

THE VARIATIONS OF *SILENE NUTANS* L. IN GREAT BRITAIN

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In the past there has been considerable confusion in Britain over the species *Silene nutans* L. The present paper seeks to present an analysis of the British forms of this species.

The trouble has been caused by the extreme variability of the species, which appears to set up a new form wherever it becomes sufficiently isolated to prevent free inter-breeding of populations. It is distributed patchily over Britain, as an aggregate species, but is commonest along the south coast of England, and in Jersey; it is also frequent in Derbyshire, but elsewhere it is local and rare.

Since Linnaeus' time many Continental European botanists have distinguished species and varieties from his type. In Britain, Smith (1800, 467) thought the Dover form was *S. paradoxa* L., thereby continuing a mistake of Miller. The plant Peete found in 1825 and described as *S. patens* (1832, No. 2748) was, in fact, *S. italica* Pers. and not a segregate of *S. nutans* L. at all. Nearly a century later, Salmon (1905, 127; 1918, 35) unfortunately misidentified a south coast and Channel Island form as *S. dubia* Herbich. This is a Bucovinian plant and, although Herbich's description might almost be applied to the British plants, the latter are certainly not the same as the Bucovinian specimen distributed as *S. dubia* by Woloszczak (Fl. polon. exsicc. 915, Herb. Mus. Brit.), for it has quite different indumentum and a rather different habit. Besides, in such a variable group as *S. nutans*, one would hardly expect a Bucovinian form to reappear in England.

Moss (1920, 79) realised that Salmon was in error and treated *S. dubia* Salm. non Herb. as var. *vulgaris* Moss. All the other forms in Britain he designated var. *Smithiana*. We shall deal with these varieties in detail later.

At the suggestion of the late Mr. A. J. Wilmott I tackled the morphological variations of *Silene nutans* without reference to previous work and literature on the species until I had reached my own conclusions. As will be seen later, these were similar to those reached by Moss. Even so, the position is very complicated, for it is not only a taxonomic problem but one of phytogeography as well.

First we need a typification of *S. nutans* L. Linnaeus (1753, 417) gives it a new definition: "*Silene petalis bifidis, floribus lateralibus secundis cernuis, caule recurvato.*" The *Hortus Cliffortianus* and Bauhin's *Pinax* definitions are cited as synonyms, and the habitat is given as "*in Europae borealis pratis aridis.*" The sheet in Herb. Linn. (Savage, 1945, No. 583/18) is written up as "*7 nutans*" and

one of the three specimens of this sheet must be made the lectotype. Whence did these specimens come? Wilmott (*in litt.*) wrote: "There is no information concerning their origin, but according to what Daydon Jackson once told me, it is possibly material gathered by Linnaeus himself, and probably near Upsala. In the *Flora Suecica* (1745, 133) to which Linnaeus refers in 1753, the plant is said to be frequent in the meadows of Upland (the old province which includes both Upsala and Stockholm). The three specimens in Herb. Linn. match other material from around Upsala and one may with reasonableness consider this to be the type area."

The specimens in Herb. Linn. are slender-stemmed (25 cm. high) with small linear-lanceolate stem leaves (1-4 cm. long). Hairs are very short, moderately dense. Leaves linear-lanceolate, small (4 cm.), hairs short on lamina, petioles slender rather longer than lamina. Pedicels and peduncles both short, less than 1 cm. each. Peduncles 1-3-flowered, calyx 10-striate, covered with short viscid hairs, calyx-teeth acute with scabrid margins. Flowers (white) small, petal segments linear. Although there are no capsules other Upsala specimens show that the plants there have *very* small capsules.

VARIATION WITHIN THE SPECIES AS A WHOLE.

Leaf-shape is a very variable characteristic; it ranges from narrow-linear to broad-spathulate. But leaf-size is a deceptive character as it appears sometimes to depend a good deal upon ecological factors.

