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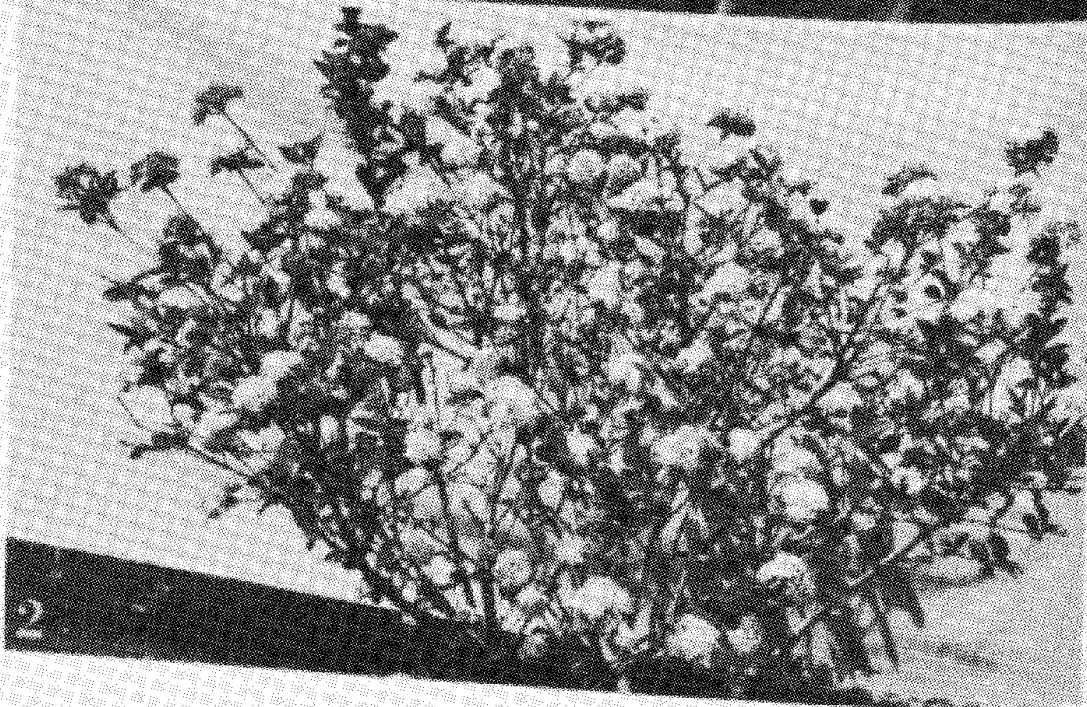
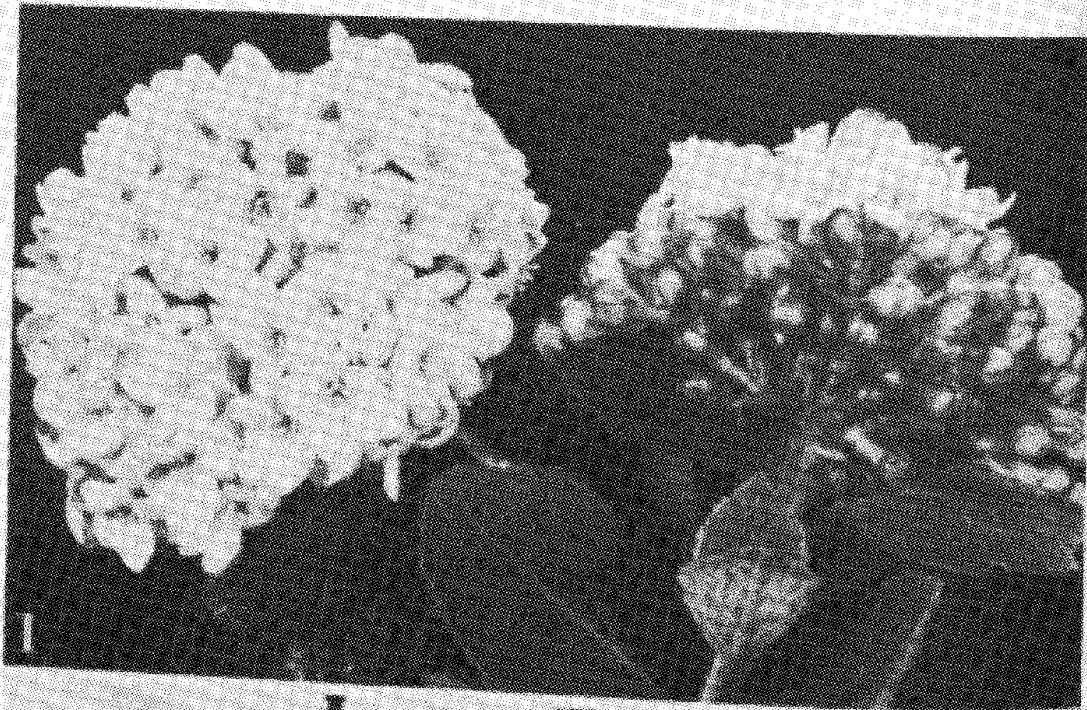
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6. *Viburnum* 'Cayuga'. (top) Close-up, showing flower formation and the opening of buds from one side of inflorescence; (bottom) Growth habit.

