

MATERIALS FOR A FLORA OF TURKEY: V

I. C. HEDGE

Thlaspi kurdicum I. C. Hedge, sp. nov. Sect. *Apterygium* Ledeb.

Affinis *T. pumilo* Stev. et *T. rostrato* Busch sed ab ambabus foliis anguste oblongo-lanceolatis glaucescentibus divergit; a priore foliis non auriculatis recedit; ab altera siliquis non rostratis differt.

Rhizoma perenne lignescens, surculis $\pm$ elongatis repentibus. *Caules* floriferi adscendente-erecti pumili, 4-7 cm. alti, foliosi. *Folia* in vivo carnosula, glabra, laevia, glaucescentia, pallide viridia, uninervia. *Folia infima* rosulato-congesta, lamina c. 10 mm. longa et 2.5 mm. lata, oblongo-lanceolata, integra, numquam subcartilagineo-denticulata, basi sensim in petiolum attenuata, apice obtusa vel interdum acuta. *Folia caulina* c. 8×3 mm., anguste oblonga, supra medium latissima, apice obtusiuscula, basin versus attenuata, sessilia, exauriculata. *Inflorescentia* $\pm$ corymbosa. *Pedicelli* floriferi 5-7 mm. longi, tenues, divaricati. *Calyx* c. 3 mm. longus; sepala margine membranacea, viridia vel rosea-suffusa, apice rotundata, non saccata. *Petala* erecta, anguste oblongo-cuneata, basi in unguem sensim attenuata, apice rotundata, $5-8 \times 2.5$ mm. *Filamenta* simplicia non alata nec dentata, longiora ad 4 mm. breviora ad 2.5 mm. longa. *Antherae* $\pm$ 1 mm. longae, obtusae vel leviter apiculatae in staminibus longioribus, apiculatae in staminibus brevioribus. *Stylus* c. 1 mm. longus; stigma depresso-capitatum. *Siliqua* angustisepta 5-7 mm. longa, 3-5 mm. lata (immatura), leviter compressa, in medio circiter latissima utrinque aequaliter attenuata, apice interdum leviter emarginata. *Stylus* in fructu $\pm$ 1 mm. longus. *Semina* pendula, in utroque loco (1)-(2)-(3).

TURKEY. Prov. Van: distr. Gevaş, mobile limestone screes, 3600 m., with *Didymophysa aucheri*, leaves glaucous, fls. white, 15 July 1954, Davis & O. Polunin (D. 22806—holo. E, iso. K); distr. Şatak, Kavuşşahap Dağ, screes, perennial, 3200 m., 23 July 1954, Davis & O. Polunin (D. 23125).

T. kurdicum comes within the complex of species which includes *T. pumilum* Stev., *T. sintenisii* Hsken., *T. rostratum* Busch, *T. papillosum* Boiss., *T. haussknechtii* Boiss. and *T. valerianoides* Rech. fil. Although the new species shares points of similarity with several of these, it is most clearly distinguished from all of them by the narrow, entire, oblong leaves and the glaucous bloom covering all parts of the plant. I have not seen any specimens of the Caucasian *T. pumilum*, but from its description and illustrations it is probably more closely allied to *T. kurdicum* than any of the other species mentioned.

Considerable difficulty was experienced in reaching a decision both as to the correct genus and the specific limits of the new species. The following specimen which was collected near the D. 23125 gathering was excluded from the formal citation for several reasons which will be discussed below.

TURKEY. Prov. Van: distr. Şatak, Kavuşşahap Dağ, screes, 3100 m., perennial, 23 July 1954, Davis & O. Polunin (D. 23132).

Although in several characters the new species bears some resemblance, especially in fruit shape, to *Eunomia caespitosum* (Boiss.) Schulz, it has all the technical characters of a *Thlaspi*. As the technical character often makes the genus in the Cruciferae (and not the facies), it is of interest to consider some of the characters in the group of genera which includes *Aethionema*, *Eunomia*, and *Thlaspi*.