Indumentum. Some glabrous forms are found in Eastern Europe in which the hairs may be reduced to minute pimples or scabrid spots on the leaves. Plants may be sparsely covered with short hairs, in which case a lens may be necessary to distinguish them, or they may be densely pubescent, with the hairs long and obvious.

Flower variations are frequently used as taxonomic features. Although *S. nutans* is typically white, forms with yellow, green or red flowers have been distinguished. In Britain red (*exsicc.* Payne 1931, and Edelston 1939, Herb. Mus. Brit.) and yellow (Salmon, 1905) occur. The degree of crowning of the petals (i.e. the length of the petal ligules) is used by some authors, but further fresh material needs to be examined before its taxonomic value can be assessed.

Capsule. The average size of the capsule of British specimens is about 1 cm., but the Continental forms are frequently rather less. Capsule size is an excellent taxonomic characteristic, but its shape is not so useful. It appears, however that the larger capsules are more inflated towards the base, resulting in a conical shape, whilst the smaller ones tend to be barrel-shaped. The carpophore seems to vary with capsule size. In this paper the term "capsule length" does not include the carpophore.

BRITISH VARIETIES.

The plants of *S. nutans* occurring in Britain may be divided into two clear-cut varieties with capsule size as the primary distinguishing factor. Along parts of the south coast, plants have a large mature capsule averaging between 11 and 14 mm. long, and their leaves are slender and sparsely covered with hairs. All the other plants possess capsules which are between 8 and 10 mm. long, their leaves are typically broad and pubescent. The southern variety has the following description.

***Silene nutans* var. *Salmoniana* Hepper var. nov.**

Planta var. *Smithiana* Moss gracilior. Folia radicalia in petiolum longum attenuata, acutiuscula (11 cm. longa), margine setulis brevissimis scabra. Flores flavescentes, secundi, nutantes. Capsula ovata, 11-14 mm. longa, carpophoro 3-4 mm. longo.

Synonyms. *S. dubia* Herbich sec. Salmon (1905, 127; 1918, 35), non Herbich.; *S. nutans* L. sec. Moss (1920, 79), non L. in sensu stricto; *S. nutans* var. *vulgaris* Moss (1920, 79).

The last name is untenable on two counts: Moss made this variety equivalent to the typical *S. nutans* of Linnaeus, which it is not (see p. 81); and, under the Rules agreed at Stockholm, 1950,* the typical form must now be expressed as *S. nutans* L. var. *nutans*.

Distribution of var. Salmoniana.

- V.-c. 10, Wight; Sandown Bay, Culver Cliff, St. Lawrence. Very rare.
- 11, S. Hants.; Milford-on-Sea, Fort Cumberland (?), Portsea I., Stokes Bay, Brown-down Ranges, Portsdown, near Fareham. Very rare.
- 13, W. Sussex; Hassocks Sandpits (? native).
- 14, E. Sussex; Hallingbury Hill, Downs near Bevendean, Moulscombe, near Stanmer. Very rare, may be locally abundant.
- 15, E. Kent; Dungeness, Lydd, Hythe, Sandgate. Rare, fairly common on Dungeness shingle.
- 17, Surrey; near Ham, Colley Hill near Reigate (now built over). Very rare.

Note.—The Jersey and N. French coast specimens are very similar to this variety.

Type of var. Salmoniana.

From Salmon's remarks (1905) it is clear that his paper started from investigation of plants sent from near Brighton by Hilton, and more particularly from his field study of the same form. He says (p. 128) that he "made a visit with him [Hilton] in June last [1904] and examined

*See H. C. D. de Wit, 1950, *Flora Malesiana Bull.*, no. 7, 209, Art. 28 bis.

the plants in a fresh state". The actual date of his visit with Hilton was, from the label of the specimens in his herbarium, 10th July 1904, the locality being given as "downs, Bevendean, East Sussex".

A specimen of this gathering in Herb. Salmon (Herb. Mus. Brit.) is therefore designated the holotype.

Icones. Moss (1920, t. 76); Ross-Craig (1951).

Discussion.

