THE bush cinquefoil (*Potentilla fruticosa*) is one of the few woody plants native over both northern hemispheres. It can be found as a low mat of dense woody growth on top of the Olympic Mountains in Washington or high up in the Himalayas, and as three-foot shrubs in Michigan, as well as in Great Britain, Europe and China. Because of its wide habitat, there are many varieties being grown in various parts of the world, but all are considered as low shrubs under four feet in height. Today, with our interest centered on planting small properties, such small shrubs should be of considerable value.

Not only are these plants valued from the standpoint of their height, but they also are in that admirable class which do not have any serious insect or disease troubles. Then, too, the entire group is of interest for several months in the summer time when few woody shrubs produce blooms, for their small bright yellow or white flowers begin to appear in July and are in evidence throughout the summer and well into the fall. Several varieties have originated in English gardens, some have been introduced from far off China and the Himalayan region, and some we have growing right here in America. Unfortunately many varieties have been named, new ones appearing periodically and unquestionably many have become mixed in the trade and in botanical gardens.

It is incorrect to claim that these are outstanding ornamental plants. They are not in the same ornamental class with the rose, or the azaleas, but they are of value because of their interest in the summer, their low dense habit of growth, and their lack of persistent insect and disease pests. Plantsmen are usually anxious to grow those shrubs and trees which require no care, and the varieties of this species are certainly in this category. One plant has been growing in the Arnold Arboretum for 65 years, and never has required any spraying.

Some of these varieties have been described in horticultural literature, but usu-
ally only one or two varieties are mentioned at one time. At least twenty-five varieties have been named, fourteen of them are being grown in the collections of the Arnold Arboretum.

All are not sufficiently different to warrant growing them in landscape plantings, for some are so similar that it is impossible for the gardener to tell them apart unless they are observed growing side by side.

First and foremost these are sun demanding plants which will not grow well in shaded situations. In order to flower profusely they must have a situation in the full sun. They seem to grow in any normal soil. Poor dry soil situations will result in slower less vigorous growth, for they do not require large amounts of moisture. The leaves are small and compound, usually with 3-7 leaflets, the single flowers having five petals are about 3 of an inch in diameter, some varieties having white flowers but most being a creamy white to deep yellow. The fruits are dried capsules which unfortunately can remain on the plant several years and so give it a rather untidy appearance. This can be alleviated by light pruning in the fall after the flowering period is over.

The Potentillas are not susceptible to severe insect or disease pests. The species is easily propagated by seeds, and the varieties are easily propagated by softwood cuttings. As noted previously, these are not conspicuous landscape plants, but their small size, dense habit, length of bloom, hardiness and ease of cultivation make them of increasing interest in small gardens where summer interest is desired.

The following notes were made from the plants as they grow in the Arnold Arboretum, with additional notes from the herbarium specimens and standard references. Additional varieties recently appearing in nursery catalogues but for which detailed information is unavailable at this time include: "Farrer’s White," "Jackman’s Variety," "farreri prostrata," "waltoniensis," "hersi."

**Varieties**

**albicans:** flowers bright yellow; leaves white tomentose beneath; said to be a handsome form but not growing in the collections at the Arnold Arboretum. Somewhat similar to beesi (see below).

**beani:** flowers white, originating before 1910 and formerly termed var. leucaantha. It is reportedly a hybrid between *P. fruticosa friedrichseni* and *dahurica*.

**beesi:** flowers yellow; leaves white, hairy above and below giving them a strictly silvery hue. Our plant was received from the nursery of H. G. Hillier, Winchester, England, a few years ago (who had it in 1952), and is found in some European catalogues listed as the variety *nana argentea*. Similar to *albicans* but differs in that the upper surfaces of the leaves are more hairy than the the under leaf surfaces.

**dahurica:** flowers white; native of northern China and Siberia; differing from
PLATE VII

This plant of *Potentilla fruticosa* growing in the Arnold Arboretum is 65 years old, about 4' high and 6' in diameter—a living example of a small shrub that stays a small shrub without much attention.
some of the other varieties by being less than $1\frac{1}{2}'$ tall. Although it was intro-
duced into cultivation over a century ago (1822) it is still very rare.

**farreri**: flowers deep yellow; leaves very small, the individual leaflets being less
than 8 mm. in length, making them the smallest of any of the varieties here
mentioned. This was first collected by Reginald Farrer in Tibet in 1920 at
an altitude of 8,000 feet. The variety **purdomi**, also coming from Tibet, has
flowers that are a lighter yellow. Our plant in the Arnold Arboretum, although
about twenty years old is only two feet high and three feet across, making it
one of the truly dwarf forms. It is similar to **parvifolia**, except it is slightly
lower in height.