1. *Radicle position*. Schulz has already pointed out (Pflanzenfam. 2 Aufl., 17B, 441: 1936) that in *Aethionema* both incumbent and accumbent

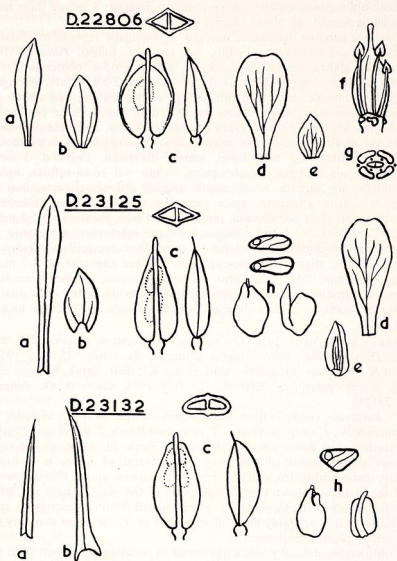


FIG. 1. Floral dissections of *Thlaspi kurdicum* Hedge (D. 22806 & D. 23125) and D. 23132. a. leaf from sterile rosette $\times 2.5$. b. cauline leaf $\times 2.5$. c. fruit in side and front view and in transverse section $\times 3$. d. petal $\times 4$. e. sepal $\times 4$. f. gynoecium and stamens $\times 5$. g. T.S. of receptacle showing positions of stamens and honey glands $\times 7$. h. seed, cotyledons and cotyledons in T.S. $\times 4$. (The fruits in D. 22806 are slightly immature).

positions are found in different species.* But within the same species and sometimes even in the same plant, the radicle position is not always constant. In Schulz's delimitation of *Eunomia* the radicle should be incumbent yet in specimens I have examined of *E. caespitosum* the radicle has been clearly accumbent. Furthermore, *Thlaspi* should, according to Schulz, be regularly accumbent but in *T. rotundifolium* (L.) Gaud., although it is most frequently accumbent, embryos with oblique and incumbent radicles do occur, sometimes even on the same plant. In the present case, the D. 23125 gathering varies between accumbent and accumbent/oblique, D. 22806 is constantly accumbent (as far as can be judged from immature seeds) and D. 23132 is constantly incumbent (see fig. 1).

It would be of great interest to know if there is greater inconsistency of the radicle position in the Angustiseptae than in the other tribes of the Cruciferae.

2. *Honey glands.* In Schulz's key to the genera of the Thlaspidinae, the presence of a median honey gland is used to separate *Eunomia* from *Aethionema* and *Thlaspi* in which there is no median gland present. The holotype of *T. kurdicum*, the only number with flowers, is clearly without a median honey gland and therefore should be considered, on this character, as a *Thlaspi* or *Aethionema*. However, in this group I have found this a rather difficult character to use as frequently in *Thlaspi* the lateral honey glands unite in the centre to give the appearance of a median gland, and it is not easy to distinguish this type from those with median honey glands.

3. *Fruit shape.* As is shown on fig. 1, there is considerable variation in the shape of the fruit in the three Davis specimens from Kurdistan. In the holotype, there is a slight but distinct wing at the upper part of the fruit (which, however, is not fully mature) and an emarginate apex. In the other two (D. 23125 and D. 23132), there is no trace of winging and the apex is acute; they closely resemble the mature fruits of *Eunomia caespitosa*. Despite the differences shown in the figure, however, a similar degree of variation occurs in the well known European species *T. rotundifolium* (L.) Gaud.—fruits with slight wings and others without a trace of wings. This species, like *T. kurdicum*, is a member of section *Apterygium*—characterised by wingless fruits. The slight degree of lateral compression of the fruit in this section (relative to the strongly compressed fruits in other sections of *Thlaspi*), the pronounced keel and the glaucous bloom are, with the exception of *Eunomia*, somewhat atypical for the sub-tribe Thlaspidinae and more akin to the condition found in the sub-tribe Cochleariinae.

4. *Leaf shape and texture.* As in the fruit, there are marked differences between the leaves of the three Davis specimens shown in fig. 1. D. 22806 is clearly exauriculate, D. 23125 is somewhat auriculate and D. 23132 is markedly auriculate. The texture of the leaf varies from thick and fleshy (D. 22806) to firm and stiff (D. 23132) as in *Eunomia caespitosa*. Although there is considerable range of variation in most species of the sub-tribe, the degree of variation in these three specimens is unusual if they are regarded as conspecific.

* Although he states that the incumbent type is only found in the species with several-seeded loculi and the accumbent type confined to species with one-seeded loculi, it is doubtful if this is regularly correct.

Although this brief consideration of generally used characters shows their inconsistency in particular genera, it also serves to emphasise the difficulty in fixing generic and specific limits within the tribes of the Angustisepae. In this particular case, although there are some anomalous features in the three specimens considered, there is more justification for regarding them as members of *Thlaspi* than any other genus. With the sparse representation of herbarium material of this group from the high alps of Kurdistan, it is only possible to propose tentative specific limits in such a difficult genus. For this reason, only the formally cited specimens are regarded as *T. kurdicum* and the other (D. 23132) is treated as of unknown status. Only more gatherings and field observations can elucidate the problem.