The Kentish plants referred to this variety are not typical of it, for they are extremely small in habit and their leaves are very reduced in size. This may be an adaptation to their habitat, for they grow in exposed, open shingle where there must be a great deal of insolation. Perhaps cultivation will show whether this adaptation is genetical or not. However, in all other respects than in habit this form matches var. *Salmoniana*.

The Ham plants fall into this variety although they are not typical of it. Their station† is curious and has the appearance of being unnatural (even so the plants seem to be thoroughly established and have been known from there for many years). Nevertheless, it may be that the excavations of sand and gravel have provided the species with a suitable habitat, from whence it has spread somewhat. The mature capsules are inclined to be rather smaller than those of the south coast plants, and in that way approach the Derbyshire form.

SILENE NUTANS L. var. *SMITHIANA* MOSS (1920, 79).

Cucubalus viscosus L. sec. Hudson (1762, 163), non L., excl. diagn. et syn.; *S. paradoxa* L. sec. Smith (1800, 467), non L., excl. syn. Jacquin et Zannoni; *S. nutans* L. sec. Salmon, loc. cit., *in sensu stricto*, non L.

A coarser, stouter, more viscid and hairier plant than var. *Salmoniana*. Leaves broader, less acute. Inflorescence less drooping. Calyx with less acute teeth. Petals white. Carpophore about 2.0-2.5 mm. long. Capsule with suberect teeth, 8-10 mm. long. Seeds with acute tubercles, greyish black, a little longer than broad, about 1 mm. long.

This description, with var. *Salmoniana* substituted for var. *vulgaris* of the original, has been taken from Moss (1920) and it covers all the forms of *S. nutans* in Britain except those already mentioned under var. *Salmoniana*. I regard the type locality for var. *Smithiana* as E. Kent, and Kingsdown in particular (exsicc. in Herb. Mus. Brit. ex Herb. Salmon: "chalk cliffs, Kingsdown, coll. H. E. Fox, 30.6.15", and distributed by the Watson B.E.C. as *S. italica* Pers.). It appears that Moss designated no type for his varieties for, though he quotes exsicc. Herb. Don, he does not state whether he intends this specimen (*non vidi*) from

†For a comment on this locality, see Lousley, J. E., 1950, *Wild Flowers of Chalk and Limestone*, 87.

Scotland to be taken as the type. His figure in *Cambr. Brit. Fl.* is from a specimen gathered in E. Kent.

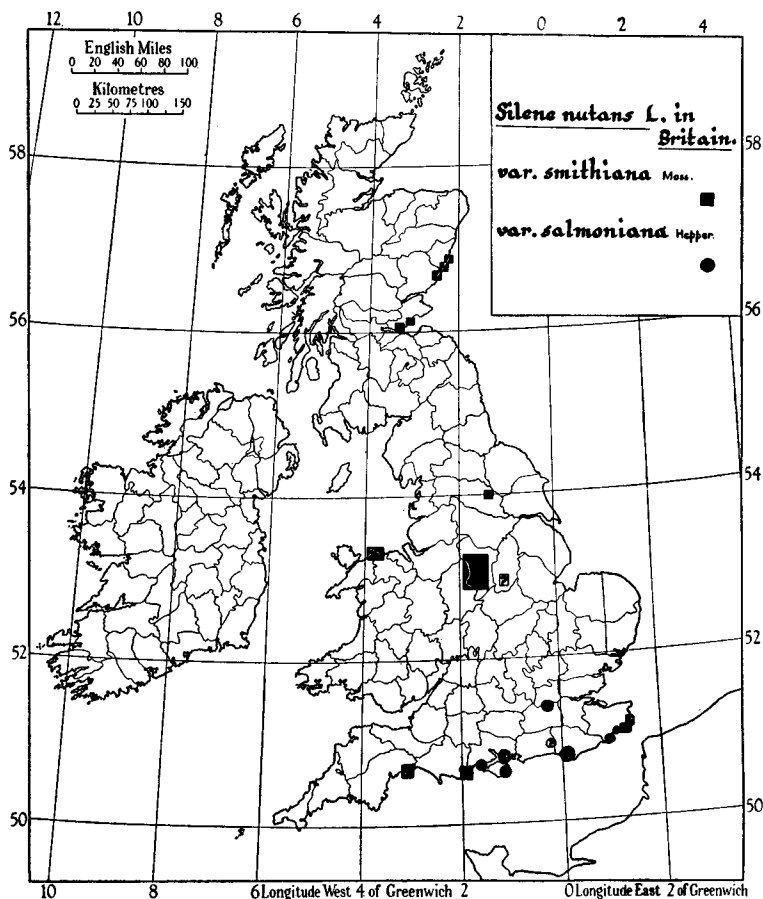
I was, at one time, very inclined to separate the Kent plants as a separate variety—for they contrast markedly with var. *Salmoniana*—but they are so similar to the Devon, and even to the Scottish, plants that it is impossible to draw a line of distinction between them. Once such a distinction were made for Kent, one would have to give the plants occurring in each station varietal rank—the British distribution of *S. nutans* being so discontinuous that isolated populations have been built up. Thus it is much more practical to state that var. *Smithiana* has six forms which may be distinguished from one another according to the tabulated characteristics given opposite. Form 1 is the typical var. *Smithiana*, whilst Form 6 is the least typical.

