slope at edge of field, 1800 m., 30 June 1957, *Davis & Hedge* (D. 30424). Prov. Erzurum: Yusufeli-Erzurum road 48 km. from Erzurum, fieldside waste on limestone, 1600 m., 9 July 1960, *Stainton & Henderson* 6145. Prov. Ağri: prope Doğubayazit, substr.-eruptivo, 2000 m., 4 Sept. 1957, *Rechinger fil.* 14970 (W!). Prov. Van: Şatak, 5 km. N. of Şatak, 1800 m., 25 July 1954, *Davis & O. Polunin* (D. 23245); in fallow fields at N. foot of castle rock, 12 July 1954, *Davis & O. Polunin* (D. 22635). Prov. Bitlis: Kotum-Resadiye, dry hillsides, 6 July 1954, *Davis & O. Polunin* (D. 22384).

In Turkey, *S. nemorosa* seems to be restricted to the most eastern provinces (cf. fig. 2)—its apparent absence from several parts of these provinces is due almost certainly to lack of collecting. *S. nemorosa* is frequent in the contiguous parts of the U.S.S.R. and Persia, where the specific names *S. deserta* Schang., *S. tesquicola* Klok. & Pobed. and *S. pseudosylvestris* Stapf are currently applied to what, in my opinion, is the same species.

From the nomenclatural point of view, the names *S. nemorosa* and *S. sylvestris* Linn. have been a frequent source of confusion and are still often wrongly applied. It is appropriate to give a short account of the nomenclatural history of the two names and to typify them.

Salvia sylvestris was described by Linnaeus in the first edition of the Species Plantarum (p. 24: 1753). In the second edition (p. 35: 1762), he still recognised *S. sylvestris* but also described a new species, *S. nemorosa*, to which he attached some of the synonyms previously given under *S. sylvestris* in the first edition. There is little difference between the two descriptions: in *S. sylvestris*, the leaf is described as being undulate on the margin and biserrate whereas in *S. nemorosa* the leaf is flat and equally serrate. Because of the lack of clear differences between the two descriptions and perhaps because of the absence of a specimen of *S. sylvestris* in the Linnaean herbarium, authors have used these names in different senses. Crantz (Stirpes Austriacae, ed. 2, 242: 1769) used the name *S. nemorosa* and treated *S. sylvestris* as a synonym of it; Willdenow (Sp. Pl. ed. 4, i, 133: 1797) recognised both species; Bentham (Labiatarum, 237:

1833) recognised *S. sylvestris* and gave *S. nemorosa* as a synonym of it; Boissier (Fl. Orient. iv, 629: 1879) followed this treatment; recent European floras (Hegi, Fl. Mittel Europa, v, 4, 2501: 1927 and Komarov, Fl. U.R.S.S. xxi, 346: 1954) have used both epithets. In Britain, the two most recent floristic works (Clapham, Tutin & Warburg, Flora of the British Isles, 949: 1952 and Dandy, List of British Vascular Plants 103: 1958) mention *S. sylvestris* L. as an alien which is naturalised at Barry Docks, Glamorgan, and occurs occasionally as an alien elsewhere.

In order to clarify the nomenclature, it is necessary to typify the species by trying to deduce which plants Linnaeus had in mind when he described them. In this instance, the synonyms provide the first clue to the problem. In the first edition of the Species Plantarum, three synonyms are given under *S. sylvestris*:

1. *Horminum sylvestre salvifolium majus maculatum* Bauhin, Pinax x, 239 (1723).
2. *Horminum sylvestre* v. Clusius, Hist. ii, 31 (1601).
3. *Horminum sylvestre salvifolium minus* Bauhin, Pinax xi, 239 (1723).

The distribution is given as 'Austriae inferioris, Bohemiae agrorum marginibus, vineis'.

In the second edition, Linnaeus changed his description of *S. sylvestris* and excluded from the synonymy the reference to Bauhin, Pinax xi. He also amended the Clusius reference to *Horminum sylvestre v. altera species*, i.e. the plant figured on the right hand side.

