XXXIV. *A Monograph of Streptopus, with the Description of a new Genus now first separated from it.* By DAVID DON, Esq., Libr. L.S., Prof. Bot. King's Coll. Lond.

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WHILE engaged in investigating the affinities of *Disporum*, my attention was naturally directed to the examination of various genera, either belonging to *Melanthaceæ*, or to families nearly related to it, and among others to the two genera which form the subject of the present paper. In my former communication I have already adverted to the new genus, of which *Streptopus lanuginosus* is the type, and I have also noticed the position which it occupies in the series of natural affinities, and that the chain of connexion between *Melanthaceæ* and *Smilaceæ* is rendered complete by means of it and *Disporum*. The new genus in question agrees with *Disporum* in its perianthium, in its binary ovula, and in its habit and inflorescence; but it differs in the position of its anthers, in its ovula being pendulous, and in its less deeply separated styles.

The genus *Streptopus* was first proposed by the elder Richard in Michaux's *Flora Boreali-Americana*, and was intended to include not only the *Uvularia amplexifolia* of Linnæus, but two other plants therein described for the first time, namely, *S. roseus* and *lanuginosus*. The two last are exclusively confined to North America, while the first is common to Europe and America.

The characters of the genus consist in its hexaphyllous campanulate perianthium, with the sepals deciduous, and furnished with a nectariferous furrow at their base; erect sagittate anthers, with short dilated filaments; three separate stigmata; and in its baccate pericarpium with polyspermous cells. These characters will be found united in *S. amplexifolius*, which must be considered as the type; and a careful comparison of it with the other species included by Richard clearly shows that *lanuginosus* must be removed from the genus. The genus, as here proposed to be limited, will comprise *S. am-*

plexifolius, *roseus*, and another species, first described by me under the name of *simplex* in the *Prodromus Floræ Nepalensis*. These plants have all a peculiar habit, cylindrical leafy stems, broad amplexicaul leaves, glaucous beneath, and axillary, solitary, mostly single-flowered peduncles, which in *amplexifolius* are curiously twisted at their middle. The genus undoubtedly belongs to the *Smilacæ*, and is nearly allied to *Convallaria* and *Smilacina*, but is essentially distinguished from both by its distinct sepals, each furnished with a nectariferous furrow, separate stigmas, and polyspermous berry. With *Uvularia* it accords in habit, and in its solitary, axillary, campanulate flowers; but its innate anthers, furnished with short filaments, baccate pericarpium, and noncarunculate seeds, remove it widely from that genus.

I shall now proceed to the description of the genera, and of the species belonging to them.

STREPTOPUS. *Rich.*

UVULARIÆ SP. *L.*

Perianthium 6-phyllum, petaloideum, campanulatum, æquale, deciduum : *foliolis* æstivatione imbricatis, basi foveâ oblongâ nectariferâ instructis. *Stamina* 6, basi sepalorum adnata, simulque decidua : *filamenta* brevissima, compressa, dilatata : *antheræ* erectæ, innatæ, basi subsagittatæ rimâ duplici longitudinalitèr dehiscentes. *Ovarium* 3-loculare : *loculis* multiovulatis : *ovulis* erectis. *Stigmata* 3, recurvata. *Pericarpium* baccatum, membranaceum, 3-loculare : *loculis* polyspermis. *Semina* duplici serie ordinata, oblonga, curvula, sulcata, testâ rugosâ subcoriaceâ.

Herbæ (hemisph. bor.) *perennes*, *rhizomate* *diviso*, *fibroso*, *multicipite*. *Caules* *cylindracei*. *Folia* *amplexicaulia*, *dilatata*, *multinervia*, *subtùs* *glaucâ*. *Flores* *axillares*, *solitarii*, *pedunculati*, *cernui*, *lutescentes*, *albi* v. *rosei*. *Baccæ* *globosæ*, *rubræ*.