The latter form occurs in Derbyshire and Staffordshire and was placed under *S. dubia* by Salmon, and under var. *vulgaris* by Moss. It is clearly referable, however, to var. *Smithiana* on account of its small capsules which are typical of that variety, although in habit it approaches var. *Salmoniana*. Because of this, there was considerable discussion in the *Watson Exchange Club Reports* for the early 1930's. On the plants distributed from Stony Middleton, Derbyshire, however, Fraser (1931-2, 113) wrote: "I would call this *S. nutans* L. I have gathered it very similar to this from near Folkestone and 16½ ins. high . . . have gathered it on siliceous rocks by the sea, Kincardineshire". In the course of discussion, Pugsley (1932-3, 170) observes "that no real difference exists between the Dover and Nottingham catchfly and that Moss was right in merging them in one variety *Smithiana* of *S. nutans*". Again, Fraser (1933-4, 213) remarks on specimens from Colwyn Bay, Denbigh, "These fruiting specimens give an intimation of the shortness of the carpophore. The leaves of one strong specimen are the broadest I have ever seen in this species".

<i>Form 1</i> (E. Kent).	<i>Form 2</i> (Devon).	<i>Form 3</i> (Scotland).	<i>Form 4</i> (N. Wales).	<i>Form 5</i> (Yorks, Notts).	<i>Form 6</i> (Derbyshire).
<i>Stem</i> 30 cm. more or less, stout; stem-leaves broadly lanceolate, sessile, lower ones broadly petiolate.	<i>Stem</i> similar.	<i>Stems</i> sturdy, stem-leaves well developed, sessile.	<i>Stem</i> thick, stem-leaves well developed, petiolate.	<i>Stem</i> rather less stout than preceding, stem-leaves well developed.	<i>Stem</i> usually slender, stem-leaves may be small, but frequently well developed.
<i>Leaves</i> obovate, ratio length: breadth 1.5-2.0, apex usually obtuse, sometimes acute but not acuminate. Petiole equaling lamina. Leaf frequently tinged red. Lamina thick and equally pubescent on both sides.	<i>Leaves</i> broad lanceolate. Pubescence slightly less dense.	<i>Leaves</i> obovate, l:b 2.5, Petiole equalling lamina.	<i>Leaves</i> frequently very broad, almost spatulate, l:b 1.5-2.0.	<i>Leaves</i> lanceolate, l:b 3.	<i>Leaves</i> linear-lanceolate, l:b 3-4, acute.
<i>Indumentum.</i> Whole plant covered with long hairs, particularly long on the stems.	<i>Indumentum.</i> Rather similar.	<i>Indumentum.</i> Hairs fairly short and dense, longer on stem.	<i>Indumentum.</i> Hairs dense all over the plant, but rather less dense on upper surface of leaves.	<i>Indumentum</i> short and dense.	<i>Indumentum</i> short and sparse on the leaves, longer on the stems.
<i>Inflorescence</i> fairly close, very viscid to, or below, the lowest peduncle. Calyx viscid, teeth broad with scabrid margins.	<i>Inflorescence</i> very viscid and sturdy.	<i>Inflorescence</i> close.	<i>Inflorescence</i> close.	<i>Inflorescence</i> may be stout or more slender.	<i>Inflorescence</i> slender, can be very viscid.
