TWO REMARKABLE NEW SALVIAS FROM AFGHANISTAN

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In a recent loan of Afghanistan sages from Dr. K. H. Rechinger, two most distinct new species came to light. Neither fit into any existing section though their affinities are undoubtedly with two groups from the Pamiro-Alayan region. I am grateful to Dr. Rechinger for the loan of the original material and to the director of the Leningrad herbarium for the loan of certain Pamir species. To Dr. Pobedimova at Leningrad I am most grateful for her comments on the affinities of the new species.

Salvia pterocalyx I. C. Hedge, **sp. nov.** (Plate 11)
Herba perennis c. 30 cm. alta. *Caules* erecti, simplices, ± acute sexangulares, a basi pilis glanduloso-capitatis et pilis brevibus eglandulosis dense tecti, in regione florifera indumento minus denso. *Folia* lyrato-pinnatisecta, petiolata; segmentum terminale anguste oblongo-lanceolatum, 6–8 cm. longum, c. 1 cm. latum, margine integrum apice acutum, concolor, viride, utrinque pilis glanduloso-capitatis et pilis longioribus eglandulosis provisum; nervatura subtus prominens; segmenta lateralia terminalibus multo minora, oblonga, c. 0·8 cm. × 0·2 cm., apice acuta, integra. *Petiolus* c. 2 cm. longus, papillis parvis glandulosis praeditus. *Axis inflorescentiae* c. 14 cm. longus. *Verticillastra* 3-flora, c. 7-nata, internodiis 1·5–3 cm. longis. *Folia floralia* oblonga c. 2–3 mm. × 1 mm., pilis eglandulosis munita. *Pedicelli* 2·5–3 mm. longi, erecti. *Calyx* inflato-subcordatus, inferne roseo-suffusus, 16–20 mm. longus, a basi c. 12 mm. latus, 14-nervosus, nervis 4 primariis alis brevibus provisis, ± ad 2·5 mm. bilabiatus, labiis non divergentibus, pilis eglandulosis paucis et papillis capitatis paucis provisus; labium superius in dentes duos triangulares brevissimos (intermedio obsoleto) fissum; labium inferius paulo longius in dentes duos triangulari-ovatos sed non spinulosos bifidum. *Corolla* calyce 2-plo longior (colore ignoto), 35–40 mm., superne glandulis stipitatis capitatis munita; tubus calyce longior, 20–25 mm. longus, intus exannulatus sed pilis paucis eglandulosis provisus; labium superius porrectum 7–8 mm. longum, retusum, intus pilis eglandulosis parce pubescens; labium inferius trilobatum galea paulo longius, lobo mediano rotundato-reniformi c. 8 mm. lato, lobis lateralibus ovatis obtusissimis. *Filamentum* antherarum c. 11 mm. longum; connectivum antherarum c. 8 mm. longum curvatum. *Thecae* ambae fertiles; theca major 3 mm. longa; theca minor 2·5 mm. longa. *Staminodia* evoluta. *Stylus* c. 45 mm. longus exsertus. *Nuculae* ignotae. *Floret* Mai.

AFGHANISTAN: Poli-i-Ghomri–Haibak (c. 68° lat. 36° long.) 1100 m., 25 May 1956, *H. C. Amsel* sine numero (holo. W.).

Salvia pterocalyx does not fit into any existing section in the genus, though it has affinities with the Pamiro-Alayan section *Physosphace* Bunge and the sub-genus *Macrosphace* Pobed. from the same area. Likewise, it

has no obvious specific kinship and to relate it with any of the species in these sections would be misleading.

The distinctive criteria for the new species are: (1) the remarkable calyx, inflated and cordate at the base, with four short wings running out from the four primary veins (the fifth tooth is obsolete)—with the material available, the calyx is apparently swollen from the bud stage, i.e. long before anthesis; (2) the corolla tube is devoid of any kind of corolla tube scale; (3) the very long staminal filaments which are considerably longer than the connectives; (4) *both* thecae bear fertile pollen; (5) the stem is covered with a glandular indumentum which stretches from the base up to the inflorescence axis where the glandulosity is less dense; (6) the calyces are apparently pendulous at flowering time; (7) the six-sided stems, the 3-whorled leaves and the single flowered cymules, 3 to each node.