Two New Cultivars of *Viburnum* 'Cayuga' and 'Mohawk' [Caprifoliaceae]

Donald R. Egolf*

Viburnum 'Cayuga' and 'Mohawk' are two select cultivars of the *Viburnum Carlesii* type that have resulted from work initiated at Cornell University and continued at the U. S. National Arboretum. The backcross pollinations, *V. Carlesii* Hemsley \times *V. xcarlcephalum* Burkwood ex Pike (*V. Carlesii* \times *V. macrocephalum* Fortune) and *V. xBurkwoodii* Burkwood & Skipwith (*V. Carlesii* \times *V. utile* Hemsley) \times *V. Carlesii*, respectively, were made in 1953. The seed produced from these crosses was embryo-cultured to expedite seedling production. The seedlings were grown at Cornell University until 1958, when they were transplanted to the U. S. National Arboretum. The first heavy flowering observed by the author was in 1958 for 'Cayuga' and in 1959 for 'Mohawk'; however, the first flower season was not recorded, while the author was abroad. The plants have consistently flowered each season since, and in 1960 were selected for further propagation and evaluation.

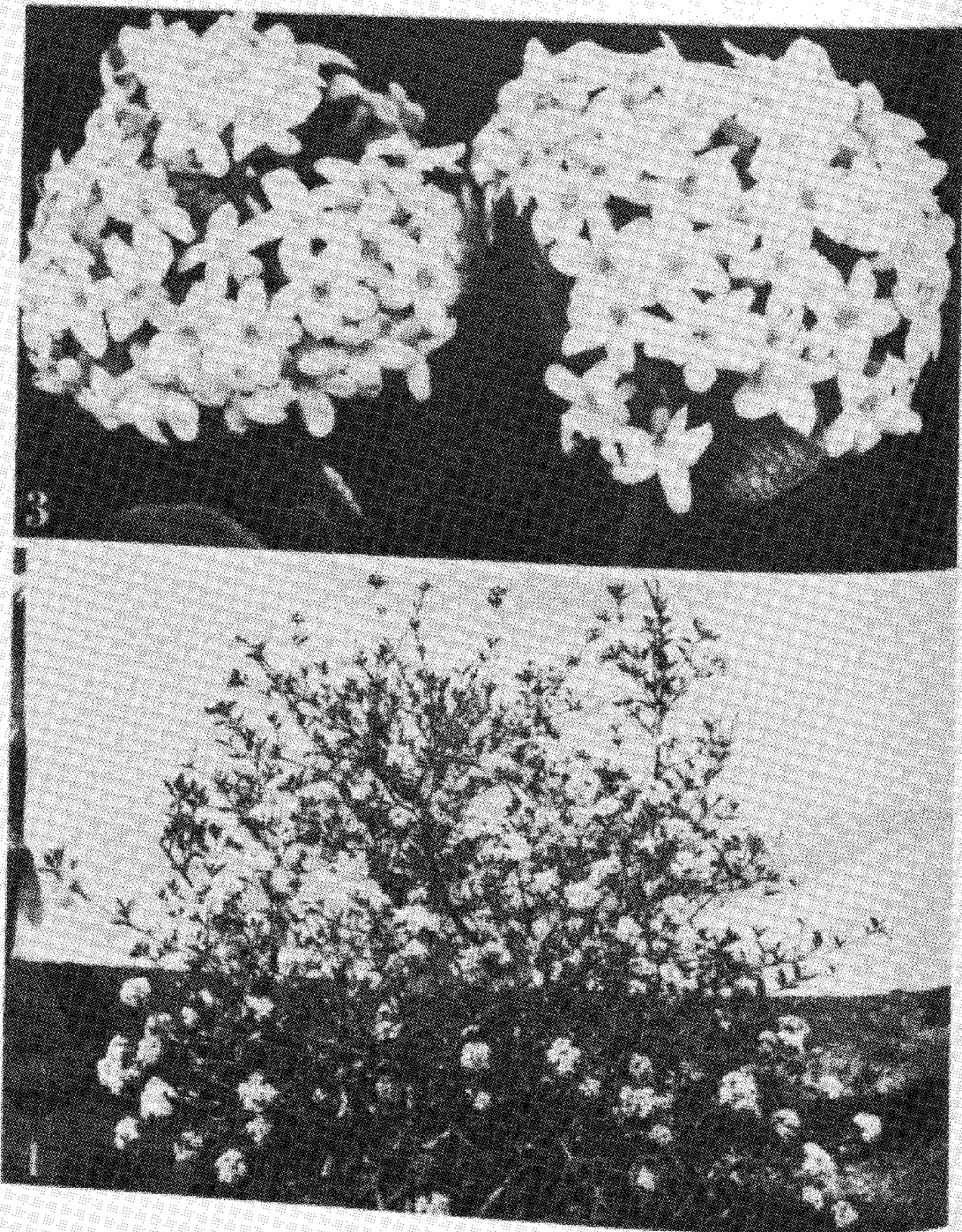
Small plants of 'Cayuga' and 'Mohawk' propagated by cuttings or grafting will frequently flower the first season, but a good flower display is not achieved before the third year. The plants have been hardy as far north as Ithaca, New York, and can be expected to grow in Zone 5b.** In colder regions the plant may thrive, but the naked flower buds may be frost-damaged. These cultivars have proved superior ornamentals in all test areas.

