American Camellia Society

The American Camellia Yearbook

BRADFORD KING ARTICLES

2016 – 2019

C. reticulata 'Frank Houser Variegated'

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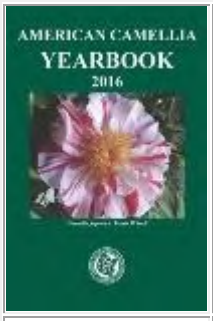	**American Camellia Yearbook 2016**	
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Return to TOC

China: The Camellia Treasure House

Story and Photographs
By Bradford King

'Alba Plena'

China is the heartland of the Camellia genus with 80 percent of the more than 250 camellia species. The first written descriptions of the camellia in China are from 1756 by Zou Yigui who described it as a woody plant with simple leaves and pink flowers with five petals that bloom in the winter solstice. John Brady Blake paintings of what we now know as *Camellia japonica* appeared in Chinese publications in 1773.

'Cup of Beauty'
Photo by Florence Crowder

In 1726 Feng Shike described seventy-two varieties in *An Account of the Camellias of Central Yunnan* "as big as a peony…and the first impression is of fire", which we now know were *C. reticulata* cultivars.

There were Chinese gardens containing camellias a thousand years ago. The main ornamental indigenous species are *C. japonica* found along the eastern coast and *C. reticulata* found in the alpine forests in southeastern China.

The camellia used to make tea was well known in China for thousands of years. It was described as a medicinal plant in 1000 BC during the Zhou Dynasty. It was described scientifically by O. Kuntze in 1887 and named *Camellia sinensis*.

It is the most important camellia species economically. The use of tea has a long history in China where *C. sinensis*, *C. sinensis* var. *assamica*, and *C. taliensis* were the species most widely grown for tea.

The camellia flower is highly regarded in China and is the national flower of southern China. In Chinese tradition, the camellia's symmetrical form symbolizes long-lasting devotion. The petals reflect the spirit of a young woman and the calyx, which holds the petals, a young man who is entrusted with caring for and protecting her. When the calyx falls holding the petals, it symbolizes perfect unity and everlasting devotion.

In many parts of China, the camellia is considered the flower for young sons and daughters. Pink camellias symbolize heartfelt longing


'Donckelarii'

which is perfect for long-distance lovers. Red camellias symbolize love, desire and passion. White camellias represent admiration, good luck, perfection and loveliness. They are used in wedding ceremonies as they symbolize a long and faithful marriage.

C. JAPONICA

While this species is closely associated with Japan, it is also indigenous to Korea, Taiwan and the eastern shore of China where it has been cultivated for many centuries. There is some controversy as to whether the first *C. japonica* seen in the western world originated from Japan or China. In *The Chinese Species of Camellia in Cultivation* (Arnold Arboretum, *Arnoldia*, 1986-46-1) Bruce Bartholomew wrote, "*Camellia japonica* was the first species to be brought into cultivation in the West, and although it was described based on material from Japan, probably all the early introductions during the late Eighteenth Century and early Nineteenth Century were from China."

There are only a few pre-1900 *C. japonica* cultivars originating in China that have been introduced directly to the western world. One of the earliest camellias from China was 'Alba Plena'. It was brought to England in 1792 by Captain John Corner on the East Indiaman, "Carnatic", for the ship's principal owner, Gilbert Slater. The bloom is a medium formal double with petals that decrease in size towards the center.

'Cup of Beauty' is an ancient

'Mandarin Duck's Crest'
Photo by Gao Jiyin

camellia that Robert Fortune, a plant explorer, brought to England from China in 1850. Beautiful mature specimens can be seen in The Huntington Gardens and Magnolia Gardens.

The Chinese cultivar 'Donckelarii' came to Belgium in 1834. This medium to large red semi-double with white marbling has become widespread. It has collected numerous names e.g. 'Tea Garden', 'Middleton No.15', 'Tallahassee', 'Mary Robertson', 'Aileen' and 'Winnie Davis'.

There are famous cultivars that can be seen in Chinese gardens and books that we have never seen in America. This is illustrated by 'Huaheling' (Variegated Crane's Feather) which has a medium, formal double, deep pink flower with white variegation introduced in 1981 by Wang and Yu. A second example is 'Yuanyang Fengguan' (Mandarin Duck's Crest) which has a medium double form bloom with pink stripes, imbricated petals, and a bud center, that was introduced by Gao and Zhuang in 1989.

The names are outstanding. The descriptions make us wish to see them. When I emailed Gao Jiyin about this introduction, he wrote, "About the camellia 'Mandarin Duck's Crest', yes, I think it is really an excellent cultivar in China. It was a mutation from *C. japonica* cultivar 'Fendan' (Loyal Pink) before 1976. It was originated in Shengzhou city, Zhejiang province, China. [The] flower [is] red with countless deep red or white radial stripes or small spots. Also, flowers


‘Pagoda’

with pink margins or one-half red and another half red usually occur. [It has a] full-double form bloom, [that is] medium to large 10.0-12.0 cm across, [and] petals 8 - 9.” This beautiful bloom measures 3.9 to 4.7 inches which would be classified as a medium flower.

C. RETICULATA

This species’ cultivars are some of the most spectacular flowering trees in the world. The *Camellia reticulata* originate from the Yunnan Province, which is in the southwest frontier of China. This area is mountainous with wide rivers and abundant rainfall conducive to camellias and many other plants and trees. “Yunnan camellias are the finest under the sun” was a popular saying dating from the Ming Dynasty (the ruling dynasty of China from 1368 – 1644, following the collapse of the Mongol-led Yuan dynasty). The Yunnan camellias have also been known as the “Southern Mountain Camellia” (‘Nanshancha’) and the ancient name “Pomegranate of the Sea” (‘Haishilu’) because both have red blooms.

C. reticulata have been cultivated for more than 1300 years. However, due to the rivers and mountainous terrain, this frontier area was isolated even from central China until the Ming dynasty. They were unknown outside of China until 1673 when a semi-double we now know as ‘Captain Rawes’ was introduced to Japan.

Camellia reticulata was described by Dr. John Lindley in 1827 based on a cultivated plant introduced to England in 1824 by J. D. Parks and given the English name “Captain Rawes’s Camellia”,


‘Bright Leaf Pink’

in honor of the ship’s captain who brought what was apparently the same cultivar from China in 1820 for Thomas Carey Palmer.

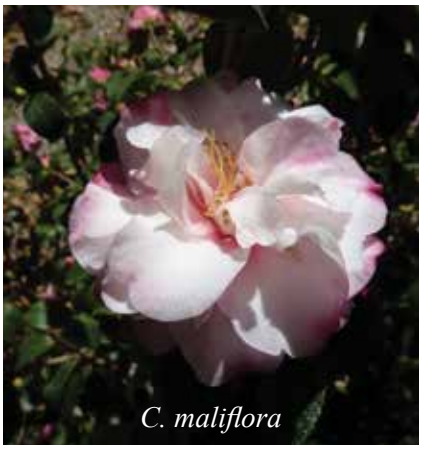
In 1848, Robert Fortune brought a cultivar from China that John Lindley had named ‘Flore Pleno’ in 1857. This camellia, in England, is known as ‘Robert Fortune’. We now know this cultivar to be the one grown in Yunnan as ‘Songzilin’ (Pine-cone-scale). In America, we call it ‘Pagoda’.

The first *C. reticulata* were imported to America in 1948 by Walter Lammerts of Rancho del Descanso (now Descanso Gardens), in La Cañada Flintridge, California, and Ralph Peer of Los Angeles, California.

By the early 1950s, twenty *C. reticulata* from China were growing in America. This served as a rich basis for camellia breeding which continues today. In 1980, the University of California Botanical


‘Small Leaf Peony’


C. oleifera


C. maliflora

Garden imported 36 cultivars from Yunnan China.

We see very few of these *reticulata* cultivars today. It is a puzzle what has happened to the rich collection of camellias from this Botanical Garden. I found only two examples growing in The Huntington Botanical Gardens. They are 'Bright Leaf Pink' ('Liangye Yinhong') which has a medium to large pink semi-double flower with veined petals, and 'Small Leaf Peony' ('Xiaoye Mudan') which has a large to very large crimson, loose peony flower.

There are currently camellia trees in China around ancient temples over a hundred years old that continue to bloom. Good examples of old camellias seen in the western world are 'Cornelian' ('Damanao'), 'Lionhead' ('Shizitou') and 'Purple Gown' ('Zipao'). (Photos 'Cornelian' ('Damanao'), 'Lionhead' ('Shizitou') and 'Purple Gown' ('Zipao')

C. OLEIFERA

This is one of the most common camellia species in China, because it has been cultivated for its oil, which is extracted from the seeds. The name means "oil-bearing". This species was first brought into cultivation in 1803, fourteen years before Clarke Abel described it. *C. oleifera* is widely distributed with over three million hectares cultivated for oil production in China. It can be found in forests, foothills and banks of streams at elevations from 325 to 4,300 feet. The small single white flower is not impressive, thus, the plant is generally not used as a landscape plant, even though it is easy to grow.

However, this camellia species is best known in America for its cold tolerance. Dr. William Ackerman used *C. oleifera* 'Plain Jane' and *C. oleifera* 'Lu Shan Snow' in his cold hardy camellia breeding program. He used these cultivars in making thousands of controlled


C. nitidissima

crosses with many other species and varieties. These seedlings were field tested for cold hardiness and ornamental value. This extensive breeding program led him to introduce 51 cold hardy camellias, of which many have *C. oleifera* in their background.

C. MALIFLORA

This species was brought back from China by Captain Richard Rawes for Thomas Carey Palmer in 1818. In 1827, John Lindley recognized it as a distinct species and named it *C. maliflora*; before that it was believed to be a *C. sasanqua*. It has a miniature (1.5 inches) semi-double to double, pink flower. The species has never been found in the wild; thus, it is likely a *hybrid* species. In America it is seen in public gardens with a diverse camellia collection.

C. NITIDISSIMA

This yellow species was first named *C. chrysantha*. It originates in Guangxi province. There has been a great deal of interest in this species since it was described in 1965 by Professor H. H. Hu. Bruce Bartholomew, in *The Chinese Species of Camellia in Cultivation,* wrote, "On January 23, 1980, I received five seeds of *C. chrysantha* at the University of California Botanical Garden, of which I was curator at the time. The seeds were sent to me by Professor Zhang Aoluo, who was then the director of the Kunming Botanical Garden. Professor Zhang had also sent five seeds to William L. Ackerman, of the U. S. National Arboretum, as well as five seeds each to people in Japan and Australia."

"These were the first seeds of this species sent out of China through regular channels, although some years earlier either seeds or scions had been obtained by camellia growers in Japan. The seeds sent by Zhang were collected in December 1979 by staff of the Kunming Botanical Garden at the


‘Senritsu-ko’

Malu commune, Fengcheng county, in Guangxi, at an elevation of 975 feet. ... Both Ackerman and I were able to germinate four seeds, and the resulting eight plants have been extensively propagated and distributed to botanical gardens and camellia growers on both the east and west coasts of the United States and abroad.”

There are a dozen or more *C. nitidissima hybrids* that have been bred and propagated for sale. One of the most popular is ‘Senritsu-ko’ which has a small to medium rose form to formal double beautiful light-yellow flower with peach toned petal edges.

C. SALUENENSIS

This species is common and widely distributed in the Yunnan province as well as being found in the southern part of the Sichuan province. The profuse small single flowers are white flushed with pink. They are borne on a small tree that blooms mid to late season. It was introduced to the western world in 1917 by George Forrest. John Charles Williams of Caerhays Castle in Cornwell, England was a major sponsor for George Forrest’s plant collecting trips to China. Williams received seeds of *C. saluenensis* which he shared with Col. Stephenson Clarke.

They found the plants grew well, flowered freely, and readily set seed. They began to make controlled crosses with *C. japonica* cultivars. In 1923 William’s first crop of seedlings developed. The seed plant was a pale pink *C. saluenensis* that is reported to be still growing outside the carpenter’s workshop at Caerhay’s Castle. The pollen parent was ‘Alba Simplex’. The best seedling was named ‘J. C. Williams’ in 1940 to honor Williams who had passed away in 1939. This is the birth of “The *Williamsii Hybrids*” which are noted for their hybrid vitality, free flowering and colorful blooms. Today there are 500 *saluenensis hybrids* ranging from min-


C. saluenensis


C. cuspidata

iature to large including new coral pink and lavender pink cultivars to choose from.

C. CUSPIDATA

This species grows in the woodlands of Southern China. It is fast growing, cold tolerant and widely distributed. It has been cultivated for many years and has been used in camellia breeding cold tolerance and cluster blooming hybrids. The white flower is fragrant, sometimes with pink markings on the outer petals. The leaves are pointed and narrow. It grows into a tall shrub.

Two fine *cuspidata hybrids* have been breed and introduced by Nuccio's Nurseries. 'Moonstruck' has red buds that open to a medium white single flower with pink tinges on the petal edges and center. A sun tolerant *hybrid* with a mass of miniature pink flowers that fades lighter in the center was named 'Spring Festival'. The rose form to double form flowers bloom mid to late season on a narrow upright plant.

C. EDITHAE

This is a late blooming camellia species that has a medium single to formal double rose red flower. It grows upright and very bushy, with dark green heavily ribbed leaves. New shoots are densely hairy, and mature branches are gray brown and only slightly hairy. The flower


'Spring Festival'


C. edithae
Photo by Celeste Richard


'Moonrise'

buds are brown-looking, like spent flowers, and grow singly at the tips of shoots and in leaf axils.

It is native to China where it is called "Dongnan Sancha". In eastern China, it has been cultivated as an ornamental plant where a formal double dark red cultivar is called 'Momuda' (a place of worship) and a formal double pink variety called 'Jiuqu'. We do not see these cultivars in America, but *C. edithae* is grown in America for its handsome foliage.

