

Division **5. MAGNOLIOPHYTA** Cronquist, Takht. & W. Zimm.

Class **1. MAGNOLIOPSIDA** Cronquist, Takht. & W. Zimm.

Subclass **6. ASTERIDAE** Takht.

Order **7. CAMPANULALES** Lindl.

Herbs. Leaves alternate, simple, exstipulate. *Flowers* actinomorphic or zygomorphic, bisexual, epigynous. *Calyx* 5-lobed. *Corolla* 5-lobed, sometimes 2-lipped, the upper 2-lobed, the lower 3-lobed. *Stamens* as many as the corolla lobes and alternate with them. *Ovary* with (1–)2–5 cells; ovules with axile placentation. *Fruit* a berry or capsule. *Seeds* with endosperm.

Contains 7 families, 106 genera and about 2,500 species from all parts of the world.

142. CAMPANULACEAE Juss. nom. conserv.

Annual to perennial herbs, often with white latex. *Leaves* alternate, sometimes mostly basal, simple, sometimes petiole, exstipulate. *Inflorescence* a simple or branched raceme, a corymbose raceme, or a congested spike or head, or flowers solitary. *Flowers* usually showy, actinomorphic or zygomorphic, bisexual, epigynous. *Calyx* with 5 lobes proximally fused into a tube. *Corolla* with 5 lobes proximally fused into a tube, the lobes more or less equal or with a 2-lobed upper and 3-lobed lower lip, often blue. *Stamens* 5, borne around the style-base on the receptacle, usually closely appressed around the style and free, or sometimes with the anthers or anthers and filaments fused laterally into a ring. *Style* 1; stigmas usually as many as ovary-cells, capitate to filiform. *Ovary* usually inferior, rarely superior, with (1–)2–5 cells, each cell with many ovules on axile placentas. *Fruit* a capsule opening variously, or a berry. *Seeds* with endosperm.

Contains 84 genera and about 2,000 species, and occurs in most parts of the world.

1. Flowers in dense, flattish heads or globose to elongated spikes; corolla divided nearly to the base into linear lobes 2.
1. Flowers not in dense heads or globose to elongated spikes, or if so then the corolla divided not more than two-thirds of the way to the base 3.
2. Stems more or less glabrous; flowers in globose to elongated spikes without flowerless bracts at the base; each flower with one bract; stigmas linear 5. **Phyteuma**
2. Stems hairy; flowers in flattish heads with a conspicuous region of bracts without flowers at their base; flowers without bracts; stigmas more or less globose 6. **Jasione**
3. Corolla actinomorphic; filaments free, though often close together round the style and anthers sometimes fused laterally 4.
3. Corolla zygomorphic; filaments fused laterally at least distally to form a tube round the style 7.
4. Annual; ovary and capsules more than 3 times as long as wide 2. **Legousia**

4. Biennial to perennial; ovary and capsules less than 2(–3) times as long as wide 5.
5. Corolla tube less than 2 mm wide; styles more than 1.5 times as long as the corolla (tube and lobes) 4. **Trachelium**
5. Corolla tube more than 3 mm wide; style not or scarcely longer than the corolla 6.
6. At least the flowering stems erect or ascending, if all procumbent then not all the pedicels longer than the corolla; usually at least the upper leaves sessile or more or less so; capsule opening subapically or basally outside the calyx 1. **Campanula**
6. Stems filiform and procumbent, with solitary axillary flowers on erect pedicels much longer than the corolla; all leaves petiolate; capsule opening apically within the calyx 3. **Wahlenbergia**
7. Stems procumbent to decumbent, rooting at the nodes; leaves broadly ovate to subrotund; fruit a berry 8. **Pratia**
7. Stems erect to ascending, not rooting at the nodes; leaves linear to obovate; fruit a capsule 8.
8. Flowers and capsules pedicellate; ovary and capsules less than 15 mm, widening distally, 2-celled 7. **Lobelia**
8. Flowers and capsules sessile; ovary and capsules more than 20 mm, cylindrical, 1-celled 9. **Downingia**

Subfamily **1. Campanuloideae**

Flowers actinomorphic. *Filaments* and anthers free, or sometimes slightly laterally fused.

1. Campanula L.

Marianthemum Schrank

Biennial to perennial herbs. Stems ascending to erect or prostrate. *Leaves* alternate, the upper more or less sessile, exstipulate. *Inflorescence* 1- to few-flowered, in racemes or panicles, sometimes in a more or less compact head. *Calyx-tube* ovoid or subglobose; lobes 5, flat or folded at the sinus. *Corolla* usually blue, occasionally white, actinomorphic, divided up to half (to two-thirds) of the way to the base into 5 lobes, as long as or longer than calyx, rotate or campanulate. *Stamens* 5; filaments and anthers free. *Style* 1, shorter than to slightly longer than the corolla; stigmas 3–5, filiform. *Ovary* 3- to 5-celled. *Fruit* a capsule, usually less than twice as long as wide, ovoid or turbinate, dehiscent by subapical or basal pores.

The flowers of *Campanula* species are strongly protandrous. Pollen is shed in bud and deposited on the hairs of the style, the stigmas at this stage being above the stamens. As the flower opens the stamens wither and the pollen is presented to insects which come for nectar, which is protected by the persistent, triangular bases of the stamens. The stigmas eventually separate and finally curl back so that if cross-pollination fails, self-pollination may occur as in the Asteraceae.

About 300 species, chiefly in the North Temperate regions and the Mediterranean.