The synonyms given under *S. nemorosa* in the second edition are:

1. *Salvia foliis cordato-lanceolatis simpliciter serratis, staminibus galeam aequantibus* Zinn Goett. 297 (1757).
2. *Horminum sylvestre salvifolium minus* Bauhin Pinax xi, 239 (1723).
3. *Sclarea folio salviae minor f. glabra* Tourn. Inst. 180 (1719).

The distribution for this species is given as 'Austria et Tartaria'.

Considering *S. sylvestris* first, the Bauhin Pinax x synonym was represented, as far as Linnaeus was concerned, by a specimen in the Burser herbarium—vol. xiii no. 117 (cf. Juel in Symb. Bot. Upsal. ii, 85; 1936)—and is listed as such by Savage in Caroli Linnaei Determinationes in Hortum siccum Joachimi Burseri (77: 1937). The other synonym refers back to a woodcut in Clusius' History. The two candidates for the lectotype of *S. sylvestris* are thus the Burser herbarium specimen and the right hand woodcut in Clusius' History (there being no good reasons for regarding them as not conspecific). Examination of the photograph of the Burser specimen (kindly provided by the Director of the Uppsala herbarium) showed that it is an adequate specimen which fits Linnaeus' definition. It is a better representative of the plant than is Clusius' woodcut and therefore the Burser specimen No. 117 of vol. xiii is the more suitable lectotype of *Salvia sylvestris* L.

Before considering the identity of *S. sylvestris* and its present day distribution, it is advantageous to discuss the other species involved—*S. nemorosa* L. There are three synonyms given: references to Zinn (Cat. Plant. Hort. Goettingen: 1757), Caspar Bauhin (Pinax: 1723) and Tournefort (Instit. Rei. Herb: 1719). In addition to the synonyms, there are two herbarium specimens to be considered: one in the Linnaean

herbarium, the other in Burser's herbarium. Neither the Zinn nor the Tournefort reference lead back to a herbarium specimen and are not good candidates for selections as lectotypes.

The choice therefore lies between the Burser specimen and that in the Linnaean herbarium. The Burser specimen is in vol. xiii, No. 118; it corresponds closely with Linnaeus' description of *S. nemorosa* and with the distribution he gives for it.* 'In Bohemia et Austriae inferioris' is written on the sheet but the name *S. nemorosa* is not on the sheet. The specimen in the Linnaean herbarium (42.14) has the name *S. nemorosa* written in Linnaeus' hand (on the same sheet the names *pratensis* and *sylvestris*, also in Linnaeus' writing, are each twice deleted) but no other information about it other than the symbol which is believed to indicate that the specimen was collected somewhere in the region of South West Asia probably by Gerber who collected in the vicinity of the rivers Don and Volga and near Astrachan (cf. Stearn, Introduction to the Facsimile of Linnaeus' Species Plantarum i, 106: 1957). 'Tataria' was the other region given by Linnaeus for the distribution of *S. nemorosa*. Stearn states that Tataria (Tartary) in Linnaeus' time covered Central Asia and European Russia east of the River Don.

The Gerber specimen, in fact, comes from 'Tataria'. The choice between the Burser and the Gerber plants as lectotype is not easy to make as either would be suitable, both being adequate and representative specimens of *S. nemorosa*. However, the fact that the Gerber sheet is annotated as *S. nemorosa* by Linnaeus, whereas the Burser is not, has tilted the scales in favour of selecting the Gerber specimen in the Linnaean herbarium as the lectotype.

Turning now from the typification of *S. sylvestris* and *S. nemorosa* to relating them with our present day knowledge of these taxa, it is necessary to consider their distribution. The distribution of the species group with *S. nemorosa* at its centre (*S. nemorosa* L., *S. amplexicaulis* Lam., *S. pseudosylvestris* Stapf, *S. tesquicola* Klok. & Pobed. and *S. deserta* Schang.) is very extensive: Altai, Tian Schan, Persia, Turkey, Caucasus and Transcaucasus, Crimea, the Balkan countries, European Russia and extending westwards as far as eastern Austria. Further west in Europe, it is not an infrequent alien in Germany, Switzerland, France and Britain.

S. nemorosa L. s.s. is quite a frequent plant around Vienna and there is little doubt that it is the species referred to by Clusius (Hist. ii, 31—*Horminum sylvestre v. species prior*) as "ubique circa Viennam Austriae nascitur totaque Pannonia secundum vias, in agrorum vinetorumque marginibus". It must be noted, however, that Linnaeus did not cite Clusius' '*species prior*' under *S. nemorosa*.