S. pterocalyx differs from all members of the section *Physosphace* in having single-flowered cymules per node (in *Physosphace* the lower cymules are 3 per node and always 1-3-flowered), an inflated subcordate calyx with four wings and only four very short, not acute, calyx teeth. The fruiting calyx of *S. submutica* Botsch. & Vved. has a tendency to have winged calyx ribs, but this applies to both primary and secondary ribs. All the species in *Physosphace* have a calyx rounded or narrowed at the base and never subcordate even at fruiting time. If they do more or less inflate they do not do so in flower.

S. pterocalyx differs from sub-genus *Macrosphace* in habit, calyx shape, calyx teeth and in the absence of hairs within the corolla tube. The members of *Macrosphace* as typified by *S. schmalhausenii* Regel, are all closely allied and characterised by the many twiggy branches arising from a thick woody rootstock and the absence of any basal rosette leaves. All the species have long thin subulate calyx teeth and two-flowered verticils —the flowers being borne on long bracteolate pedicels. Although the new species is less closely allied to *Macrosphace* species than *Physosphace* species, there is one unusual character common to *S. pterocalyx* and the members of *Macrosphace*—both thecae bearing fertile pollen.

The new species shares with *Physosphace* the features of both thecae bearing fertile pollen, the short connectives—much shorter than the filaments—and the leaves and flowers arising in threes.

Salvia tetrodonta I. C. Hedge, **sp. nov.** (Plate 12)

Partes subterraneae et caules inferiores desunt. *Caules* 30 cm. alti saltem, ± acute sexangulares, ramosi trifidi, internodiis mediis c. 7 cm. longis, ubique glaberrimi. *Folia caulina* superiora integra sessilia c. 7 cm. longa, c. 2 cm. lata in parte media latissima, lanceolata, apice acuta fere pungentia, margine integra, utrinque pilis brevibus paucibus; nervatura subtus reticulata prominens, supra immersa. *Pedicelli* c. 5 mm. longi, erecti. *Calyx* c. 10 mm. longus, conicus, 14-nervosus bilabiatus, superne purpurascenti-suffusus, labiis divergentibus, pilis capitatis glandulis planis longis et pilis eglandulosis paucis dense munitus; labium inferius in dentes duos ovato-triangulares acutos 4 mm. longos fissum; labium superius in dentes duos (intermedio obsoleto) bifidum. *Corolla* calyce 2–3-plo longior, c. 30 mm. longa, superne glandulis stipitatis capitatis parce pubescens; tubus calyce sesquilongior intus pilis paucis eglandulosis (sed non piloso-annulatus) provisus; galea porrecta c. 7 mm. longa, emarginata; labium

inferius superiore longius, trilobatum, lobo mediano orbiculari-emarginato c. 10×8 mm., lobis lateralibus ovatis c. 6×4 mm. *Connectivum* antherarum c. 11 mm.; loculus magnus 4 mm., loculus parvus 2 mm., uterque pollinifer; filamentum antherarum c. 5·5 mm. *Staminodia* evoluta. *Stylus* c. 30 mm. longus. *Nuculae* ignotae. *Floret* Aug.

AFGHANISTAN: Hazarajat, south side of Kuh-i-Baba, 12 miles below Panjao, bare hillside (c. 67° lat. 34° long.), 2600 m., 27 Aug. 1954, *W. Thesiger* 103 (holo. BM.).

S. tetrodonta in some respects stands halfway between section *Physosphace* and sub-genus *Macrosphace*. It has the habit of the latter and the trifid branching of the former.

From the species in *Physosphace*, *S. tetrodonta* differs in its branched stems, entire upper leaves, glabrous inflorescence axis, conical 4-toothed calyx and quite different facies. It differs from the *Macrosphace* species in the trifid branching, the small conical calyx with four short teeth and the small flowers. It is of special note that in *S. tetrodonta* the staminal filament is shorter than the connective (unique in *Physosphace* and *Macrosphace*?).

The absence of rootstock and the basal part of the stem in both species is a considerable drawback in attempting to evaluate their relationships. Likewise, the inadequacy of the flowering parts in the two species precludes a completely comprehensive description. Despite these drawbacks, however, it is clear that *S. tetrodonta* and *S. pterocalyx* are two unique new species with no specific affinities and no claim to be incorporated within the section *Physosphace* or the subgenus *Macrosphace* as they are at present recognised. Both these central Asiatic groups are very natural and all the species (except one) within them are fairly closely allied. The one exception is the east Persian *S. aristata* Auch. ex Benth.* which geographically and morphologically is rather removed from the rest of the *Physosphace* species.