C. GRANTHAMIANA

A single specimen of this species was first discovered in a wooded ravine of Tai Mo Shan, Hong Kong in 1955 by C. P. Lau. A few more wild populations were subsequently found in China. It is a rare species, now protected in China, that grows ten to thirty feet tall when mature. Fortunately, it has been propagated and widely distributed. In 1958, J. R. Sealy, author of *A Revision of the Genus Camellia*, named it in honor of Sir Alexander Grantham, governor of Hong Kong when it was discovered. The large white flowers are borne at the tip of the plant stems. The flower has 10 to 14 petals. There are 12 to 16 persistent perules. The stamens and styles are free—not fused together at the base. The ovary has five sections. The seed pods are large with a thick wall. It has large leathery serrated oblong pointed foliage with brown, scaly flower buds. The flower bud looks like a spent flower. In fact, unless the observer looks carefully, the bud and seed pod look similar,


C. granthamiana


C. grijsii
Photo by Gene Philips


C. rosaeflora

as can be seen in the photo. This species has been used in hybridizing because of its deep green foliage, abundant large flowers, early blooming, sets seeds readily and is sun tolerant. One example is 'Moonrise' which has a very large semi-double white to light blush flower with pale yellow at the base of the petals.

C. GRIJSII

This species was first described in 1879. It is native to China in the mountains near Fujian, Sichuan and Guangxi. It is a potential garden plant due to its fragrant profuse white flowers. The small flat flower blooms midseason on an upright somewhat columnar shrub with small, coarse leaves. The branches are smooth and rust-gray in color when mature. Young shoots are thin and have sparse hair. Scientists have found chromosome numbers of 2n = 30, 60, 75 and 90 in different plants. While this is not an issue for using it as a landscape plant, it is a concern for breeding. It is expected that the best results would be obtained between parents with the same number of chromosomes.

C. ROSAEFLORA

This species has a small, single, pink flower that blooms mid to late season on an upright plant that has an arching growth habit. The medium slightly fragrant pink flowers bloom profusely. Foliage is elliptical and pointed and sometimes may be mottled light yellow. A small well-formed tree with dense green foliage is formed over time. It is a good garden plant that has been cultivated widely. It is native to China. The number of chromosomes is 2n= 90 as determined by Kondo in 1977. It is a species that has been used in breeding new camellias.

In 1975, Neville Haydon of Auckland, New Zealand registered 'Baby Bear' a cross between *C. rosaeflora* and *C. tsaii* (also a Chinese species). It has a single, miniature, light pink to white flower that grows on a dwarf, compact upright plant. Nuccio's Nurseries intro-


‘Baby Bear’


‘Bunny Ears’

duced a *rosaeflora hybrid* ‘Bunny Ears’ in 1999. It has a miniature to small, pink, semi-double flower with upright petals. When a camellia flower has upright petals, they are frequently described as rabbit ears, hence the name.

C. PITARDII VAR. *PITARDII*

This Chinese species makes a compact shrub or small tree with small glossy green foliage. It has a small white toned pink flower. The new buds are tipped in pink that open in mid to late season. When at its best the profuse blooms put on a good show in the garden. It originates in thickets and open woodland in its native China where it is widely distributed. It is not widely grown in America. However, there are several *pitardii hybrid* cultivars that make great additions to the garden. Three favorites are ‘Adorable’, ‘Grace Caple’ and ‘Nicky Crisp’. ‘Adorable’ is an Australian pitardii seedling introduced in 1979 by Edgar Sebire. The plant is compact and upright that reliably has a small to medium formal double


C. pitardii var. *pitardii*


‘Adorable’


‘Grace Capel’


‘Nicky Crisp’

bright pink flower in mid to late season. It has an adorable flower.

The large semi-double to loose peony blush pink flower that shades to white of ‘Grace Capel’ blooms mid to late season which helps extend the camellia season. It is one of the few large *non-reticulata* flowers. This open pollinated seedling was introduced by Betty Durrant of Rotorua, New Zealand in 1974.

Many camellia growers rate ‘Nicky Crisp’ the best *pitardii hybrid* with its fresh, clean-looking medium to large light orchid pink flower. It has show-quality flowers with many identical blooms that make for beautiful trays of like blooms. The plant grows slowly and compactly, yet will bloom when small. It was also introduced by Betty Durrant in 1980, who named it for her grandson.

C. YUHSIENENSIS

Camellia yuhsienensis has potential as garden landscape plant and for breeding. It is native to China where it is used in the Hunan province for its high-quality edible


C. yuhsienensis
Photo by Gene Phillips


‘Yume’

'Wendzalea'
by Mark Crawford

oil. The white flower, at times, has a scent and some plants develop cluster blooms. While not widely used in hybridizing, it has produced one outstanding hybrid. Kaory Hagiya Nagata crossed *C. heimalis* 'Shishigashira' with *C. yuhsienensis* to get 'Yume' (Dream). The small single pink flower has genetic white variegation at times alternating white and pink petals which makes a uniquely lovely flower. It flowers when young and set seeds easily on a loose upright plant.

C. azalea Wei (Camellia Changii)

In China, *C. azalea* can bloom every month of the year with its peak blooming season summer through fall. The flower is a medium bright red single with five to nine petals that resemble an azalea flower. The flowers are borne singly or in clusters at the tip of new growth. New growth may occur all year which is why this plant can bloom under optimal conditions every month of the year. Buds become red and elongated as they mature that look like lipstick ready to be applied. The center of the flowers has a cluster of yellow anthers. The red flower with yellow anthers is clear and bright. The leaves are a long narrow oblong with a very smooth surface that has a very thin light green edge with a raised mid vein.

The total package of leaves,

buds, and flowers make this a worthwhile landscape plant that grows bushy and slowly to a maximum of ten feet. *C. azalea* is notorious for its poor growth on its own roots—cuttings usually don't take and those that do grow slowly and weakly. It was brought to America through the efforts of Hulyn Smith and the American Camellia Society. Smith was the first to introduce a *C. azalea hybrid* in America. The seedling was named 'Wendzalea' which will bloom twice a year—a trait inherited from *C. azalea*.

In China, the Palm Landscaping and Architecture company has breed and propagated more than 200 *hybrids* with the inherited traits of summer blooming and the ability to repeat bloom, twice or more in a year. These cultivars are not available in America currently. However, in July 2019, ten of the best seedlings were shipped to America where they are being quarantined for two years in the USDA Plant Germplasm Quarantine Program.

Conclusion

There may be as many as 176 camellia species indigenous to China. The ones most often seen in America are illustrated here. Several examples of how these species came to the western camellia world are described. Beginning in the 1970s many seeds or scions have been brought to the U. S. One key recipient was the University of California Berkley Botanical Garden. In the words of Bruce Bartholomew, curator, we get a glimpse at some of the species that have come to the states.

"I have been able to obtain seeds and scions of a number of Chinese Camellia species from the Kunming Botanical Garden and other botanical gardens in China. Of particular importance are *C. chekiangoleosa*, *C. polyodonta*, and *C. semiserrata*, all of which belong to section Camellia and will be spectacular garden plants with large red flowers."

"Other species that I have been able to obtain include *C. cordifolia*, *C. forrestii*, *C. gigantocarpa*, *C. grijsii*, *C. octopetala*, *C. vietnamensis, C. yuhsienensis*, and *C. yunnanensis*. Most of these species have been distributed to camellia growers and botanical gardens in the United States. At present, almost fifty of the more than two hundred described Camellia species are in cultivation in the West, but still more than three-quarters of the currently recognized species have yet to be grown as cultivated plants, even in China."

"I hope that many of these remaining species will be cultivated in China and that the exchange that began in the late 1970s will resume for the enjoyment of people in both China and the West."

Today many camellia species are available through camellia specialty nurseries, which means we can all sample the contents of the Chinese treasure house.

Return to TOC

Breakthroughs in Camellia Hybridizing

Story and Photographs
By Bradford King

'J. C. Williams'

While the propagation and breeding of camellia cultivars is centuries old in Asia; there are four key breakthroughs in the breeding of new camellia cultivars in recent times. They are intraspecies crosses beginning with the "*williamsii hybrids*", *C. reticulata hybrids*, cold hardy cultivars and summer and repeat blooming *hybrids*.

C. lutchuensis

Intraspecies Crosses

Breeding between two different camellia species in modern times begins with John Charles Williams when *C. saluenensis* was introduced to the western world in 1917 by George Forrest. Williams, of Caerhays Castle in Cornwell, England was a major sponsor for George Forrest plant collecting trips to China. Williams received seeds of *C. saluenensis* which he shared with Col. Stephenson Clarke. They found the plants grew well, flowered freely, and readily set seed.

They began to make controlled crosses with *C. japonica* cultivars. In 1923 William's first crop of seedlings developed. The seed plant was a pale pink *C. saluenensis* that is reported to be still growing outside the carpenter's workshop at Caerhay's Castle. The pollen parent was 'Alba Simplex'. The best seedling was named 'J. C. Williams' in 1940 to honor Williams, who had passed away in 1939. This is the birth of the "*williamsii hybrids*" which are noted for their hybrid vitality, free flowering, and colorful blooms. Today there are 500 *saluenensis hybrids* ranging from miniature to large, including new coral pink and lavender pink cultivars.

Hybridizers continued to cross

'Fragrant Pink'

camellia species in order to obtain fragrant, yellow and cluster blooming hybrids which are listed as *nonreticulata hybrids* in the *Camellia Nomenclature*. *C. lutchuensis* was brought to America from Okinawa, Japan in the early 1960s. It is a naturally perfumed camellia, and is in the parentage of the best of the modern fragrant *camellia hybrids*.

Through the patience and diligent efforts of camellia breeders around the world, hybridizing breakthroughs began to be reported. Dr. William Ackerman in Maryland developed 'Fragrant Pink' by crossing *C. rusticana* 'Yoshida' with *C. lutchuensis* in 1968. It has a miniature peony flower with fragrance.

James Finley, from Whangarei, New Zealand, is known for his scented camellias. He began breeding them in 1970 and has introduced over 35 fragrant cultivars. He used *C. lutchuensis* because of its beautiful perfume and crossed it with *C. japonica* 'Tiffany' to get 'Scentuous'. He was one of the first breeders to break through the sterile barrier of F1 *hybrids* that had thwarted fragrant camellia development. His most popular fragrant *hybrid* is 'High Fragrance', a *C. japonica* 'Mrs. Bertha A. Harms' x *C. hybrid* 'Scentuous' seedling. The medium peony flower is an at-


‘High Fragrance’

tractive pale ivory pink that shades to a deeper pink at the petal edges, and emits a lovely sweet aroma that usually wins in the fragrant class at camellia shows. The plant grows vigorously and is open in growth habit.

The best-known yellow species is *C. nitidissima* var. *nitidissima*, formerly *C. chrysantha*, but generally just known as *C. nitidissima*. It has been used to develop new yellow camellias because the small cup-shaped flower is a lovely deep shade of golden yellow. However, the progress in developing yellow *hybrids* has been very slow with most controlled crosses failing—especially with *japonica* parents. Sometimes there are seed pods; yet, the seeds themselves are hollow. The few seedlings that germinate usually inherit little or no yellow. The very small percentage that do show cream or pale yellow are almost always sterile, and are thus useless in producing other crosses to enrich the yellow.

However, in 2007, two of the best yellow *hybrids* were commercially introduced by Nuccio’s Nurseries in Altadena, California. They are the work of Mr. Tadao Yumaguchi of Ishikawa, Japan. ‘Ki-no-senritsu’ (Yellow Melody) has a lovely peony to loose peony formed flower that thrives in deep shade


‘Ki-no-senritsu’


C. nitidissima

where it grows moderately fast, but is a shy bloomer. 'Senritsu-ko' has a beautiful small to medium formal to rose form flower with light yellow petals and peach pink petal edges. It grows moderately fast in an upright open growth pattern. It sets multiple buds and flowers easily in midseason.

Modern hybridizers have sought to develop cluster blooming *hybrids*. All of them have a profusion of miniature or small flowers. They look wonderful as cut flowers arranged artfully in a vase. They are not usually seen in camellia shows, but are cherished in the garden for their masses of pretty buds and flowers. This is illustrated by 'Bunny Ears' which has a miniature to small semi-double pink flower with rabbit ears. It is a *C. rosaeflora hybrid*.


'Senritsu-ko'

Another example is 'Elina Cascade' which has a profession of tiny pink buds and very small white flowers that bloom in clusters up and down the slender, pendulous branches in late winter and early spring. It is a *C. tsaii* cultivar discovered in 1991 as a seedling in a controlled planting of *Camellia tsaii* var. *synaptica* in Kawasguchi City, Japan and patented in the United States in December 2001. The very small, shiny green leaves are pretty all year long on the slen-


‘Bunny Ears’


‘Elina Cascade’

der branches that sweep down to form a neat, pretty foliaged camellia shrub. New foliage has a lovely bronze hue in the spring.

Camellia Reticulata Hybrids

In 1949, Dr. Walter E. Lammerts of Descanso Gardens in La Cañada Flintridge, California and Ralph Peer of Los Angeles, California were able to import *C. reticulata* from Yunnan China. Amateur camellia breeders and nurseries began to make controlled crosses between these cultivars and with many *C. japonica* and *C. saluenensis* cultivars with outstanding success.

Howard Asper was the curator of camellias at Descanso Garden and assisted Dr. Lammerts with the planting and propagation of the “original” Yunnan *C. reticulatas*. He was also a prolific camellia breeder who introduced sixteen *reticulata hybrids*. ‘Valley Knudson’, his 1958 introduction, continues to be popular. This *C. saluenensis* seedling x *C. reticulata* ‘Buddha’ has won many awards for its large semi-double to loose peony deep orchid pink flower. The flower color is a lovely shade of pink.

Asper introduced ‘Valentine Day’, one of the best of his introductions. It is a cross between *re-*


‘Valentine Day’

'Valley Knudson'

ticulata 'Crimson Robe' ('Dataohong') and *japonica* 'Tiffany'. It has a very large bloom with a rosebud center. The salmon pink formal double flower is borne on a slow growing plant. It has a spectacular flower that continues to win at camellia shows. The variegated form is a striking pink blotched white formal double flower.