**friedrichseni**: flowers creamy white to pale yellow, one of the more vigorous
growing forms, originating in the famous Spaeth Nurseries in Germany about
1895. Our plant, about 53 years old, is four and a half feet high and six feet
across.

**grandiflora**: flowers bright yellow and up to 1\$\frac{3}{4}$" in diameter, with leaves about
the largest of any of the varieties here listed. In England this is supposed to
be the most vigorous and tallest of all, sometimes reaching a height of 6', but
our plant is not so vigorous at present.

**mandshurica**: flowers white; leaves with densely whitish pubescence on upper
and lower surfaces and slightly smaller than the leaves of either *veitchii* or
dahurica. The habit is lower than that of **friedrichseni**.

**micrandra**: flowers bright yellow; shrub of a lower spreading habit than the species

**ochroleuca**: flowers creamy white; foliage light green; plant originated in the
Spaeth Nurseries in Germany prior to 1902.

**parvifolia**: flowers deep yellow; leaves small and less than 8 mm. long although
not so small as those of **farreri**. The leaflets are either 5 or 7 in number, and
the plant habit, the flowers and flower color are similar to **farreri**, although it
is slightly taller. The plant in the Arboretum has been growing in the same
spot in the shrub collection since 1924, and is 4' high and 4' across, being
very dense, one of best of the deep yellow flowered varieties.

**pumila**: listed as being a dwarf variety with silky pubescent leaves, this variety
is not now in the living collections of the Arboretum.

**purdomi**: flowers pale yellow; leaflets usually less than 8 mm. long but slightly
larger than those of **farreri**. Our plant was grown from seed collected by
Purdom in southern China in 1911, and was "reluctantly" named by Rehder
in 1922, for at the time he admitted that it differed only slightly from some
of the other forms. A batch of seed from our plant sown a few years ago, re-
sulted in seedlings of a surprisingly uniform habit and flower color. This plant
today is one of the densest and best rounded of all the varieties.

**pyrenaica**: flowers bright yellow; habit dwarf, being only 6"~18" high, coming
from the Pyrenees Mountains, differing only from the species in its more
dwarf habit.
rigida: flowers bright yellow; usually the leaves have only three leaflets; introduced from the Himalayas about 1906.

tenuiloba: flowers bright yellow; leaflets very small and practically linear, often produced in clusters. Our 34 year old plant is only 18" tall and 3' across. This variety is a native of western North America and is at present the most dwarf of all the varieties growing in the Arboretum.

veitchi: flowers white; being the best of all the varieties for white flowers. This was introduced by E. H. Wilson from Hupeh Province in China during 1900 from an elevation of approximately 6,000'.

vilmoriniana: flowers pale yellow to creamy white and a native of the northern British Isles. The foliage is silvery tomentose, somewhat similar to that of "Katherine Dykes" although the leaves of the latter are smaller.

"Gold Drop": a seedling, similar to the variety purdomi but with smaller leaves, first offered in this country by Wayside Gardens of Mentor, Ohio, about 1933. It is practically identical in flower with both farreri and parvifolia.

"Katherine Dykes": flowers pale yellow; foliage silvery green in color. This plant originated as a chance seedling in an English garden prior to 1946. It is of value for its silvery foliage although the variety beesi is better.

"Moonlight": flowers pale yellow, slightly darker than those of "Katherine Dykes" and the leaves are larger and a darker green. It originated about 1950. The leaves are similar to those of vilmoriniana except they are slightly smaller.

The differences noted above among the varieties can be considered minute. After all, with the exception of three or four dwarf varieties, the remainder have approximately the same habit. For those who are not particular whether the flowers are white, creamy white, or yellow, they need not be particular concerning the variety of Potentilla fruticosa they obtain—any available variety would probably be satisfactory. For those plantsmen who are more particular, the following suggestions might prove helpful:

The best of the Potentilla fruticosa varieties for Landscape planting

For dwarf habit . . . . . . . . . . . . dahurica or tenuiloba
Most vigorous . . . . . . . . . . . . grandiflora or friedrichseni
For silvery foliage . . . . . . . . . . beesi, "Katherine Dykes" or vilmoriniana
For smallest leaves . . . . . . . . . . farreri
For pale yellow flowers . . . . . . ochroleuca or purdomi
For bright yellow flowers . . . . . . "Gold Drop," farreri, grandiflora or parvifolia
For white flowers . . . . . . . . . . veitchi
Two New Plants