Possibly, *S. pterocalyx* and *S. tetrodonta* represent two monotypic sections. However, the material of the two new species is not completely adequate and until more is known about them, *S. pterocalyx* and *S. tetrodonta* are best regarded as very distinct anomalous species whose sectional position can only be determined in conjunction with a reappraisal or a redefinition of the section *Physosphace*, and the sub-genus *Macrosphace*.

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* *S. aristata*—the type species of the sub-genus—has variously been placed in sect. *Eusphace* Benth., sect. *Aethiopis* Benth., sect. *Physosphace* Bunge and was once erroneously described as a separate genus *Polakia* Stapf.

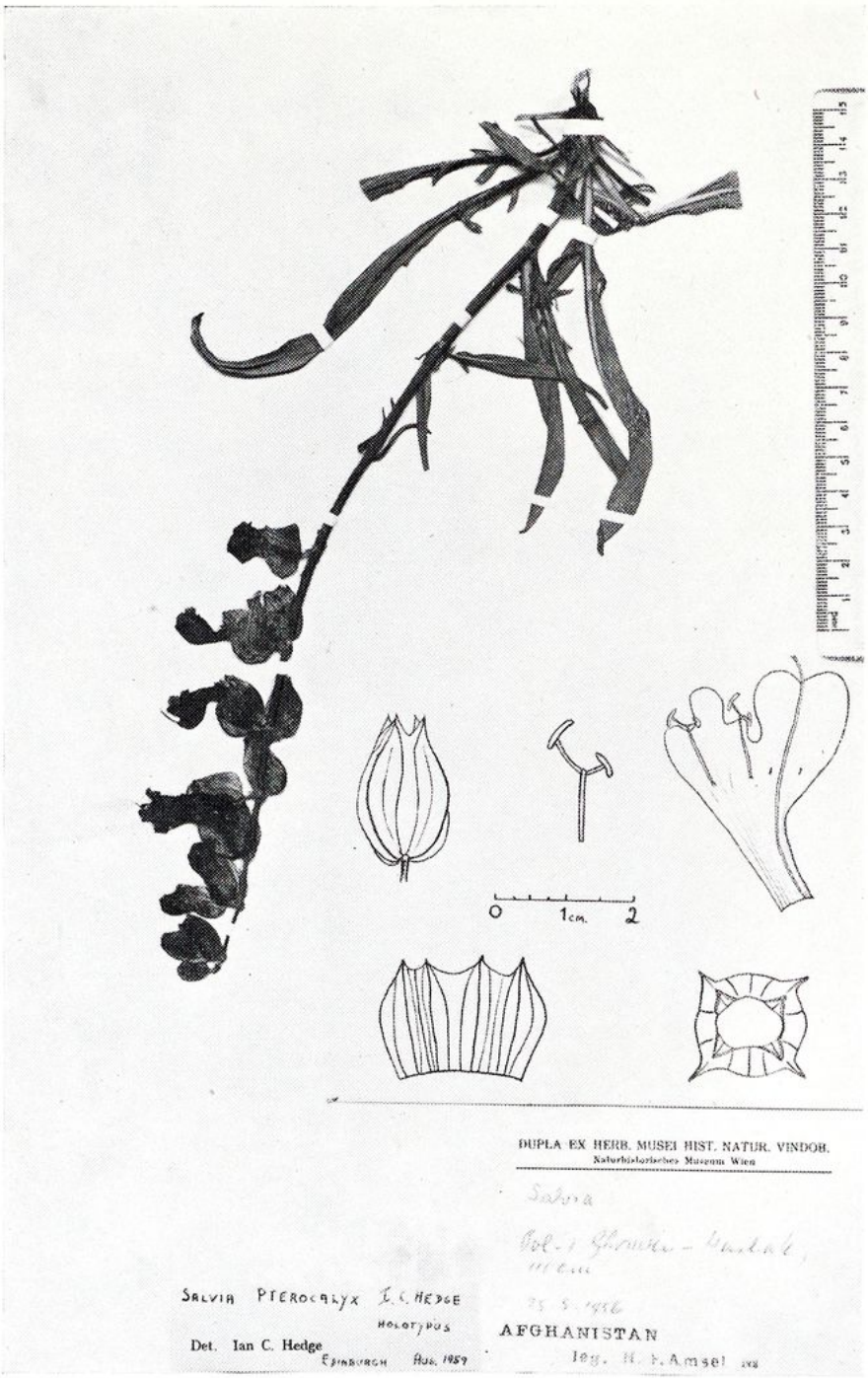

PLATE 11. *Salvia pterocalyx* I. C. Hedge (*Amsel* s.n.).
Inset: calyx in side view, opened out and from above (somewhat schematised), stamen and corolla.