In 1964 Joe and Julius Nuccio introduced their first *C. reticulata*

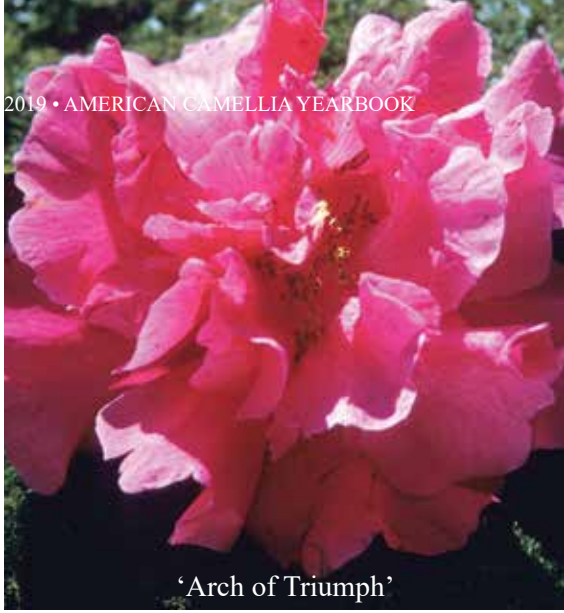
'Valentine Day Var.'

hybrid, 'Francie L.', which is a cross between *C. saluenensis* 'Apple Blossom' and 'Buddha'. The flower is a very large, rose pink semi-double with upright wavy petals. It has been widely distributed, including in Australia and New Zealand. There is a virus variegated form available.

In the early years, nurseries and large institutional gardens introduced new cultivars. However, David Feathers, the well-known camellia breeder, lecturer and writer from Lafayette, California, introduced a wild form *reticulata* seedling in 1970. He called the very large deep pink to wine red loose peony flower 'Arch of Triumph'. It was used in breeding later *hybrids* but is rarely seen today outside of older private gardens.

Dr. Clifford Parks, a botanist

‘Francie L’



‘Arch of Triumph’

working in the Los Angeles County and State Arboretum in Arcadia, California bred r*eticulata hybrids*. Two that are widely distributed and popular today are ‘Dr. Clifford Parks’ and ‘LASCA Beauty’. ‘Dr. Clifford Parks’ has a very large red flower. It is one of the cultivars with several forms—semi-double, anemone, loose peony and full peony. It is still a camellia show winner. ‘LASCA Beauty’ also is capable of winning show points with its lovely soft pink semi-double flower. The L-A-S-C-A are the initials for the Los Angles State and County Arboretum. Dr. Parks continued hybridizing when he moved to North Carolina, but shifted to breeding cold hardy and yellow cultivars.

In 1974, a very large bright red rose form double bloom named ‘Harold L. Paige’ was registered by Jack Osegueda of Oakland, California. This is an example of an amateur grower introducing an impressive cultivar. This late blooming cultivar has continued to be popular as a camellia show winning bloom.

Frank Pursel of Oakland, California was a prolific amateur breeder who introduced the first of his 121 *reticulata hybrids* in 1975. This first seedling he named ‘Jean Pursel’ for his wife. The flower is a very large peony light purplish pink that can still be seen in camellia shows. One of Pursel’s best *hybrid* seedlings is ‘Linda Carroll’. It has a very large semi-double light pink flower.

While Americans were hybriz-

‘Dr. Clifford Parks’


‘LASCA Beauty’


‘Harold L. Paige’

ing *reticulata* seedlings, so were breeders in Australia and New Zealand who also obtained Yunnan *reticulatas* from China. Most of these early *hybrids* have never become popular in the States. The vast number of the first *reticulata hybrids* were introduced in California where the Yunnan *reticulata* first landed. The original *reticulatas* and their *hybrids* began migrating east where camellia breeders such as Dr. Walter Homeyer of Macon, Georgia and Hulyn Smith of Valdosta, Georgia from the southeast joined Frank Pursel and Philip Mandarich as the most successful breeders of the *reticulata hybrids*. The most well-known *C. reticulata*, ‘Frank Houser’, was bred by Dr. Homeyer.

The current *reticulata* hybridizers are led by John Wang of Orinda, California, who introduces new light shades of white, cream and pink flowering *hybrids* such as ‘Shengjie’ (‘Holy Pure’); and Dan Charvet of Fort Bragg, California, known for self-grooming, disease resistant *hybrids* that can thrive in cooler parts of the northwest.


‘Linda Carroll’

Cold Hardy Camellias

William Ackerman, Ph.D., of Ashton, Maryland was a pioneer hybridizer of cold hardy camellias. This is how he developed a cold hardy camellia breeding program. When Dr. Ackerman was at the United States National Arboretum in Washington, D. C., part of his duties included overseeing the camellia collection. Two severely

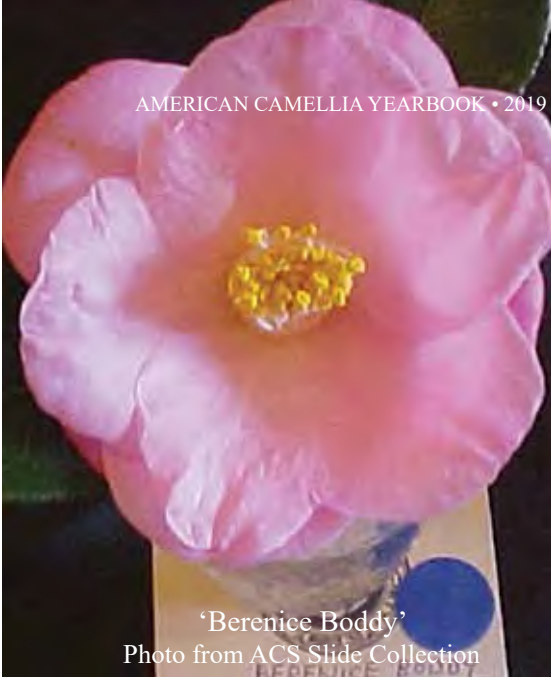
‘Frank Houser’

‘Holy Pure’

cold winters in the late 1970s decimated the 950-camellia collection with only 15 surviving. This motivated him to shift gears from his success in breeding fragrant camellias to developing cold hardiness in camellias. In 1962, he had purchased a seven and half acre farm in Ashton, Maryland which proved to be excellent climatically for testing cold hardiness.

He continued his breeding program vigorously after retiring in the early 1980s. He discovered that *C. oleiferas* ‘Plane Jane’ and ‘Lu Shan Snow’ were cold hardy but of little ornamental value. Therefore, he used these cultivars in making thousands of controlled crosses with many other species and varieties. These seedlings were field tested for cold hardiness and ornamental value. This extensive breeding program led him to introduce 51 cold hardy camellias. The seven “Ashton” cultivars he introduced all used *C. oleifera* ‘Plain Jane’ as one of the parents. He also introduced 15 cold hardy *non-reticulata hybrid* cultivars with “Winter” as the first name. One of his most widely grown cold hardy cultivars is the beautiful pure white ‘Snow Flurry’, Ackerman’s significant contributions to the breeding, propagating and growing of cold-hardy camellias may be found in his book

‘Snow Flurry’


‘Berenice Boddy’
Photo from ACS Slide Collection


‘April Remembered’

Beyond the Camellia Belt.

Dr. Clifford Parks’ breeding program is also part of the breakthrough in breeding cold hardy camellias. He frequently used ‘Berenice Boddy’ as the pollen parent for his “April” series, which, as the name indicates, are spring-blooming camellias. This includes the popular ‘April Remembered’ which has a medium to large semi-double cream to pink shaded flower. While its color tones and form are like its parent ‘Berenice Boddy’ it has a slightly larger flower and is more cold-tolerant (Zone 6A which is -5º F to -10º F). The seed parent was ‘Dr. Tinsley’.


C. azalea
Photo by Camille Bielby

Summer Blooming Camellias

In China *C. azalea wei* (*Camellia changii*), generally known as *C. azalea*, can bloom every month of the year, with its peak blooming season from summer through fall. The flower is a medium bright red single with five to nine petals that resemble an azalea flower. The flowers are borne singly or in clusters at the tip of new growth. New growth may occur all year which is why this plant can bloom under optimal conditions every month of the year.

Buds become red and elongated as they mature, looking like lipstick ready to be applied. The center of

'Xiafeng Relang'
Photo by Gao Jiyin

the flowers has a cluster of yellow anthers. The red flower with yellow anthers is clear and bright. The leaves are a long narrow oblong with a very smooth surface that has a very thin, light green edge with a raised mid vein. The total package of leaves, buds, and flowers make this is a worthwhile landscape plant that grows bushy and slowly to a maximum of ten feet.

C. azalea is notorious for its poor growth on its own roots—cuttings usually don't take and those that do grow slowly and weakly. It was brought to America through the efforts of Hulyn Smith and the American Camellia Society. Smith was the first to introduce a *C. azalea hybrid* in America. The seedling was named 'Wendzalea' which will bloom twice a year—a trait inherited from *C. azalea*.

In China, the Palm Landscaping and Architecture company has bred and propagated more than 200 *hybrids* with the inherited traits of summer blooming and ability to repeat bloom twice or more in a year. Currently these cultivars are not available in America. The American Camellia Society negotiated to have ten of the best seedlings shipped to America in July 2019 where they are being quarantined for two years in the Plant Germplasm Quarantine Program of the United States Department of Agriculture. These *hybrids* are represented here by 'Xiafeng Relang' ('Summers Wind and Hot Waves') which is a cross between *C. azalea* and *C. japonica* 'Daikagura'.

Return to TOC

NORTH KOREA

The Camellia Cold Treasure Chest

'Korean Fire'

Story and Photographs
BY BRADFORD KING

'Korean Snow'
Photo by Gene Phillips

The news is full of a war of words between The White House and North Korea as I write this article, especially the development of missiles capable of hitting Guam, Hawaii or even main land America. The cold war has turned hot. Therefore, information and plant material from North Korea is sparse. No camellia articles published by or about North Korea can be seen in the International Camellia Society's *International Camellia Journal* for twenty years.

In Korea, the camellia flowers are a symbol of faithfulness and longevity and have been part of traditional Korean wedding ceremonies since 1200 B.C. Frequently a camellia branch was placed on traditional bridal altars, a symbol of the new couple's hopes for a life of eternal happiness in the sun's warm rays.

The camellia is a symbol of winter for Koreans. It signifies a beauty that overcomes cold and adversity. It embodies cool thinking and heartlessness. It represents an idealistic sense of human integrity and honor that bravely endures the winter season. It is admired for its simple beauty, grace and splendor as well as the plants long life span which is valued by Korean people.

While *Camellia japonica* is found in Korea, little is known about them. The Asian American Barry Yinger, owner of Asiatica Nursery in Lewisberry, Pennsylvania, visited and collected camellia material from the Yellow Sea coastal Sochlong and Taechong islands. This area is very cold in winter where the prevailing winds originate from Siberia. He returned several times between 1982 and 1984.

He field tested numerous Korean seedlings beginning in 1994 in south central Pennsylvania. He observed that the Korean camellias were more cold hardy than those from China and Japan. They tended to have smaller and thicker leaves like those he observed in Korea. He also observed they bloomed over an unusually long season. Some would open in winter after a brief warming period and others in spring.

'KOREAN FIRE'

This is the most well-known of the Korean seedlings introduced in America. It was one of hundreds of seedlings planted at the United States National Arboretum in Washington, D. C. Joe Gray of Hines Nurseries in Irvine, California selected it to be field tested on Yinger's Pennsylvanian farm. It was found to have excellent cold hardiness (Zone 6a) and had a larger flower than a typical wild plant. The flower is a small to medium red single. It blooms early season on a

compact plant with handsome green leaves. It is available through Camellia Forest Nursery, Chapel Hill, N.C.


'Aida'

'KOREAN SNOW'

This is another cultivar grown from seeds collected by Barry Yinger. Dr. Clifford Parks selected it from Yinger's first Korean seed introductions. The flower is a pure white medium single with golden anthers and yellow filaments. The leaves are glossy green and rounded, with the edges tending to curl under. It blooms early season in spring and can be grown in zone 6a. It was introduced by Camellia Forest Nursery, Chapel Hill, N.C. where it is propagated and available.

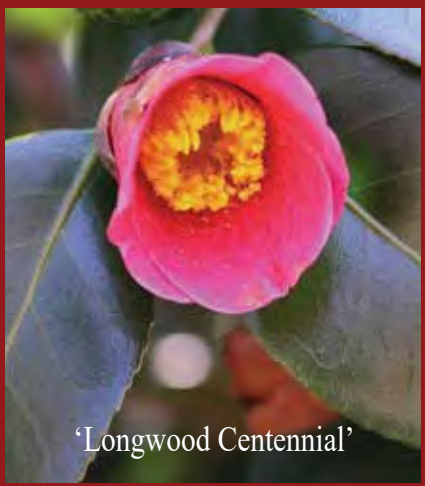
LONGWOOD GARDENS

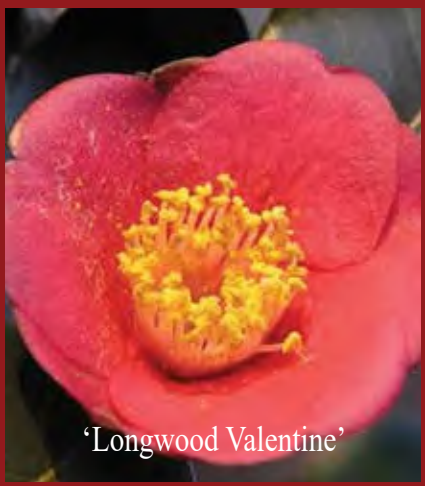
Longwood began a research program to develop cold hardy camellias in 1957. Several seed collecting trips to north Korea were made and field testing was conducted. In 2006 for the 100th anniversary of DuPont's purchase of the Longwood Gardens property in Kennett Square, Pennsylvania, three cold hardy cultivars were introduced. They are 'Aida', 'Longwood Centennial' and 'Longwood Valentine'.

SOUTH KOREA

South Korea, officially the Republic of Korea, is a sovereign state in East Asia, constituting the southern part of the Korean Peninsula and adjacent islands. Although the closest nation to Japan, very little communication about camellias has occurred. Dr. Lee Sang Rae, a Korean botanist and guest professor at Tokyo University of Pharmacy and Life Science, gave a lecture in 1999 at the International Camellia Society's Congress discussing the distribution of wild camellias in Korea.

