

Cultivar classification of *Philadelphus* L. (Hydrangeaceae)

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SUMMARY

The cultivars of the genus *Philadelphus* are up till now usually classified in five interspecific hybrids, as proposed by A. Rehder some 70 years ago. This system is not satisfactory any more. Instead a new, more stable classification of four cultivar groups is proposed here. This new classification shows influences of Rehder's system, but differs quite a lot in its principles. The new classification is based on practical application (culton concept), while the old classification is based on genetic relationships (taxon concept). The definitions of the cultivar groups are simple and clear, cultivars can be classified better and this system is easy to work with, even for non-specialists. The proposed cultivar groups are: Lemoinei group, Purpureo-maculatus Group, Virginalis Group and Burfordensis Group.

Key-words: cultivar group, *Philadelphus*.

INTRODUCTION

Philadelphus L. (Mock Orange; Hydrangeaceae) is a popular ornamental shrub, especially in temperate regions. It is much appreciated for its showy, fragrant, white flowers, which appear in early summer. Nowadays about 70 species are recognized. Many of these are cultivated or have been cultivated in (botanical) gardens. A number of species has been used for breeding and/or selection, e.g. *P. coronarius* L., *P. inodorus* L., *P. microphyllus* A. Gray, *P. insignis* Carrière, *P. lewisii* Pursh, *P. pubescens* Loiseleur and *P. mexicanus* Schlechtendal (syn. *P. coulteri* Hort. non Watson). Furthermore, interspecific hybridization is a common phenomenon, which has resulted in the distinction of more than 10 interspecific hybrids and more than 100 cultivars, which often possess a genome derived from two or more species. Rehder (1920, 1927) classified most of the cultivars then known in five interspecific hybrids. These are: *P. × purpureo-maculatus* (Lemoine) Rehder, *P. × lemoinei* (Lemoine) Rehder, *P. × cymosus* Rehder, *P. × polyanthus* Rehder and *P. × virginalis* Rehder. The use of these taxa for classifying cultivars is not satisfactory (any more), because the genomes of many of the present cultivars do not clearly belong to one of these interspecific hybrids. This has resulted in much instability in the application of such names.

The Research Station for Nursery Stock in Boskoop performed an assortment research and practical validation of *Philadelphus* during 1983–94 at the request of and in cooperation with the Royal Boskoop Horticultural Society. One of the problems that was worked out is the classification of cultivars.

The use of hybrid binomials for grouping cultivars is often doubtful, because the genomes of many cultivars show influences of other species than the parent species. The

divergence of individuals from the main body of a species or interspecific hybrid is a phenomenon which is often stimulated by Man through selection. For a number of genera this phenomenon is so widespread that the traditional systematics, working with the taxon concept, has become unsatisfactory for classifying cultivated plants. Hettterscheid & Brandenburg (1995) have argued that cultivated plants and their special purpose taxonomy are part of a context (human society) different from the context of taxonomy of plants in nature (evolution). Therefore they propose to separate the systematics of cultivated plants from the taxon concept (which is used for the systematics of plants found in nature). They propose new directives for the systematics of cultivated plants. As a general concept of systematic groups of cultivated plants they propose the term 'culton'. The most important categories of culta are the cultivar and the cultivar-group. The most important character of the systematics of cultivated plants is the fact that the classification (of cultivars) may be based on all sorts of user criteria, which means that hierarchical ranking is not obligatory.

The practical advantage of the culton concept for the classification of *Philadelphus* cultivars will be shown.

MATERIALS AND METHODS

A total of 180 accessions was collected by the Research Station in Boskoop, planted in the trial field and observed during 10 years, beginning in 1984. The accessions came from national and international botanical gardens and growers. All accessions were identified, described, photographed and vouchers were taken.

For the grouping of cultivars, the most suitable types of characters were selected by study of literature, field observations and discussions with growers. Standard cultivars and standard specimens were designated if necessary and the latter were deposited in WAG.

The cultivar groups were distinguished by:

- plant height (not a decisive character);
- leaf size: shorter or longer than 5 cm;
- flower type: single or (semi-)double;
- colour of the petals: with or without a purple-red spot at the base.

RESULTS

Historical survey of the cultivar-classification of Philadelphus

The history of the cultivar-classification of *Philadelphus* began with the French grower and plant breeder Victor Lemoine of Nancy, France (1823–1912). From 1888 until 1930 he and his successors obtained about 50 new *Philadelphus*-cultivars, which were all published in their nursery catalogues (Lemoine et fils, 1888–1933 *Catalogues*, Nancy). His first and most important selection was *P.* 'Lemoinei', which is the ancestor of (probably) all his other cultivars.