2 142. CAMPANULACEAE

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1. Calyx with 5 sepal-like appendages alternating with 5 calyx lobes 2.
 1. Calyx with 5 calyx lobes, but no extra appendages 3.
 2. Basal and lower cauline leaves cuneate to attenuate at base 6. **medium**
 2. Basal and lower cauline leaves cordate at base 11. **alliariifolia**
 3. Flowers sessile 12. **glomerata**
 3. Flowers with pedicels 4.
 4. Leaves not cordate at base; capsule with pores in apical half 5.
 4. At least some leaves cordate at base; capsule with pores at or near the base 8.
 5. Calyx lobes lanceolate to ovate, serrate 3. **lactiflora**
 5. Calyx lobes linear to lanceolate, entire or with 1–2 small basal teeth 6.
 6. Perennial, with non-flowering rosettes arising from rhizomes; corolla mostly more than 30 mm; stigma more than half as long as style 4. **persicifolia**
 6. Usually biennial, without non-flowering rosettes; corolla mostly less than 30 mm; stigmas less than half as long as style 7.
 7. Tap-root thin; basal leaves gradually narrowed to an indistinct petiole; inflorescence widely spreading 1. **patula**
 7. Tap-root swollen and fleshy; basal leaves abruptly narrowed to a distinct petiole; inflorescence a narrowly pyramidal, racemose panicle 2. **rapunculus**
 8. Calyx lobes linear to filiform, less than 1 mm wide at the base 9.
 8. Calyx lobes linear-lanceolate, lanceolate or narrowly triangular-lanceolate to ovate-oblong or triangular-ovate, more than 1 mm wide at the base 11.
 9. Middle cauline leaves lanceolate, ovate-oblong or narrowly so, rounded at base, crenate-serrate 16. **rhomboidalis**
 9. Middle cauline leaves linear to linear-elliptical, very gradually tapered to base, more or less entire 10.
 10. Leaves of stem mostly narrow and acute at apex; flowers several to numerous, 5–20 mm; capsules turbinate 17(a). **rotundifolia** subsp. **rotundifolia**
 10. Leaves of stem blunter, the lower often like basal; flowers solitary, 20–30 mm; capsules more squat and subrotund 17(b). **rotundifolia** subsp. **montana**
 11. Stems prostrate or decumbent to ascending or erect, usually less than 50 cm 12.
 11. Stems erect, usually more than 50 cm 15.
 12. Corolla 25–40 mm 13.
 12. Corolla 10–25 mm 14.
 13. Stems 15–50 cm; capsule opening by subapical pores 5. **carpatica**
 13. Stems less than 15 cm; capsule opening by basal pores 15. **fragilis**
 14. Leaves crenate-dentate; corolla funnel-shaped, divided one-quarter to two-fifths of the way to the base with erect to erecto-patent lobes 13. **portenschlagiana**
 14. Leaves 2-serrate; corolla broadly funnel-shaped, divided half to three-quarters of the way to base with lobes spreading so that it appears star-shaped when you look into its throat 14. **poscharskyana**
 15. Plant glabrous; inflorescence dense, narrowly pyramidal or cylindrical; capsules erect 10. **pyramidalis**
 15. Plant hairy; inflorescence open and racemose; capsules nodding 16.
 16. Plant forming patches, with shoots arising from extensively creeping rhizomes; calyx lobes deflexed or patent at anthesis 9. **rapunculoides**
 16. Plant tufted, without rhizomes; calyx lobes erect or erecto-patent at anthesis 17.
 17. Stems bluntly angled, glabrous or with few soft hairs; leaves irregularly 1–2 serrate 7. **latifolia**
 17. Stems sharply angled; with few subrigid hairs; leaves coarsely dentate or irregularly crenate-serrate 8. **trachelium**
- Subgenus 1. **Rapunculus** (Dumort.) Kharadze
- Calyx* without appendages between lobes. *Capsule* dehiscent by 3 subapical pores or valves.
1. **C. patula** L. Spreading Bellflower
- Biennial herb* with a thin, slender tap-root. *Stems* 20–70 cm, pale yellowish-green, erect or ascending, angled, striate, with short to medium, pale, rough simple eglandular hairs, branched in the upper half. *Leaves* alternate, numerous; lamina pale to bright yellowish-green on upper surface, paler beneath, the basal 2–5 × 1–2 cm, obovate or obovate-oblong, more or less obtuse at apex, undulate-crenate, narrowed below to an indistinct petiole and withering before flowering, the cauline smaller, oblong, linear-lanceolate or linear, obtuse to acute at apex, shallowly crenate to entire, and narrowed to a sessile base; all glabrous or with few to numerous, short, stiff, pale simple eglandular hairs especially on the margin and midrib beneath. *Inflorescence* broadly paniculate, with long, spreading branches; pedicels up to 25 mm, slender, glabrous; bracteoles linear. *Flowers* 30–40 mm in diameter, erect. *Calyx* 6–22 mm, medium green, broadly funnel-shaped, glabrous, divided half to two-thirds of the way to the base; lobes 5, linear to linear-lanceolate, acute at apex, erect in fruit, without appendages. *Corolla* 17–25 mm, pale to deep bluish-violet or rarely white, broadly campanulate, divided to about half of the way to the base; lobes 5, ovate or elliptical-ovate, acute at apex, spreading, glabrous. *Stamens* 5; filaments 6–8 mm, yellow, greenish at base; anthers yellow. *Style* 1, yellow; stigmas 3, yellow, less than half as long as style, becoming separated and curled back. *Capsule* 8–11 mm, obconical,

erect, glabrous, dehiscent by 3 subapical pores; seeds 0.5–0.6 mm, pale brown, oblong. *Flowers* 7–9. $2n = 20$.

Native. Open woods, wood-borders, rocky outcrops and hedgebanks. Locally native in southern Britain north to Shropshire, especially in the Welsh border area, formerly in Yorkshire; steadily decreasing. Often a naturalised garden escape. Most of Europe east to central Russia. A member of the European Temperate element with a continental distribution; it is a variable species which is widely naturalised outside its native range. Our plant is subsp. **patula**.

2. C. rapunculus L. Rampion Bellflower
C. lambertiana DC.; *C. calycina* Boeber ex Roem. & Schult.; *C. virgata* DC., non Labill.; *C. esculenta* Salisb. nom. illegit.

Biennial herb with a swollen, fleshy, napiform tap-root. *Stems* 20–80(–100) cm, yellowish-green, erect, angled, striate, glabrous or with short to medium, pale, rough simple eglandular hairs especially below, unbranched or with few, short branches, leafy. *Leaves* alternate; lamina dull medium yellowish-green on upper surface, paler beneath; the basal 3–10 × 1.5–5.0 cm, obovate to elliptical, obtuse-rounded to acuminate at apex, entire to crenate-dentate, the teeth rounded and abruptly narrowed to the short, glabrous or hairy petiole, the cauline linear-lanceolate to linear-oblong, obtuse to acute at apex, more or less entire, rounded or narrowed at base and sessile; all with few to numerous, short to medium, pale, subrigid simple eglandular hairs on both surfaces and the margins. *Inflorescence* a narrowly pyramidal, racemose panicle with short branches below; pedicels up to 35 mm, slender, glabrous or with a few hairs; bracteoles linear, at base of pedicel. *Flowers* 20–30 mm in diameter, erect and arching. *Calyx* 10–18 mm, medium green, funnel-shaped, glabrous, divided about two-thirds to three-quarters of the way to the base; lobes 5, narrowly linear to linear-lanceolate, acute at apex, erect, without appendages. *Corolla* 10–25 mm, pale blue or white, funnel-shaped, divided about half of the way to the base; lobes 5, triangular-ovate, acute at apex, curved outwards. *Stamens* 5; filaments 7–8 mm, yellow; anthers yellow. *Style* 1, yellow; stigmas 3, yellow, less than half as long as style. *Capsule* 5–6 mm, obconical, erect, dehiscent by 3 subapical pores; seeds about 0.5 mm, pale brown, ellipsoid. *Flowers* 7–8. $2n = 20$.

Introduced. Formerly cultivated as a salad vegetable, both the carrot-like root and the shoots being edible; also grown for ornament. Naturalised in rough, grassy fields and hedgebanks, usually on gravelly soils. Scattered localities through Great Britain, especially in northern England and Scotland. Throughout Europe from Holland southwards; Asia east to Iran; North Africa.

