

Caryophyllaceae A. L. de Jussieu
(Carnation or Pink Family)

Usually herbs: stems sometimes with concentric rings of xylem and phloem; anthocyanins present; often with triterpenoid saponins. Hairs various. Leaves **opposite**, simple, entire, often narrow, with pinnate venation, the secondary veins usually obscure and venation appearing \pm parallel, the leaf pair often connected by a transverse nodal line, and **nodes usually swollen**; stipules lacking or present. Inflorescences determinate, sometimes reduced to a single flower, terminal. Flowers usually bisexual, radial, sometimes with an androgynophore. Tepals 4-5, distinct to connate, imbricate, usually appearing to be sepals. True petals lacking, but outer whorl of 4-5 stamens very often petal-like, here called "petals", these frequently bilobed and sometimes differentiated into a long, thin, basal portion (claw) and an expanded apical portion (blade or limb) separated by appendaged joint. Stamens 4-10; filaments distinct or slightly connate, sometimes adnate to "petals;" pollen grains tricolpate to polyporate. Carpels 2-5, connate; ovary superior, with free-central or occasionally basal placentation; stigmas minute to linear. Ovules usually numerous, occasionally few or only 1, \pm campylotropous. Nectar produced by disk or staminal bases. Fruit usually a loculicidal capsule, opening by valves or apical teeth, but sometimes a utricle; embryo usually curved; endosperm \pm lacking, replaced by perisperm (Figure 8.44).

Floral formula: $\ast, \overline{4-5}, 4-5, \overline{4-10}, \overline{2-5}$; capsule, utricle

Distribution and ecology: Widespread, but especially characteristic of temperate and warm temperate regions of the Northern Hemisphere, mostly of open habitats or disturbed sites.

Genera/species: 70/2200. **Major genera:** *Silene* (700 spp.), *Dianthus* (300), *Arenaria* (200), *Gypsophila* (150), *Minuartia* (150), *Stellaria* (150), *Paronychia* (110), and *Cerastium* (100). Numerous native and introduced genera occur in the continental United States and/or Canada; some of these, in addition to most of the above, include *Agrostemma*, *Drymaria*, *Geocarpon*, *Sagina*, *Saponaria*, *Spergulia*, and *Stipulicida*.

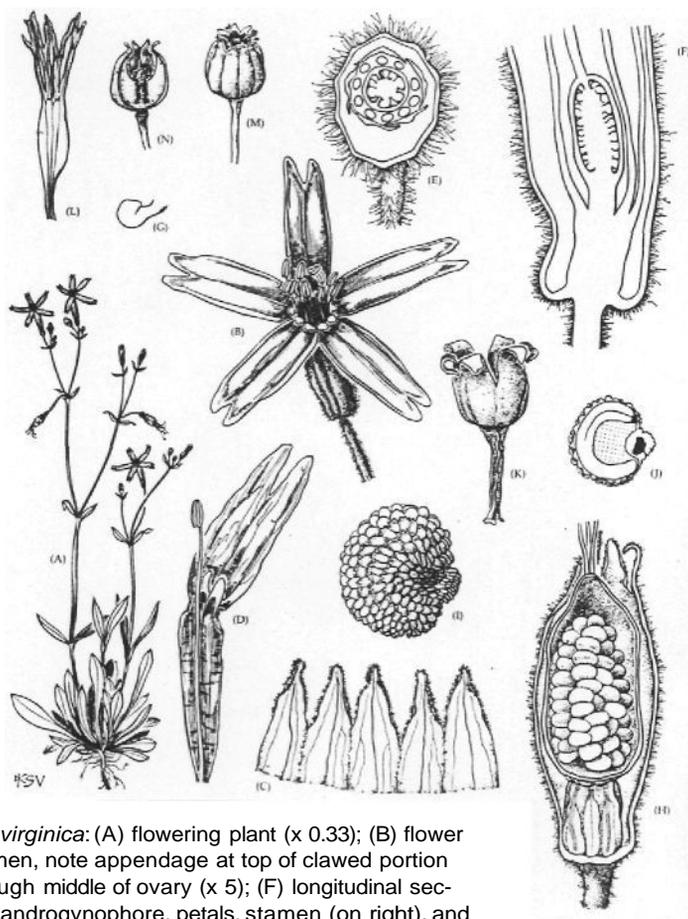


Figure 8.44 Caryophyllaceae. (A-J) *Silene virginica*: (A) flowering plant (x 0.33); (B) flower (x 3); (C) calyx lobes (x 3); (D) petal with stamen, note appendage at top of clawed portion of petal (x 4); (E) cross-section of flower through middle of ovary (x 5); (F) longitudinal section through base of flower, note hairy calyx, androgynophore, petals, stamen (on right), and free-central placenta (x 5); (G) ovule (x 25); (H) nearly mature fruit and calyx in longitudinal section, note seeds on free-central placenta (x 5); (I) seed (x 30); (J) seed in section, note curved embryo and perisperm (stippled) (x 20). (K) *S. caroliniana*: capsule (x 3). (L) *S. ovata*, petal (x 3). (M-N) *S. antirrhina*: (M) capsule, surrounded by dried calyx (x 3); (N) capsule in longitudinal section (x 3). (From Wood 1974, *A student's atlas of flowering plants*, p. 27.)