1. *S. amplexifolius*, glaber; pedunculis medio convolutis appendiculatis, sepalis obtusè acuminatis, antheris sagittatis acuminatis, stigmate trilobo, baccæ loculis 6-spermis.

Streptopus amplexifolius. *Lam. et DeCund. Fl. Franc.* iii. p. 174. n. 1856. *Red. Lil.* v. t. 259. *Sm. in Rees' Cyclop. in loco.* *Duby Bot. Gall.* i. p. 459. *Schult. fil. Syst.* vii. p. 310.

- S. amplexicaulis.* *Poir. in Lam. Dict.* vii. p. 467.
- S. distortus.* *Mich. Fl. Bor. Amer.* i. p. 200. *Pursh Fl. Amer. Sept.* i. p. 232. *Spreng. Syst.* ii. p. 98.
- Uvularia amplexifolia.* *Linn. Sp. Pl.* i. p. 436. *Lam. Ill.* t. 247. f. 1. (mala). *Vill. Delph.* ii. p. 274. *Hoffm. Fl. Germ.* p. 118. *Host Syn.* p. 187. *Schk. Hand.* t. 93. (bona). *Willd. Sp. Pl.* ii. p. 93. *Pers. Syn.* i. p. 360. *Waldst. et Kit. Pl. Hung.* ii. p. 182. t. 167. (optima). *Ait. Hort. Kew. ed. 2.* v. ii. p. 246.
- U. foliis amplexicaulibus.* *Mill. Dict.* n. 1. *Hall. Helv.* n. 1237. *Matt. Sil.* n. 237.
- U. foliis cordato-oblongis.* *Roy. Prodr.* p. 29.
- Convallaria dichotoma.* *Thib. in Pers. Syn.* i. p. 373.
- Polygonatum latifolium ramosum, flore albo minore.* *Barr. Ic.* t. 720.
- Polygonatum latifolium ramosum.* *Bauh. Pin.* p. 303. *Bauh. Hist.* iii. p. 530. *Moris. Hist.* iii. p. 537. s. 13. t. 4. f. 11. *Raii Hist.* p. 665.
- Polygonatum latifolium quartum ramosum.* *Clus. Hist.* p. 276. *Ger. em.* p. 904.
- Polygonatum tertium latifolium.* *Tabern.* p. 1137.
- Polygonatum tertium.* *Clus. Pann.* p. 267. cum fig. bonâ (266).
- Laurus alexandrina.* *Matth. Valgr.* ii. p. 556. cum figurâ pessimâ. *Cam. Epit.* p. 936. cum figurâ mediocri.
- Hab.* in Austriæ, Styriæ, Bohemiæ, Silesiæ, Saxonæ, Hungariæ, Helvetiæ, Delphinatus, et Pyrenæorum montibus umbrosis; inque Pennsylvaniâ et Canadâ. 4. Fl. Junio et Julio. (v. v. c. et s. sp. in Herbb. Smith et Boott.)
- Caulis* erectus, ramosus, teres, glaber, lævissimus, pedalis v. sesquipedalis, infernè nudiusculus. *Folia* amplexicaulia, cordato-oblonga, acuminata, utrinque margineque glabra, membranacea, multinervia, suprâ lætè viridia, lævissima, subtùs glauca, nervisque prominulis subcostata, 3—4 pollices longa, sesquipollicem et ultrâ lata: lobis posticis rotundatis, invicem se imbricantibus. *Pedunculi* capillares, glabri, uniflori, medio convoluti, ibidemque appendiculâ (pedicelli alterius rudimento) subulatâ brevissimâ stipati, sesquipollicares. *Flores* odorati. *Sepala* lanceolata, obtusè acuminata, unguicularia, pallidè lutescentia, basi foveâ oblongâ nectariferâ munita,

apice recurvato-patentia. *Filamenta* brevissima, compressa, dilatata, hinc plana, inde angulo elevato carinata. *Antheræ* sagittatæ, acuminatæ, filamentis ter longiores, apice integræ. *Stylus* trigonus, ovario duplò longior. *Stigma* levitè trilobum. *Bacca* globosa, miniata, pisi magnitudine.