He reported that most populations were on the southern coast line and nearby islands, like Jeju, with mild climates. In 2011 in the *International Camellia Journal,* Shigeo Matsumoto, reported on


'Longwood Centennial'


'Longwood Valentine'

a five-day tour sponsored by the Japanese Camellia Society. They visited several camellia windbreaks and a wild camellia forest, and observed wild *japonicas* and hedges of *japonicas* and *sasanquas* around private homes. It appears the wild camellias growing in the coastal areas of South Korea and adjacent islands are most likely genetically similar to those in Japan and China. However, little has been written about *C. japonica* varieties in South Korea.

CONCLUSION

The North Korean islands in the Yellow Sea between North and South Korea have a very cold climate, but have collections of wild camellias. In the 1980s, Barry Yinger, owner of Asiatica Nursery, a mail-order business in Lewisberry, Pennsylvania, and Longwood Gardens were able to collect camellia seeds and plant material which was introduced to America.

The current political climate is far too hot for western scientists and collectors—who are neither welcomed nor safe to travel to North Korea. It is highly unlikely that local scientists and farmers struggling economically are in any position to focus time or resources on ornamental plants. However, we hope they will protect their native plant species and forests including endogenous camellias.

We wonder if the North Korean cold hardy *C. japonicas* are genetically like those from China and Japan or are there significant differences in their DNA to qualify as a subspecies of *C. japonica*? We are forced by world politics to wait to see if the North Korean camellia cold treasure chest can be opened to reveal its secrets.

Return to TOC

Vietnam: Site for New Camellia Treasures

Story and Photographs
By Bradford King

Camellia amplexicaulis

Vietnam is an eastern country in Southeast Asia on the South China Sea. It is bordered by China, Laos and Cambodia. The climate is tropical with hills and dense forests. Weather ranges from snow in the northern mountains in the winter to highs in the 100s in the summer which is the dry season. Many plant and animal species thrive in Vietnam's warm, rainy climate which makes suitable conditions for camellia species. Fifty camellia species were documented by Dr. Tran Ninh in 2002, some of which also grow in China.


Camellia amplexicaulis buds

Historically, Northern Vietnam, adjacent to China—and specifically the Tam Dao National Park—was considered the major location for camellia species. However, exploration by Australian and Vietnamese scientists discovered several new yellow camellia species in Southern Vietnam.

Camellia amplexicaulis

This beautiful and unusual species is the most well-known of the camellias originating in Vietnam. The flowers are single small to medium with seven to eleven fleshy thick petals. It was formally discovered and described in 1916. It grows rapidly, forming a small tree when mature. The flower buds are deep pink to red from early formation until opening. The leaves are large, oblong, textured and finely serrated. In Vietnam, this camellia species is sold in local markets as-cut flowers and potted plants.

While this species is of North Vietnamese origin, so far, no wild populations have been located. It has been propagated for hundreds of years around Buddhist temples. There are different clones of this


Camellia amplexicaulis seed pod


Camellia flava
Photo by Gene Phillips


'Solstice'

species with different sized leaves and color flowers (pink, red to purplish red).

Nuccio's Nurseries propagates two forms in Altadena, California. Type A has large leaves, up to nine inches, with pinkish red buds, and a deep pink small to medium semi-double flower with a fine white edge. Type T, which has a slightly smaller flower and smaller foliage, up to five inches, and a very red bud that opens to a red flower with a fine white edge.

C. amplexicaulis is a rather rangy, ungainly-growing camellia that, when small, may require staking. It can form a small tree, when mature, with a tropical look. It blooms mid to late season, both from the terminal branches and along the stems. It has potential when crossed with *japonica* cultivars to produce attractive new cultivars with foliage larger than most *japonica* leaves, on a plant that grows more like a *japonica*. The ovaries have three to five locules (small compartments which contains the seeds). The seed pod is oval, smooth and green, turning to an eggplant reddish purple as it matures.

Camellia flava

There are eight yellow flowered camellia species discussed in C*ollected Species of the Genus Camellia: An Illustrated Outline* by Gao Jiyin, Clifford R. Parks, and Du Yueqiang that are indigenous to Vietnam. The one most valued in America is *C. flava* because it makes a well-shaped dense tree as an ornamental plant and has potential in hybridization. The small yellow flower has 10 to 13 petals borne on the tips of shoots and in leaf ax-


'Optical Illusion'
Photo by Gene Phillips

ils. The small foliage is ribbed.

This species is found in the evergreen forests on limestone hills in Northern Vietnam. It was first described scientifically in 1949 after World War II and was rediscovered in 1994. Since then, it has become established in China, America and other countries. American hybridizers have used this species when seeking to develop new yellow cultivars.

Dr. Clifford Parks introduced 'Solstice' in 2010 and 'Optical Illusion' in 2015. They are propagated by Camellia Forest Nursery of Chapel Hill, North Carolina. 'Solstice' has a medium rose form double with light yellow petals that grows vigorously and upright, making it an attractive plant. 'Optical Illusion' has a medium formal double yellow flower with pink tones and strap-like petals in a spiral pattern. Both are *C. flava* x *C. japonica* crosses.

Camellia cucphuongensis

This lesser known yellow species from the tropical lowlands south of Hanoi, Vietnam—specifically in the Cuc Phuong National Park—was discovered in 1995. It forms a small tree that doesn't tolerate direct sunlight or cold. Since it prefers shelter, it may be a candidate for being grown indoors. The photo shows that its new growth is an attractive shade of red that as it matures turns green.

Camellia vietnamensis

This species is indigenous to Vietnam, Laos and China. It was scientifically described in 1965. It has a medium to large single lightly scented white flower with golden stamens which make a nice show. It


New *C. cucphuongensis* foliage


C. vietnamensis

has dense green foliage on a vigorous upright, somewhat open plant. It is easy to grow and not susceptible to disease, and it is widely cultivated for oil production in China. It is used as a landscape plant in America and found in large public gardens that have a camellia species collection.

Camellia tsaii

This species is found in the Southern Yunnan Province of China, Burma, and Vietnam in mountainous terrain at 4,000 to almost 8,000 feet. It reaches a height of 26 feet and has small fragrant white flowers with slender, shiny leaves that are wavy. It makes an attractive plant that makes an outstanding floral display when it blooms. It has been useful in breeding cluster blooming seedlings such as 'Baby Bear'.

New Discoveries

New camellia species have been discovered in Vietnam over the last decade, including rediscoveries from 100 years ago. T*he International Camellia Journal* has published these discoveries, where detailed scientific descriptions may be found.

In 2007, Naotoshi Hakoda, Shuho Kirino, and Tran Ninh described three new yellow species found in Vietnam. They are *C. phanii*, *C. hirsute*, and *C. thanxaensa* which are placed among other yellow species in Section Chrysantha. They also describe an interesting orange-red species that has been named *C. yokdonensis* placed in Section Camellia in Chang's taxonomical system.

George Orel and Peter G. Wilson described *C. maiana* in 2010. It has translucent white flowers that typically bloom in clusters. In 2012, Tran Ninh, Hakoda Naotoshi, Luong Van Dung reported the discovery of a new yellow species named *C. dalatensis* which was


Camellia tsaii


'Baby Bear'

collected in a valley of evergreen forest at an altitude of 4,300 feet on Dalat Plateau. The flower is described as having eight to ten light yellow petals and 300 stamens. It is interesting that exact location is not reported to protect and conserve these species.

Tran Ninh and Luong Van Dung described a new light-yellow species, *C. dilinhensis*, in 2013 which was collected in the evergreen forest at 2,800 to 2,900 feet altitude in Southern Vietnam. In 2015, scientists Le Nguyet Hai Ninh, of Hoa Lu University, and Tran Ninh, of the Hanoi University of Science discovered another new yellow camellia. This time it was from North Vietnam and named *C. luongii*.

An example of a species discovered over a hundred years ago that has been rediscovered is *C. piquetiana*. It was found in 1866 by French botanist Jean Batiste Louis Pierre and described as having a small deep pink flower with a purple tint that, when it dries out, is purple. In 2001 and 2002 Australian expeditions by researchers from the University of Western Sydney found trees, twenty-five-foot-tall and several hundred years old, many regenerative from stumps that had flowers and fruit.

Conclusion

Vietnam is the home to twenty percent of the Camellia species. Several of the species are widely distributed and have been appreciated for years. New discoveries are expected to be found in areas of Vietnam that have not been fully explored. Even though most of these new species have not yet been distributed in the western camellia world, they are welcome additions to the genus Camellia. After years of occupation and wars, Vietnam has become the frontier for plant collection where camellia treasures may still be found.

The Origin of Camellia Seedlings

Story and Photographs
By Bradford King

Anna's hummingbird pollinating a 'Tama-no-ura'.

Which came first, the chicken or the egg? The camellia plant or the seed? This is a conundrum. Regardless, many camellia hobbyists have seedlings that grow and bloom from seed five to seven years after germinating. If the flower produced is a formal double, it is sterile with no stamens or pollen, and has no viable female parts. This is the end of new seedlings for this cultivar. All the other camellia forms can set seeds and produce seedlings. What more is needed?

Pollinators

A pollinator is a vector that moves pollen from the male anthers of a flower to the female stigma of a flower which accomplishes fertilization. Pollinators are fun to observe and photograph. They are essential for human survival in producing vegetables and fruit.

Honey bees and hummingbirds move quickly among flowers, dispersing pollen before the flower wilts and the stigma becomes unreceptive. In East Asia, the Japanese white-eye (*Zosterops japonicus*)—or mejiro which means "white eye" in Japanese—is a small olive-colored bird that is known to pollinate camellias. It feeds on nectar, although it also dines on a wide variety of seeds and fruits. It is a social bird that mates during the camellia breeding season. It has been introduced to Hawaii where it has become established.

Several insects may also pollinate

camellias. Hybridizers hand pollinate camellias to know both the identity of the seed and pollen parents.

Growing Seedlings

A properly fertilized camellia flower develops seed pods during the summer growing season. When the round or spherical pods split open, they usually have from one to nine seeds. A mature seed is dark brown or black. A light colored or white seed indicates the pod was harvested prematurely.

How do you collect the seeds? I like to attach a jewelry bag, which has a drawstring to hold it in place over the seed pod, in July or August. When the pod opens, the seeds drop in the bag and are not lost on the ground.

Alternatively, one can carefully monitor pods and pick them when the pod begins to crack, but before the seeds fall to the ground. A third alternative is to pick the pod, place it in a shallow dish or container, and put it in a shaded, warm place where it is safe from squirrels or sudden high winds, until it opens on its own. I use plastic butter cups (uncovered) or shallow dishes so the pods don't blow away or get lost. A final method is to pick the pod and carefully cut the fruit to liberate the seeds. When the seeds are out of the pod, they may be placed directly in a one-gallon pot filled with a camellia soil mix and lightly covered with soil. However, I prefer a germinating jar filled one third with moist peat moss. Generally, I soak the peat moss for an hour or more, squeeze out the excess water by hand, and place the seed on top of the peat. Place a plastic label identifying the name of the seed parent first, then a lower case x, then the name of the pollen parent, if known (e.g. 'Tama Peacock' x 'Royal Velvet'). If the pollen parent is unknown, state this or use the question mark symbol. When the seeds germinate (three to twelve months later) and have three to four leaves, they should be planted in a pot. I prefer three to five seeds of the same controlled cross to a one-gallon pot. If you know the parents, label the pot. Be sure to put seeds from the same parents in the same pot.

When you go to great lengths to do a controlled cross and the seed germinates, then you absolutely want to know the parentage. I use white plastic

Center parts of a formal double.

Female flower parts.

***Camellia hybrid* 'Solstice'**

plant labels. Seeds should be planted in a loose, well-drained, slightly acidic mix and kept moist. I use liquid starter fertilizer during the growing season, and half as much when they are dormant during the winter months.

Repotting or potting up every two years is best and required every three years for healthy thriving plants. Seedlings need the same growing conditions as other camellias. In addition, the pots may need protection from skunks, children, pets, and wind. I fence them in and pack them together under 55 percent shade cloth. It is frustrating when one hundred labeled pots are all turned over by a skunk looking for grubs.

***C. reticulata* seed pod.**

Camellia species have different kinds of fruit or seed pods. There is also variety in the characteristics of seed pods within a species. The three most common species with a general description of their seed pods follows.

Japonica

The seed pods are egg to spherical in shape. The pods are larger than the sasanqua pods and smaller than the reticulata pods. They are ¾ to 1½ inches long with a diameter of ¾ to 1½ inches. Each pod has three sections. The wall of the pod is thin, less than a ¼ inch thick. There are generally three to seven seeds in a pod. The pods

***C. japonica* seeds in a pod.**

Collecting seeds in a jewelry bag.

'Tama Americana' being pollinated by a bee and a hummingbird at the same time.

are green to brown, with some a lovely bronze. They tend to have smooth skin.

Sasanqua, Vernalis and Hiemalis

These species typically have seed pods that are spherical to pear shaped. They are small (¾ inches long) and have three sections. The wall of the pod is thin, less than a ¼ inch thick. There may be only one seed, but generally, there are three to five seeds in each pod. The pods are smaller and darker in color than japonica pods. Many pods have fuzzy hair.

Reticulata

The seed pods are generally spherical in shape, but flattened at the ends. They are 1 to 1½ inches long, and generally the diameter is greater than the length. The pod's surface is rough and scaly, with three to five sections. The wall of the pod is thick when compared

***Camellia japonica* 'Royal Velvet'**

to either sasanqua or japonica pods. The wall of the pod can be a ½ inch or more in thickness. The texture is like an unripe cantaloupe.

Chance Crosses

Many camellia growers will harvest seed pollinated naturally by bees, insects, or hummingbirds. These are called chance crosses (open pollinated), as the pollen parent is unknown. If the seeds are collected from a known female plant (seed parent), keep them together and labeled with the seed parent name, and propagate them as a collection. If mixed seeds are collected, both parents are unknown. The odds of producing a new and distinctive seedling by chance cross are estimated to be one in a thousand. However, that said, many of our best camellias are chance crosses. 'Sawada's Dream' is a wonderful example. It was introduced in 1958 at Overlook Nursery by Kosaku Sawada. Most of Nuccio's Nurseries introductions are also chance crosses like, *C. japonica* 'Royal Velvet', *C. sasanqua* 'Yuletide', *C. reticulata* 'Curtain Call', and *C. hybrid* 'Buttons'n Bows', to name four out of their 200 introductions.