Rehder (1920, 1927) classified all the 29 then known cultivars of hybrid origin, which were almost all cultivars of Lemoine, in five interspecific hybrids: *P.* × *lemoinei*, *P.* × *purpureo-maculatus*, *P.* × *polyanthus*, *P.* × *cymosus* and *P.* × *virginialis*. These five interspecific hybrids were provided with a detailed description. To the last three taxa a 'cultivar-type' was assigned. To the first two taxa Rehder did not explicitly assign a

'cultivar-type', but the descriptions of the taxa were obviously based on the original clones of Lemoine. Rehder did not indicate type specimens. The five interspecific hybrids were mainly distinguished by: plant height, colour and amount of exfoliation of the bark, size and indumentum of the leaves, type and number of flowers per inflorescence, flower type, diameter and colour of the corolla, indumentum of the calyx and division of the style.

Grootendorst (1949) proposed a classification which shows influences of Rehder's classification, but it differs considerably in the principles. Rehder's system is based on (genetic) relationships of plants. Grootendorst's classification has a practical basis. It is intended to be a handy system for nurserymen to group the many *Philadelphus* cultivars in nurseries. He distinguished four (unnamed) groups (groups 1–4), which differ from each other in height, size of the leaves, flower type and colour of the petals. His definitions are very simple, e.g. group 1: low shrubs with small leaves. The groups are without exact measurements such as leaf size or plant height, and have no name.

Hu (1954–56), in her monograph of *Philadelphus*, largely followed Rehder's system (she did not know Grootendorst's system). She used the five interspecific hybrids of Rehder to classify over 50 treated cultivars. She classified some cultivars in a different group than did Rehder and a few cultivars are not classified at all and form single cultivars.

Nowadays the Rehder's classification system or the Hu's derived form or a combination of both is followed by a number of authors, e.g. Wyman (1965), Krüssmann (1977), Boom (1982) and Huxley (1992). Others, for example Bean (1976) and Hillier (1994), use the same classification, but they apply the epithets as a cultivar group name; e.g. *P. × lemoinei* becomes *P. Lemoinei* Group.

Binomials applied to cultivars

(a) *Philadelphus × lemoinei* (*Lemoine*) Rehder. The first selection of Lemoine was the result of a cross between *P. coronarius* and *P. microphyllus*. It was named *P. lemoinei* and introduced in 1888 (Lemoine catalogue 109: 24). This selection was crossed with several species and at the same time other crosses were made with the obtained selections. All the resulting cultivars were indicated by Lemoine with the binomial *P. × lemoinei* (e.g. *P. × lemoinei* 'Rosace'; Lemoine cat. 158, 1904). In this way Lemoine used the epithet *× lemoinei* in both a broad and a strict sense.

Rehder (1927) also used the epithet *× lemoinei* in these two senses, but he restricted *P. × lemoinei* in the broad sense to the pure hybrids of *P. coronarius* and *P. microphyllus*. His detailed description is based on the original clone of Lemoine and is as follows: '(*P. microphyllus × coronarius*) Lvs. ovate to ovate-lanceolate, 1.5–4 cm long, on shoots ovate, to 6 cm, acuminate, entire or with 1–4 small teeth on each side, glabrous above, sparingly strigose chiefly on the veins beneath; fls. 2.5–4 cm across, very fragrant, in 3–7-fl. racemes; calyx (note: Rehder means the hypanthium) glabrous; lower pedicels 2–5 mm long; style shorter than stamens, connate to the apex or divided ½'. A great number of cultivars that Lemoine indicated as *P. × lemoinei* were classified by Rehder (1920, 1927) under *P. × polyanthus*, *P. × cymosus*, *P. × virginialis* (all new names) and *P. × purpureo-maculatus*.

Later authors, for example Bean (1976), Huxley (1992) and Hillier (1994), treat the original clone of *P. × lemoinei* as a cultivar (*P.* 'Lemoinei') and use the binomial *P. × lemoinei* (or Lemoinei Group) only for grouping cultivars.