3. C. lactiflora M. Bieb. Milky Bellflower
C. biserrata K. Koch; *C. celtidifolia* Boiss. & A. Huet.

Perennial herb with a branched, fleshy rootstock. *Stems* up to 150 cm, pale green, sometimes slightly tinted brownish-purple, thick, striate, erect, with rigid, pale, deflexed simple eglandular hairs which are numerous below but fewer above, branched in upper part, very leafy. *Leaves* alternate; lamina 2–9 × 0.7–3.5 cm, bright yellowish-green on upper

surface, paler beneath, ovate, lanceolate, elliptical, obovate, oblong or ovate-oblong, acute at apex, serrate or slightly biserrate, the teeth narrow, narrowed or rounded at base, the basal shortly petiolate, the cauline sessile and semiamplexicaul, all sparsely clothed with short, pale simple eglandular hairs especially on the margins and veins beneath. *Inflorescence* broadly paniculate, leafy; pedicels up to 20 mm, pale green, with medium, pale simple eglandular hairs; bracteoles linear. *Flowers* 25–40 mm in diameter, erect. *Calyx* 11–16 mm, dull greyish-violet, divided to about half of the way to the base; lobes 5, lanceolate to ovate, gradually narrowed but obtuse at apex, serrate, without appendages; glabrous or with subrigid, medium to long, pale simple eglandular hairs on the veins of the tube and margins of the lobes. *Corolla* 15–30 mm, pale blue or violet, slightly paler towards the base, sometimes white or pink, broadly campanulate, divided half to one-third of the way to the base; lobes 5, ovate, acute at apex, glabrous. *Stamens* 5; filaments whitish; anthers yellowish. *Style* 1, short; stigmas 3, as long as style. *Capsule* 7–8 × about 6 mm, obconical, erect, glabrous or with subrigid, pale simple eglandular hairs, dehiscent by 3 subapical pores; seeds about 1.0 × 0.6 mm, pale brown, with a pale narrow margin, oblong, flattened. *Flowers* 7–10. $2n = 34, 36$.

Introduced. Grown for ornament and naturalised by streams, waysides and rough and waste ground. In scattered localities in Great Britain, especially northern England and Scotland. Native of forests, scrub and subalpine meadows in north-east Turkey, Caucasia and north-western Iran.

4. C. persicifolia L. Peach-leaved Bellflower

Perennial herb with slightly creeping, slender, much-branched rootstock and non-flowering rosettes arising from rhizomes. *Stems* 20–80 cm, pale yellowish-green, erect, slender and rather wiry, glabrous, usually unbranched, leafy. *Leaves* alternate; lamina shining medium green with pale midrib on upper surface, paler beneath and midrib prominent, the basal 7–15 × 1–3 cm, lanceolate to obovate, obtuse at apex, crenulate and narrowed at base, the petioles up to 60 mm, the cauline much smaller, linear-lanceolate to subulate, more or less acute at apex, crenulate and narrowed at base, the lower shortly petiolate, the rest sessile, all glabrous. *Inflorescence* a narrow, few-flowered raceme; pedicels short, slender, glabrous; bracteoles linear. *Flowers* 30–50(–66) mm in diameter, suberect. *Calyx* 10–20 mm, medium green, glabrous, divided to the base; lobes 5, linear-lanceolate, acute at apex, without appendages. *Corolla* 25–50 mm, blue, rarely white, broadly campanulate, divided for about one-quarter to half of the way to the base; lobes 5, broadly triangular-ovate, more or less acute at apex. *Stamens* 5; filaments 4–6 mm, whitish; anthers whitish or pale yellow. *Style* 1, whitish; stigmas 3, whitish or yellowish, more than half as long as style. *Capsule* 6–7 mm, ovoid-conical, erect, opening by 3 subapical pores; seeds 0.8–1.0 mm, shiny brown, ovoid. *Flowers* 6–8. $2n = 16$.

Introduced. Naturalised in waste and rough ground and grassy places and banks. Scattered localities throughout Great Britain. Native of most of Europe except the extreme north, the islands and parts of the west; western Asia.

5. *C. carpatica* Jacq. Tussock Bellflower

Perennial herb with white, fibrous roots. *Stems* 15–50 cm, pale green, sometimes suffused brownish-purple, ascending or decumbent, slightly angled, glabrous or with short to medium, pale simple eglandular hairs, much branched, leafy. *Leaves* alternate; lamina medium bright green on upper surface, paler beneath, the basal 1–4 × 0.5–3.0 cm, ovate or subrotund, obtuse to acute at apex, irregularly serrate-dentate, cordate at base, and with long petioles, the cauline gradually decreasing in size upwards, ovate to lanceolate, acute or acuminate at apex, irregularly crenate-serrate and rounded, truncate or more or less cordate at base, the uppermost linear, all glabrous or with few, short, stiff simple eglandular hairs, all petiolate, the petioles mostly long and slender and glabrous or with few simple eglandular hairs. *Flowers* 35–55 mm in diameter, erect, solitary at the ends of stems and branches; pedicels long, erect, glabrous or with occasional, pale simple eglandular hairs; bracteoles linear. *Calyx* 16–25 mm, dull green, divided half to two-thirds of the way to the base; lobes 5, linear-lanceolate, drawn out to a very narrow, acute apex, entire or with very small teeth, without appendages. *Corolla* 25–40 mm, pale blue, rarely white, broadly tubular-rotate, divided one-third to half of the way to the base; lobes 5, very broadly ovate, rounded-mucronulate at apex. *Stamens* 5; filaments 12–20 mm, pale with greenish base; anthers yellow. *Style* 1, greenish; stigmas 3, greenish. *Capsule* 6–8 mm, ovoid-cylindrical, dehiscing by 3 subapical pores; seeds about 1.5 mm, pale yellow, ovate, compressed. *Flowers* 6–8. $2n = 34$.

Introduced. Garden escape established on walls and in paving at Yeoman's Row in Middlesex and a casual elsewhere. Native of the Carpathians.

Subgenus 2. *Campanula*

Calyx with or without appendages. *Capsule* dehiscing by 3 basal pores.

6. *C. medium* L. Canterbury Bells
Marianthemum medium (L.) Schur

Biennial herb with a stout tap-root. *Stems* up to 60(–90) cm, yellowish-green, sometimes suffused brownish-purple, erect, stout, markedly striate, with numerous, pale, subrigid simple eglandular hairs, more or less branched at least in the upper part, leafy. *Leaves* alternate, numerous; lamina dull medium or pale yellowish-green on upper surface, paler beneath, the basal forming a rosette in the first year, 7–11 × 7–11 cm, ovate or ovate-oblong, or narrow to broadly elliptical, obtuse at apex, irregularly crenate-dentate or serrate, and attenuate at base to a short or long petiole; the cauline numerous, gradually smaller upwards, ovate-lanceolate to lanceolate or oblanceolate, obtuse at apex, crenate-dentate to subentire, and narrowed or rounded at the sessile base, all with few to numerous, stiff, pale, short simple eglandular hairs at least on the margins and veins beneath where they are sometimes dense. *Inflorescence* a narrow panicle of axillary and terminal flowers; pedicels up to 20 mm, with numerous medium and long, rigid, pale simple eglandular hairs; bracteoles lanceolate. *Flowers* 40–60 mm in diameter, sometimes more or less double, erect, solitary. *Calyx* 15–

25 mm, medium green, with medium to long, stiff, pale simple eglandular hairs particularly on the lobe margins, divided two-thirds of the way to the base; lobes 5, lanceolate to narrowly ovate, obtuse at apex, with broadly ovate, obtuse, deflexed appendages between the lobes. *Corolla* 30–60(–70) mm, violet-blue, purple, pink or white, campanulate, shortly 5-lobed, inflated in the middle, glabrous. *Stamens* 5; filaments 20–25 mm, whitish, ciliate; anthers yellow. *Style* 1, whitish; stigmas 5, cream. *Capsule* about 15 mm, ovoid, nodding; seeds about 2 mm, pale brown, ovoid. *Flowers* 5–6. $2n = 34$.

Introduced. Formerly much grown in gardens. Casual and naturalised in waste and rough ground and grassy places and on banks. Native of Italy and south-east France.