Peltariopsis planisiliqua (Boiss.) N. Busch in Monit. Jard. Bot. Tiflis, n.s., pt. 3-4, 8 (1927).

TURKEY. Prov. Bitlis: scree on north slope of crater of Nemrut Dağ, 2600 m., open community, scree rather mobile, annual, fls. white, 12 Aug. 1956, *McNeill* 582 (E!); ditto, cult. Roy. Bot. Gard. Edin. C. 2786. Prov. Hakkari: Cilo Dağ in Diz deresi, slate scree in gully, annual, leaves fleshy dark metallic green, stems ascending, fls. pale lilac, rare, 1600 m., 6 Aug. 1954, *Davis & O. Polunin* (D. 23917).

This interesting little genus has not previously been recorded from Turkey. Originally described as a section of *Cochlearia* by Boissier and raised to generic rank by Busch, *Peltariopsis* was treated by Schulz in the Pflanzenfamilien as a member of the *Lunarieae*. Only two species are known — *P. planisiliqua* and *P. grossheimii* N. Busch. Prior to its discovery in Turkey, the genus was only known from a limited area around the Transcaucasian Russo-Persian frontier.

Saponaria prostrata Willd. Enum. Plant. Berol. 465 (1809).

During Dr. Davis' 1957 expedition to Turkey, a perennial species of *Saponaria* was collected in the provinces of Elâziğ, Tunceli and Diyarbakir. At that time, Dr. Davis and I were fairly sure that it was a new species, related to the annual or biennial *S. prostrata* Willd.

Subsequent investigation of *S. prostrata* throughout its range revealed that it consisted of two recognisable taxa: one to the east of the perennial and the other to the west. It also showed that it was necessary to consider the status of the perennial plant in relation to the two non-perennial taxa. The geographical pattern that emerges when their distributions are plotted is that of three distinct areas each occupied solely by one type: the perennial in the centre flanked to the east and west by the two different annual types (see fig. 5).

Morphological investigations showed that the perennial plant could be distinguished from the western *S. prostrata* on characters of life-form and the larger calyces and flowers. The differences between the perennial and the eastern *S. prostrata* were not so clear cut due to an overlapping of the dimensions of floral parts, although the perennial generally had larger calyces and corollas. The eastern *S. prostrata* could be distinguished from the western plant on the larger calyces, leaf shape and laxity of the inflorescence.

The following table gives the total range and mean of the measurements in all the specimens I have seen:

	<i>Petal lamina</i> mm.	<i>Petal length</i> mm.	<i>Calyx</i> mm.	<i>Pollen</i> μ
Western Plant	min. $3 \cdot \times 1 \cdot 5$	11	9	41·6
	max. $4 \cdot \times 2$	13	12	45·8
	mean $3 \cdot 7 \times 2 \cdot 1$	12	10	43·5
Central Plant	min. $5 \cdot \times 2 \cdot 5$	12	11	42·5
	max. $6 \cdot \times 3$	14	14	47·5
	mean $5 \cdot 4 \times 2 \cdot 9$	13·5	12·5	45
Eastern Plant	min. $3 \cdot \times 1 \cdot 5$	12	10	33·2
	max. $5 \cdot \times 3$	14	13	47·1
	mean $3 \cdot 7 \times 2$	12	11·7	42

Other than the differences mentioned above, there were also the following:

Western plant: inflorescence tightly compacted into almost umbellate heads; leaves oblong-spathulate, broadest about or above the middle; generally growing in disturbed habitats—edges of fields and disturbed steppe; high frequency (50%) of male sterile sex forms.

Central plant: inflorescence less tightly compressed yet showier than the previous; leaves oblong-spathulate, broadest in the uppermost part; sterile leaf rosettes present; tendency to a trailing habit with a woody rhizome; generally growing on undisturbed igneous slopes.

Eastern plant: inflorescence laxer than the previous two; leaves rotundovate with a distinct lamina abruptly tapering into a petiole; growing in disturbed and original habitats.

No qualitative morphological difference was found between the three taxa.