There are several reasons why camellia nurseries have successfully introduced outstanding chance-crossed seedlings. First, they have several thousand plants in bloom, which is a vast

***C. japonica* 'Tama-no-ura' x *C. japonica* 'Wildfire'**

number of diverse parents producing pods. Second, they collect hundreds of pods each year, which produces thousands of seeds. And, they propagate thousands of seedlings which are grown and evaluated for many years, before the chosen few are offered for sale. Therefore, one in a thousand is not discouraging to a well-run camellia nursery. However, some of us wish to improve the odds of producing a new distinctive seedling.

Controlled Crosses

This requires someone to emasculate a ripening, unopened flower bud by removing all the stamens (the male flower part) and placing fresh pollen on the stigma (the female part of the flower). While one may choose buds and pollen that are ready on a given day, it is better to have a breeding goal: for example, a large red flower with a white border. Then, select a good seed-setter that has one or more of the desired characteristics, and a pollen parent with one or more of the chosen characteristics.

Therefore, if the goal is a large red flower with a white border, 'Tama-no-ura'—a great seed-setter with a genetic white border—could serve as the seed parent. Since it is a small flower, a large red flower would be picked for its pollen, such as 'San Dimas', 'Bob Hope',

***C. japonica* 'Tama Carousel'**

'Royal Velvet', or 'Julius Nuccio'. This strategy improves the odds of producing a distinctive flower to one in a hundred.

Since 'San Dimas' and 'Tama-no-ura' are early to midseason bloomers, seedlings will most likely have a similar blooming season. Since 'Royal Velvet' is a midseason bloomer, it increases the odds that the new seedling will bloom midseason. 'Bob Hope' and 'Julius Nuccio' are midseason to late season bloomers, using them as parents will increase the odds for later season blooms.

The genetic white border of 'Tama-no-ura' may or may not be inherited. When I crossed 'Tama-no-ura' with 'Wildfire' seeking a striking red flower with a picoted border, none produced a border. However, one was a welcomed surprise when it developed a large red loose peony flower from a single form parent crossed with a semi-double flower. Many seedlings will be small to medium, red, unmarketable flowers; others may have various amounts of the sought-after white border.

When I crossed 'Tama-no-ura' with 'Nuccio's Carousel', only one seedling out of ten had any white. The best seedling had a pink medium flower with raised petals and occasional petaloids, and an ample white border. It

‘Old Glory’ being pollinated by a bee.

Pollinating by hand.

'April Remembered'

was introduced as 'Tama Carousel'. All the other seedlings were used for root stock. Approximately ten percent of *C. japonica* seedlings were developed through controlled crosses, while most *C. reticulata* and *non-reticulata hybrids* are products of controlled crosses.

Master Hybridizers

Three of the best living American camellia breeders are Dr. Clifford Parks, Dan Charvet and John Wang. While they have very different hybridizing goals, they all do controlled crosses to better achieve their breeding goals. Dr. Parks has introduced a few outstanding *C. reticulata* cultivars. His flowers include 'Dr. Clifford Parks', 'Crimson Candles' and 'LASCA Beauty'; fragrant *hybrids* such as 'Spring Mist'; and yellow hybrids like 'Solstice'.

However, his contribution to breeding cold hardy camellias is, in my opinion, his most significant hybridizing achievement. It was the result of a systematic, well-planned camellia breeding program. The "April series" of ten cold hardy, spring blooming *C. japonica* cultivars used 'Berenice Boddy' for the seed parent for six of them. 'April Remembered' is his most widely distributed cold hardy cultivar. It has a larger flower that is also more cold hardy than its seed parent, from which it inherited its color tones. The pollen

***C. reticulata hybrid* 'Shelter Cove'**

parent was 'Dr. Tinsley'. To produce attractive cold hardy *japonica* cultivars, he wisely chose the parents used in the control crosses.

Dan Charvet has been breeding camellias since the 1970s. Charvet's primary goal is vigorous, disease resistant, self-grooming cultivars (spent flowers drop from the plant without shattering), with fragrance. Toward these ends he has worked with numerous camellia species besides *C. japonica* and *C. reticulata*, such as *C. lutchuensis*, *C. fraterna*, *C. forrestii*, and *C. yuhsienensis*. 'Shelter Cove' is the most widely distributed of his introductions. It is the result of a cross between one of his creations [(*C. pitardii* var. *yunnanica* x *C. reticulata* 'Purple Gown') x (Open Pollination)] and itself—or it may have been pollinated by bees.

Charvet has been focusing on petal blight by using species and cultivars that are resistant to this wide spread flower damaging disease characterized by brown spots that rapidly spread through the camellia flower. This program has progressed to the point that almost all his seed parents contain one or more camellia blight resistant spe-

***C. reticulata hybrid* 'Beautiful Day' (Photo by Dan Charvet)**

cies in its background. An example of one of his petal blight resistant seedlings is a *reticulata hybrid* aptly named 'Beautiful Day'.

John Wang has many hybridizing interests including fragrance, cold hardiness, reticulata hybrids, and the introduction of special color tones. One important breeding program is with *C. reticulata*. Wang reasoned that the red color was a strongly dominate genetic trait in *C. reticulata*. Since his goal was developing new reticulata seedlings with new colors—especially light colors—he developed two strategies.

First, he used fifty percent *C. reticulata hybrids* and back crossed them with *C. japonica* to produce seedlings that were twenty-five percent *reticulata* to serve as parents for future cultivars. The second strategy was to select a few light-colored *C. reticulata hybrids*, such as 'Suzanne Withers', 'White Reticulata', and 'Lauretta Feathers', to produce very light colored *hybrids* to serve as fertile mother plants, and crossed them with white-colored *C. japonica* varieties, such as 'Kona'. This is illustrated by 'Sheng Jie' ('Holy Pure') which resulted from a controlled

‘Sheng Jie’ (‘Holy Pure’)

cross between ‘Suzanne Withers’ and ‘Kona’.

In conclusion, while growing camellia by seed is easy, it takes patience and persistence to get a camellia to a level of maturity to bloom. While the new plant is genetically different from its parents, there is a low statistical likelihood of producing a unique or different enough bloom to register as a new variety. On the other hand, they make good root stock. It is fun to do and if you like to be surprised, you will have unlimited possibilities.

Return to TOC

CAMELLIA SPECIES

STORY AND PHOTOGRAPHS
BY BRADFORD KING

Camellia japonica 'Mathotiana'.

The camellia is a flowering plant in the tea family (Theaceae). They are found in Southeast Asia from the Himalayas east to Japan and Indonesia. There is some controversy over the exact number of species. "New" species have recently been discovered in Vietnam which may add to the number, or be determined by taxonomists to have already been identified. In the 2015 *International Camellia Journal* two new yellow species, *Camellia vuquangensis* and *Camellia hatinhensis* were found in Vietnam.

While as many as 400 species have been proposed in scientific literature it is estimated by Gao, Parks and Du in *Collected Species of the Genus Camellia: An*

Illustrated Outline that the genus has about 280 species. Linnaeus named the species after Georg Joseph Kamel, a Jesuit, who worked in the Philippines and described the camellia. Eighty percent of the species are native to China.

Ornamental Camellia Species

The most important ornamental camellia species are *C. japonica*, *C. reticulata*, *C. sasanqua* and their *hybrids*, which number in the thousands. There are 7,000 camellia cultivars listed in the 2017 *Camellia Nomenclature*.

C. japonica was first described in the scientific literature in 1753, but was known for centuries in Asia. It is widely distributed and even abundant where it occurs naturally. It covers over 3,000 miles south to north with some species able to tolerate heat as well as cold. Those from its northern range, in the islands of Korea, are among the most cold hardy. *Japonicas* have been cultivated for many centuries in Japan and China. Over the last two hundred years, *japonicas* have become a popular garden plant in warm climates worldwide.

In general, the flowers are pink and red, but rarely white. Its usual chromosome numbers are 2n=30 which means each cell has 15 pairs of chromosomes for a total of 30 chromosomes There are rare exceptions with 45 chromosomes like 'Lady Clare' and 'Mathotiana'. There are 4,695 *japonica* cultivars described in the 2017 *Camellia Nomenclature* with a wide range of colors (white, blush, yellow, pink, red); sizes (tiny to very large); and flower forms (single, semi-double, peony, rose form, formal double).

C. reticulata was first described in the scientific literature in 1827. It is native to woodlands and deforested areas of Yunnan Province in China. The flower is typically rose pink, with red to pink hues. The blooms are from 3.5 to 5 inches in size and have semi-double forms (less than 30 petals). Many have upright petals that make for very beautiful flowers. They bloom from midwinter to spring time on a small tree with leaves that show a network of veins. *C. reticulata* has interbred with *C. pitardii* var. *yunnanica* over the years. The chromosome number is 2n=90. There are 976 *C. reticulata* cultivars described in the 2017 *Camellia Nomenclature*.

C. sasanqua is a sun toler-

***Camellia reticulata* 'Lion Head'.**

ant species native to Japan. The Japanese have cultivated it for hundreds of years. The native species always has a small white flower with fine textured foliage, which forms a shrub or small tree. New cultivars have diverse flower colors and forms. Many are fragrant. The native species chromosome number is 2n= 90 with cultivated varieties having 2n=45-120.

The species C. vernalis is a cross between C. japonica and C. sasanqua that occurred sometime in the past. Lab studies by Dr. Clifford Parks, and in a separate investigation in Japan by Dr. Takayuki Tanaka, provide conclusive evidence of this cross. Vernalis cultivars show a blend of both parent's characteristics—flowers and leaves are typically larger than the sasanqua's, and the shrub blooms later than sasanquas and before many japonicas. They are sun tolerant like C. sasanqua and are frequently listed with them under the descriptive category "Sun Camellias". The C. hiemalis hybrids are also "Sun Camellias". These C. sasanqua-like cultivars show genetic influence of japonicas.

Camellia Species of Economic Value

Camellia sinensis (the tea plant) is the most widely grown camellia worldwide and is com-

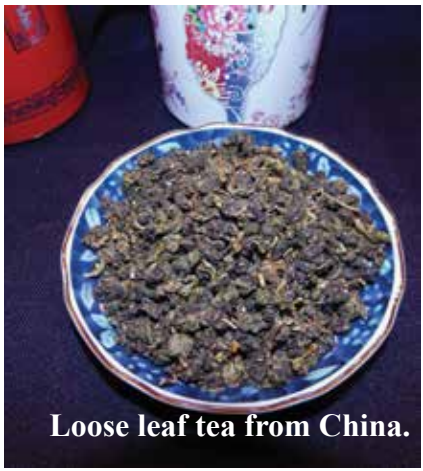
Wild white *Camellia sasanqua* bloom.

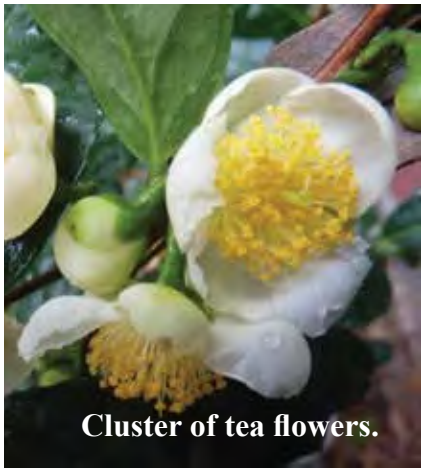
***Camellia vernalis* 'Egao'.**

mercially the most important camellia. It is found from India through China to some of the islands in the western Pacific. Tea is the beverage of choice after water throughout the world. It is the most popular beverage in China which has over 1.357 billion people.

The first report of processed tea imported to America was by the Dutch into New York in 1650. Today in America, iced tea is more popular than hot tea, especially in California and the southeast due to the warm climate. The iced tea in the south is traditionally highly sweetened. India is the largest producer of tea but retains 80 percent for their own people. Thirty countries today grow tea and Kenya and Sri Lankan (Ceylon) are the largest exporters. Tea is consumed in over one hundred fifty countries with Turkey, Ireland, the United Kingdom, Iran, and Russia ranking as the top five countries in 2016, per Wikipedia.

Camellia sinensis has also become a popular landscape plant as it forms a well-shaped bush that blooms in autumn and early winter. It produces many buds. The single small white (occasionally pink) flowers with yellow anthers bloom on the tips of


Loose leaf tea from China.


Cluster of tea flowers.


Camellia oil.

the branches and in the leaf axils.

Tea is made by harvesting the new leaves of the plant. In 2017, the Tea Association of the USA reported eighty-six percent of all tea consumed is Black Tea, 13 percent Green Tea, with the remainder small amounts of oolong, white and dark tea. The way the tea leaves are processed accounts for the different types of tea.

C. oleifera is a Chinese species that is an important source for edible oil also known as tea oil or camellia oil. It is of great economic importance in Asia made by pressing the seeds of *C. oleifera*. It is the most important culinary oil for hundreds of millions of people, particularly in southern China. It is widely distributed with over 9,900,000 acres cultivated for oil production in China. It can be found in forests, foothills and banks of streams at elevations from 328 to 4,265 feet, according to Wikipedia. The small single white flower is not impressive; thus the plant is generally not used as a landscape plant, even though it is easy to grow.

Camellia tea perfume.

In addition, camellia oil is commonly used to clean and protect the blades of cutting instruments. In Japan camellia oil is called "Tsubaki oil" and has been used for hair care and as a body lotion as the oil is light and doesn't feel greasy. Black and white tea has been used as a perfume in Italy.

The Williamsii Hybrids

The breeding of camellia cultivars within a species has a very long history in Asia, Europe and the English-speaking camellia world. The intentional breeding between camellia species is a more recent development. The first species when bred with *C. japonica* that produced wonderful new camellias was *C. saluenensis*. These are known as *williamsii hybrids* named after John Charles Williams of Caerhays Castle in Cornwall, England.

He was a major sponsor of

George Forrest's plant collecting trips to Yunnan China. Forrest made seven trips between 1905 and 1932 collecting thousands of plants and seeds. He gave seeds of *Camellia saluenensis* to Williams who shared them with Col. Stephenson Clarke. They found the plants grew well, flowered freely, set seed and survived the cool winter weather in Great Britain. They began to make controlled crosses to augment the open crosses. It was after Williams's death in 1939 when they began introducing new *hybrids*. The first was named 'J. C. Williams' in 1940 to honor him. Col. Clarke introduced 'Donation', one of the best known and widely distributed *hybrids*. It has an orchid pink flower with darker pink veins. The name may have been selected to indicate that the original seeds were a donation from Williams to Clarke. Today we have hundreds of *C. japonica* and *C. saluenensis* crosses which are listed in camellia nursery catalogs.

