

Family relations

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Fig. 1 *Glaucidium palmatum*

them: the *Orchidaceae* for example, umbellifers in the *Apiaceae*, composites in the *Asteraceae*, and grasses in the *Poaceae*. Certain plant families are especially well regarded by gardeners: the *Ranunculaceae* is notably diverse and fascinating, and the *Liliaceae* (at one time a much larger grouping) contains some of the loveliest plants of all.

However for some reason we are often drawn to the oddities, and it is those plants that fit neither here nor there that begin to define the relationship between families of plants, though of course many morphological (structural) and biochemical features also play their part. The *Apiaceae* (*Umbelliferae*) for example is very close to the *Araliaceae* (the Ivy family), though the former are almost all herbaceous and the latter mostly woody shrubs and trees. The genus *Hydrocotyle* (the British species *H. vulgare* is known as Marsh Pennywort for its rounded leaves) was long classified in the *Apiaceae* but has now been transferred to the *Araliaceae*. Some botanists even combine the two families as one because they have so many attributes in common, but certainly from a gardener's viewpoint the two seem sensible groupings, albeit that individual species may change places. Both groups are pre-eminently foliage plants, often with a beautiful symmetry and poise which makes up for their lack of colour. This is their particular leitmotiv.

The *Ranunculaceae* and *Berberidaceae* are another interesting pairing, a much older lineage, dating from when flowers were simpler in design, though some have become

If you're an enthusiastic gardener with a wide range of plants in your garden then you will probably know a lot of them by name and, perhaps to a limited extent, by family. Currently, with the benefit of DNA analysis, botanists seem to be busy re-aligning plant families and re-assigning plants to them, changes that we gardeners may not always welcome. Some plant families are so distinctive that it's often easy to place plants within

more elaborate over time. A number of plants have been classified at different times in both these families, including *Hydrastis canadensis* and the very lovely *Glaucidium palmatum* (fig. 1), both now regarded as distinct from either family and classified as single members of their own plant families. *Hydrastis*, from eastern North America, is rarely grown, and truth be known it's not a terribly distinguished plant: it has palmate, rather corrugated leaves, and flowers made up of numerous white stamens but lacking petals (a little like some thalictrums). Its common name of Orange Root shows an affinity to the *Berberis* family, many of which have yellow to orange pigments in their roots and stems. The Japanese *Glaucidium*, like so many plants from those islands, is a real aristocrat in the garden, preferring the cooler and moister conditions of the west and north, though succeeding quite well in my garden in the South East in a shady spot under crab apples. Its leaves have some resemblance to *Podophyllum* and *Diphylleia* (both in the *Berberidaceae*), and its flowers to poppies (the *Papaveraceae*, which is also classified relatively closely to the *Ranunculus* and *Berberis* families), but it is sufficiently different, like *Hydrastis*, to find its own place.

The *Scrophulariaceae* is high on the garden list with such genera as *Antirrhinum*, *Calceolaria*, *Diascia*, *Digitalis*, *Hebe* and *Veronica*. The foxgloves of Europe are especially loved, but from America come their



Fig. 2 *Rehmannia elata*

New World counterparts in much greater variety of form and flower, the penstemons, a beautiful but often temperamental race. The family is also fascinating for including a number of hemi-parasitic genera such as *Castilleja*, *Euphrasia*, *Pedicularis* and *Rhinanthus* (Yellow Rattle). *Castilleja*, the Indian Paintbrushes, can be cultivated without host plants so long as they receive plenty of water and feeding¹. *Rhinanthus* can be admired only in their natural habitat, although the annual Yellow Rattle is easily established in a grassy meadow. *Pedicularis* in particular are often quite spectacular, and success in learning to grow them would be quite a coup. All are able to photosynthesise and only partially rely on their hosts for water and nutrients. The extraordinary bright red *Phelypaea* (from Turkey and the Caucasus) and other fully parasitic species like *Lathraea* are often segregated into their own family, the *Orobanchaceae*.

¹Paul Cumbleton in *The Plantsman* Vol. 7, 2008

My interest was piqued by the genus *Rehmannia* (fig. 2), which has sometimes been classified in the *Gesneriaceae*, but seems to hover between this and the *Scrophulariaceae*. Most commonly grown is the Chinese Foxglove, *R. elata*, a short-lived plant with glorious deep pink, orange-marked flowers, very like some of the *Achimenes*. Another species, *R. glutinosa*, also from China and Korea, is shorter and spreads slowly by runners. Its trumpet-like flowers can vary from a rather washed out orange-grey to the lovely warm orange and red pictured in Phillips and Rix (*Perennials* Vol. 1, 1991). Unfortunately I have the former! It is very hardy but needs protection from too much winter wet. Unlike the Gesneriads that I know, it produces quite large seed which seems tricky to germinate.

The *Gesneriaceae* is a particularly lovely family with a wonderful range of members including the tender genera *Achimenes*, *Columnea*, *Gloxinia*, *Saintpaulia* and *Streptocarpus*. There seem to be no weedy plants amongst them. And then there are the hardy alpine species in *Briggsia*, *Haberlea*, *Ramonda* and a number of less well known Chinese genera grown by specialists. They make beautiful specimens for a cool greenhouse. The undoubted queen of the family (at least for the alpine enthusiast) is *Jancaea heldreichii*, a very local endemic on Mount Olympus in Greece and distinguished because of its intensely silver-haired leaves and violet-blue cupped flowers. The family is interesting for the fact that many can be propagated from leaf cuttings, a process nicely described by Albert Pike².