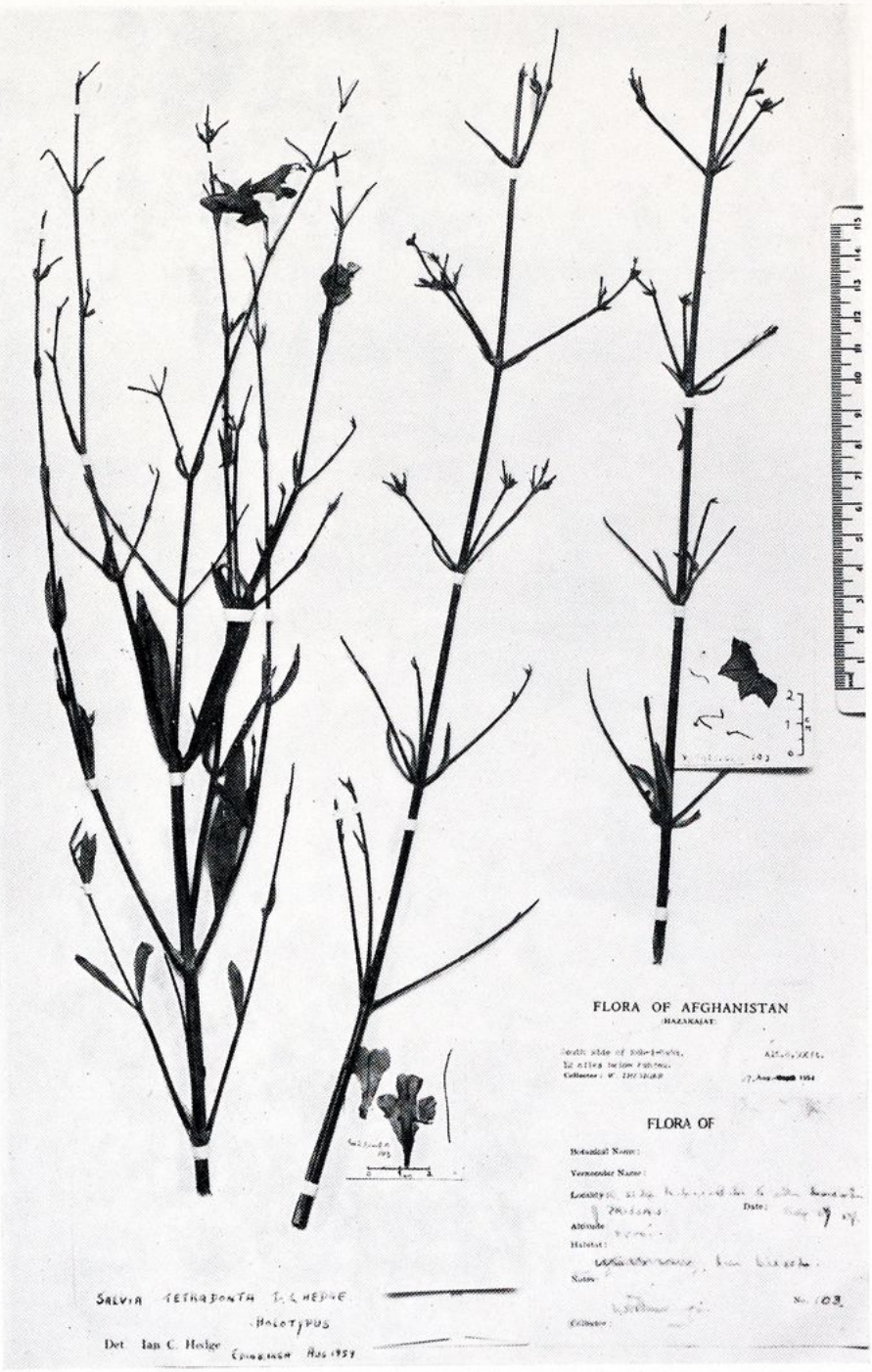

PLATE 12. *Salvia tetrodonta* I. C. Hedge (*Thesiger* 103).
Insets: dissections of calyx, corolla and stamens.