The case for describing the perennial plant as a new species is clearly not as strong as it seemed when it was originally collected. Furthermore, on the morphological and geographical features outlined above, the perennial plant is best regarded within the *S. prostrata* complex. Although it is largely a matter of personal opinion which formal nomenclatural status the three taxa should be given, I propose for the present to accord them sub-specific rank. It is tempting, although hazardous, when so little is known about them, to postulate that the perennial has given rise to the two flanking annuals. The ultimate answer to this and to the biological status of the three taxa must depend on cyto-genetical investigations, hybridisation experiments and collateral cultivation.

Taxonomically, the only one of the three taxa without a name is the perennial. The western plant corresponds with Willdenow's type* (B) and the eastern plant was originally described by Boissier as a variety of *S. atocioides* Boiss. but treated by him later (Fl. Orient. i, 530, 1867) as a variety of *S. prostrata*.

* I am grateful to Dr. Buchheim at Berlin for examining the Willdenow type and sending me a photograph of it. Although the label of the Willdenow specimen clearly shows the perennial symbol, and he, in fact, described it as such, Dr. Buchheim was of the opinion that the plant was *not* a perennial but a biennial, with which, from the photograph, I concur. Other than 'Galatia' there is no further information about the provenance of the specimen.

Saponaria prostrata Willd. subsp. **prostrata**

Syn.: *S. atocioides* Boiss. in *Diag. Sér. I*, i, 16 (1842).

Planta biennis, pilis longis patentibus albis obsita. *Caules* decumbentes dichotome ramosissimi. *Folia* oblongo-spathulata. *Flores* numerosi dense corymbosi. *Calyx* cylindricus (9-)10(-12) mm. longus pilis eglandulosis vestitus, fructifer inflatus. *Petala* rosea, oblongo-spathulata integra (11-)12(-13) mm. longa; lamina ungue distincta (3×1.5-) 3.7×2.1 (-4×2) mm.

TURKEY. Prov. Kastamonu: Tossia, Beschtehan, 3 June 1892, *P. Sintenis* 4077. Prov. Çankiri: Ilgaz-Çankiri, fallow fields, corolla deep pink, 5 June 1954, *Davis* 21471. Prov. Ankara: Hacikadun valley near Keçiören, annual, fls. carmine, steppe, 11 June 1952, *Davis & Dodds* (D. 18774); Ankara, fls. bright pink in deep red calyces $\frac{1}{4}$ " in loose flat heads up to $2\frac{1}{2}$ " across, stems red, leaves dark green, broadly spreading almost prostrate habit, steep hot slopes and waste places, sand, 950 m., 29 May 1935, *E. K. Balls* 2369. Prov. Nevşehir: Mucur-Sifegöl, fls. bright pink, annual, fallow fields, 17 June 1954, *Davis* 21809; Kırşehir-Gülşehir (Arapsun) c. 20 km. from Gülşehir, c. 500 m., cut cornfields, annual, fls. red, 2 Aug. 1956, *McNeill* 367 (this gathering has a capitate glandular calyx indumentum—it corresponds with var. *viscida* Freyn. & Sint. described in *Oest. Bot. Zeit.* xliii, 376: 1893). Prov. Kayseri: Bakırdağ near Develi, annual, fls. red, 27 June 1952, *Davis, Dodds & Çetlik* (D. 19191). Prov. Sivas: Şarkışla, Sivas-Kayseri road, *Astragalus-Artemisia* steppe, calyx, petals and stems red, 1300 m., 22 May 1960, *Stainton* 8465. Prov. Niğde: between Taşpinar and foot of Hasan Dağ, annual, fls. red, 15 June 1952, *Davis, Dodds & Çetlik* (D. 18862); Garten bei Niğde, häufig, zerstreut an Wüsten und wenig cultivierten Orten, 1100 m., 6 June 1898, *Siehe* 76; Ulukışla, fls. bright pink, growth softly hairy, edges of cultivated land, 1200 m., 15 June 1934, *E. K. Balls* 1373.

subsp. **anatolica** I. C. Hedge, subsp. **nov.**

A typo radice perenni, rosulis sterilibus, calycibus et floribus majoribus recedit.

Planta perennis, pilis albis vestita. *Folia* oblongo-spathulata. *Calyx* cylindricus (11-) 12.5 (-14) mm. longus. *Petala* rosea oblongo-spathulata integra (12-) 13.5 (-14) mm. longa; lamina ungue distincta (5×2.5-) 5.4×2.9 (-6×3) mm.