The chromosome counts for the parental stocks have previously been reported as: *V. xBurkwoodii* No. 11E, $2n=18$; *V. xcarlcephalum* No. 433E, $2n=18$; and *V. Carlesii* No. 112E, $2n=18$ (Egolf, 1962). The two hybrids, *V. 'Cayuga'* No. 5008E and *V. 'Mohawk'* 5011E, have chromosome complements of $2n=18$. Both *V. 'Cayuga'* and *V. 'Mohawk'* have produced seed, indicating that no irregularities occur in the meiotic divisions.

The Crops Research Division of the Agricultural Research Service, U. S. Department of Agriculture, releases *Viburnum* 'Cayuga' and 'Mohawk', but has none of these plants for sale. A limited number of plants will be available to arboreta, botanic gardens, and qualified nurserymen, for propagation purposes in the spring of 1966.

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**Plant Hardiness Zone Map, U. S. Dept. of Agr. Misc. Publ. 814, 1960.



7. *Viburnum* 'Mohawk': (top) Close-up of inflorescence of waxy, fragrant flowers; (bottom) Growth habit.

Viburnum 'Cayuga'

Viburnum 'Cayuga' resulted from a cross of V. Carlesii X V. Xcarlcephalum. The hybrid is distinct in producing abundant inflorescences of pink buds that open to white flowers in late April; compact growth habit; and medium-textured foliage, with tolerance to bacterial leaf spot and powdery mildew. The first flowers were noted in 1958, and selection was made in 1960 for further propagation and evaluation. Although the inflorescences are smaller than those of V. Xcarlcephalum, their greater numbers present a mass effect and a more ornamental plant. The flowers open from one side of the inflorescence in such a way that nearly all inflorescences have pink buds accenting the white waxy flowers. The flowers have a fragrance that may be slightly repugnant at very close proximity, but it is not evident in a landscape planting. The plant has flowered heavily each season. The leaves, which are less susceptible to bacterial leaf spot and powdery mildew than those of V. Carlesii, are smaller and have better color than those of V. Xcarlcephalum, which tend to become coarse in texture. In the autumn the foliage turns a dull orange-red prior to defoliation.