7. *C. latifolia* L. Giant Bellflower

Tufted *perennial herb* with a short, thickened, somewhat woody rootstock with fibres. *Stem* 50–120 cm, pale green, erect, stout, obscurely and bluntly angled, glabrous or with few, pale, retrorse, soft simple eglandular hairs, unbranched, leafy. *Leaves* alternate; lamina medium green on upper surface, paler beneath, the basal 10–20 × 2.5–3.5 cm, ovate to ovate-oblong, acute at apex, irregularly 1–2 serrate, rounded or rarely cordate at the base which is usually decurrent on the petiole, withered at flowering, the cauline gradually smaller, ovate, long-acute at apex, irregularly serrate or the uppermost nearly entire and sessile or the lower petiolate, all glabrous or with stiff simple eglandular hairs especially on the veins. *Inflorescence* a raceme, sometimes with short branches below; pedicels up to 20 mm; bracteoles leaf-like. *Flowers* 35–45 mm in diameter, suberect or inclined, solitary and axillary. *Calyx* 20–32 mm, medium green, glabrous or puberulent at base, divided half to two-thirds of the way to the base; lobes 5, narrowly triangular-lanceolate, acute at apex, erect or erecto-patent at anthesis, without appendages. *Corolla* (35–)40–55 mm, bluish-purple, rarely white, campanulate, hairy inside, divided one-third to half of the way to the base; lobes 5, triangular-ovate, acute at apex. *Stamens* 5; filaments short, creamy-yellow; anthers creamy-yellow. *Style* 1, creamy-yellow; stigmas 3, yellow. *Capsule* 12–15 mm, ovoid, nodding, opening by 3 basal pores; seeds 1.5–2.0 mm, pale yellow, ovate, compressed. *Flowers* 7–8. $2n = 34$, + 0–5B.

Native. Rich, often damp, mainly calcareous woods and hedgebanks. Most of Great Britain, but rare to absent in southern England and northern Scotland; north-east Ireland where it may be introduced. Most of Europe except the Mediterranean region and much of the south-west; western Asia east to Iran and western Siberia. A member of the European Temperate element.

8. *C. trachelium* L. Nettle-leaved Bellflower
C. urticaefolia Salisb., non Turra

Tufted *perennial herb* with a short, thickened, woody rootstock with fleshy fibres. *Stems* 50–100 cm, pale green, erect, sometimes flecked reddish, stout, sharply angled, with sparse, subrigid, retrorse simple eglandular hairs, sometimes slightly branched, leafy. *Leaves* alternate, the lamina medium to deep green on upper surface, much paler beneath, the basal 8–10 × 6–7 cm, narrowly to broadly

ovate, narrowed to a rounded or subacute apex, coarsely dentate or irregularly crenate-serrate and deeply cordate at base, the petiole up to 120 mm and hairy, the cauline gradually becoming smaller up the stem, ovate to ovate-oblong or lanceolate, more or less acute at apex, irregularly and coarsely 1- to 2-serrate and cuneate or truncate at base, the upper sessile, the lower petiolate, all with short to medium, pale, bristly simple eglandular hairs especially on the veins and margins. *Inflorescence* a racemose, leafy panicle with short branches bearing 1–4 flowers; pedicels up to 10 mm, recurved or erect, glabrous; bracteoles linear. *Flowers* 30–35 mm in diameter, erect, terminal and in the axils of leaves. *Calyx* 13–15 mm, medium green, the tube bristly hairy, divided one-third to half of the way to the base; lobes 5, triangular-ovate, acute at apex, erect or erecto-patent at anthesis; without appendages. *Corolla* 25–35 mm, bright bluish-purple, rarely white, broadly campanulate, hairy inside, divided one-third of the way to the base; lobes 5, triangular-ovate, acute at apex, suberect. *Stamens* 5; filaments short, white; anthers creamy-yellow. *Style* 1, white; stigmas 3, yellow. *Capsule* 6–8 mm, ovoid, nodding, opening by 3 basal pores; seeds 0.5–0.6 mm, yellow, ovate, compressed. *Flowers* 7–9. $2n = 34$.

Native. Woods and hedgebanks, usually on clayey soils. Frequent in Great Britain north to Lincolnshire and North Wales and in south-east Ireland. It escapes from gardens and becomes well naturalised elsewhere in Britain and Ireland. Most of Europe to about 62° 30' N in Sweden; Turkey, Iran and western Siberia; North Africa. A member of the European Temperate element. Our plant is subsp. **trachelium** which occurs throughout the range of the species.

9. *C. rapunculoides* L. Creeping Bellflower
C. rigida Stokes nom. illegit.

Perennial herb forming patches, with elongated, slender, extensively creeping rhizomes producing numerous adventitious buds and fibrous roots. *Stems* 30–80(–100) cm, medium green, often suffused purplish, erect, rather stout, subterete, glabrous or with short, stiff simple eglandular hairs, sometimes slightly branched, leafy. *Leaves* alternate; lamina dull medium green on upper surface, paler beneath, the basal 5–9 × 3.0–5.5 cm, ovate to oblong-ovate, obtuse to subacute at apex, serrate or dentate, cordate or rounded at base, the petiole up to 13 cm, often purplish and glabrous, the cauline getting gradually smaller up the stem, ovate to lanceolate, more or less acute at apex, dentate and rounded at the sessile base, all with few, short, pale simple eglandular hairs, especially on the veins. *Inflorescence* a second raceme or panicle; pedicels about 5 mm, recurved, with short, stiff hairs; bracteoles linear. *Flowers* 25–30 mm in diameter, drooping, terminal and in the axils of leaves. *Calyx* 10–12 mm, medium green, with short, stiff, appressed, deflexed simple eglandular hairs, divided about half of the way to the base; lobes 5, linear-lanceolate, acute at apex, deflexed or patent at anthesis; without appendages. *Corolla* 20–30 mm, bluish-purple, funnel-shaped, divided half to one-third of the way to the base; lobes 5, triangular-ovate, acute at apex, ciliate, spreading. *Stamens* 5; filaments short, white; anthers yellow. *Style* 1, pink; stigmas 3, pink. *Capsule* 6–7 mm, hemispherical, nodding, opening by 3 basal pores; seeds

1.5–1.6 mm, yellowish-brown, ovate, compressed. *Flowers* 7–9. $2n = 68, 102$.

Introduced. Grown in gardens and naturalised in fields, woods, banks and rough ground; very persistent. In mown turf it often persists as vegetative plants. Widely scattered records in Great Britain and Ireland. Native in most of Europe but rare in the Mediterranean region and absent from the islands; western Asia; Caucasus; naturalised in North America and elsewhere.