<i>Capsules</i> small, 9-10 mm. (average 9.5).	<i>Capsule</i> 9-10 mm.	<i>Capsules</i> 8-10 mm. (average 9.5).	<i>Capsules</i> 9-10 mm. (average 9.5).	<i>Capsules</i> 8-10 mm. (average 9.2).	<i>Capsules</i> 8-10 mm. (average 9.1).
<i>Carpophore</i> 2-3 mm. (average 2.4).	<i>Carpophore</i> 2-2.5 mm.	<i>Carpophore</i> 2-3 mm. (average 2.9).	<i>Carpophore</i> 2-3 mm. (average 2.8).	<i>Carpophore</i> average 3 mm.	<i>Carpophore</i> average 2.3 mm.
<i>Distribution</i> : 15, E. Kent; cliffs from Kingsdown Bay to Folkestone.	<i>Distribution</i> : 3, S. Devon; Seaton, Beer Head. 9, Dorset; Old Harry Cliffs (extinct ?).	<i>Distribution</i> : 85, Fife; N. Queensferry, Dysart. 90, Forfar; Boddin Pt. near Montrose. Duninald, Red Head. 91, Kincardine; Bervie, St. Cyrus.	<i>Distribution</i> : 49, Caernarvon; Little and Great Orme's Head, Llandudno cliffs and Gloddaeth Hill. 50, Denbigh; Colwyn Bay.	<i>Distribution</i> : 56, Notts.; Nottingham Castle (extinct ?). 64, Mid W. York; Knaresborough cliffs, (extinct ? at Bramham and Ingleborough).	<i>Distribution</i> : 57, Derby; in many of the Dales. 39, Stafford; continuation of some of the Derbyshire dales.

DISTRIBUTION OF *SILENE NUTANS* IN BRITAIN.

The figure shows the distribution of the species in Great Britain. As the plant has a very discontinuous distribution and is usually localised in any particular area, the stations have been represented by spots and blocks, rather than by the vice-county system. This method gives a much truer picture of the distribution of a rare species. The size of the spots and blocks is intended to give an approximate idea of the area occupied in each locality.



All the counties in which the species is indigenous are mentioned under the respective varieties and most of their individual localities have been noted.

Moss (1920, 79) gives a distribution map showing *S. nutans* to occur in many more counties than, in fact, it does. As the plant favours

open, dry situations it easily grows in sand pits and on ballast heaps if the seed is present; thus many of the county records are doubtful and the status of the species is dubious in such cases. The *Flora of Cornwall* (Davey, 1909) notes it as "a casual at Par, 1903," and, although I have seen specimens from other parts of Cornwall, they always appear to be casuals on tips, etc. Yet Moss blocked in the whole of that county on his map. Similarly, it cannot be said to be a native of Somerset as the records state that it occurred "on the top of a wall, Bath." Incidentally, I find the absence of the species from this county rather surprising as there are so many suitable habitats, particularly in the Mendips. The records for Norfolk are doubtful: it is said to occur on the "borders of fields." Also the Cumberland record is for a casual occurrence. Therefore, the species cannot be counted as a native for any of these counties. Some of the records quoted by Druce (1932, 47) are misidentifications—frequently with *S. dichotoma* or other aliens introduced with foreign seed.