In addition, other camellia species have been used in breeding. In general, these small-leafed *hybrids* produce a profusion of small to medium flowers, tend to set buds when young, and tolerate cooler temperatures. Flower

Camellia x *williamsii* 'Donation'.

Camellia saluenensis.

Camellia lutchuensis.

forms may be single, semi-double, loose peony, peony, and formal double, but rarely anemone. Most have flowers in shades of pink, from blush to very deep pink. A few flowers have a bluish-pink color; others have lavender pink tones; and some have lovely shades of coral pink. There are also a limited of red-toned *hybrids*, and a couple are black-red in color.

Fragrant Camellia Species

A few *C. japonica* cultivars have a faint scent. Some *C. sasanqua* varieties have an earthy, musky fragrance and there are also several species that are fragrant. The most important is *C. lutchuensis*, which has a wonderful sweet fragrance that emanates from its many small white single flowers. The flower buds usually have a lovely red spot on the outer petals. Buds grow singly and in small clusters in the leaf axis emerging along the stems and branches among the small pointed leaves. The plant, when mature, can reach ten feet in height. It is indigenous to Ryukyu Island, Japan. It makes a good landscape plant in warm, frost-free areas, but can be temperamental.

C. lutchuensis bred easily with *C. japonica*, leading to new fragrant cultivars. There are now over a hundred *non-reticulata hybrids* with *C. lutchuensis* in their lineage. The four most popular are 'Fragrant Pink', 'High Fragrance', 'Koto-no-kaori', and 'Minato-no-akebono'. Dr. William Ackerman introduced 'Fragrant Pink' by crossing *C. rusticana* 'Yoshida' with *C. lutchuensis* in 1968. It has a miniature peony flower. 'High Fragrance' has a pale ivory pink flower with deeper pink on the petal edges. It has a medium peony form flower that grows on an open vigorous plant with light green foliage. It blooms mid to late season. 'Koto-no-kaori' has a small single rose pink flower that blooms profusely on an upright lacy plant early to midseason. 'Minato-no-akebono' has a miniature single light pink flower that shades to a darker pink. The profuse flowers are borne on an upright somewhat loose plant that blooms early to midseason.

Yellow Camellia Species

There are forty or more yellow camellia species in China and Vietnam but only a few are grown in America. The most popular and widely distributed is *C. nitidissima*. The flower is a small golden yellow single to semi-double. The petals are

Bush of 'Fragrant Pink' camellias.

shiny, thick and highly textured frequently folding back to form a cup-like bloom. The plant grows vigorously, upright and open with very large ribbed leaves that are distinctive. It blooms midseason. The flower stems (pedicels) are long. The plant is endogenous to southern Guangxi, China and northern Vietnam. It is widely grown for its yellow flowers and distinctive foliage.

When *C. nitidissima* was first described in the 1960s, it caused great excitement in the camellia world due to its deep yellow pigmentation, which can vary in saturation from pale to deep yellow. Hybridizers used it widely in their breeding programs, seeking large and more complicated yellow flowers. However, it is highly incompatible with most other camellia species.

When successful crosses were

***C. reticulata hybrid* 'Koto-no-kaori'. Photo by Gene Phillips.**

Cluster of *Camellia nitidissima* flowers.

***Camellia nitidissima hybrid* 'Senritsu-ko'.**

obtained, their seedlings were almost all sterile, thus preventing back crossing to enhance color. There are now a few dozen pale or light yellow cultivars that are available in specialized camellia nurseries. Four of the best varieties are 'Ki-no-senritsu (yellow melody), 'Senritsu-ko' (pinkish melody), 'Kinomoto 95' (basic yellow number 95) and 'Kogane-nishiki' (metallic gold brocade). 'Ki-no-senritsu' has a small to medium a soft yellow peony to loose peony flower that blooms midseason on an upright open fast-growing plant. It is a shy bloomer, at least when young.

'Senritsu-ko' has a small to medium formal double to rose form double light yellow flower with peach pink on the petal edges. It blooms midseason on a moderately fast-growing upright open plant. It will bloom when young and produce many flowers. Depending on the microclimate, it may open fast looking like a spent rose, or stay in a formal double form capable of winning show points because of its beauty.

'Kinomoto 95' has a light yellow large semi-double flower borne on a slow-growing, upright plant that blooms mid to

late season. It gets its large size from its reticulata parent and the yellow from *C. nitidissima*. It frequently has a creamy flower shading to darker yellow in the center. 'Kogane-nishiki' has a small single trumpet-shaped flower that is pale yellow with slender red stripes inherited from 'Betty Foy Sanders'. It blooms mid to late season on a vigorous upright plant. When established, it produces many identical flowers, which makes a good entry in trays of like blooms.

Cold Hardy Species

C. oleifera was discussed as an important species in producing edible cooking oil. However, this camellia species is best known in America for its cold tolerance. Dr. William Ackerman used *C. oleifera* 'Plain Jane' and *C. oleifera* 'Lu Shan Snow' in his cold hardy camellia breeding program. He used these cultivars in making thousands of controlled crosses with many other species and varieties. These seedlings were field tested for cold hardiness and ornamental value. This extensive breeding program led him to introduce 51 cold hardy camellias, of which many have *C. oleifera* in their background.

Summer Blooming and Year-round Flowering Camellia Species

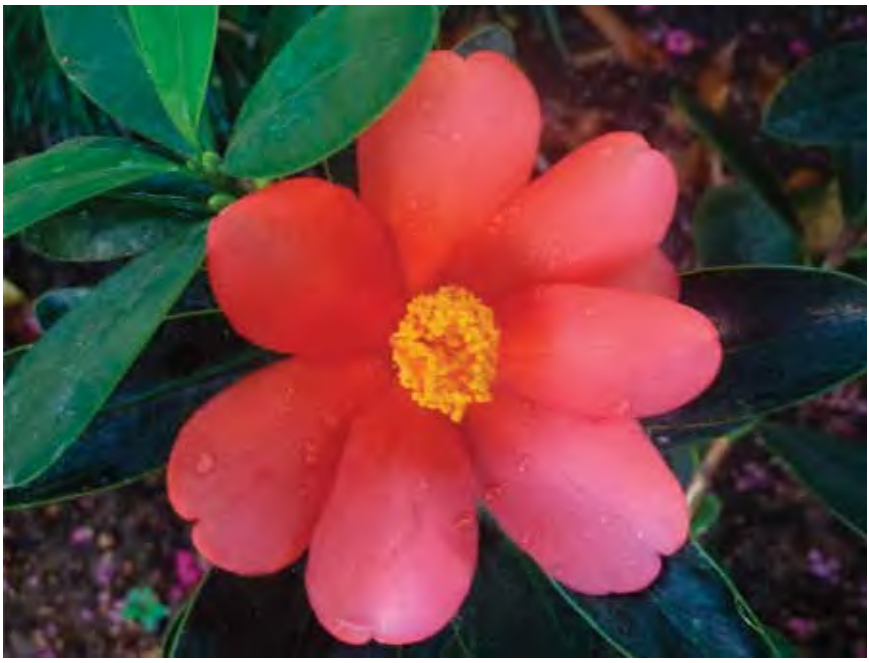
C. azalea (*C. changii* a.k.a. Azalea Wei) blooms in the hot summer, from late spring through the fall in America. In its native China and at the Longwood Gardens' green house in June through August. The flower is a medium red single with five to nine petals that looks like an azalea flower. The flowers are borne singly or in clusters at the tip of new growth. New growth may occur all year which is why this plant can bloom under optimal conditions every month of the year. Buds become red and elongated as they mature. The center of the flowers has a cluster of yellow anthers.

The unique red-hued flower with yellow anthers is very attractive—clear and bright. The leaves are a long narrow oblong with a very smooth surface that has a very thin light green edge with a raised mid vein. The plant grows bushy and slowly to a maximum of ten feet. There is no danger of damage during winter cold, as they can survive temperatures as low as 23 degrees. Chinese hybridizers have bred 217 *C. azalea hybrids* with summer and all-year-long blooming trait.

This is a remarkable achievement and a significant break-

***Camellia oleifera*.**

through in camellia breeding thanks to the Palm Architectural Company of Guangzhou, China. Ten back crosses to *C. azalea* were reported at the International Camellia Society's Congress in Brittany, France in March 2018. The ongoing breeding with *C. azalea* offers many exciting opportunities for new remontant camellia cultivars. Unfortunately, to date, these new cultivars have not been introduced to the United States.



***Camellia azalea* bloom.**

***Camellia azalea* leaves and buds.**

Yellow *Camellia nitidissima hybrid* 'Kogane-nishiki'.

Conclusion: Species Used in Breeding

Camellia hybridizing in Asia has been conducted for thousands of years. The development of new camellia *hybrids* began in the western camellia world in the 1930s with the *williamsii hybrids*. This began the breeding for new camellia *hybrids* using many camellia species. The importing of *C. reticulata* to California in 1948 ushered in the breeding of many new *reticulata hybrids*, noted for their large spectacular flowers.

Breeding to insert fragrance in camellias was done by several breeders in America, but especially by James Finley of New Zealand. Hybridizers in Japan and the United States used yellow camellia species, most notably *C. nitidissima*, to propagate yellow *hybrid* camellias. Drs. Ackerman's and Parks' hybridizing programs have resulted in the introduction of cold hardy camellias that have extended the range of where camellias can flower and thrive. The Palm Landscape Architectural Company of Guangzhou, China has recently introduced summer and repeat blooming cultivars. There are 715 *non-reticulata hybrids* described in the 2017 *Camellia Nomenclature* with new additions being registered every year.

Return to TOC

WILLIAMSII HYBRIDS

Story and Photographs
By Dr. Bradford King

***Camellia* x *williamsii* 'J. C. Williams'**

***Camellia* x *williamsii* 'Donation'**

When *C. japonica* was crossed with *C. saluenensis* these *hybrids* became known as *williamsii hybrids*, named after John Charles Williams of Caerhays Castle in Cornwall, England.

Williams was a major sponsor of George Forrest's plant collecting trips to Yunnan, China. Forrest made seven trips between 1905 and 1932 collecting thousands of plants and seeds. He gave seeds of *Camellia saluenensis* to Williams who shared them with Col. Stephenson Clarke. They found the plants grew well, flowered freely, set seed and survived the cool winter weather in Great Britain.

They began to make controlled crosses to augment the open crosses. It was after Williams' death in 1939 when breeders began introducing new *hybrids*. The first was named 'J. C. Williams' in 1940 to honor him. This

lovely single 2.5" to 3.5" pink flower was the beginning of the interspecific crossing of camellia species, which continues today with great success. J. C. Williams' successors, Charles and Julian Williams, continued to breed *williamsii hybrids*.

Col. Clarke introduced 'Donation' in 1941, which is one of the best known and most widely distributed *hybrids*. It has an orchid pink flower with darker pink veins. The name may have been selected to indicate that the original seeds were a donation from Williams to Clarke.

Today we have hundreds of *C. japonica* and *C. saluenensis* crosses. In general, these small-leafed *hybrids* produce a profusion of small to medium flowers, tend to set buds when young, and tolerate cooler temperatures. Flower forms may be single, semi-double, loose peony, peony, formal double, and occasionally anemone.

Most have flowers in shades of pink, from blush to very deep pink. A few flowers have a bluish-pink color, while others have lavender-pink tones, and some have lovely shades of coral pink. There are also a limited number of *hybrid* flowers that are rose red, bright red and dark red.

Most *hybrids* have inherited "hybrid vigor" which means they are more vigorous than their parents. By 1958, crosses known as "Caerhays" (*C. saluenensis* x 'Lady Clare') became well known in Cornwall, England. They tended to have large peony—occasionally anemone—blooms with bright, rosy-mauve flowers. Typically, we don't see them in the United States, but they can be seen in Europe.

'Gwavas' is a controlled cross between 'J. C. Williams' and 'The Mikado' made by Gillian Caryon in 1973. The flower is a lovely shade of dusty pink and varies in form from peony to formal double. It is a very late season

Camellia x williamsii **'Caerhays'**

bloomer. The plant is upright and robust.

There is an interesting story about the origin of 'Golden Spangles'. Ralph Peer was sent a 'Mary Christian' with golden variegated foliage. He inquired as to if this was typical of 'Mary Christian'. Mr. Julian Williams of Caerhays Castle reported he had never seen this variegation on any camellias at Caerhays. It was determined that it was found in 1946 among a cluster of *C.* x *williamsii* at Wisley, England labeled as 'Mary Christian'. This foliage mutation was named 'Golden Spangles'. The flowers are three inches across and a golden cherry rose, which is a shade deeper than 'Mary Christian'. The leaves are finely serrated and dark green, with a central splash of soft, yellow green. It blooms mid to late on a vigorous erect slightly spreading plant.

AUSTRALIA

Hybridizing of *williamsii hybrids* spread to Australia, New Zealand and America where they are very popular. Bob Cherry was a nurseryman from the age of sixteen until he retired. He registered many camellia cultivars,


Camellia x *williamsii*
'Gwavas'


Camellia x *williamsii*
'Golden Spangles'

Camellia hybrid
'Paradise Illumination'

most of them *C. sasanqua hybrids*. He established Paradise Nursery in 1972, just north of Sidney, Australia. He had 2 ½ acres for growing nursery stock and a fine show garden.

The International Camellia Register describes over 60 cultivars, of which 46 are *C. sasanquas* registered by Paradise Nursery. In addition, he bred a few *japonicas*, *reticulatas* and *hybrids*. Due to agricultural restrictions, we see very few of his introductions in the US. One *hybrid*, 'Paradise Illumination', was seen in a wonderful floral arrangement in Brittany, France during an International Camellia Society Tour. The flower's thick petals are a shiny shade of rose pink.