TURKEY. Prov. Elâzığ: N. side of Hazar Göl, igneous slopes, perennial, flowers bright pink, 1300 m., 2 June 1957, *Davis & Hedge* (D. 29002—holo E!; iso K!); Elâzığ-Kale (on Euphrates), 30 km. from Elâzığ, steep eroded igneous south slopes, perennial, fls. bright pink, 1150 m., 4 June 1957, *Davis & Hedge* (D. 28909); Kharput, Gümüşchair, in collibus, 28 May 1889, *Sintenis* 532. Prov. Tunçeli: Pülümür, igneous south slope, perennial, 1550 m., 8 June 1957, *Davis & Hedge* (D. 29282). Prov. Diyarbakir: Ergani-Maden, c. 15 km. from Ergani, eroded shaley slopes, perennial, rootstock trailing in talus, 850 m., 2 June 1957, *Davis & Hedge* (D. 28880). Prov. Sivas: Bey Dağ, south of Zara, 1600 m., 2 June 1960, *Stainton & Henderson* 5297. Prov. Erzincan: distr. Kemaliye, Kemaliye-Salihli, *Quercus macchie* 5 km. ob Kemaliye, 1200 m., 24 Juni 1949, *Huber-Morath* 9049 (HM!).

subsp. *calverti* (Boiss.) Hedge, **comb. et stat. nov.**

Syn.: *S. holopetala* Ledeb. Fl. Ross. i, 301 (1842).

S. atocioides Boiss. var. *calverti* Boiss. in Diag. Sér. II, v, 50 (1856).

S. prostrata Willd. var. *calverti* (Boiss.) Boiss. Fl. Orient. i, 530 (1867).

A typo foliis ovato-rotundatis, inflorescentibus laxioribus differt.

Planta biennis. *Folia* ovato-rotundatis; lamina ungue distincta. *Calyx* cylindricus (10-) 11·7 (-13) mm. longus. *Petala* 12 (-14) mm. longa; lamina (3×1·5-) 3·7×2·0 (-5×3) mm.

TURKEY. Prov. Gümüşane: Mt. Berdach dans les ravines pres Bayburt, 20 July 1862, *Bourgeau* 79 (G!); Gümüşane, sandy soil, petals pink, prostrate, 1300 m., 9 May 1960, *Stainton* 8371. Prov. Erzurum: Horasan-Karaorgan, 17 miles from Horasan, rocky igneous s. slopes, prostrate annual, fls. bright pink, 2000 m., 13 June 1957, *Davis & Hedge* (D. 29503); supra Messine, May 1853, *Huet du Pavillon* s.n.; ad Erzurum, *Calvert* 421 (G!).

U.S.S.R. Transcaucasus, Azchur, *Brotherus* 157 (G!).

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The following maps give the known distributions in Turkey of all the species of *Saponaria* currently recognised. Because the great majority of the species are not likely to be misidentified, literature records in addition to the specimens seen have been used in compiling these maps. I have excluded the anomalous species which was described by Boissier as *Saponaria nodiflora* (Diag. Plant. Or. Sér. I, i, 15: 1842) in the monotypic section *Otitoides* Boiss. and later treated by Simmler (Denk. Akad. Wiss. Math-Naturwiss. Kl. lxxxv, 503: 1910) in his monograph of *Saponaria* as a '*species dubia*'—largely because of the inadequate original gatherings. Two recent collections of this species (Turkey. Prov. Elâzığ: Maden, eroded shaley banks, fls. lilac-pink, 1300 m., 2 June 1957, *Davis & Hedge* (D. 28883); Maden, annual or biennial, scarce, fls. pink, 1200 m., 22 June 1954, *Davis* 22061) have enabled its generic position to be re-investigated. The tentative conclusion I reached was that *S. nodiflora* was better regarded as a *Gypsophila* rather than as a *Saponaria*. However, I have not made the formal transfer or discussed the species in detail as the genus *Gypsophila* is at present being revised.*

[Figs 2 to 5 over]

* Y. I. Barkoudah, at present working at the Botanical Museum of the State University, Utrecht, is engaged in a revision of the genus. He is also (in litt.) of the opinion that *S. nodiflora* is better considered as a *Gypsophila*. The discussion and full description of this very interesting species will be given in his forthcoming monograph.



FIG. 2. Distribution of *Saponaria* sect. *Smegmathamnium* Fenzl and sect. *Kabylia* Simm. in Turkey: ○ *S. pulvinaris* Boiss. ● *S. glutinosa* Bieb. □ *S. pamphylica* Boiss. ■ *S. suffruticosa* Náb.