The full list of vice-counties where *S. nutans* may be regarded as indigenous and a permanent element in the flora, is given below. V.-c. 3, S. Devon. 9, Dorset. 10, Wight. 11, S. Hants. [13, W. Sussex?] 14, E. Sussex. 15, E. Kent. 17, Surrey. 39, Staffs. 49, Caern. 50, Denb. [51, Flint?] 56, Notts. 57, Derby. 64, Mid W. York. 85, Fife. 90, Forfar. 91, Kincardine. S, Jersey.

SILENE NUTANS L. IN EUROPE.

The question will inevitably arise: "Do these varieties occur on the continent of Europe?" The most obvious place one would expect to find them, if they do occur, would be along the north French coast. Examination of material (kindly lent by Herb. Mus. Paris) from the Pas de Calais and Normandy shows that the plants are similar to var. *Salmoniana*. No specimen has been matched with var. *Smithiana* with its broad, pubescent leaves as found at Dover; this appears to be a well-marked British endemic. The plants of the Pas de Calais, just across the Channel, have a slender habit and possess capsules which are rather intermediate between our varieties; measurement of them shows that their length ranges from 9-11 mm., with an average about 10.5 mm.; they are quite barrel-shaped and have a rather small aperture. In fact, they are quite like our Surrey specimens. Plants from Jersey appear to be identical with the typical var. *Salmoniana*. I am not, however, prepared to say whether this variety occurs in France without examining further material.

Conversely, it is possible to say, from examination and comparison of specimens and descriptions, that none of the following species and varieties recorded from the Continent have been found in Britain. A chronological account of *S. nutans* agg. in Europe is given below, together with notes on *S. paradoxa* L. and *S. italica* Pers. with which *S. nutans* has been confused. The list gives a selection of names only and does not claim to be exhaustive.