In principle *P. × lemoinei* (Lemoine) Rehder is well-distinguishable, especially characterized by the small leaves. The problem is that the definition as given by Rehder (see above) is very detailed and quite restrictive. Therefore a few cultivars with typical small leaves must be classified in another group because other characters do not correspond with the definition. For example, the cultivar *P.* 'Mont Blanc' (which was placed in *P. × lemoinei* by Rehder) must be placed in another group because of the hairy hypanthium (Hu 1956; who placed *P.* 'Mont Blanc' in *P. × polyanthus*). Another example is the typical small-leaved *P.* 'Silberregen', which does not agree with Rehder's description, because of its solitary flowers.

Interspecific hybrids conceptualized as taxa (with hybrid names according to the ICBN) cannot be used properly as stable grouping devices for cultivars because their circumscription allows for successive emendation and/or interpretation. In the case of *Philadelphus* this has led to instability, because new cultivars could be accommodated in more than one of the available hybrid taxa. Also older cultivars could as easily shift from one hybrid species to another, leading to highly incomparable classifications. Under the culton concept, cultivar groups can be proposed with a strict and immutable character definition and following as much as possible current classifications. Once these groups are established, cultivars can no longer be shifted from one to another, thus stabilizing the classification and the nomenclature at the same time.

I propose to give a broader definition of this typical small-leaved group, to maintain the epithet, but to apply it to a cultivar group (see below under *P.* Lemoinei Group). An important argument for this choice is the fact that a number of the small-leaved cultivars show influences of other genomes than *P. coronarius* and *P. microphyllus*. With this broader definition, the cultivar-group corresponds well with group 1 of Grootendorst (1949): 'Low shrubs with small leaves'.

(b) *Philadelphus × purpureo-maculatus* (Lemoine) Rehder. In 1902 Lemoine introduced a purple-red spotted *Philadelphus* under the name *P. × purpureo-maculatus*. It was a seedling of *P.* 'Fantaisie', which was a cross between *P.* 'Lemoinei' and (probably) *P. mexicanus* 'Rose Syringa' (syn. *P. coulteri* Hort. non Watson). Afterwards he obtained several other purple-red spotted *Philadelphus*-cultivars. Rehder (1920, 1927) classifies all purple-red spotted cultivars into *P. × purpureo-maculatus* of which the description was based on the original clone of Lemoine. Rehder (1927) gives the following description: '(*P. lemoinei* × *P. coulteri*) Young branches pubescent; lvs ovate, 8–20 mm long, acute, entire or with 1–2 teeth (or more in some varieties), strigose-pubescent on both sides; petioles 2 mm long; fls 1–3, about 3 cm across, white, with a purple spot at the base of each petal; calyx sparingly pubescent; style connate, glabrous, shorter than the stamens; stigmas capitate, free'.

Later authors, for example Bean (1976), Huxley (1992) and Hillier (1994), include the original clone of *P. × purpureo-maculatus* as a cultivar (*P.* 'Purpureo-maculatus') and use the name *P. × purpureo-maculatus* (or Purpureo-maculatus group) only as a group name.

P. × purpureo-maculatus can be distinguished very well because of the purple-red spotted petals. The description as given by Rehder is, however, very detailed. Some purple-red spotted cultivars have a diameter of the flowers that is much more than 3 cm, for example *P.* 'Belle Etoile' and *P.* 'Beauclerk'. Also, the latter has 1–5(–7)-flowered inflorescences and leaves with a length of 4–7 cm (Hoffman 1994).

The genome of a few cultivars shows influences of others than *P.* 'Lemoinei' and *P. mexicanus* 'Rose Syringa'. Therefore it is better to use the culton concept, as argued under (a).

I propose to give a broader definition of this typical purple-red spotted group, to maintain the epithet, but to apply to as a cultivar group (see below under *P.* *Purpureo-maculatus* Group). With this broader definition, the cultivar group corresponds well with group 4 of Grootendorst (1949): 'Flowers with dark spotted petals'.

(c) *Philadelphus* × *virginialis* *Rehder*. This binominal was established by Rehder (1920). It is a hybrid between *P.* × *nivalis* f. *plenus* (Späth) Rehder and *P.* 'Lemoinei' or one of its allies. *P.* 'Virginal' was designated as the 'cultivar-type'. The description of *P.* × *virginialis* is as follows: 'Upright tall shrub; bark of the last year's branches brown, exfoliating; young branchlets glabrous; leaves ovate, acuminate, rounded or broadly cuneate at the base, 3.5–6 cm, on the shoots to 8 cm long, dentate or denticulate, nearly glabrous above, villous-pubescent beneath; petioles 0.5–1 cm long, pubescent; flowers about 5 cm across, double or semidouble, in 5–7-flowered racemes; pedicels 0.5–1 cm long, pubescent, with or without bractlets; the lower ones occasionally longer and 3-flowered; calyx pubescent, the lobes ovate, somewhat longer than the tube; style much shorter than the stamens, divided in the middle or nearly to the base, 6–8 mm long, with small stigmas.'