FIG. 3. Distribution of *Saponaria* sect. *Bootia* Neck. in Turkey: ■ *S. dalmasi* Boissieu ○ *S. mesogitana* Boiss. and ● *S. officinalis* L.



FIG. 4. Distribution of *Saponaria* sect. *Proteinia* Ser. in Turkey: ○ *S. orientalis* Linn.
□ *S. viscosa* Mey. and ● *S. tridentata* Boiss.

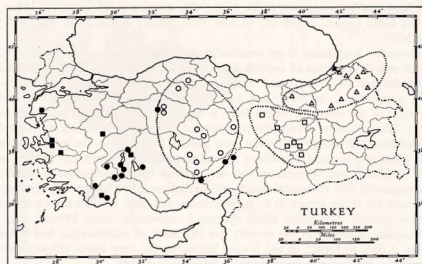


FIG. 5. Distribution in Turkey of *Saponaria* sect. *Silenoides* Boiss. ■ *S. chlorifolia* Kunze. ● *S. kotschyi* Boiss. ▲ *S. cerastoides* Fisch. ○ *S. prostrata* Willd. ssp. *prostrata*. □ *S. prostrata* Willd. ssp. *anatolica* Hedge. △ *S. prostrata* Willd. ssp. *calverti* (Boiss.) Hedge.

Limonium anatolicum I. C. Hedge, sp. nov. Subgenus *Limonium* Sect. *Limonium*.

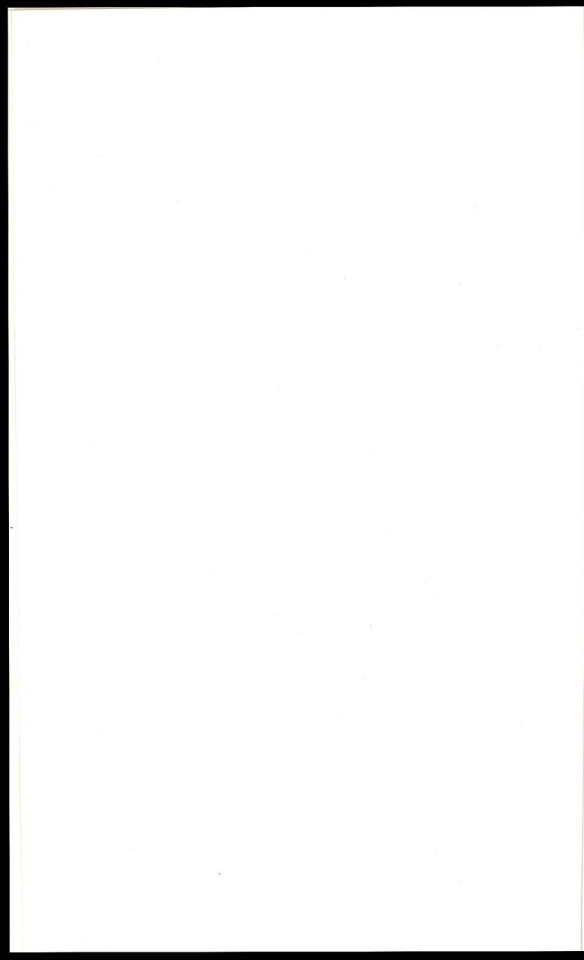
Affinis *L. suffruticosae* (L.) Ktze. et *L. carnosae* Boiss.; a priore foliis a basi non auriculatis recedit; ab ambabus speciebus compactis non remotis et ad nodos inflorescentiae sine squamis lingulato-triangularibus sed foliis oblongis herbaceis provisus differt.