- S. livida* Willd., 1809, *Enum., Hort. Berol.*, 474. Apparently different from *S. nutans* in having the exterior of the petals blue-green rather than white. A native of Carniola. No British plants have petals of this colour as far as I know, although many of var. *Salmontana* have a green tinge.
- S. amblevana* Lejeune, 1811, *Fl. Spa*, 1, 199. Stem and leaves are perfectly glabrous. Found in the mountains bordering Amblève. Later (1812, *Fl. Spa*, 84) Lejeune admits it is synonymous with *S. infracta* W. et K.
- S. infracta* Waldst. & Kit., 1812, *Icones et desc. pl. rar. Hung.*, 237, t. 213. This is an entirely glabrous plant, unlike any British form.
- S. nutans* L. var. *infracta* (Waldst. & Kit.) Wahlenb., 1814, *Fl. Carp.*, 128.
- S. lagunensis* Chr. Sm. ex Link, in Buch, 1815, *Beschr. Canar. Ins.*, 154 (*non vidi*). This appears to be another glabrous form.
- S. nutans* L. var. *rubens* Vest, 1821, *Flora*, 150. This hardly seems to be a variety of *S. nutans* L. for its description is very different. It is said to have bifid petals without a corona, sometimes reddened, and red-coloured calyx, also a sessile capsule. There is no British form answering to this description, but red-flowered plants have been found in Hampshire and Kent; they correspond in no other details given. Plants raised from normal *S. nutans* seeds, obtained from Lausanne and Paris, both, however, produced a majority of pinkish flowers, which were not apparent on similarly grown Swedish or British plants.
- S. nutans* var. *livida* Othl., in De Candolle, 1824, *Prodromus*, 1, 378. This appears to be the same as *S. livida* Willd. (1809), and Moss (1920) states that his var. *Smithiana* "recalls *S. nutans* var. *livida* Othl." This seems to be a strange remark as the flowers of var. *Smithiana* are particularly white!
- S. petidna* Reichb., 1825, *Pl. Crit.*, Cent. 3, 52. The author states that this species is often placed under *S. livida* Schl. as its petals are white and blue-green underneath, but it is less viscid and has shorter hairs than that species.
- S. nutans* β *subcanescens* Reichb., 1832, *Fl. Germ. excurs.*, 821: "indumento aucto, floribus majoribus". Described from Wallis in Switzerland.
- S. polyphylla* Baumg., 1846, *Enum. Transsilv.*, 1, 397. A common species around Talmats and Boiza in sandy and arid places. It is characterized by a glabrous calyx and scabrid, ciliate leaf margins.
- S. spatulaefolia* Jordan, 1848, *Cat. Jard. Dijon*, 31 [*non vidi*]. The original description was published in a rather obscure garden catalogue. For a discussion on the species see 1852 below.
- S. spergulfifolia* Schur, 1850, Sert. Fl. Transsilv., *Verhandl. und Mittheil. Siebenb. Ver. Naturwiss.*, 12, No. 447. *Nomen nudum*.
- S. spathulaefolia* Jord., Willkomm, 1852, *1c. et descr. pl. Hispan.*, 1, 64, t. 47. This gives an excellent illustration and describes the plant sent to Willkomm by Jordan. Stem 40-50 cm. high, hairs short, leaves 5-12 cm. long by 1.5-2.5 cm. broad, rotundate or ovate-spathulate, apex obtuse, upper parts very viscid.
- The broadest-leaved British plants occur in N. Wales, although I have found a specimen with very broad leaves at St. Margaret's Bay in Kent. A specimen from the Great Orme's Head (in Herb. Mus. Brit. ex Herb. Linton) collected by Griffiths has very broad leaves and the sheet is noted "very marked var. *paradoxa* Sm. Bab. Man. ed. 9" and "cf. var. *spathulaefolia* Burnat et Jord. which seems much the same form". The first note is curious as Smith (1800) states in his description of *S. paradoxa*: "Folia longe angustiora, lineari-lanceolata glabra" (see reference to *S. paradoxa*).
- On comparing this specimen with *S. spathulaefolia* Jord. collected by Reverchon in the Basses-Alpes in 1885, which agrees well with Willkomm's figure, I concluded that the species does not occur in Britain. Mr. Wilmott endorsed my view.
- S. transilvanica* Schur, 1858, *Oesterr. Bot. Zett.*, 22 et 287, *nomen nudum*; *ibid.*, 1860, 181.
- S. dubia* Herbich, 1859, *Fl. Bucov.*, 388. This is the Bucovinian plant (whose description was repeated by Salmon, 1905, 127) with which Salmon confused the British var. *Salmontana* (see pp. 80, 82).

S. commutata Schur, 1859, *Verh. Siebenburg. Ver.*, **10**, 66. Another green-flowered form. The author states that it has affinities with *S. nutans* L. rather than with *S. polyphylla* Baumg., but I feel sure that the status of most of these forms and species needs to be investigated to assess their taxonomic value.

S. nutans β *spathulaefolia* (Jord.) Burnat, 1892, *Fl. Alpes-Marit.*, **1**, 213.

S. nutans β *subverticillaris* Rouy et Fouc., 1896, *Fl. France*, **3**, 144. The synonyms under this name by no means agree and I have, therefore, been unable to typify the variety.

S. PARADOXA L. AND *S. ITALICA* PERS.

The name *Silene paradoxa* was given by Linnaeus (1764, 1673) to a plant said to live "in Italia" and to have the stature of *S. nutans* but to be four times larger. There are two sheets in his herbarium (Savage, 1945, No. 22 and 23) written up by Linnaeus as *S. paradoxa*. The plants are different from *S. nutans* and are more nearly allied to *S. italica* because of the long carpophore and calyx (20 cm.) and broad petal segments. Sheet 23 has a note "*Lychnis noctiflora dubiensis perennis*" (sic; ? *dubrensis*) written by Miller who thus identified it with a plant collected at Dover by "Mr. Newton" called "*Lychnis major noctiflora dubrensis perennis*" (in Ray, 1696, 20; 1698, 995, and Dillenius, 1724, 340).