Later authors, for example Bean (1976) use the binomial for a cultivar-group: *P.* *Virginalis* Group. Hillier (1994) also treats it as a cultivar group, but he changed the epithet: *P.* *Virginal* Group.

Like the two previous taxa, *P.* × *virginialis* has some characters which are very useful for the classification of cultivars. The most suitable characters are the relatively large leaves and the double or semi-double flowers. When using all characters of Rehder's description (see above), only a few cultivars agree with this taxon. For example, cultivars which normally are classified in *P.* × *virginialis* (see Hu 1956; Huxley 1994) but do not correspond with Rehder's definition are: *P.* 'Enchantment' (flowers c. 2.5 cm across), *P.* 'Glacier' (flowers c. 2.5 cm across and hypanthium scarcely pilous), *P.* 'Minnesota Snowflake' (leaves 7–12 cm) and *P.* 'Albâtre' (hypanthium glabrous).

In connection with this taxon, many problems are caused by single-flowered descendants of the (pure) representatives. In Poland, for example, a number of seedlings of *P.* 'Virginal' have been introduced (Bugala 1970). A few of them have single flowers, e.g. *P.* 'Limestone' (syn. *P.* 'Alabaster'), *P.* 'Kasia' and *P.* 'Apollo'. Another example is *P.* 'Burfordensis', which is thought to be a single-flowered sport of *P.* 'Virginal'. With genetic relationships as a basis for classification, these cultivars must all be classified in *P.* × *virginialis*; however, according to Rehder's definition of this taxon, these cultivars must be excluded.

My proposal is to use the advantage of the cultivar group classification approach. The well distinguishable cultivars with (semi)-double flowers and moderate to large leaves can be maintained, giving this group a broader definition. The well-known epithet can be retained as part of the cultivar group name; *P.* *Virginalis* Group (see below). With this broader definition, the cultivar-group shows much correspondence with group 3 of Grootendorst (1949): 'Shrubs with big leaves and double flowers'. Related to this is a proposal to make a new cultivar-group. *P.* *Burfordensis* Group, which includes the cultivars with single flowers and moderate to large leaves. This group is named after one of its main representatives, *P.* 'Burfordensis'. Within this group also the main part of the

following two taxa (*P. × polyanthus* and *P. × cymosus*) can be included (see below). This new cultivar-group shows much correspondence with group 2 of Grootendorst (1949): 'Shrubs with big leaves and single flowers'.

(d) *Philadelphus × polyanthus* Rehder. This binomial was also established by Rehder (1920). It is a hybrid between *P. 'Lemoinei'* or its allies and (probably) *P. insignis*. Rehder used this hybrid species to classify a number of cultivars. He indicated *P. 'Gerbe de Neige'* as the cultivar-type. The following description was given: 'Upright shrub; bark of the previous year's branches chestnut-brown, tardily exfoliating; young branchlets sparingly pubescent; leaves ovate, acuminate, rounded at base, 2–4, on shoots to 5 cm long, remotely denticulate or entire, glabrous above, rather densely strigose-pubescent beneath, 3-nerved at the base; petioles about 5 mm long, pubescent; flowers 3·5–4 cm across in 7–9-flowered cymes or short panicles; calyx densely appressed-pubescent; calyx-lobes ovate, acuminate; petals oval; style shorter than stamens, divided only at apex, with rather small connivent stigmas'.

Rehder (1920) classified only two cultivars in this group, *P. 'Gerbe de Neige'* and *P. 'Pavillon Blanc'*. Hu (1956) classified seven cultivars in this group, all of which except the two mentioned above deviate much from Rehder's description, especially in leaf size, indumentum and number of flowers per inflorescence. For example the leaf size of *P. 'Atlas'* and *P. 'Van Houttei'* is, respectively, 6–9 cm and 5–7 cm. *P. 'Norma'* has 3–5 flowers per inflorescence. Although this is permitted in the taxon concept, it is not preferable in the case of *Philadelphus*, because it generates much instability. Especially with *P. × cymosus* there is no clear-cut distinction (see also Bean, 1976: 141).