Lonicera tatarica "ARNOLD RED"

The "Arnold Red" clone of the Tatarian honeysuckle originated from seed at the Arnold Arboretum in 1945 and first bloomed in 1947. It has all the excellent qualities of Lonicera tatarica, being of vigorous growth, hardy throughout most of the northern United States. The flowers are the darkest red of any of the Lonicera tatarica varieties, even darker than those of L. tatarica sibirica, being Rose Bengal 25/1 of the Royal Horticultural Society’s Colour Chart when they first open. They are about 1” in diameter and the dark red fruits are approximately 3/8” in diameter, being larger than those of any L. tatarica varieties. It was first distributed by the Arnold Arboretum to commercial nurserymen in October 1954, and soon should be available commercially, for like other honeysuckles, hard and soft wood cuttings root easily. However, unless a darker flowered variety is wanted (or one with larger fruits) the easily available species and a few other varieties are still excellent general service plants to use in any garden.

Tsuga caroliniana "ARNOLD PYRAMID"

This plant appeared in a batch of 175 seedlings acquired by the Arnold Arboretum in 1926 from the H. P. Kelsey Nursery Company of East Boxford, Mass. All others in this lot were normal Carolina Hemlocks except this one. It has been allowed to grow this long unheralded, merely to make certain that the densely pyramidal growth will remain constant, which it has. From the accompanying picture (Plate VIII), taken in 1949, of the then 24 year old tree, it is evident that the dense pyramidal growth is being maintained, and the tree appears this way today, although the plant is somewhat taller. Actually it is now about 25’ tall and about 15’ in the spread of its branches. This clone does have possibilities as a landscape tree.

The “Arnold Pyramid” hemlock is a bushy, dense growing form of Tsuga caroliniana, with many trunks coming from the base of the plant. The variety compacta listed years ago by Hornibrook in his “Dwarf and Slow Growing Conifers” (1939) was described from a tree started in the Arnold Arboretum about 1881. Even Professor Sargent noted much later, that this form was becoming more and more vigorous and finally, about 1940, it could not be distinguished from the species. A picture of it taken by Alfred Rehder in 1921 showed a round headed tree with very wide spreading branches, with no similarity in form to this newer “Arnold Pyramid.”

Another tree growing in the Arboretum under the name of Tsuga caroliniana compacta is in a rather poor location, showing dense foliage but not this closely pyramidal form.

The Carolina Hemlock has produced few if any clones that have been described to date, while there are nearly a hundred of the Canada Hemlock. As far as we can tell, this dense growing “Arnold Pyramid” has no additional ornamental
Tsuga caroliniana "Arnold Pyramid." At the time this picture was taken, this plant was 18' tall. It is now 25' tall and 15' in branch spread, being approximately 32 years old and has never been sheared.
value over and above some of the Canada Hemlock forms, but it is of interest to know that this clone does exist and it is of sufficient value to be named and distributed. The Arboretum has scheduled this for distribution in 1956, but because of its slow growth it will probably be many years before nurserymen have the opportunity to work up a large stock. It is more difficult to propagate than the Canada Hemlock, and Mr. Roger Coggeshall, Propagator of the Arnold Arboretum, has found it very difficult to graft, although about 25% of the cuttings taken in October to November will root.

Donald Wyman

FALL CLASSES
at the
ARNOLD ARBORETUM

LAST REMINDER: Once again classes will be offered this fall as part of the Arboretum's Educational Program. Registration is in advance by mail. Priority will be established on post office date of application. For further information and application, write Dr. Carrol E. Wood, Jr., Arnold Arboretum, Jamaica Plain 30, Massachusetts.

Basic Botany for the Home Gardener  Instructor: Dr. Carroll E. Wood, Jr.
8 sessions. Thursday evenings, 7-9, September 29–November 17. Fee $10.00

Fall Field Class in Ornamental Plants  Instructor: Dr. Donald Wyman
6 sessions. Friday mornings, 10-12, September 30–November 4. Fee $2.00

Plant Propagation I  Instructor: Mr. Roger Coggeshall
6 sessions. Wednesdays, October 19–November 28 (three sections). Fee $10.00

Principles and Practice in Plant Identification  Instructor: Dr. Richard A. Howard
8 sessions. Tuesday evenings, 7–9, October 4–November 22. Fee $10.00