Although it is quite clear what Linnaeus meant by *S. nemorosa*, the identity of *S. sylvestris* is much less obvious and in the absence of a well known central European species with which to link it, it is necessary again to consider the synonyms given by Linnaeus and, in particular, the Clusius reference. Clusius said of '*Horminum sylvestre v. species altera*' that it was much taller than the '*species prior*' (i.e. *S. nemorosa* L.) with a

* This conclusion is at variance with Juel's remark (Symb. Bot. Upsal. ii, 85: 1936) that Burser xiii, No. 118 was the same species as Burser xiii, No. 117, that is *S. sylvestris*. Savage, likewise, regarded both numbers as probable type material of *S. sylvestris* (Caroli Linnaei Determinationes in Hortum siccum Joachimi Burseri, 77: 1937).

stem almost three times as thick and, significantly, "rarior est haec species priore nec nisi in pratis herbosisque locis ubi gleba uberior invenitur et paulo serius altera florere incipit". It is referred to as growing in "Austria inferiore". From a combination of all the clues i.e. Burser's herbarium specimen, Linnaeus' description and Clusius' remarks on its distribution and frequency, it is possible to reach a conclusion about the identity of *S. sylvestris* L. Morphologically, it is very closely allied to *S. nemorosa* but differs in not having obvious tetragonous inflorescence buds, imbricate and purple, in having larger flowers, shorter floral leaves, thicker stems and larger leaves with an irregularly serrate and undulate margin. Like *S. nemorosa*, it is to be found 'in Austria inferiore' but not so frequently.

Only one plant fits all these requirements—the hybrid between *S. nemorosa* and *S. pratensis* L. Wherever the two parents grow together, as they do in eastern Austria, hybrids between them are not infrequent. *S. sylvestris* L. is, in fact, a hybrid.

This supports the conclusion reached by A. Kerner (Schedae ad Floram Exsiccatam Austro-Hungaricam No. 948) who, on the basis of hybrids he had seen between *S. nemorosa* and *S. pratensis*, believed that *S. sylvestris* should be regarded as a plant of hybrid origin.

Because both parents—*S. nemorosa* and *S. pratensis*—are themselves polymorphic, the hybrids between them are also most variable and not all of them look like the proposed lectotype in Burser's herbarium. In some, those closer to *S. pratensis*, the leaves are large and thin in texture and markedly undulate and biserrate at the margin; in others, those closer to *S. nemorosa*, the leaves are much smaller, fairly thick in texture and more or less flat and uniformly serrate. It is to the latter type that the proposed lectotype comes closer.

Hrubý has investigated anatomically and cytologically the hybrid between *S. nemorosa* and *S. pratensis*. (Věstn. Král. Čes. Spol. Nauk; No. 9, 3–6: 1941). He lists as synonyms, in addition to *S. sylvestris* L., *S. elata* Host, *S. ambigua* Čelak, *S. andrzejowskii* Blocki, *S. degeni* Simk., *S. danubialis* Borb. and *S. bertolonii* Reichb.

S. dichroantha Stapf in Denk. Akad. Wiss. Wien 1, 24 (1885).

TURKEY. Lycia, Prov. Antalya: Baschibunar et Girdef (Girdev), 19 Jul. 1882, *Luschan* s.n. (holo—spec. unic.—WU!); Elmalu, secus agros, 9 Jul. 1860, *Bourgeau* 227 (cited in Boissier, Fl. Orient. iv, 629: 1879 as *S. sylvestris* Linn.); Galbeli Dağ at Tepe Delen Yaylâ, fl. violet, 1700 m., 13 July 1949, *Davis* 15247; distr. Elmali, Üçkuyular, forest clearing, flowers blue, c. 0·3 m. high, 1750 m., 28 July 1960, *Khan, Prance & Ratcliffe* 267 (E!); Muğla-Antalya, Girdev Göl, edge of fields, fls. violet, 1700 m., 4 Aug. 1947, *Davis* 13756. Prov. Isparta: distr. Sütçüler (Isauria), Çimen Ova on west side of Sarp Dağ, perennial, fls. violet, 1500 m., 28 July 1949, *Davis* 15810. Prov. Konya: 12 km. west of Konya, in steppe, fls. violet, 9 Sept. 1949, *Davis* 16128.