Knowing this and because the two cultivars that do correspond with Rehder's description are nowadays of no importance in the nursery stock, I think there is no reason to retain *P. × polyanthus*. The small-leaved cultivars can be classified in *P. Lemoinei* Group and the others in *P. Burfordensis* Group, which is roughly a combination of *P. × polyanthus*, *P. × cymosus* and the single-flowered cultivars of *P. × virginalis* (see above, under *P. × virginalis*).

(e) *Philadelphus × cymosus* Rehder. *P. × cymosus* was also established by Rehder (1920) and used to classify a number of cultivars. It is a hybrid between *P. 'Lemoinei'* or its allies and (probably) *P. inodorus* var. *grandiflorus*. He indicated *P. 'Conquête'* as the 'cultivar-type'. The following description was given: 'Upright rather tall shrub; bark of two year old branchlets chestnut-brown, exfoliating; young branchlets glabrous; leaves elliptic-oblong to elliptic-lanceolate, acuminate, cuneate at the base, 5–8 cm long and 1·5 to 3 cm broad, on shoots to 10 cm long and to 3·5 cm broad, dentate with 4–8 teeth on each side, or denticulate, rarely entire, glabrous above, hairy beneath near the base and along the veins; petioles 4–8 mm long, pubescent above or nearly glabrous; flowers large, 5–6 cm across, in 3–9-flowered cymes or occasionally solitary, or in 5-flowered racemes with bracted slender pedicels to 1·5 cm long, glabrous; calyx glabrous, its lobes about twice as long as the tube, ovate-lanceolate to oblong-lanceolate, long acuminate; petals obovate; styles divided to the base, 1–1·3 cm long, somewhat shorter or nearly as long as the stamens, with small stigmas.'

As in the other interspecific hybrids above, this description is also very detailed. Many cultivars which are classified in this group do not correspond very well with Rehder's description, especially in diameter of the flowers: e.g. *P. 'Amalthée'* (flowers 3 cm across) and *P. 'Bouquet Blanc'* (flowers c. 4 cm in diameter). Also, the difference between *P. × polyanthus* and *P. × virginalis* is not clear. That is why I have decided to



Fig. 1. *Philadelphus* 'Belle Etiole'; an example of the Purpureo-maculatus Group (characterized by the purple-red spots at the base of each petal).

abolish *P. × cymosus*. The cultivars classified formerly in *P. × cymosus* can now be classified in the new *P. Burfordensis* Group (see above, under *P. × virginalis* and *P. × polyanthus* and below under *P. Burfordensis* Group).

The cultivar-groups

The following four cultivar groups are proposed and officially established following the rules of the ICNCP (1995):

**P. Purpureo-maculatus* Group (Fig. 1)

Name first published in: Bean, W.J. (1976) *Trees and Shrubs Hardy in the British Isles*, vol 4, p. 145.

Basionym: *P. × purpureo-maculatus* (Lemoine) Rehder.

Description: Plants 0.3–2 m high. Leaves on the non-flowering shoots 2–8 cm long. Flowers single, with a purple-red spot at the base of each petal. Standard cultivar: *Philadelphus* 'Purpureo-maculatus' (standard specimen: Leonard A. Springer 12610, conserved at WAG). Cultivars: 'Beauclerk', 'Belle Etoile', 'Bicolore', 'Burkwoodii', 'Galathée', 'Nuage Rose', 'Oeil de Pourpre', 'Purpureo-maculatus' and 'Sybille'.

**P. Lemoinei* Group (Fig. 2)

Name first published in: Bean, W.J. (1976) *Trees and Shrubs Hardy in the British Isles*, vol 4, p. 141.

Basionym: *P. × lemoinei* (Lemoine) Rehder.

Description: plants 0.2–2 m high. Leaves on the flowering shoots always and on the non-flowering shoots usually less than 5 cm long. Flowers single or (semi-)double, completely (creamy-)white. Standard cultivar: *Philadelphus* 'Lemoinei' (standard specimen: Gert Fortgens GF 200, conserved at WAG). Cultivars: 'Avalanche', 'Dame Blanche', 'Erectus', 'Fimbriatus', 'Frosty Morn', 'Lemoinei', 'Manteau d'Hermine', 'Mont Blanc', 'Pavillon Blanc', 'Silberregen', 'Snowdwarf', 'Snowgoose' and 'Velléda'.



Fig. 2. *Philadelphus* 'Lemoinei'; standard cultivar of the Lemoinei Group (characterized by the small leaves).



Fig. 3. *Philadelphus* 'Virginal'; standard cultivar of the Virginalis Group (characterized by the large leaves and double flowers).