10. *C. pyramidalis* L. Chimney Bellflower

Perennial herb with a thick, napiform root. *Stems* 30–150 cm, pale yellowish-green, erect, robust, glabrous. *Leaves* alternate; lamina shining yellowish-green on upper surface, paler beneath, striate, leafy, the basal 4–8 × 2–4 cm, ovate to ovate-oblong, acute to obtuse at apex, crenate-dentate or crenate-serrate, more or less cordate at base and long-petiolate, and the cauline ovate to ovate-lanceolate, obtuse to subacute at apex, crenate-dentate to crenate-serrate and cuneate to truncate at base, the lower and median petiolate, the upper sessile, all glabrous. *Inflorescence* a dense, numerous-flowered, narrowly pyramidal or cylindrical raceme; pedicels short, glabrous; bracteoles linear. *Flowers* 20–30 mm in diameter, erect. *Calyx* 8–9 mm, green, glabrous, divided half of the way to the base; lobes 5, narrowly triangular-lanceolate, obtuse to subacute at apex, patent or reflexed; without appendages. *Corolla* 10–30 mm, purplish-blue, rarely white, broadly campanulate, lobed about half of the way to the base; lobes 5, broadly ovate, subacute at apex. *Stamens* 5; filaments 5–6 mm, white; anthers yellow. *Style* 1, whitish; stigmas 3, short. *Capsule* 6–8 mm, subglobose, trisulcate, erect, opening by 3 basal pores; seeds almost 1 mm, ovoid, slightly compressed. *Flowers* 7–8. $2n = 34$.

Introduced. Grown in gardens and naturalised on walls. Guernsey in the Channel Islands and West Malling in Kent, a rare casual elsewhere. Native of northern Italy and the north-west part of Balkan peninsula.

11. *C. alliariifolia* Willd. Cornish Bellflower
C. lamifolia Adans.; *C. macrophylla* Sims

Perennial herb. *Stems* up to 70 cm, pale green, sometimes suffused brownish-purple, erect, robust, striate, with numerous, short to medium, pale, soft simple eglandular hairs, leafy, simple or branched. *Leaves* alternate; lamina medium green on upper surface, grey to whitish beneath, the basal 5–8 × 5–8 cm, triangular-ovate or ovate, obtuse to acute at apex, bicrenate, the teeth shallow and rounded, cordate at base and long-petiolate, the cauline rapidly decreasing in size and similar to basal but the lower petiolate and the upper sessile, all with numerous, short, pale, appressed simple eglandular hairs on the upper surface and numerous to dense, short, pale simple eglandular hairs below which are pectinate on the veins. *Inflorescence* a spike of axillary flowers on short, hairy pedicels; bracteoles linear. *Flowers* 20–30 mm in diameter, more or less nodding, solitary or rarely 1–3. *Calyx* 12–14 mm, medium green, divided for about two-thirds of the way to the base; lobes 5, lanceolate to ovate, acute at apex, alternating with the lanceolate, acute, reflexed appendages, with short to medium, pale, stiff

hairs on both calyx and appendages particularly on the margins of lobes and appendages. *Corolla* 20–40 mm, white, rarely purplish, divided one-quarter to one-third of the way to the base, shortly hairy outside; lobes 5, ovate, acute at apex, long hairy on margins. *Stamens* 5; filaments 8–10 mm; anthers yellow. *Style* 1, yellow; stigmas 3, not exceeding corolla. *Capsule* about 8 mm, obconical, ribbed, shortly hairy, opening by 3 basal pores; seeds about 2 × 1 mm, brown with a pale margin, ellipsoid. *Flowers* 6–9. $2n = 34$, 68, 96.

Introduced. Naturalised garden escape on waste and rough ground and particularly railway banks. Mostly south and south-west England, particularly Cornwall, and increasing. Native of northern Turkey and Caucasus.

12. *C. glomerata* L. Clustered Bellflower
Gentiana collina With.

Perennial herb with a short, oblique, woody rootstock. *Stem* 3–25(–75) cm, pale yellowish-green, often tinted brownish-red, erect, slightly angular, more or less robust, with numerous, short to medium, pale simple eglandular hairs, usually unbranched, leafy. *Leaves* alternate; lamina dull, medium green, paler beneath, the basal 1–6(–11) × 0.5–3.5 cm, lanceolate to ovate, obtuse at apex, irregularly crenate-serrulate and cordate at base, the petioles up to 15 cm and hairy; the cauline smaller, lanceolate to ovate, obtuse to acute at apex, crenate-serrulate or the upper entire, narrowed or rounded at base and sessile and semiamplexicaul or the lower shortly petiolate, all with short to medium, pale simple eglandular hairs on both surfaces and the margins. *Inflorescence* subcapitate, often with several, more or less distant flowers or short, few-flowered branches below the terminal head, with large bracts. *Flowers* 18–22 mm in diameter, erect, sessile. *Calyx* 8–15 mm, medium green, more or less hairy, divided over half of the way to the base; lobes 5, triangular-ovate, acute at apex, without appendages. *Corolla* 12–25 mm, bright bluish-purple, rarely white, divided nearly half of the way to the base; lobes 5, triangular-ovate, acute at apex, erect, but eventually spreading. *Stamens* 5; filaments short; greenish-yellow, anthers greenish-yellow. *Style* 1, purplish-brown; stigmas 3, yellow. *Capsule* 6–8 mm, erect, ovoid, opening by 3 basal pores; seeds 0.5–1.0 mm, pale brown, ovate, compressed. *Flowers* 5–9. $2n = 30$.

Varies greatly in size. It is not known if the very dwarf var. *nana* C. Bailey, of chalk downs, would retain its habit in cultivation.

Native. Chalk and limestone grassland, scrub and open woodland, cliffs and dunes by the sea; also a casual or naturalised garden escape in rough ground. Mainly in the south and east part of Great Britain, where it is locally common, north to central and east Scotland. Most of Europe and temperate Asia. A member of the Eurasian Temperate element with a continental distribution in Europe. Our native plant is subsp. *glomerata* which occurs throughout the range of the species. Garden escapes and some plants grown from wild flower seed are usually larger and may belong to var. *dahurica* Fisch. & Ker-Gawl., but there seems to be a whole range of intermediates.

13. *C. portenschlagiana* Schult. Adria Bellflower

Perennial herb. *Stems* usually numerous, 15–20 cm, pale yellowish-green, sometimes tinted brownish-purple, ascending, procumbent or trailing, striate, glabrous or with very short, white simple eglandular hairs in the upper part. *Leaves* alternate; lamina medium green on upper surface, paler beneath, the basal 1.0–2.5 × 1.0–3.0 cm, subrotund or reniform, broadly rounded at apex, crenate-dentate and cordate at base, with petioles up to 120 mm, the cauline similar but smaller and short to long petiolate, all glabrous or with very short, pale simple eglandular hairs especially on the veins. *Inflorescence* lax, branched; pedicels short to rather long, glabrous or with very short, white simple eglandular hairs; bracteoles linear. *Flowers* 10–20 mm in diameter, numerous. *Calyx* 5–7 mm, green, divided nearly to base, glabrous or with very short, white simple eglandular hairs; lobes 5, linear-lanceolate or lanceolate, subacute at apex, erect to erecto-patent; without appendages. *Corolla* 15–25 mm, violet-blue, funnel-shaped, divided one-quarter to two-fifths of the way to the base; lobes 5, triangular-lanceolate, acute at apex, erect to erecto-patent. *Stamens* 5; filaments short, whitish; anthers whitish or yellowish. *Style* 1, purplish; stigma pale yellow. *Capsule* 5–7 mm, opening by 3 basal pores; seeds 1–2 mm, pale brown, ellipsoid. *Flowers* 6–12. $2n = 34$.

Introduced. Much grown on walls and rockeries in gardens; naturalised on walls and rocky banks. Scattered localities in Great Britain, mostly in the centre and south and in the Channel Islands. Probably over-recorded for *C. poscharskyana*. Native of Yugoslavia. Hybrids with *C. poscharskyana*, intermediate between the parents, occur in gardens and may escape. Named after Franz von Portenschlag-Lederermeyer (1772–1822).

