

Peony Flower Anatomy

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Synopsis of Parts I and II

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The heritable differences of form commonly seen in modern peony cultivars have resulted from mutations noticed over the centuries by interested observers and preserved in cultivation. These variations in peony flowers' anatomy have led to the standard American Peony Society flower classifications—Single, Japanese, Anemone, Bomb, Semi-double and Double. A vocabulary of descriptive terms has arisen for purposes of name registration and cultivar description; for use in the diagnosis of individual cultivar identities; and, in the evaluation and selection of cultivars for both commerce and end users. Terms describing the basic elements of herbaceous peonies' floral anatomy have been described and illustrated in Parts I and II. Please note that the information in this series pertains specifically to herbaceous peonies. While analogous variations of flower anatomy will be seen among woody peony cultivars, some are expressed differently.

PART III

FLOWER-IN-FLOWER FORM: THE APS DOUBLES FLOWER CLASS

Usage of “double” in English language has many faces. My desk dictionary requires half a column to present the choices. For our purposes, however, the distinction to be made is between the peony flower class name, “Double”, and other ways the term is used in general conversation about flowers of any kind—often used to denote any increased quantity of petal-like floral segments.

To earn the classification “Double” the peony flower anatomy is always physically doubled; having a flower-in-flower structure (also called a two-stage double form), not just showing increased quantity of floral parts. This means there is a repeat flower of the same organization and form in its constituent parts, which

arises from the center of the lower flower. The upper flower will often be smaller in introduced cultivars, as may contribute to a relatively seamless transition at the boundary between the two when fully opened. The change from one to the other will most often be obscure upon casual observation.

The flower-in-flower form is expressed in a graded series. The range of expression will vary from a small bud embedded within carpels of the lower flower, leading to a center tuft when the flower has fully opened, to the full blown model. When visible stamens are a prominent feature of the opened peony flower, the standard classification is Semi-double. However, the Semi-double class is more broadly defined than is Double, not limited to specimens having the flower-in-flower form.

What remains to complete our sequence of articles on flower anatomy is to define and illustrate physical characteristics of the flower-in-flower anatomy and variations of its expression. All flower images herewith have flower-in-flower form, either alone or combined, with various combinations of the doubling traits.

Illustrative of the APS historical ideal for a fully doubled peony flower, all floral segments expressed as petals and with flower-in-flower form, the transition between the two parts being near seamless to a practiced eye. This flower classification is Double. Old cultivar name descriptions, when published by APS mostly

PFEIFFER'S RED TRIUMPH [Pfeiffer, 1937]



prior to 1930, used the now discarded classification "Rose Type". This was paired with "Semi-Rose Type", the latter used for the comparable form in which could be found a thin ring of natural stamens obscured from view by the petals.

Flower-in-flower anatomy uncluttered by other significant doubling elements known in peony flowers, except for a measure of multipetally expressed in guard petals of the lower flower.

All photos on this page are of un-named cultivars.



FLOWER-IN-FLOWER FORM COMBINED WITH PROGRESSIVE STAMEN TRANSFORMATION



Center flower remains in bud, some multipetally expressed, stamens expected to remain prominent when fully opened. The standard flower classification is Semi-double.

Center flower beginning to open, a medium degree of multipetally is expressed, stamens somewhat obscured

at this stage of opening and may be completely so in the fully opened flower. Flower class as determined on mature plants in a favorable state of growth expected to be Double, although staging for exhibition will depend on the character of the individual flower specimen, whether best shown as Semi-double or Double.





MAESTRO [Auten, 1955]

Center flower is opening; a relatively large degree of multipetally is expressed in the lower flower, not so in the center flower.

While the stamen ring is not large, due to the relatively small center flower, we expect the stamens will almost always be evident in the opened flower. Standard classification is Semi-double.

FLOWER-IN-FLOWER FORM COMBINED WITH ALL-OVER STAMEN TRANSFORMATION

Center flower is partly open, its larger outer petals are evident mostly because of the stage of expansion when pictured. Inner petals of the lower flower are relatively large, multipetally minimal to moderate. The subject flower was produced on a third spring plant; considerably more petals expected when plant is mature. Standard flower classification is Double.



JUNE ROSE [Jones, 1938]



FRANCES MAINS [Mains, 1955]

Among Lactiflora Group cultivars, FRANCES MAINS is notably capable of making an uncommonly large, exhibition quality flower, packed with petals. Pictured here at a half opened state, note the guard petals of the inner flower are yet to unfurl.

The smooth area seen at center is the outer boundary of the inner flower. This flower was produced on fourth spring growth—the plant having grown three seasons from division. Multipetally approaches maximum, the inner petals' size and distribution typically leading to a smooth transition over the top of the finished flower. Standard flower classification is Double.

This flower pictured fully open—the unusual profile illustrates a form sometimes manifested in cultivars having both types of stamen transformation, plus two-stage doubling. We recognize the MY LOVE flower form is governed by all-over stamen transformation because a band of staminodes, but never natural stamens, is sometimes seen. We see also the form is governed by progressive transformation, because the size of the center petals segments often grade smaller, inward. Side bud flowers on established plants and the terminals produced on young plants will sometimes be seen to form pale yellow staminodes inward, the contrast noticeable where they form a visible contrast. Multipetally approaches maximum. Standard flower classification is Double. APS



MY LOVE [Hollingsworth, 1992]