Today we begin with the core Asteridae, with members of both Euasterid I and II. Solanales (Solanaceae, Convolvulaceae, and Boraginaceae), Gentianales (Rubiaceae, Apocynaceae), Apiales (Apiaceae, Araliaceae), and Dipsacales (Caprifoliaceae, Adoxaceae). The Core Asterids have **sympetalous corollas** (fused petals), **epipetalous stamens**, and **equal numbers of stamens and petals** (features which are also present in some members of the Ericales); but in some families, 1 or (rarely) more stamens may be sterile or lost.

**Core Asterids:**

**Euasterids I**

**Solanaceae – Nightshade Family**; 147 genera, 2,930 spp.

Herbs, shrubs, trees and vines. **Hairs often stellate or branched.** Leaves usually simple; usually alternate and spiral, sometimes with paired leaves on same side of stem,. Stipules absent. Inflorescence determinate, terminal but appearing axillary. Flowers regular, bisexual. **Sepals 5, fused.** Petals 5 (rarely more), fused; **corolla distinctly plicate (folded), wheel-like to funnel-shaped to tubular.** Stamens 5 (rarely 4--8), epipetalous; filaments often short; anthers opening by slits or pores, sometimes connate, typically bright yellow. Ovary superior, slightly offset from median axis; carpels 2 with **numerous ovules.** Fruit a **berry** or capsule.

- **Solanum**
- **Nicotiana**
- **Brugmansia**
- **Vestia**
- **Iochroma**

**Convolvulaceae – Morning Glory Family**; 55 genera, 1,930 spp.

Herbaceous or woody vines, occasionally parasitic and lacking chlorophyll; **sap usually milky.** Leaves alternate, simple, sometimes lobed; stipules generally absent. Inflorescence determinate, terminal or axillary. Flowers bisexual and regular. **Sepals 5, distinct or only slightly fused.** Petals 5, fused; **corolla distinctly plicate (folded) and often twisted in bud, funnel-shaped to salverform.** Stamens 5, epipetalous at the base; **anthers often twisted.** Ovary superior; carpels 2. Nectar disc usually lobed. Fruit a 4-seeded capsule.

- **Ipomoea**
- **Convolvulus**
Boraginaceae – Borage Family; includes Hydrophyllaceae (Waterleaf Family); 134 genera, 2,650 spp.

Mostly herbs, also shrubs, trees, and lianas; vegetative parts generally covered with rough hairs. Leaves usually simple, alternate; stipules absent. Inflorescences generally coiled (helicoid or scorpioid cyme), terminal. Flowers radial, generally bisexual. Sepals 5, distinct to fused. Petals 5, fused; corolla usually wheel-like, sometimes funnel-shaped or tubular, distinctly plicate (folded). Stamens 5, epipetalous. Ovary superior, usually deeply 4-lobed (sometimes spherical); style often bifid, generally gynobasic (or terminal when ovary spherical); carpels 2; locules 4. Nectar disk present at base of ovary. Fruit a dry or +- fleshy drupe (with 1--4 seeds each forming a nutlet) or 2-valved capsule.

Borago
Echium
Anchusa
Ompholoides
Pulmonaria
Phacelia
Nemophila

Apocynaceae – Dog-Bane Family; includes Asclepiadaceae (Milkweed Family); 355 genera, 3,700 spp.

Herbs, shrubs, trees, and vines (sometimes succulent); with milky sap. Leaves opposite or whorled, simple; stipules generally absent, colleters (sticky hairs) usually at base of petiole. Inflorescence determinate. Flowers radial, bisexual. Sepals 5, usually fused, sometimes reflexed, often with colleters at base of adaxial surface. Petals 5, fused; corolla wheel-like to tubular, often with coronal appendages inside corolla. Stamens 5, short, epipetalous or fused to the style column by sheath; anthers sometimes fused to stigma or appearing so. Ovary generally superior; carpels 2, usually separate below, fused above; styles connate, with expanded heads. Pollen often united into larger pollinia. Fruit variable.

Vinca
Apocynum
Asclepias
Carallum

Euasterids II

Adoxaceae – Elderberry Family; 5 genera, 245 spp. (genera in this family have previously been included within Caprifoliaceae)

Small trees, shrubs, or perennial herbs. Leaves opposite; simple, trifoliate, to pinnately compound. Flowers bisexual, radially symmetric. Sepals 2-5, connate, reduced with only a single vascular trace. Petals 4-5, connate, usually with short tube and well-developed lobes. Stamens 5, adnate to base of corolla. Carpels 3-5, connate, inferior or partially inferior. Style short; stigma capitate. Fruit a drupe.