****P* Virginalis Group (Fig. 3)**

Name first published in: Bean, W.J. (1976) and *Trees and Shrubs Hardy in the British Isles*, vol 4, p. 146.

Basionym: *P. × virginalis* Rehder.

Description: plants 1–4 m high. Leaves on the non-flowering shoots predominantly



Fig. 4. *Philadelphus* 'Burfordensis'; standard cultivar of the Burfordensis Group (characterized by the large leaves and single flowers).

longer than 5 cm. Flowers predominantly double or semi-double, completely (creamy-) white. Standard cultivar: *Philadelphus* 'Virginal' (standard specimen: Gert Fortgens GF 287, conserved at WAG). Cultivars: 'Albâtre', 'Arctica', 'Audrey', 'Bannière', 'Boule d'Argent', 'Bouquet Blanc', 'Buckley's Quill', 'Enchantment', 'Girandole', 'Glacier', 'Komsomoletz', 'Minnesota Snowflake', 'Pekphil', 'Pyramidal', 'Rusalka', 'Schneesturm', 'Snowbelle', 'Virginal', 'Yellow Hill' and 'Zhemczug'.

**P. Burfordensis* Group, new cultivar group (Fig. 4)

Description: plants 1–4 m high. Leaves on the non-flowering shoots predominantly longer than 5 cm. Flowers predominantly single, completely (creamy-)white. Standard cultivar: *Philadelphus* 'Burfordensis' (standard specimen: Gert Fortgens GF 283, conserved at WAG). Cultivars: 'Academic Komarov', 'Apollo', 'Atlas', 'Bialy Sopol', 'Burfordensis', 'Conquête', 'Falconeri', 'Favorite', 'Hidden Blush', 'Innocence', 'Kalina', 'Karolinka', 'Kasia', 'Limestone', 'Marjorie', 'Norma', 'Rosace', 'Slavinii', 'Switzeianka', and 'Voie Lactée'.

DISCUSSION

Philadelphus is a prominent example showing that classification based on the taxon concept is unsuitable for the cultigenic diversity in at least a number of strongly domesticated genera. For the classification of *Philadelphus* cultivars I have chosen the culton approach, as outlined by Hettterscheid & Bradenburg (1995). By using the cultivar-group and its nomenclature as outlined in the entirely new ICNCP (Trehane *et al.* 1995) a number of problems of the Rehder's classification (1920, 1927) have been solved.

The first problem of Rehder's classification is that only a few cultivars fit the definitions of the interspecific hybrids. The result is that the assignment of many

cultivars to one of the interspecific hybrids is uncertain. By using the cultivar-group classification, in which the group definitions are clearer and more practical, the destabilizing effect of an uncertain assignment of cultivars to an interspecific hybrid is circumvented.

Another disadvantage is that Rehder's classification is based on genetic relationships. This means that the descendants of two related cultivars (same interspecific hybrid) or a self-pollinated cultivar must be assigned automatically to the same interspecific hybrid. In some cases this causes a contradiction, e.g. the single-flowered descendants of *P.* 'Virginal' should be placed in *P.* × *virginalis* Rehder. However, according to Rehder's definition *P.* × *virginalis* has double flowers. By using the cultivar group classification, which has a practical basis, the well-distinguishable cultivars with double flowers (and large leaves) can be maintained as a group, without being in conflict with the principles of the used classification system.

The third point at which Rehder's classification causes problems is the fact that because of the detailed descriptions of Rehder's hybrids, many growers and authors are discouraged from classifying new cultivars. The new cultivar group classification uses only a few simple characters to define the cultivar groups, which makes cultivar assignments easier, even for those not versed in taxonomy.

It is noticeable that in the case of *Philadelphus* the classification based on the culton concept has had some precursors in past decades. The classification that fully agrees with the philosophy of the culton concept is that of Grootendorst (1949). However, there were two weak points in his publication: he did not give epithets to indicate his groups and he did not give exact measurements to describe the groups. Hu's classification (1956) left some cultivars unassigned, a second example of cultonomy.

Another precursor is the use of Rehder's interspecific hybrid epithets as cultivar groups. This is done by a number of authors, for example Bean (1976) and Hillier (1994). A weak point of these publications is that the change of status of the epithets is not explained. Besides, the cultivar groups are not defined at all, so one may assume that they have the same definitions as Rehder's interspecific hybrids.

In conclusion I feel that the presented cultonomic classification of *Philadelphus* cultivars much better serves stability than the classification system of Rehder or the derived forms, which are based on the taxon concept.

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