14. *C. poscharskyana* Degen Trailing Bellflower

Perennial herb. *Stems* usually numerous, 15–20(–30) cm, pale yellowish-green, sometimes tinted brownish-purple, ascending, procumbent or trailing, striate, glabrous or with a few, short pale simple eglandular hairs. *Leaves* alternate; lamina medium green on upper surface, paler beneath, the basal 3.5–5.5 × 3.5–5.0 cm, ovate, more or less acute at apex, 2-serrate, cordate at base with petioles up to 150 mm, the cauline similar but usually getting gradually smaller upwards and short to long petiolate, all with numerous, short, pale, stiff simple eglandular hairs at first, particularly on the margins and veins, becoming glabrous. *Inflorescence* lax, branched; pedicels short to medium, slender, glabrous or with short, white, stiff simple eglandular hairs; bracteoles linear. *Flowers* 20–28 mm in diameter, erect, numerous. *Calyx* 5–7 mm, green, tinted reddish, divided nearly to base, with short to medium, pale, stiff simple eglandular hairs especially on the margins; lobes 5, lanceolate, acute at apex, spreading or reflexed; without appendages. *Corolla* 10–25 mm, dirty mauvish-blue and paler at base, broadly funnel-shaped, divided about half to three-quarters of way to the base; lobes 5, triangular-ovate, more or less acute, spreading and thus appearing star-shaped as you look into the corolla. *Stamens* 5; filaments short, white; anthers cream. *Style* 1,

pale at base, purplish above; stigmas 3, purplish. *Capsule* 5–7 mm; opening by 3 basal pores; seeds 1.5–2.0 mm, pale brown, ellipsoid. *Flowers* 6–8. $2n = 34$.

Introduced. Much grown on walls and rockeries in gardens; naturalised on walls and rocky banks. Scattered localities in Great Britain, mostly in the centre and south and in the Channel Islands. Native of Yugoslavia. Named after Gustav Adolf Poscharsky (1832–1915).

15. *C. fragilis* Cirillo Italian Bellflower
C. diffusa Vahl

Perennial herb with a rhizome, woody stock and non-flowering shoots. *Stems* 7–15 cm, pale green, often suffused purplish, diffuse-ascending, striate, flexuous, glabrous or with few to numerous, short, white, rigid simple eglandular hairs, branched, leafy. *Leaves* alternate; lamina pale green on upper surface, paler beneath, the basal 0.5–2.5 × 0.5–2.5 cm, ovate, subrotund or reniform, narrowly to broadly rounded at apex, crenate to serrate, rounded to cordate at base and with glabrous or hairy petioles up to 40 mm, the cauline numerous, similar to basal but smaller and petiolate, all glabrous or with few to numerous, short, white, rigid simple eglandular hairs. *Inflorescence* lax and corymbose; pedicels short, glabrous or hairy; bracteoles linear. *Flowers* 25–40 mm in diameter, erect, terminal or in the axils of leaves. *Calyx* 8–16 mm, medium green, glabrous or with few to numerous, pale, rigid simple eglandular hairs, divided nearly to the base; lobes 5, linear-lanceolate, long-acute or acuminate at apex, without appendages. *Corolla* 25–40 mm, pale blue to purplish-blue or white, broadly campanulate to rotate, divided about half of the way to the base; lobes 5, broadly ovate, subacute at apex, spreading. *Stamens* 5; filaments 4–6 mm, white; anthers yellow. *Style* 1, long and slender, cream; stigmas 3, cream. *Capsule* 6–7 mm, erect, ovoid, opening by 3 basal pores; seeds 0.2 mm, pale yellow, ovate, compressed. *Flowers* 6–8. $2n = 32, 34$.

Very variable in hairiness, leaf-shape and flower colour. Two subspecies have been recognised. Subsp. *fragilis* has the basal leaves subrotund-cordate, obtusely dentate to crenate, the calyx teeth 9–12 mm and the corolla 35–40 mm in diameter. Subsp. *cavolinii* (Ten.) Dambolt (*C. cavolinii* Ten.) has the basal leaves ovate, cordate and serrate, the calyx teeth 8–15 mm and the corolla 25–30 mm in diameter. Hairy and glabrous forms occur in both subspecies and gardeners have selected colour forms and large-flowered forms.

Introduced. Occurs on a wall at St Peter Port in Guernsey in the Channel Islands where it is increasing. Elsewhere it is sometimes on garden paths and walls. Native of limestone rocks in central and south Italy.

16. *C. rhomboidalis* L. Broad-leaved Harebell
C. rotundifolia subsp. *rhomboidalis* (L.) Bonnier

Perennial herb with a napiform root and slender, sparingly branched rhizome. *Stems* (10–)20–40(–60) cm, yellowish-green, often tinged with purple, erect, striate, glabrous or with short or medium, pale simple eglandular hairs, branched only above, leafy. *Leaves* alternate; lamina medium green on upper surface, paler beneath, the basal

absent at anthesis, 1.5–2.5 × 0.7–2.0 cm, subrotund or reniform, rounded at apex, serrate, the teeth broad, cordate at base and petiolate, the cauline few to numerous, gradually decreasing in size upwards, ovate, lanceolate, ovate-oblong or rhomboid, more or less acute or acuminate at apex, crenate-serrate, rounded or more or less cordate at base and sessile, with short, pale simple eglandular hairs, particularly on the margin and veins beneath. *Inflorescence* narrow and few-flowered; pedicels pale, striate, glabrous; bracteoles linear. *Flowers* 25–30 mm in diameter, erect. *Calyx* 10–12 mm, medium green, glabrous, divided about two-thirds of the way to the base; lobes 5, linear or filiform, acute at apex, spreading; without appendages. *Corolla* (12–) 16–25 mm, pale to bright blue, campanulate, divided one-quarter to one-third of the way to the base; lobes 5, broadly ovate, obtuse-mucronulate at apex. *Stamens* 5; filaments short, whitish; anthers yellow. *Style* 1, violet-blue; stigmas 3, yellow. *Capsule* 6–7 mm, turbinate, opening by 3 basal pores, membranous, nodding; seeds about 1.5 mm, yellow, ovate, compressed. *Flowers* 6–7. $2n = 34$.

Introduced. A garden escape established on the wooded bank of the River Esk near Langholm in Dumfries-shire and on the bank of a sunken lane near Knock in Westmorland. Native of the south-west and central Alps and the Jura, and locally naturalised elsewhere in Europe.

17. *C. rotundifolia* L. Harebell
C. minor Lam. nom. illegit.; *C. linifolia* L.; *C. variifolia* Salisb. nom. illegit.; *C. heterophylla* Gray, non L.