The Gentian (*Gentianaceae*) and Periwinkle (*Apocynaceae*) families form another interesting pairing. The latter now also includes the unusual group of asclepiads (previously classified in their

own family), which have flowers of extraordinary and complex design³. The similarity between the gentians and asclepiads can be seen on comparing the fruits of each, though the seed of the latter has a silky appendage to facilitate dispersal, whereas gentian seed is flicked out of the fruit capsule by the wind. The lovely, slightly tender, *Tweedia caerulea* (fig. 3) is readily grown from seed and resembles in its way a gentian, notably for its appealing soft-blue flowers. It has a scrambling semi-woody habit and was once used beautifully in a large copper pot at Sissinghurst, combined with a pink argyranthemum.

The up-and-coming genus *Amsonia* can be thought of as well-behaved periwinkles, forming long-lived and compact clumps. (fig. 4) They have a subdued but definite beauty

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Fig. 3 *Tweedia caerulea*

² *The Hardy Plant* Vol. 9, No. 1, 1987 ³Tim Longville in *The Hardy Plant* Vol. 15, No. 1, 1993

in my eyes, and give a second season of interest when they colour bright yellow in autumn⁴. Their heads of small pale-blue flowers in early summer are charming and again rather resemble some gentians, like the spring *G. verna*. In *Amsonia* the seeds differ from the oval or rounded and flattened seed of gentians and asclepiads: they are cylindrical with obliquely cut ends held in a long, double, cigar-like fruit. They can be difficult to extract and are unlikely to be spread far from the parent plant. Many amsonias have willowy leaves and all form tight compact clumps. They are long lived, but slow to grow on and mature from seed, making them poor nursery plants and thus less commonly available. In *A. hubrichtii* the leaves are especially narrow and mature plants are very distinct; its yellow autumn colour can last for a month or more. The rather obscure *Spigelia marilandica* (fig. 5), which I have found difficult to maintain in the garden, is a member of the *Loganiaceae* and is also close to the Gentian and Periwinkle families. It has rather unusual yellow-centred, red flowers on compact bushy plants; it's more than worthwhile finding a spot that suits it.

The gentians themselves are supremely beautiful but not at all easy in the garden, especially in the south. Given a moist acid soil, the autumn flowering species and hybrids are amongst the best of all. Many fine hybrids have been raised and can make a good feature in a trough if the garden soil is not suitable. The trumpet gentian, *G. acaulis*, I find frustratingly shy-flowering, though for others it flowers well! The spring gentian, *G. verna*, is a prince amongst princes, absolutely glorious in flower but rather short lived. It was amongst my first introductions to alpine plants at Joe Elliott's incomparable alpine nursery at Broadwell in the Cotswolds. There are a number of twining 'gentians' in the genera *Crawfordia* and *Tripterospermum*, but they have not been a success in my dry Kent garden.



Fig. 4 *Amsonia tabernaemontana* autumn foliage

The Bible for anyone interested in plant relationships is the recently published *Flowering Plant Families of the World*⁵, a beautiful book that brings together the latest scientific understanding. From this we learn that the well known *Lamiaceae* now includes many members previously from the *Verbena* family, including the Chaste Tree, *Vitex agnus-castus*, and the genus *Clerodendron*; that the *Boraginaceae* is close to the potato and convolvulus families; that scabious and teasels (*Dipsacaceae*) are related to the honeysuckles (*Caprifoliaceae*); that hydrangeas, once regarded as close to saxifrages, are now placed close to the *Cornaceae* and *Loasaceae* (a fairly obscure New World

⁴ Rick Darke in *The Plantsman* Vol. 4, Part 2, 2005 ⁵ Heywood, Brummit, Culham & Seberg, Kew Publishing 2007

family containing many members with stinging hairs!) To show the way that modern molecular studies have profoundly altered the perception of many plant relationships, the much loved peonies, for long regarded as close to, if not within, the *Ranunculus* family, are now thought to be linked to the *Crassulaceae* in the broader grouping of *Saxifragales*. Not an affinity which the morphology of the plants would entertain!

Within the monocots the very broad grouping of *Liliaceae* was subdivided many years ago into more sensible smaller groups of distinct form⁶. The Asphodel family, which includes *Aloe* and *Kniphofia*, surprisingly is linked to *Hemerocallis* in the *Hemerocallidaceae* (which also includes the New Zealand *Phormium* and *Dianella*). The Alstroemerias have been considered closely related to Orchids, a seemingly unlikely conclusion! The very distinctive Bromeliads are close to many other families, including the Grasses (*Poaceae*) and related plants in the *Poales*. Again this indicates that the evolutionary divergence between many plant families has been very significant, and intermediates tend to be few and far between. Cannas, though, are not so surprisingly close to the Gingers (*Zingiberaceae*) and Bananas (*Musaceae*).

For the gardener such considerations may seem arcane, if not sometimes confusing, but they deepen our fascination with the plants we grow which takes hold as a garden matures. The modern methods used to delineate plant families and relationships are more fundamental than morphological and even chemical comparisons, and seem likely to hold more consistently in the future. Having said this, they have in very many cases confirmed the previous taxonomic determinations and so don't change our view of flowering plants too greatly. There may be some resistance to the changing scientific views of plants in the horticultural world, but even the fabled Linnaeus had many contemporary detractors, including Philip Miller, who from his position at the Chelsea Physic Garden held his own theories about the plant world.

Whatever we may feel about the lumpers and splitters, we can surely all agree that flowers of whatever family are undoubtedly beautiful, and fascinating, and quicken the heart! 🌸

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Fig. 5 *Spigelia marilandica*

Tim Ingram is a gardener and nurseryman with a special interest in plants from dry climates, and in the distribution and relationships of plants.

⁶ Brian Mathew in *The Plantsman* Vol. 11, 1989