This species is pretty generally diffused throughout the mountainous parts of central and southern Europe, occurring in shady woods, and flowering in the months of June and July. It was originally discovered in the year 1576 by the accurate and indefatigable Clusius, as he himself states, in shady woods on Mount Wechsel, and at Durrenstein in Austria; and a faithful woodcut and description of the plant were given by him in his *Rariorum Stirpium Historia*, which appeared in 1583. This woodcut is repeated in his *Historia Plantarum*, published in 1601; and copies from the same occur in the works of Tabernæmontanus, Gerarde, Morison, and Barrelier. There are two other original woodcuts of the plant, namely, those given in the *Epitome* of Camerarius, which appeared in 1586, and in the Valgrisian edition of Matthioli, published at Venice in 1583. This last represents the plant wholly in fruit, and with straight peduncles. In the cuts of Clusius and Camerarius, which last is repeated in Bauhin's *Historia Plantarum*, the singular twisting of the peduncles is rudely represented. I am not satisfied that the apparent originality of the cut given by Camerarius is not due to the artist, who may have copied from Clusius, and introduced some alterations of his own, for the figure is very faulty.

Willdenow and some other writers quote as a synonym under this plant *Polygonatum ramosum perfoliatum luteum alpinum*, Barr. Ic. t. 719, which evidently belongs to *Uvularia grandiflora*, being clearly made up from Cornuti's figure of *Polygonatum ramosum flore luteo minus*, with the strange addition of the berries of the present plant.

This species is found likewise in North America, having been first observed by Michaux in shady woods in Canada, and since by Pursh on the mountains of Pennsylvania; and Dr. Beck records it as indigenous to the State of New York. It was cultivated by Philip Miller in Chelsea Garden in 1752, but the plant is even now rarely to be seen in collections. The singular contortion of the delicate peduncles appears to be for the purpose of keeping the flowers from being injured, and their fecundation impeded by coming in contact with

the leaves, and also of admitting them to a more free exposure to the air and light.

The American specimens differ in no respect from the European ones, except in their shorter leaves and peduncles.

2. *S. roseus*, hirtellus; foliis ciliatis, pedunculis recurvatis subbifloris, sepalis lanceolatis acuminatis, antheris bicuspidatis filamentorum longitudine, stigmatibus stylo 6-plò brevioribus, baccæ loculis 4—6-spermis.

Streptopus roseus. *Mich. Fl. Bor. Amer.* i. p. 201. t. 18. (mala). *Pursh Fl. Amer. Sept.* i. p. 232. *Sm. in Rees' Cyclop. in loco.* *Elliott Carol.* i. p. 392. *Spreng. Syst.* ii. p. 98. *Schult. fl. Syst.* vii. p. 312.

Uvularia rosea. *Pers. Syn.* i. p. 360. *Ker in Bot. Mag.* t. 1489. (bona).

Hab. in Carolinæ borealis montibus, et in Canadâ (*Michaux*); in Vermontiâ (*Boott*); in Sinûs S^{ti} Laurentii insulis Esquimaux dictis. *Audubon.* 4. *Fl. Junio.* (v. s. sp. in *Herb. Boott.*)