Perennial herb with slightly creeping, very slender, elongated, much branched rootstock which produces adventitious buds. *Stems* 15–50(–60) cm, pale green, sometimes tinted brownish-purple, slender, wiry, erect but often decumbent at base, glabrous or with occasional hairs, simple or branched, leafy. *Leaves* alternate; lamina dark green, paler beneath, the basal 0.5–1.5 × 0.5–1.5 cm, with some present at anthesis, ovate to subrotund, rounded or acute at apex, crenate or crenate-dentate, truncate, rounded or cordate at base, the slender and glabrous petioles up to 6.0 cm, the cauline 15–35 × 0.7–1.5 mm, with the lower similar to basal and middle and upper linear to linear-elliptical, obtuse to acute at apex, more or less entire and narrowed to a sessile base with the middle ones intermediate, all glabrous or nearly so. *Inflorescence* a more or less branched panicle of few to numerous flowers, or reduced to a solitary terminal flower; pedicels very slender; bracteoles linear. *Flowers* 10–22 mm in diameter, faintly sweet-smelling, erect in bud, nodding in flower. *Calyx* 6–8 mm, medium green, glabrous, divided for about two-thirds of the way to the base; lobes 5, linear to filiform, acute at apex, spreading; without appendages. *Corolla* 5–30 mm, purplish-blue, rarely white, broadly campanulate, divided for one-quarter to one-third of the way to the base; lobes 5, broadly ovate, subacute at apex. *Stamens* 5; filaments 1.5–2.0 mm, cream; anthers cream. *Style* 1, bluish-purple; stigmas 3, greenish-yellow. *Capsule* 3–5 mm, turbinate to subglobose, nodding, opening by 3 basal pores; seeds about 0.2 mm, ovate, compressed, yellow. *Flowers* 7–9. Visited by beetles.

(a) Subsp. **rotundifolia**

Leaves of stem mostly narrow and acute at apex. *Flowers* several to numerous, 5–20 mm. *Capsules* turbinate. $2n = 68$.

(b) Subsp. **montana** (Syme) P. D. Sell

C. rotundifolia var. *montana* Syme; *C. giesekiana* auct.; *C. rotundifolia* var. *speciosa* A. G. More; *C. rotundifolia* var. *uniflora* auct.

Leaves of stem blunter, the lower often like basal. *Flowers* often solitary, 20–30 mm. *Capsules* more squat and subglobose. $2n = 102$.

Native. Grassy places, fixed dunes and rock-ledges, usually on acid, often sandy soils. In suitable places throughout Great Britain and Ireland, but absent from the Channel Islands and most of south and east Ireland. A member of a polyploid complex of taxa found in north temperate regions to over 70° N in Norway. As broadly defined, the species is a member of the Circumpolar Boreo-temperate element. Subsp. *rotundifolia* is the common subspecies and is one of several races in Continental Europe. Subsp. *montana* occurs mainly in Ireland, western Scotland, Isle of Man and extreme south-west England and may be endemic.

2. **Legousia** Durande

Specularia Heist. ex A. DC. nom. illegit.; *Prismatocarpus* L'Hér.

Annual herbs. *Stems* decumbent to erect. *Leaves* alternate, exstipulate. *Inflorescence* a few-flowered terminal cluster or subterminal corymbose cyme. *Calyx-tube* subglobose; lobes 5, erect or erecto-patent. *Corolla* violet-purple inside, actinomorphic, divided about half of the way to the base into 5 lobes, more or less infundibuliform-rotate, shorter than calyx. *Filaments* and anthers free. *Style* 1, shorter than corolla; stigmas 3, linear. *Ovary* 3-celled. *Fruit* a subcylindrical capsule, dehiscing by subapical pores.

About 15 species in north temperate regions and South America.

1. Calyx lobes more or less erect in fruit; flowers 2–3 mm in diameter; corolla about half as long as calyx lobes **1. hybrida**
1. Calyx lobes patent or recurved in fruit; flowers 15–23 mm in diameter; corolla at least as long as calyx lobes

2. **speculum-veneris**

1. L. hybrida (L.) Delarbre Venus's Looking-glass
Campanula hybrida L.; *Specularia hybrida* (L.) A. DC.; *Prismatocarpus hybridus* (L.) L'Hér.; *L. parviflora* Gray nom. illegit.

Annual herb with fibrous roots. *Stems* 4–30 cm, decumbent to erect, pale green, sometimes tinged purplish or bronze, branched or unbranched, angled, shortly hispid. *Leaves* alternate; lamina 0.5–3.0 × 0.3–0.8 cm, pale greyish-green, the basal oblong-spathulate or oblong-obovate, rounded at apex and with petioles up to 10 mm, the cauline oblong or obovate, obtuse at apex, strongly undulate, sessile, sometimes semiamplexicaul and narrowly revolute, all minutely scabridulous. *Inflorescence* a few-flowered, terminal cluster. *Flowers* 2–3 mm in diameter, sessile. *Calyx* 10–15 mm, glabrous to minutely scabridulous, divided one-third of the

way to the base; lobes 5, 5–8 mm, lanceolate, acuminate at apex, erect or erecto-patent, slightly accrescent in fruit, glabrous or scabridulous, margins recurved. *Corolla* 2–3 mm, whitish outside, violet-purple within, with a wing of greenish-cream at the base, infundibuliform-rotate, divided about half of the way to the base; lobes 5, obtuse or acute at apex and mucronulate. *Stamens* 5; filaments 0.5–0.8 mm, cream, somewhat dilated towards the base; anthers cream or black, linear. *Style* 1, about 1.5 mm; stigmas 3, linear, pale yellowish-green. *Capsule* 15–30 × 3–4 mm, subcylindrical, strongly constricted at apex, angled, glabrous or sparsely and minutely scabridulous, dehiscing by subapical pores, crowned by the persistent calyx; seeds about 1.3 × 0.7 mm, shining brown, elliptic-ovate, strongly compressed. *Flowers* 5–8. Autogamous. $2n = 20$.

Native. Arable fields and waste land. Scattered in south, central and eastern England, mostly on calcareous soils, much decreased in the last 50 years. West and south Europe; western Asia; North Africa; Macaronesia. A member of the European Southern-temperate element.

2. **L. speculum-veneris** (L.) Chaix

Large Venus's Looking-glass
Campanula speculum-veneris L.; *Specularia speculum-veneris* (L.) A. DC.; *L. durandii* Delarbre; *Prismatocarpus speculum-veneris* (L.) L'Hér.

Annual herb with fibrous roots. *Stems* 4–40 cm, pale green, often tinged purplish, erect or sprawling, angled, glabrous or with minute hairs on the angles, usually much branched, leafy. *Leaves* pale or medium green, the basal 1.5–2.0 × 0.5–1.0 cm, oblong-spathulate, obtuse at apex and the petioles up to 15 mm, the cauline 0.5–2.5 × 0.3–1.0 cm, oblong or obovate, obtuse at apex, undulate and narrowly revolute and narrowed to the sessile, semiamplexicaul base, all minutely scabridulous especially towards the apex. *Inflorescence* of crowded, branched, terminal or subterminal corymbose cymes. *Flowers* 15–23 mm in diameter, sessile. *Calyx* 7–8 mm, green, minutely papillose-scabridulous especially towards the apex, divided for almost all of the way to the base; lobes 5, narrowly linear, acute at apex, recurved or spreading in fruit, margins recurved. *Corolla* 9–11 mm, violet purple with a cream area at base, rarely pale blue or white, rotate, divided for about three-quarters of the way to the base; lobes 5, broadly ovate, obtuse or acute with a small mucro at apex. *Stamens* 5; filaments 0.8–1.0 mm, whitish, somewhat dilated towards the base; anthers cream. *Style* 1, greenish-white; stigmas 3, pale yellowish-green. *Capsule* 10–15 mm, narrowly oblong, dehiscing from subapical pores, crowned by the persistent calyx; seeds about 1.0 × 0.8 mm, brown, broadly ovoid, strongly compressed. *Flowers* 5–8. Autogamous. Visited by bees. $2n = 20$.