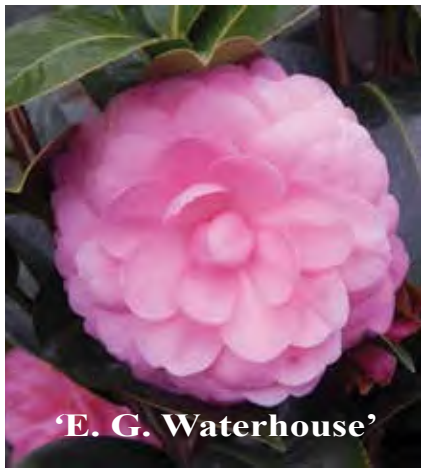
Professor Eban Gowrie Waterhouse was the first President of the International Camellia Society and a founder of the Australia Camellia Society. In addition, he bred camellias. The most well-known is his light pink formal double which he named for himself. It was one of the first formal

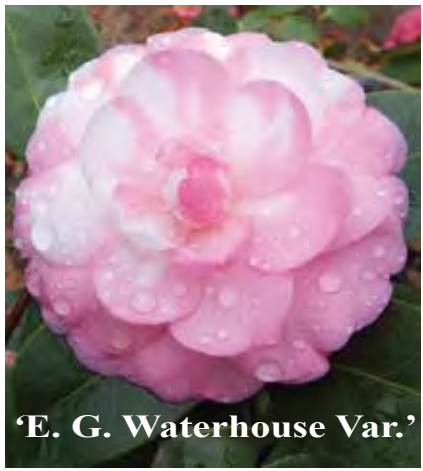
double *williamsii hybrids*. 'E. G. Waterhouse Variegated' is perhaps even more popular, as the soft pink with white markings makes a very beautiful flower.

In 1959, he registered 'Charles Colbert' a medium semi-double, pale pink flower with notched petals, which is only seen occasionally today in the US. Likewise, the medium semi-double slivery pink flower of 'Tiptoe', with its rich cherry petal tips, is rarely seen today in the US. What a shame. It is very attractive *williamsii hybrid* with a picturesque name.

NEW ZEALAND

Les Jury was an early breeder of *C. williamsii hybrid* camellias who introduced many of his camellias internationally. He was responsible for 'Anticipation', 'Elegant Beauty', 'Jury's Yellow', 'Debbie', 'Elsie Jury', 'Mona Jury', 'South Seas' and 'Les Jury'. A mature 'Anticipation' tree in bloom is an outstanding example of a *williamsii*


'E. G. Waterhouse'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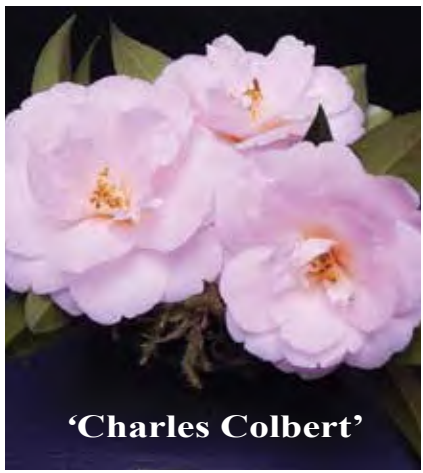
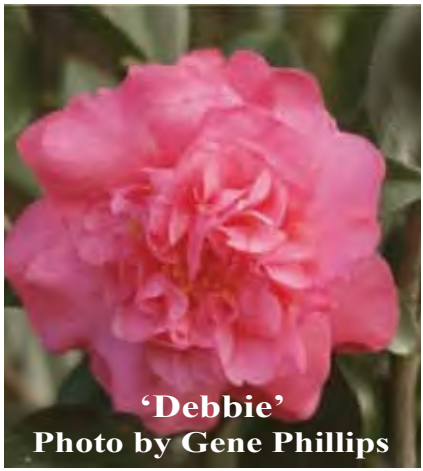

'Charles Colbert'


‘Tiptoe’


‘Anticipation’
Photo by Gene Phillips


‘Debbie’
Photo by Gene Phillips

hybrid, and so is the lovely medium peony pink flower of ‘Debbie’.

Felix Jury was Les’ younger brother. He focused on breeding formal double *hybrids* like ‘Dream Boat’ and ‘Water Lily’, both outstanding *williamsii hybrids*.

Mark Jury is Felix’s son and lives with his wife Abbie on the original Jury property, owned by the family since the 1870s. This is where Felix and his wife, Mimosa, built their house and garden during the 1950s. Mark concentrated on breeding blooms suited to modern smaller gardens. Unfortunately, most have not been imported to America. He honored his mother by naming a beautiful medium, soft pink, formal double ‘Mimosa Jury’.

J. Taylor of Taranaki, New Zealand, introduced ‘Taylor Maid’ and ‘Taylor’s Supreme’ which we don’t see in the US. We grow the beautiful light pink large semi-double ‘Taylor’s Perfection’. The large size, light laven-

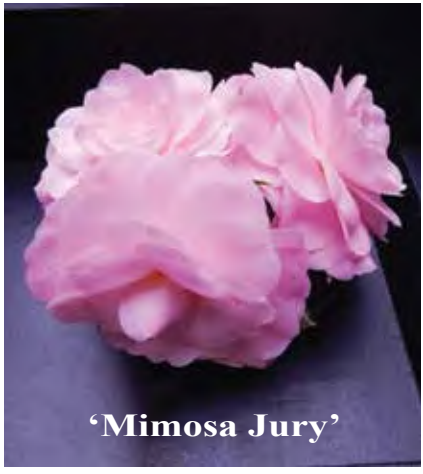
der pink flower borne on a vigorous plant makes it popular in the garden, show flower and as an espalier.

Ozzie Blumhardt is best known in the US for breeding 'Night Rider', one of the darkest red camellia flowers. It is a controlled cross of 'Ruby Bells' x 'Kuro-tsubaki'. A favorite *williamsii hybrid* he registered is 'Lavender Swirl'. It has a soft lavender pink, large formal double flower that blooms mid to late season on a vigorous upright plant.

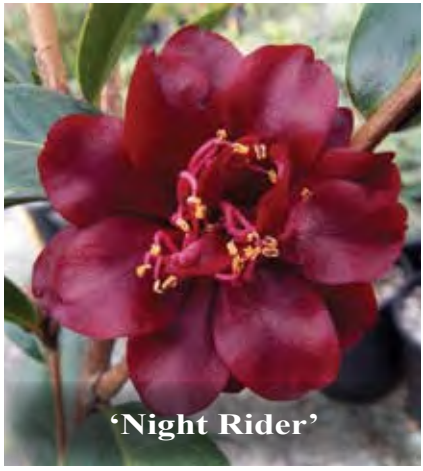
Neville Haydon at 90 years of age was awarded a Queen's Service Medal for his years of dedication as a horticulturist and as a camellia expert. Haydon operated a nursery, Camellia Haven, in Takanini, New Zealand, which he ran for 30 years. He registered 20 different camellia cultivars. One that has attracted attention is 'Dancing Blaze'. The very dark red, medium semi-double bloom has yellow anthers and red filaments. The plant is slow growing with


'Dream Boat'


'Water Lily'


'Mimosa Jury'


‘Taylor’s Perfection’


‘Night Rider’


‘Lavender Swirl’

a spreading growth habit.

AMERICA

Nuccio’s nurseries have introduced more than a dozen *williamsii hybrids*. One favorite is ‘Freedom Bell’ which has a small bright red bell shaped semi-double bloom. It is noted for producing masses of uniform flowers.

Several of their other *williamsii* introductions that win regular at camellia shows are also valuable garden cultivars. ‘Island Sunset’ has a medium semidouble lovely coral pink flower that shades lighter at the base of the petals. ‘Lucky Star’ has a rich orchid pink medium semi-double bloom. It has offset rows of narrow upward curved petals which make for an unusual and attractive star-like shaped flower. They have also introduced two new cultivars with unusual color tones. ‘Shock Wave’ has a medium single brilliant deep bluish pink flower and ‘Hot Stuff’ has a showy very bluish deep pink medium semi double flower.


'Island Sunset'


'Lucky Star'


'Shock Wave'

A few of David Feathers *williamsii hybrids* have stood the test of time as they are winning at shows and continue to be cherished in private and public gardens, specifically, 'Tulip Time' and 'Demure'. 'Tulip Time' has a medium lovely light pink flower that looks like a tulip. The plant is vigorous and blooms profusely mid-season. 'Demure' has a small pale pink irregular flower with large deeper pink edges.

While Kramer Brothers Nursery is no longer in business, their introduction 'Coral Delight' and its variegated form continue to be widely grown. The plant is slow-growing, upright and bushy. Since it was introduced in 1975, there are mature plants that are very impressive in full bloom. 'Coral Delight Variegated' is a show winner.

In 1989, they registered 'Spring Daze. This *williamsii hybrid* has a small rose form to formal double blush pink flower with beautiful coral pink petal edges. It is equally beau-


‘Hot Stuff’


‘Tulip Time’


‘Demure’


‘Coral Delight Var.’

tiful as a formal double or when fully open. To the uninformed they look like two different varieties.

CONCLUDING REMARKS

Hybrid camellia crosses between *C. saluenensis* and *C. japonica* are generally known as *williamsii hybrids*. These *saluenensis hybrids* characteristically are have small foliage and produce profuse numbers of small to medium flowers on a plant the forms buds when young. They tend to tolerate cold as well or better than *C. japonica*. Many growers fertilize them less than they do the *japonica* cultivars to avoid fertilizer burn.

Formal Double ‘Spring Daze’

Open ‘Spring Daze’

Return to TOC

Camellias in Oregon

By Bradford King

Mature camellia tree in Portland, Oregon.
Photo by Bradford King

Oregon was named from the French-Canadian word "Ouragan" which means storm. It is believed that the Columbia River was called "the river of storms" by Canadian fur traders working in the area. Portland is the largest city in the state. Portland was settled around 1830 near the end of the Oregon Trail and named after Portland, Maine. It lies between the confluence of

***C. reticulata* 'Jack Mandarich'**
Photo by Bradford King

the Willamette and Columbia Rivers. The Willamette Valley's numerous water ways continuously deposit fertile soil, creating a very productive agriculture area.

The valley was widely publicized in the 1820s as a "promised land of flowing milk and honey". Ox drawn wagon trains brought new settlers over the dangerous Oregon Trail throughout the 1800s. Today, Willamette Valley is often called "Oregon Wine Country" because of the vast acres of vineyards supporting over 500 wineries.

Camellias arrived in Oregon during frontier days, with the oldest plant believed to have been carried west by pioneers and planted in Sutherlin, Oregon. Mature landscape camellias can be seen in Portland neighborhoods built in the 1920s.

Many of the Oregon city parks have azaleas, rhododendrons and camellias growing under large trees, and perennials like the shade-loving hellebores in the foreground. I did not recognize many of the camellias, but did spot 'Magnoliaeflora', 'Pink Perfec-

Collection of *C. reticulata* 'Rena Bergamini' blooms
Photo by Don Bergamini

tion', 'Purity' and 'Alba Plena' in home gardens and a city park.

In the 1940s, the camellia surged in popularity. The Oregon Camellia Society met for the first time in January 1942. Camellia shows became part of the rich Oregon camellia history. They began in downtown Portland, followed by shows at suburban malls and at the Portland Japanese Garden. Since 2009, the OCS show has been part of the Newberg Camellia Festival. Newberg was named the Oregon "City of Camellias".

A computer search found 58 camellias registered from Oregon in areas from the coast and inland cities, along what is now Route 5, the major north-south interstate highway.

Camellia Reticulata

Grants Pass is a city 256 miles south of Portland on Route 5. It is the city where Jack Mandarich lived when he registered *C. reticulatas* 'Dr. Fred E. Heitman', 'Jack Mandarich' and 'Rena Bergamini'. These are three of the five *reticulatas* registered by Oregon grow-

***C. reticulata* 'Ragged Dragon'**
Photo by Bradford King

ers. Mandarich also lived in Menlo Park, California, Salinas, California, and Garner, North Carolina. He registered ten more *reticulatas* and a few *japonicas* over the years. Two other *reticulata hybrid* cultivars were originated in 1995 by T. Croson, of Powers, Oregon. 'Lady Love' has a light pink medium to large formal double flower which is rarely seen. 'Ragged Dragon' has a large red semi-double flower with wavy upright petals and is occasionally seen at camellia shows. These are wonderfully descriptive names for these camellias.

Camellia sinensis

While tea plants have not been widely grown in North America due the high cost of land and labor in hand picking the leaves, growers in several states are experimenting with *C. sinensis*. In Oregon, it is Minto Island Growers, a farm in the fertile Willamette Valley in Western Oregon. It began in 1988, when Rob Miller and John Vendeland planted an experimental half-acre of *Camellia sinensis*, imported from all over the world. Tea

***C. japonica* 'Wicke'**
Photo by Bradford King

plants take years to mature into full bushes. However, the plants are long-lived, which brings promise of future crops.

Elizabeth Miller is the owner of Minto Island Growers, the farm she grew up on. On her website, she says it's taken a quarter century for her family to grow the plants and learn how to best take care of them. She says that tea is the most complicated plant she's ever farmed. The tea plot is small, about an acre. It is labor intensive. The top two leaves and a bud must be picked by hand; thus only a limited amount of Minto Island's tea is marketed. They are a certified organic, small batch tea producer.

Camellia williamsii hybrids

There is only one *C. williamsii hybrid* listed in the *International Camellia Register* as being introduced by an Oregon grower. Donald Stryker of Langlois, Oregon originated 'Stryker's Caty' in 1950. Because it was never widely distributed, 'Stryker's Caty' was not included in the *Camellia Nomenclature*. In 1954, Stryker gave the University of Washington Arboretum 'Stryker's Caty' (under the name 'Stryker 50-1-1') along with two other *salu-*

C. japonica **'Ruth Tinkle'**
Photo by Bradford King

enensis x *japonica* crosses, known as 'Stryker 50-1-3' and 'Stryker 50-2-1'. These were planted April 16, 1959. The two numbered *williamsii hybrids* remain in the Arboretum's camellia collection, but the 'Stryker's Caty' plant's records indicate it was removed in 1992.