Caulis erectus, teres, striatus, simplex v. ramosus, pedalis v. sesquipedalis, infernè nudiusculus, foliisque imperfectè evolutis convoluto-vaginatissimis: striis pilis brevissimis patulis copiosè ornatis. *Folia* amplexicaulia, cordato-lanceolata, acuminata, multinervia, membranacea, margine tenuissimè ciliata, utrinque glabra, suprâ viridia, lævia, subtùs glauca, nervisque prominulis subcostata, 3-pollicaria, pollicem et ultrâ lata; suprema minùs cordata, atque vix amplexicaulia. *Flores* rosei, parùm majores. *Pedunculi* capillares, subbiflori, recurvati, nec medio convoluti, dense pubescentes, semi- v. pollicares, in superiore parte caulis plerumque simplices, uniflori, appendiculati. *Sepala* lanceolata, acuminata, apice recurvato-patentia. *Stamina* perianthio vix dimidio breviora: *filamenta* longiuscula! hinc planâ, inde lineâ elevatâ carinata: *antheræ* filamentorum longitudine, basi sagittatæ, apice bicuspidato-aristatæ! *Stigmata* 3, recurvata, truncata, stylo 6-plò breviora. *Stylus* staminibus longior. *Bacca* sphaerica, præcedentis magnitudine, 3-locularis: *loculis* 4—6-spermis. *Semina* obovato-oblonga, parùm curvula, longitudinalitèr sulcata, apice chalazâ orbiculatâ fulvâ aucta.

A very elegant species, bearing numerous drooping pink blossoms, which are rather larger than those of the preceding species. It was discovered by

Michaux in Canada, and on the mountains of North Carolina; and Pursh states it to be likewise a native of the mountains of Pennsylvania. It is evidently a scarce plant, having been seen by but few American botanists in a wild state; and Elliott, in his interesting *Flora of South Carolina and Georgia*, was obliged to describe it from a dried specimen sent him by a botanical correspondent at Philadelphia.

The plant flowered in the Royal Botanic Garden at Kew in May 1812, having been introduced by the late Mr. John Lyon from North Carolina, and a figure of it was published in the September number of the *Botanical Magazine* for that year. In Dr. Boott's Herbarium there are specimens collected by him in the State of Vermont, and others gathered by Mr. Audubon in the Esquimaux Islands, a group of islets in the Gulf of St. Lawrence off the south coast of Labrador. Michaux's figure of this plant erroneously represents the peduncles as convolute at their middle.

3. *S. simplex*, glaber; pedunculis rectis! nudis, sepalis obtusis, antheris cordato-lanceolatis obtusis, stigmatibus styli sublongitudine, baccæ loculis 10—12-spermis.

Streptopus simplex. Don *Prodr. Fl. Nepal.* p. 48. *Schult. fl. Syst.* vii. p. 312.

S. candida. Wall. *Cat. n.* 5112.

Hab. in Emodi montibus ad Gosaingthan (*Wallich*); in montibus Kamaonensibus. *R. Blinkworth.* 4. (v. s. sp. in Herb. Wall.)

Caulis erectus, ramosus, teres, glaber, lævissimus, bi- v. tripedalis, infernè nudiusculus. *Folia* amplexicaulia, cordato-oblonga, acuminata, multinervia, membranacea, utrinque margineque glabra, suprà lætè viridia, lævissima, subtùs glauca, nervisque prominulis subcostata, 3-pollicaria, sesquipollicem lata: lobis posticis rotundatis, invicem se imbricantibus. *Flores* majores, nivei. *Pedunculi* capillares, glabri, uniflori, sesqui- v. bipollicares, recti, recurvati, nudi, nec appendiculati, nec medio convoluti. *Sepala* elliptico-oblonga, obtusa, semuncialia, apice patentia, nec recurvata. *Filamenta* brevissima, hinc plana, inde angulo elevato carinata. *Antheræ* cordato-lanceolatæ, obtusæ, filamentis triplò longiores. *Stylus* trigonus, ovario duplò longior. *Stigmata* 3, longiuscula, recurvato-patentia, stylo

parùm breviora. *Bacca* rubra? cæteris paullò major: *loculis* 10—12-spermis. *Semina* obovata longitudinalitèr sulcata, parùm curvula, hinc convexa, inde biangulata, chalazâ orbiculatâ depressâ fuscâ apice instructa.