The Davis specimens cited above were referred to *S. nemorosa* L. in Kew Bull. 614; 1949 and 98; 1949.

The following two specimens are anomalous:
Prov. Sivas: Hekimhan–Kangal, fallow fields, fls. violet-blue, 1800 m., 2 Sept. 1954, *Davis & O. Polunin* (D. 23843). Prov. Niğde: Aksaray–Sultan

Saray on the way to Nevşehir, disturbed steppe on roadsides, ascending-erect, fls lavender-blue, 1200 m., 31 Aug. 1957, *Davis & Hedge* (D. 32809).

Stapf described this species on an inadequate specimen consisting of the top of an inflorescence shoot. Since its original description, the name *S. dichroantha* has not been used again. It is, nevertheless, a distinct and not uncommon species in the south-west of Turkey. Previously, these plants have been referred to *S. nemorosa* L. to which it is very closely related. *S. dichroantha* is readily distinguished from it by the absence of the large purple floral leaves which are typical for *S. nemorosa*. In their distributions, the two species are clearly separated (fig. 2). In common with all the other species of section *Plethiosphace*, there is considerable morphological variation in *S. dichroantha*. The original specimen and *Davis* 15810 have capitate glands and a few eglandular hairs covering the calyx and the inflorescence axis; in the other specimens cited above, the calyx indumentum consists of eglandular hairs and no capitate glands.

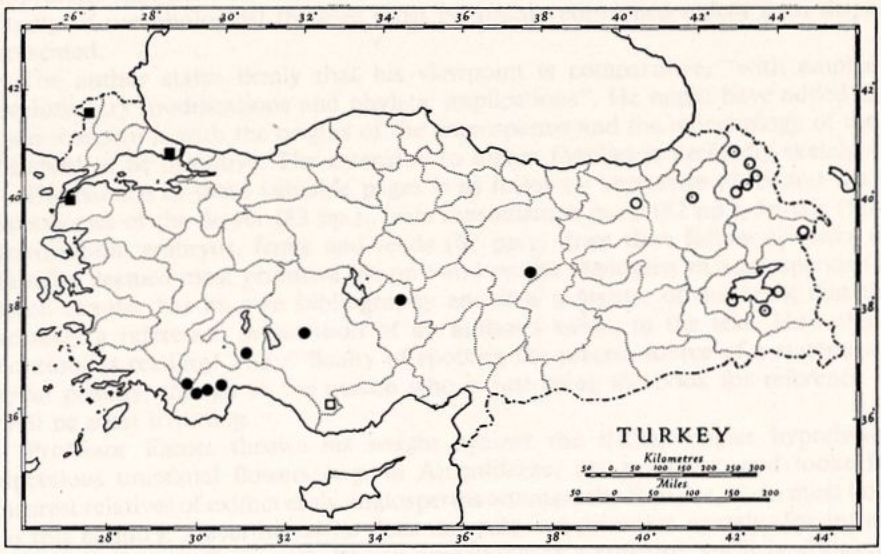

FIG. 2. Distribution in Turkey of ■ *Salvia amplexicaulis* Lam., ● *S. dichroantha* Stapf, □ *S. adenocaulon* Davis and ○ *S. nemorosa* Linn.

The two anomalous specimens differ from typical *S. dichroantha* in the wide branching of the inflorescence, the ascending-spreading habit and the clearly separated verticils. In cultivation, D. 32809 has retained these features. However, rather than create a new taxon to accommodate these two specimens I have instead taken a wide specific view of *S. dichroantha*, particularly since the *Davis* number D. 16128 is rather intermediate both in facies and locality (fig. 2) between typical (e.g. *Bourgeau* 227) and the atypical specimens.

Probably *S. dichroantha* is more widespread in Anatolia than fig. 2 suggests. *S. adenocaulon* Davis (cf. fig. 2), known only from a single gathering, is very closely allied to *S. dichroantha* and further gatherings and field observations may not support a specific separation.