Planta suffruticosa ramosissima. *Rhizoma* lignosum multiceps. *Surculi* abbreviati, crassiusculi, numerosi, squamis bruneo-rufescentibus obsiti. *Caules steriles* numerosi, ad basin pilis paucis eglandulosis provisi. *Caules floriferi* 6–12 cm. alti, teretes, pallide virides, glabro-glaucescences depresso-punctati, e basi arcuato-ascenderet erecti, simplices vel dichotome ramulosi. *Rami* ad nodos foliis oblongis herbaceis non vel vix scariosis c. 6 mm. longis. *Folia* carnosa, anguste oblongo-spatulata, obtusa, depressopunctata, glabra, enervia, sub apice latissima, in petiolum attenuata, petiolo incluso (12–) 6 (–2) mm. longa et (2–) 1½ (–1) mm. lata. *Bases foliorum* subito vaginato-dilatatae rotundato-exauriculatae. *Spiculae* in spicas capitatas distiche dense confertae, 1–2(–3) florum, ± 7 mm. longae, sub-rectae vel levissime curvatae. *Bractea exterior* ovato-triangularis, rufescento-brunnea, scarioso-marginata, interna duplo vel triplo brevior. *Bractea interior* calyce paulo brevior, obtusa, spiculam arcte involucrens, margine scariosa. *Flores* brevissime pedicellati. *Calyx* anguste tubulosus 4.5–5 mm. longus, brunneus, glaber vel interdum a basi pilis paucis provisus, elevatim 5-costatus superne in limbum album ampliatus, nervis in lobos obtusos excurrentibus. *Corolla* caerulea-lilacina, c. 5 mm. long in lobos oblongo-obovatos fissa.

TURKEY. Prov. Konya: distr. Cihanbeyli, Acituzgözü near Kırkişla, saline clay flats with *Salicornia* and *Atriplex*, fls. violet-blue, 900–1000 m., 9 Sept. 1949, Davis 16631 (holo. E, iso. K); Ankara-Kochisar yolu 135 km. Tuz Gölü kenari, c. 899 m., 14 July 1952, Birand & Kasapgil 662 (Ank! HM!).

Limonium anatolicum is yet another of the distinct and recently discovered salt marsh endemics of central Anatolia. Its closest allies are not Turkish species but are to be found in the *L. suffruticosum* (L.) Ktze. complex—in particular *L. suffruticosum* and *L. carnosum*. *L. suffruticosum* at the centre of the complex ranges from S. Russia, east Persia, Afghanistan to the Altai. It differs from the new species in having constantly auriculate leaf bases but shares with it the same general facies. Also, the inflorescence is loose and the nodal bracts of the inflorescence are brown and hyaline in *L. suffruticosum* whereas in the new species the inflorescence is tightly compacted and the nodal bracts are herbaceous; the upper inflorescence bracts are shiny brown in *L. suffruticosum* and dull, reddish-brown in the new species. The other allied species *L. carnosum*, from Persian Azerbaijan, shares with the novelty the character of exauriculate leaf bases but differs in facies, in the longer leaves, in the very loose inflorescence and the hyaline-margined nodal inflorescence bracts.

L. carpathum Rech. fil. and *L. palmyrense* (Post) Dinsmore, both within the same complex and geographically the nearest two species to *L. anatolicum* (the former comes from the Aegean Island of Karpathos, the other from Syria and Jordan) are, in morphological characters and general facies, much more distantly related than are *L. suffruticosum* and *L. carnosum*.



The pollen in *L. anatolicum* is dimorphic: types A and B (cf. Baker, Dimorphism and Monomorphism in the Plumbaginaceae: II; in Ann. Bot. New Ser. xvii, 433-445: 1953) occur on different plants and closely correspond with the drawings given in Baker's paper. Associated with this feature is the occurrence of 'cob' and 'papillose' stigmatic surfaces. The general pattern throughout the genus is repeated in *L. anatolicum*: type A pollen is found in flowers with 'cob' stigmas and type B pollen with 'papillose' stigmas.

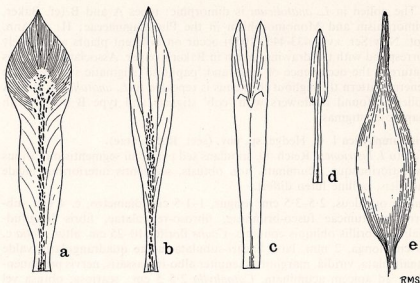
***Iris pamphylica* I. C. Hedge, sp. nov. (sect. *Reticulatae*).**

Habitu *I. histrionem* Reich. fil. simulans sed perigonii segmentis minoribus angustioribusque, acuminatis non obtusis, segmentis interioribus lucide caeruleis, polline luteo differt.