Viburnum
Sambucus
Apiaceae (Umbelliferae) – Carrot Family; 430 genera, 3,800 spp.

Herbs, rarely shrubs, small trees, vines. **Plant tissues and fruits often strongly aromatic.** Stems usually hollow; stipules absent. Leaves generally alternate, generally compound and/or deeply lobed, usually with sheathing petioles. Inflorescence an umbel, simple or compound, sometimes a head or head-like, often subtended by bracts. Flowers generally bisexual. Sepals 5, distinct, very reduced or 0. Petals generally 5, usually distinct, but developing fused. Stamens 5, distinct, borne on epigynous disc (i.e. a stylododium that produces nectar). **Ovary inferior;** carpels 2. **Fruit a dry schizocarp.**

*Foeniculum*  
*Zizia*  
*Heracleum*  
*Pimpinella*  
*Sanicula*

Araliaceae – Ginseng Family; 45 genera, 1,450 spp.

Woody, mostly shrubs; some herbaceous perennials. **Plants tissues strongly aromatic** (triterpenoid ethereal oils). **Leaves pinnately to palmately compound,** infrequently simple; **stipules generally present;** large scars left on stem when leaves fall. **Inflorescence, an umbel** or head; **simple to panicled.** Flowers generally bisexual. Sepals 5, reduced or 0. Petals generally 5. Stamens 5, distinct, borne on epigynous nectar disc. Ovary inferior; **carpels generally 1--5. Fruit usually a berry or drupe.**

*Aralia*  
*Cussonia*  
*Hedera*

Caprifoliaceae – Honeysuckle Family; 5 genera, 220 spp.

Primarily trees or shrubs, some vines. Leaves generally **opposite** and simple; stipules absent. Flowers bisexual, usually bilaterally symmetric, sometimes radial. **Sepals usually 5, fused; calyx constricted below the lobes. Petals 4--5, fused into a tube with 2 upper lobes and 3 lower.** Stamens 4--5; introrse dehiscence. **Ovary inferior;** carpels 3--5; style 1, elongate. Nectar produced by glandular hairs inside corolla tube. Fruit generally a berry.

*Lonicera*  
*Symphoricarpos*

Rubiaceae – Coffee Family; 650 genera, 11,000 spp.

Herbs, trees and shrubs. **Leaves opposite** or whorled, simple; **stipules prominent, interpetiolar (between the petioles of opposite leaves), sometimes leaf-like, with colleters (sticky hairs) on adaxial surface.** Flowers generally bisexual and regular, often heterostylos, and frequently aggregated. Sepals 4--5. Petals 4--5, fused, often with colleters; corolla wheel- or funnel-shaped. Stamens 4--5, epipetalous. **Ovary inferior;** carpels usually 2. Nectar disc usually present, epigynous. Fruit a berry, drupe, or capsule.

*Coffea*  
*Gardenia*  
*Psychotria*  
*Galium*
HYDROPHYLLACEAE. WATERLEAF FAMILY

CONVOLVULACEAE. MORNING-GLORY FAMILY

Fig. 276. HYDROPHYLLACEAE. Phaeolus campanulatus: Aa, flowering branches, × ½; Ab, flower, × 1; Ac, same, vertical section, × 3; Ad, stamen, × 11; Ae, ovary, cross-section, × 6; Af, capsule, × 1. B. Phaeolus campanulatus; inflorescence, × ½. (From L. H. Bailey, Manual of cultivated plants, The Macmillan Company, 1949. Copyright 1924 and 1949 by Liberty H. Bailey.)

Fig. 266. CONVOLVULACEAE. A. Ipomoea leucantha: Aa, flowering branch, × ½; Ab, flower, vertical section, × ½; Ac, ovary, vertical section, × 5; Ad, ovary, cross-section, × 20. B. Quamoclit pennata; flowering branch, × ½. (From L. H. Bailey, Manual of cultivated plants, The Macmillan Company, 1949. Copyright 1924 and 1949 by Liberty H. Bailey.)
from Lawrence 1951.

Taxonomy of Vascular Plants
figure from Lawrence 1951 *Taxonomy of Vascular Plants*