This interesting and hitherto little-known species is a native of Gosaingthan and Kamaon in the Himalaya mountains, where it was gathered by Dr. Wallich's collectors, and was first described by me in the *Prodromus Floræ Nepalensis*. The flowers are considerably larger, and more abundant, and the plant is altogether more showy than the *amplexifolius*, from which its straight naked peduncles, blunt sepals and anthers, much longer stigmata, and more numerous seeds will readily distinguish it.

PROSARTES.

STREPTOPI SP. *Mich.*

Perianthium 6-phyllum, petaloideum, campanulatum, æquale, deciduum: *foliolis* basi foveolatis v. saccatis. *Stamina* 6, basi sepalorum adnata, simulque decidua. *Antheræ* erectæ, innatæ, obtusæ, biloculares, rimâ duplici marginali longitudinalitèr dehiscentes. *Ovarium* liberum, 3-loculare: *loculis* biovulatis: *ovulis* obovatis, a placentæ apice pendulis! *Stigmata* 3, brevissima, recurvata. *Pericarpium* baccatum, 3-loculare. *Semina* solitaria v. rariùs bina.

Herbæ (Amer. bor.) *perennes*, *pube ramosâ vestitæ*, *rhizomate diviso multicipite*. *Caules teretiusculi*. *Folia sessilia, dilatata*. *Inflorescentia terminalis, umbellata*. *Bacca rubra*.

This very natural genus, as I have already stated, forms the transition from the *Smilacæ* to the *Melanthacæ*, and possesses several characters in common with *Streptopus* and *Disporum*. From the former genus it is essentially distinguished by its much more lengthened filaments, binary pendulous ovula, and terminal umbellate inflorescence,—characters in which it agrees with *Disporum*; but it differs from this last in its innate anthers, nearly concrete styles, and pendulous seeds.

The genus is remarkable for its forked pubescence; the hairs are furnished with one, rarely with two short branches, which are continuous with the cells

or articulations of which they form an integral part, being merely lateral extensions of them, and not separated by a diaphragm.

The generic name alludes to the pendulous ovula, and is derived from προσαρτάω, to append.

1. *P. lanuginosa*, umbellis bifloris sessilibus, sepalis lanceolatis acuminatis 3-nerviis basi foveolatis, stylo glabro, foliis cordato-ovatis subamplexicaulibus utrinque pubescentibus.

Streptopus lanuginosus. *Mich. Fl. Bor. Amer.* i. p. 201. *Pursh Fl. Amer. Sept.* i. p. 232. *Elliott Carol.* i. p. 393. *Sm. in Rees' Cycl. in loco. Spreng. Syst.* ii. p. 98. *Schult. fl. Syst.* vii. p. 311.

Uvularia lanuginosa. *Pers. Syn.* i. p. 360. *Ker in Bot. Mag.* t. 1490.

Hab. in altis montibus Carolinæ Australis (*Mich.*); in Pennsylvaniâ (*Pursh*); in montibus Kentucky. *Short.* 4. *Fl. Maio et Junio* (v. s. sp. in *Herb. Boott*).

Caules erecti, teretiusculi, pedales v. sesquipedales, infernè nudiusculi, basi foliis 2 v. 3 imperfectè evolutis convoluto-vaginatibus instructi, apice ramosi, pilis mollibus, dichotomis, 4—5-articulatis, ramulo altero brevissimo, rariùs biramulosis, undique copiosè vestiti. *Folia* sessilia, ovata, longè acuminata, membranacea, multinervia, utrinque pilis mollibus simplicibus 2—3-articulatis, articulo imo dilatato, vestita, basi rotundata, subcordata, vix ac ne vix amplexicaulia, sesqui- v. bipollicaria, $\frac{3}{4}$ unciae lata. *Umbella* terminalis, sessilis, biflora. *Flores* penduli. *Pedicelli* semunciales, filiformes, pilis simplicibus copiosè vestiti. *Perianthium* campanulatum, luteo-virens. *Sepala* lanceolata, longè acuminata, 3-nervia, 8 lineas longa, basi foveolâ nectariferâ aucta, sed omninò simplicia, planiuscula, nec saccata. *Stamina* perianthio vix dimidio breviora, erecta, subæqualia: *filamenta* canaliculata, glabra, infernè dilatata: *antheræ* erectæ, innatæ, oblongæ, apice integræ, obtusæ, biloculares, filamentis triplò breviores: *loculis* parallelis, connatis, suturâ marginali dehiscentibus, basi liberis. *Ovarium* conicum, 3-loculare: *loculis* biovulatis: *ovulis* a placentæ superiore parte pendulis! obovatis, ventricosis. *Stylus* triqueter, glaber, stamina parùm excedens. *Stigmata* 3, brevissima, recurvata. *Bacca* rubra, 3-locularis: *loculis* 1—2-spermis.