Bulbus ovoideus, 2.5-3.5 cm. longus, 1-1.5 cm. diametro, c. 4 cm. subterraneo; tunicae fusco-brunneae, fibroso-reticulatae, fibris longitudinalibus fibrillis obliquis connatis. *Caulis* florifer 10-25 cm. altus. *Folia* c. 30 cm. longa, 2 mm. lata, lineari-subulata, acute quadrangularia valde canaliculata, viridia, marginibus tenuiter albo-incrassatis, nervis prominentibus, ad apicem acuminata. *Cataphylla* 2.5-5 cm., scariosa, obtusa vel subacuta, marginibus integris. *Spatha* oblonga, viridis, margine membranacea, apice obtusa. *Flos*. 1, sessilis. *Tubus* gracilis, pallide viridis. *Segmenta exteriora* ascendentia obovata spatulata ultra medium decurva, ungui cuneato in laminam oblongo-ovata apice acuminatam sensim transeunte, 34 mm. longa, 5-8 mm. lata; lamina brunneo-viridis, in ungui lutea, maculis brunneo-viridibus ornata, ecristata. *Segmenta interiora* erecta, exterioribus paulo longioribus, 36×4 mm., longe unguiculata, lucide caerulea, inferne brunneo-maculata, anguste oblongo-lanceolata, apice acuminata. *Anthera* c. 11 mm. longa, caerulea; filamenta 11 mm. longa, polline luteo. *Styli* 30 mm. longi, anguste oblongi, 3 mm. lati; cristae oblongae, acuminatae, c. 8×1.5 mm. *Capsula* 38×9 mm. ovato-oblonga. *Semina* ellipsoidea c. 3.2 mm.

TURKEY. Prov. Antalya (Pamphylia): Manavgat-Akseki, above Fersinuluni, *Pinus brutia* forest and edge of corn plots, leaves glaucous, square in T.S., 700 m., 10 April 1956. *Davis & O. Polunin* (D. 25845, holo. E); cult. Sir Frederick Stern, Highdown, Goring-by-Sea, fl. 2 March 1958.

This new member of the *Reticulatae* section is more closely related to *I. hystrio* Reich. fil. than any other species in the section. It shares with it the feature of the erect falls which are only slightly reflexed towards the apex. *I. pamphylica* differs from it in flower colour, the size and shape of the perigonal parts and the colour of the pollen. In the living specimens and the drawings that I have seen of *I. hystrio* the colour of the falls is deep blue around the margins with darker spots of deeper blue or purple towards the blade; on the blade of the falls the veins are purple with a yellowish background. The figure in the Botanical Magazine (tab. 6033: 1873) gives a good idea of the colours. In contrast, the falls in *I. pamphylica* are without a distinct colour margin. The outer shaded part of the falls in fig. 6 is dark olive green or deep brown; the narrow blade has a bright yellow background mottled with olive-green or deep brown; the standards of the new species are bright light blue dappled with brown towards the base in contrast to the darker purple blue of *I. hystrio*. In addition to the differences in flower colour, there is a clear difference both in the dimen-

FIG. 6. *Iris pamphylica* I. C. Hedge.

A. fall. B. standard. C. styler segment. D. anther. E. capsule.

sions of the flower parts (cf. description) and their shape. In *I. histrio*, the apices of both falls and standards are rounded or obtuse; in *I. pamphylica* they are clearly acuminate (as fig. 6 shows). In the new species, the standards are slightly longer than the falls—a feature not of *I. histrio* but of *I. reticulata*. The pollen in all the specimens I have examined of *I. histrio* is blue; in *I. pamphylica* the pollen is light yellow.

The formal description of this new species has been delayed till now in the hope that more material of cultivated plants would be available for description and discussion. However, I have only seen the one flowering specimen on which the description is largely based. This was grown by Sir Frederick Stern from the herbarium and bulb number *Davis* 25845 which in the field was collected in an early fruiting stage.*

This beautiful and delicate-flowered new species would be a charming addition to the generally grown members of the *Reticulatae* if it could be more widely established. However, like *I. histrio*, *I. pamphylica* is apparently not so easy to grow as the other members of the section.

Possibly the early flowering-date of the new species is the main reason why it has been overlooked previously. The occurrence of *I. pamphylica* in a region where the section was, up till now, unknown raises the question whether there are yet more new species or new colour forms still awaiting discovery in other parts of Turkey. Certainly, the known wild localities of the Turkish *Reticulatae*—*I. reticulata* M. Bieb., *I. histrio*, *I. histrioides* Foster, *I. danfordii* (Baker) Boiss., and *I. bakeriana* Foster are surprisingly few.

**I. pamphylica* also flowered with Mr. N. Hadden, West Porlock, Somerset in 1958, with Mr. G. B. Rawinsky, Farnham, Surrey, in 1959 and 1960, and with Mr. I. B. Barton, Wimborne, Dorset in 1960. Although I have not seen specimens from these three sources, descriptions of the plants agreed closely with the information given above.