'Cayuga' is a deciduous shrub, to 1.5 m., with spreading branches; branches gray-brown, at first stellate, later glabrescent; winter buds naked; leaves ovate to elliptic, 5-12 cm. long, 5-7 cm. wide, acute, obtuse, irregularly toothed, dull Parsley Green 00962* and sparsely stellate above, densely stellate and Lavender Green 000761/1 beneath with 5-7 pairs of veins, petiole 5-15 mm. long, stellate; flowers all similar, appearing with young leaves in late April, slightly fragrant, densely cymose, the cymes compound, umbellate, terminal, 6-8 cm. across, short-stalked, stellate, with 20-35 florets, calyx puberulous, about 1 mm. long, obtuse, corolla salverform, 15-18 mm. across, with a cylindrical tube 5-6 mm. long, lobes 6-8 mm. long, 6-8 mm. wide, buds Rose Opal 022 to 022/1 with a base greenish-white, open flower white with reverse blotched faint Rose Opal 022/1, stamens included, inserted above the middle, filaments shorter than anthers, style 0.5-1 mm. long, stigma capitate, ovary 1-celled, 1-ovuled; drupe ovoid, 8-10 mm. long, 4-6 mm. wide, black, crowned by persistent calyx, stone ovoid, compressed, 5-6 mm. long, 3-4 mm. wide, with three ventral grooves and two dorsal grooves.

Viburnum 'Mohawk'

Viburnum 'Mohawk' resulted from a cross of V. XBurkwoodii X V. Carlesii. 'Mohawk' may be distinguished from related cultivars by its dark red buds which open to white flowers with red-blotched reverse, abundant inflorescences, strong spicy clove fragrance, compact growth habit, and foliage resistant to bacterial leaf spot

*All color designations are those of the Royal Horticultural Society's Horticultural Colour Chart, 1942.

and powdery mildew. The hybrid has consistently produced abundant flowers each season since 1959 when it first flowered. The brilliant red bud coloration appears several weeks before the flowers begin to open, and extends the effective ornamental period of the plant to several weeks rather than a few days as with other *V. Carlesii* types. The red of the flower buds, which contrasts well with the white of the opened flowers, is retained on the reverse of the flower. The strong spicy clove fragrance is very pleasant and a noteworthy attribute of 'Mohawk'. The glossy, dark green leaves, which turn a brilliant orange-red prior to defoliation, are highly resistant to bacterial leaf spot and powdery mildew.

'Mohawk' is a deciduous shrub to 2 m., with spreading branches; branches grayish-brown, at first stellate, later glabrescent; leaves thinly coriaceous, ovate to elliptic, 6-12 cm. long, 3-8 cm. wide, acute, cuneate to cordate at base, serrulate, smooth and shiny, Ivy Green 001060/2 and sparsely stellate above, densely stellate-tomentose and Willow Green 000862 beneath, with 5-7 pairs of veins, petiole 5-15 mm. long, stellate; flowers all similar, appearing with young leaves in late April, with a spicy clove fragrance, densely cymose, the cymes compound, umbellate, terminal, 6-8 cm. across, short-stalked, stellate, of 15-40 florets, calyx puberulous, 1-1.5 mm. long, obtuse, corolla salverform, 12-15 mm. across, with a cylindrical tube 6-10 mm. long, lobes 6-8 mm. long, 4 mm. wide, buds Currant Red 821/2 to 821/3, base white with faint red trace, open flower white with white reverse heavily blotched with Currant Red 821/3, stamens included, inserted above the middle, filaments shorter than anthers, style about 1 mm. long, stigma capitate, ovary 1-celled, 1-ovuled; drupe ovoid, 10-12 mm. long, 6-8 mm. wide, black, crowned by persistent calyx, stone ovoid, 7 mm. long, and 5 mm. wide, with three ventral grooves and two dorsal grooves.

Herbarium specimens and photographs of *V.* 'Cayuga' and *V.* 'Mohawk' have been deposited in the U. S. National Arboretum Herbarium. The cultivar names 'Cayuga' and 'Mohawk' have been registered according to the International Code of Nomenclature for Cultivated Plants, 1961.

LITERATURE CITED

- Egolf, Donald R. 1962. A cytological study of the genus *Viburnum*. Jour. Arnold Arb. 41: 132-172.