I am indebted to my highly esteemed friend Dr. Boott, the worthy Secretary of this Society, for native specimens of this remarkable plant, which was originally discovered by Michaux on the mountains of South Carolina, and afterwards by the late Mr. John Lyon, by whom it was introduced into our gardens in 1811. The plant flowered in May of the following year at the nursery-grounds of Messrs. Fraser, Sloane Square, Chelsea; and a figure of it appeared in the September number of the Botanical Magazine for that year. Dr. Short has since discovered it on the mountains of Kentucky. Pursh records it also as a native of Pennsylvania; but I am not disposed to place much reliance upon the stations assigned to American plants by that botanist, from their having been in many cases noted down from memory, after the lapse of some years. Although a native of South Carolina, the plant does not appear to have come under the notice of the accurate Elliott, whose account of it is copied wholly from Michaux.

2. *P. Menziesii*, umbellis sessilibus bifloris, sepalis oblongis mucronatis 6-nerviis margine revolutis basi saccatis, stylo longissimo piloso, foliis ovatis sessilibus glabriusculis.

Hab. in orâ occidentali Americæ Borealis. *Menzies.* 4. (v. s. sp. in Herb. Smith, nunc in Mus. Soc. Linn.).

Caulis pedalis et ultrâ, teretiusculus, pilis 5—8-articulatis dichotomis, ramulo laterali brevissimo, copiosè vestitus, subviscosus. *Folia* sessilia, ovata, acuminata, 8-nervia, subtùs ad nervos pubescentia, bipollicaria, unciam lata. *Umbella* terminalis, sessilis, biflora. *Pedicelli* inarticulati, pilis longioribus 6—8-articulatis dichotomis copiosius vestiti. *Perianthium* majus, campanulatum, flavum? *Sepala* oblonga, mucronata, 6-nervia, margine revoluta, basi saccata, $\frac{3}{4}$ unciae longa. *Filamenta* canaliculata, infernè dilatata, glabra. *Antheræ* erectæ, innatæ, biloculares, obtusæ, filamentis plùs duplò breviores. *Stylus* staminum longitudine, triqueter, densè pilosus. *Stigmata* 3, revoluta, stylo 6-plò breviora.

In the Smithian Herbarium there is a single specimen of this highly interesting plant gathered by my venerable friend Mr. Menzies on the north-west coast of America in the voyage of discovery under Vancouver, to which he was at-

tached in the capacity of naturalist. It bears a close resemblance to some species of *Disporum*; and it moreover agrees with that genus in its sepals being produced into a pouch at their base. The flowers, which are also terminal and in pairs, are twice the size of those of the preceding, and the style is copiously hairy.

Sir J. E. Smith, in "Rees's Cyclopædia," refers to this under *Uvularia puberula* of Michaux, a plant with which the American botanists of the present day appear to be entirely unacquainted. It is unquestionably true that several examples do occur of plants being common to the mountains of the Southern States, and the western regions of North America; but it is scarcely probable that Michaux could have overlooked the striking peculiarities of the terminal inflorescence, saccate sepals, and hairy style; indeed his description seems to be wholly at variance with the present plant.