This misidentification was continued by Smith (1800, 467) who ends his account: "Quanta apud auctores de hac plantâ confusio!"—not realizing that he himself might be adding to the confusion. For the specimen in his own herbarium under the name of *S. paradoxa* is a quite glabrous plant allied to *S. infracta* W. et K. Unfortunately none of Newton's Dover specimens have been traced. Smith's description with "folia glabra" would seem to have been taken, at least in part, from his Hungarian specimen, as no British plant is glabrous, and especially not the Dover material.

In 1824, however, Smith (299), after visiting Dover and bringing back specimens which were cultivated by (T. F. ?) Forster (see Herb. E. F. Forster), realized that the Dover plant was not *S. paradoxa*. He also seems to have questioned Newton's view that it was less viscid than *S. nutans*. He says that "Miller mistook *S. paradoxa* for the Dover Catchfly and sent it as such to Linnaeus; but I cannot learn that it grows there" (Smith, 1824, 297).

In 1825 Peete found a plant at Dover which he described and figured as *S. patens* (1832, No. 2748). This plant was subsequently identified with *S. italica* Pers. Marshall (1899, 55) confused *S. nutans* with *S. italica*, but the latter has not been found at Dover since Peete collected it, though it still grows in N. Kent. I believe this might have been the species that Ray found, and the confusion arose because nobody knew what he had really found.

ACKNOWLEDGMENT.

In conclusion, my grateful thanks are due to the late Mr. A. J. Wilmott, who suggested the work, and to the Trustees of the British Museum (Natural History), who made it possible in initiating their Student Vacation Scheme. I also wish to thank Mr. H. K. Airy Shaw, of Kew, for giving valuable advice on the final lay-out of the paper.

SUMMARY.

1. The aggregate species *S. nutans* L. is very variable and a number of forms are found in Britain. Their occurrence may be partly related to the discontinuous distribution of the species.

2. The primary distinction of the British forms is the capsule size. On this basis there are two varieties in Britain.

3. *S. nutans* var. *Salmoniana* n. var. has a southern distribution and possesses capsules over 1 cm. long.

4. *S. nutans* var. *Smithiana* Moss includes six forms from various localities in Britain; all of them possess mature capsules under 1 cm. long.

5. Neither of these varieties matches published descriptions of Continental European forms.

BIBLIOGRAPHY.

Literature mentioned in the text, but not in the section dealing with the history of the species in Europe.

DAVEY, F. H., 1909, *Flora of Cornwall*, Penryn.

DILLENIIUS, J. J., 1724, *Raii Synopsi*s, ed. 3, London.

FRASER, J., 1931-2, *Watson Exchange Club Distributor's Report*.

—, 1933-4, *Watson Exchange Club Distributor's Report*.

HANBURY, F. J. & MARSHALL, E. S., 1899, *Flora of Kent*, London.

HUDSON, W., 1762, *Flora Anglica*, London.

LINNAEUS, C., 1753, *Species Plantarum*, Holmiae.

—, 1764, *Species Plantarum*, ed. 2, Holmiae.

MOSS, C. E., 1920, *Cambridge British Flora*, 3 (text and plates: 2 vols.), Cambridge.

PEETE, W., 1832, in *English Botany Supplement*, 2, London.

PUGSLEY, H. W., 1932-3, *Watson Exchange Club Distributor's Report*.

RAY, J., 1696, *Synopsi*s, 2, London.

—, 1698, *Historia*, 2, London.

ROSS-CRAIG, S., 1951, *Drawings of British Plants*, 5, London (in the press).

SALMON, C. E., 1905, *Silene dubia* Herbich in Britain, *J. Bot.*, 43.

—, 1918, *Silene nutans* and *Silene dubia*, *J. Bot.*, 56.

SAVAGE, S., 1945, *Catalogue of the Linnean Herbarium*, London.

SMITH, J. E., 1800, *Flora Britannica*, 2, London.

—, 1824, *English Botany*, 2, London.