Introduced. Grain casual and garden escape. Apparently persistent in arable fields near Wootton St Lawrence in Hampshire since 1916. Native of much of Europe northwards to the Netherlands; south-west Asia; North Africa.

3. **Wahlenbergia** Schrad. ex Roth nom. conserv.
Cervicina Delile nom. rejic.

Perennial herbs. *Stems* procumbent and filiform. *Leaves* alternate, exstipulate. *Inflorescence* of solitary, axillary

flowers. *Calyx-tube* hemispherical or oblong-obconical; lobes 5, erect. *Corolla* blue, actinomorphic, campanulate or rotate, divided one-third to half of the way to the base, lobes 5. *Stamens* 5; filaments and anthers free. *Style* 1, shorter than corolla; stigmas 3, linear. *Ovary* 3-celled. *Fruit* a turbinate capsule, dehiscing by apical pores.

More than 150 species, mostly in the south temperate region, particularly South Africa, with a few in tropical America and temperate regions of the Old World. Named after Georg Wahlenberg (1780–1851).

W. nutabunda (Guss.) A. DC. and **W. trichogyna** Stearn have been recorded as casuals.

1. W. hederacea (L.) Rchb. Ivy-leaved Bellflower
Campanula hederacea L.; *Cervicina hederacea* (L.) Druce
 Perennial herb with a long, slender, creeping rootstock. *Stems* 10–30 cm, pale green, smooth, procumbent, interlacing, filiform, glabrous, diffusely branched, leafy. *Leaves* alternate; lamina 0.5–2.0 × 0.5–2.0 cm, rather shiny medium green on upper surface, paler beneath, ovate to subrotund-reniform in outline, acute at apex, angled to shallowly lobed, the lobes broadly triangular, truncate, rounded or more or less cordate at base, glabrous; petioles short to long, pale green, slender, glabrous. *Flowers* 5–7 mm in diameter, solitary and axillary, more or less nodding; pedicels up to 40 mm, much longer than corolla, pale green, slender, glabrous. *Calyx* 2–3 mm, pale green, divided up to half of the way to the base; lobes 5, subulate, acute at apex, erect. *Corolla* 6–10 mm, campanulate, pale blue, rarely white, divided for one-quarter to half of the way to the base; lobes 5, ovate, more or less acute at apex. *Stamens* 5; filaments 1.2–1.6 mm, with stiff hairs below; anthers greyish-white. *Style* 1, whitish; stigmas 3, greyish-white. *Capsule* 2.5–3.0 mm, globose or turbinate, erect, dehiscing by apical pores; seeds 0.8–1.0 mm, ellipsoid, finely reticulate. *Flowers* 7–8. *2n* = 36.

Native. Damp heathy grassland, especially by streams and flushes, and other moist acidic habitats on heaths and moors, in rocky cloughs and in woods, ascending to approximately 500 m. South and west of Great Britain north to Argyll and south and south-east Ireland, but frequent only in Wales and south-west England; formerly in the Channel Islands; rarely naturalised elsewhere in wet lawns. Western Europe from Scotland and Belgium to Spain and Portugal. A member of the Oceanic Southern-temperate element.

4. Trachelium L.

Perennial herbs. *Stems* erect. *Inflorescence* of terminal, corymbose, compound cymes. *Calyx* 1.5–2.0 mm, 5-lobed. *Corolla* pale blue or whitish, actinomorphic; tube 4–6 mm, slender; lobes 5, 1–2 mm. *Stamens* 5; filaments and anthers free. *Style* 1, longer than corolla; stigmas 2–3, capitate. *Ovary* 2- to 3-celled. *Fruit* a broadly pyriform capsule, dehiscing by 2–3 sub-basal pores.

Four species in the Mediterranean region.

1. T. caeruleum L. Throatwort
 Perennial herb with thick, fibrous roots. *Stems* up to 100 cm, woody at base, dark green, usually suffused brownish-purple, erect, terete, striate, shining, glabrous. *Leaves* all

cauline, alternate; lamina 1.0–6.0 × 0.3–3.0 cm, dark green on upper surface, paler beneath, elliptic-ovate, ovate or lanceolate, acute at apex, serrate-dentate, the teeth narrowly and sharply triangular, cuneate or attenuate at base, glabrous or with very short, simple eglandular hairs on the margins; petioles up to 25 mm, slender, glabrous. *Inflorescence* of rather lax, terminal, corymbose cymes; peduncles and pedicels slender, glabrous or with very few hairs; bracts linear, acute at apex. *Flowers* 2–5 mm in diameter. *Calyx* 1.5–2.0 mm, green, divided half of the way to the base, glabrous; lobes 5, 0.5–1.0 mm, linear-lanceolate, obtuse at apex. *Corolla* 7–8 mm, pale blue or whitish, shortly divided at apex; tube 4–6 mm, slender, tubular; lobes 5, narrowly triangular, acute at apex. *Stamens* 5; filaments 5–6 mm; anthers pale. *Style* 1, long-exserted, thickened towards the apex; stigmas 2–3, capitate. *Capsule* 2–3 mm, broadly pyriform, dehiscing by 2–3, sub-basal pores. *Flowers* 7–9. *2n* = 32.

Introduced. Naturalised on walls at St Peter Port in Guernsey since 1892; also in Jersey and at Bexley in Kent. Native of the west Mediterranean region.

5. Phyteuma L.

Perennial herbs. *Stems* decumbent to erect. *Leaves* alternate, exstipulate. *Inflorescence* of congested, globose or elongated spikes without flowerless bracts at the base. *Calyx-tube* ribbed and angled, 5-lobed. *Corolla* violet-blue or yellowish-green, slightly zygomorphic, tubular and curved or straight in bud, but split nearly to base into 5 lobes when open, more or less cylindrical. *Stamens* 5; filaments and anthers free, but appressed around the style. *Style* 1, slightly shorter than corolla; stigmas 2–3, linear. *Ovary* 2- to 3-celled. *Fruit* an ovoid capsule, dehiscing by 2–3 lateral pores.

About 40 species in Europe, especially the mountains of central and southern Europe and temperate Asia.

The pollination mechanism is similar to that of *Campanula* except that the pollen is held in the tube formed by the corolla-lobes and pushed out by the elongating style.

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Stewart, A., Pearman, D. A. & Preston, C. D. (1994). *Scarce plants in Britain*. Peterborough. [*P. orbiculare*.]

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1. Inflorescence oblong to cylindrical in flower; corolla usually whitish to pale yellowish-green, rarely bluish 2.
1. Inflorescence globose to very shortly ovoid in flower; corolla violet-blue 3.
2. Corolla whitish to pale yellowish-green; styles and stigma yellow to yellowish-brown
 - 1(a). **spicatum** subsp. **spicatum**
 2. Corolla bluish; stigmas yellowish-brown to blue
 - 1(b). **spicatum** subsp. **coeruleum**
 3. Bracts shorter than inflorescence; corolla strongly curved in bud
 2. **orbiculare** subsp. **tenerum**
 3. Bracts, at least the lower, longer than inflorescence; corolla nearly straight in bud
 3. **scheuchzeri**