Camellia japonica

There are over a dozen Oregon *japonica* cultivars introduced during the 1940s that were not widely propagated. They may exist in private gardens in Oregon. Some are listed in the *International Camellia Register* but are not included in the *Camellia Nomenclature*, signaling that they were not widely distributed. A few are listed in the *Camellia Nomenclature Supplement* (Red Book), which means they are of historical interest but are rarely seen today. This includes 'Auburn White', 'Good Morning'. 'Lady de Sanquinae', and 'Susan'.

One of the earliest Oregon introductions was 'King Lear' introduced by the Rhodellia Nursery in West Linn, Oregon. It is a sport of 'Finlandia Red' that was discovered about 1929 by Otto Schwab. It seems this nursery sold camellias from the 1920s until sometime in the 1940s.

Jim Moon's *C. japonica* 'Dark of Night'
Photo by Garland Bayley

In general, varieties introduced by a nursery become more widely distributed than those registered by amateur growers, who are not equipped to propagate and distribute their introductions. This is true everywhere, including Oregon. There are several *Camellia japonica* cultivars that were originated in Oregon that are still grown today.

H. H. Harms of Portland, Oregon introduced 'Mrs. Bertha Harms' in 1949, 'Doreen' in 1957, and 'Wicke' in 1950. 'Wicke' has a small semi-double pink, white red and variegated flowers all on the same plant, which helped attract growers to this cultivar. It can earn points today at camellia shows.

At the Oregon Camellia Show in Newberg, Oregon in 2017, two newer introductions were exhibited. In 2010, Oscar Tinkle of Portland, Oregon developed 'Ruth Tinkle'. Collier Brown registered the medium red flower with faint white streaks. It has a pleasing semi-double to rose form double bloom.

'Dark of Night' is a small to medium dark red semi-double flower registered by Jim Moon in 2009, and is primarily grown in the Portland, Oregon area. The Oregon Camellia Society's Jim Moon Memorial Trophy is a perpetual trophy awarded to the best fragrant camellia at

Dr. Thomas Dietz holding the Jim Moon Trophy awarded for his 2015 winning 'Feather's Fragrant' bloom.
Photo by Bradford King

the annual Oregon Camellia Show. Past winners include Garland Bayley in 2015, Kathy and Roger Lintault in 2016 and Dr. Thomas Dietz in 2017.

The Future

The future looks promising for camellias in Oregon. The fertile soil, mild climate and outdoor interest of the people, coupled with an active camellia society are positive factors. The City of Newberg recently was named the "Camellia City of Oregon," which reflects an intense interest and commitment to growing and showing camellias. In addition, I was struck that as younger families have moved into the residential areas built from the 1920s through the 1950s. Many have remodeled the homes, but maintain the garden, including mature camellias, azaleas, and rhododendrons. This contrasts dramatically with Southern California where homes are razed, castle-like structures are built, and all landscape is removed, except the Live Oaks and other trees that owners and builders are legally prohibited from removing.

Finally, there are thriving nurseries in Oregon that sell a wide variety of plants. The one I visited, Cornwell Farm Nursery, grows 800 varieties of annuals and perennials, as well as azaleas, rhododendrons and camellias. The two dozen or so camellia varieties offered were from Monrovia.

Therefore, local buyers have access to tried and true cultivars like 'Swan Lake' and 'Tom Knudsen' as well as new varieties like 'Bella Jinhua', the sport from 'Nuccio's Bella Rossa' that has new red leaves. Monrovia is marketing it under the name "Vestito Rosso®".

All in all, the future of camellias, and the people who love them remains bright in Oregon.

Return to TOC

How the Yunnan *Reticulatas* Came to America

Story and Photos by Dr. Bradford King

'Captain Rawes' is the first documented *reticulata* cultivar to be imported from China to England in 1820.

***Camellia reticulata* 'Pagoda' ('Songzilin') is the second *reticulata* cultivar to be imported from China to England in 1857.**

Camellia reticulata originated in the rich alpine of Yunnan, the southeastern province of China where they have been growing for hundreds of years. The first documented translocation of these camellias was to Japan in the 17th Century. Chinese records indicate that between 1673 and 1681 a semi-double blooming cultivar was introduced to Japan called 'To-Tsubaki'. It is the same cultivar as 'Captain Rawes' which was introduced to England from Canton, China in 1820 by Captain Richard Rawes. It has a very large semi-double carmine rose pink flower with irregular petals.

On one of his plant gathering trips, Robert Fortune, a great plant hunter, imported a second *reticulata* cultivar to England he labeled "*Camellia reticulata*, flore plena". It has at times been called 'Robert Fortune', 'Pine Cone', 'Pine Cone Scales' and 'Pagoda'. It is known in China as 'Songzlin' which means pine cone. The large red formal to rose form double has petals that may open like pine cone scales. 'Pagoda' is the name listed in the *Camellia Nomenclature* while the *International Camellia Register*

uses the Chinese name.

The botanist John Lindley described the *Camellia reticualta* in 1827. He recognized that it was a different species than *C. japonica.* The name for this new species was chosen for the distinctive network of veins on the foliage.

A Chinese botanist, Professor Hu Hsien-Hsu, discussed seventy cultivars in "Recent progress in Botanical Exploration in China", published in the *Journal of the Royal Horticultural Society* in 1938. This article, appearing a hundred years after the first *reticulata* was introduced to the western world, awakened the interest of scientists and nurserymen to *Camellia reticulata*.

Dr. Walter Lammerts, Descanso Gardens

Professor Hu's article caught the attention of Walter Lammerts, PhD who joined the staff of Descanso Gardens of La Canada, California, as a research scientist in 1945. While interested, Dr. Lammerts' knowledge of the sterility of 'Captain Rawes' led him to minimize the importance of Dr. Hu's *reticulata* article. However,

Manchester Boddy, Descanso Gardens' owner and founder, with Dr. Walter E. Lammerts
Photo courtesy of Descanso Gardens, La Canada, CA

in correspondence in 1946 with Dr. Elmer Drew Merrill of the Arnold Arboretum, it was suggested that he contact Dr. Hu, which he did.

Dr. Hu wrote back in July 1947 noting there were numerous *C. reticulata* varieties in Yunnan and referred him to Dr. Te-Tsun Yu at the Yunnan Botanical Institute in Kunming, China. This reignited Dr. Lammerts' interest and he wrote to Dr. Yu. Many months passed until he received a letter on January 15, 1948 from Professor Tsai Hse-Tao, who had been given the responsibility of


'Professor Tsai' ('Maye Taohong')

responding to Lammerts.

Dr. Tsai confirmed that more than 20 *reticulata* cultivars were available in the Kunming province. This meant three years had passed since Lammerts sought the *reticulata* cultivars for Descanso Gardens. This delay in time is difficult to understand in today's world of electronic communication, which can be instantaneous, but usually only a few days between countries.

Lammerts planned for the 20 cultivars packed in their original containers to be sent by air to San Francisco, California. The plants were to be shipped from Shanghai, China to San Francisco, California on March 15, 1948. Walter Lammerts and his wife, Miriam, waited impatiently for all the people to exit. Two strange-looking crates with foliage seen between the cracks were unloaded. Dr. Lammerts was excited and worried that the plants might not actually be *reticulata* cultivars. He was afraid to look and hesitated; but, Miriam Lammerts rushed up and joyfully reported they appeared to be *reticulata* plants.

Dr. Lammerts carefully compared the leaf samples they had collected of 'Captain Rawes' from the University of California's Botanical Garden at Berkley. They all bore similar characteristics to the sample, although some differences in leaf shape were appar-


'Buddha'


'Confucius'

ent. The camellia plants still needed clearance from the U.S. Department of Agriculture after clearing customs.

When unpacked, it was discovered they were in ten inch pots packed in forbidden foreign soil. Dr. Lammerts removed all the soil and washed the roots. He repacked them in one gallon containers with moist peat moss before all the plants were fumigated for two hours with methyl bromide fumes. The Lammerts transported the plants in a panel truck to La Canada, California, on March 17, 1948.

Dr. Lammerts and Howard Asper, curator of Descanso Gardens, transplanted all 20 camellias in eight inch pots using John Innes potting mix (seven parts loam, three parts peat and two parts sand). They were placed in a greenhouse within structures, and covered in moist burlap to provide relatively high humidity to help them recover from the transportation and fumigation.

Howard Asper grafted scions from each cultivar on March 18, 1948 on five gallon understock. By April 28, 1948, it was evident that all of the grafts would fail and five of the 20 plants would not survive. Arrangements were made with Professor Tsai on two subsequent occasions for the five lost cultivars to be shipped. However, even though special care was taken, they were unsuccessful in replacing the five lost cultivars.

It became known that Ralph Peer had independently established contact with Professor Tsai which resulted in a shipment of 19 varieties to the United States. However, only three survived the trip and fumigation. Descanso staff arranged

***Reticulatas* in The Huntington Botanical Garden in San Marino, CA**
Photo by Ralph Peer from ACS Slide Collection

to graft the three survivors, which eventually resulted in two of the three becoming established at Descanso.

In March 1950, they made another importation from China which helped them to establish a total of 18 cultivars at Descanso Gardens. The above information is from an article called "The Story of the Yunnan *Reticulatas*" written by Dr. Lammerts and published in the *Northern California Camellia Bulletin*. (Vol. 8 No.1 1954)

Ralph Peer, Los Angeles

Ralph Peer wrote "*Reticulata* Nomenclature", also published in the *Northern California Camellia Bulletin* (Vol. 8 No.1 1954), which describes the Yunnan *reticulata* cultivars that he ordered. He was on his way to China in December 1948 when he met Mr. Walter Hazelwood, an Australian nurseryman. Hazelwood had ordered *reticulata* plants from Professor Tsai, which he had yet to receive. Peer telegrammed Professor Tsai.

Tsai wrote back listing the 20 varieties using his English translation of the Chinese names. The price was $15 each, with five varieties costing twice this amount. When Peer met Dr. Yu in

London in April 1950, he had his own translation of the original Chinese cultivars. In addition, Dr. Yu reported that 19 of the original cultivars were old, dating to 900 AD. One was a cross of 'Butterfly Wings' x 'Peony Flowered' made by Professor Tsai, and called 'Maye Taohong'. It was renamed 'Professor Tsai' by Rancho del Descanso, which is the name used in the United States today.

In 1950 and 1952, Rancho del Descanso prepared to distribute 15 of the original cultivars. They found, in many cases, the names were difficult for English speakers to spell, pronounce and understand—which made them unsuitable. Descanso consulted with Peer and other interested parties regarding new "commercial names". Consequently, there were three or four names for each cultivar.

Peer reports they adopted the Descanso names. This helps us understand today some of the nomenclature confusion. In most cases Bill Woodruff, the founding editor of the *Camellia Nomenclature*, adopted the Descanso names when the cultivars were distributed.

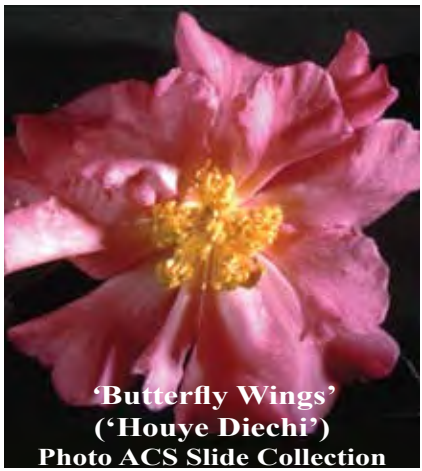
Peer also reported that Dr. Lammerts received a latter shipment of two additional crosses by Tsai in 1950. They were named 'Buddha' and 'Confucius'. The two lost varieties—"The Dwarf" and "Early Peach Bloom", also known as 'Early Crimson'—were never replaced.

Peer, the Southern California Camellia Society, and The Huntington Botanical Garden worked together to propagate and distribute the Yunnan *reticulatas*. They worked in cooperation with Rancho del Descanso, and ultimately 18 Yunnan *C. reticulata* cultivars, plus 'Buddha' and 'Confucius', were introduced in the United States.

The "original" Kunming *C. reticulatas*

The 20 *reticulatas* imported from Kunming, China by Lammerts/Rancho del Descanso and Peer are described with the adopted English name, the Chinese pinyin name, a brief description of the bloom, and a photo or illustrated drawing.

'Butterfly Wings' ('Houye Diechi') has a rose pink very large semi-double flower with irregular broad wavy petals that resemble a but-



'Butterfly Wings'
('Houye Diechi')
Photo ACS Slide Collection

'Chang's Temple'
('Zhangjia Cha')

'Chrysanthemum Petal'
('Juban')
Photo ACS Slide Collection

terfly's wings. The Chinese frequently describe a semi-double *reticulata* flower with multiple upright petals as a semi-double butterfly wing type bloom.

'Chang's Temple' ('Zhangjia Cha') has a large to very large "China rose" semi-double flower with up to 20 heavily notched petals in four or five rows with an open center that may have petaloids. The leaves are very large. Since it is common for Chinese people to decorate their wrists and necks with rose colored necklaces and bracelets, this camellia's color has been described as "China rose". Rose is a color halfway between red and magenta on the Hue-Saturation-Value (HSV) color wheel.

'Chrysanthemum Petal' ('Juban') has a light pink medium rose form to formal double flower with fluted petals. It has one of the smallest flowers of the "original" *reticulata* importations.

'Cornelian' ('Domanao') is the beautiful variegated form of 'Lion Head'. The flower is large to very large, red with blotches of white on the irregular wavy, crinkled petals. There may be a few petaloids in the semi-double

to peony formed bloom.

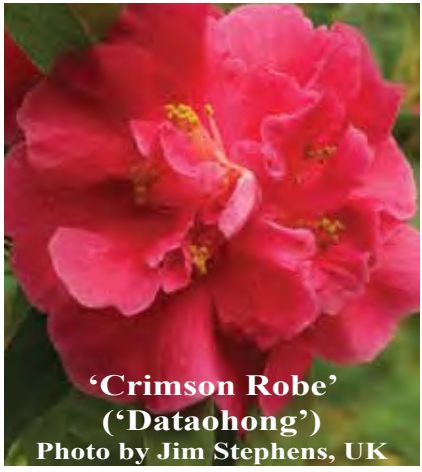
'Crimson Robe' ('Dataohong') has a very large semi-double vivid, bright red flower with a mass of wavy, crinkled, crepe textured petals. The color has also been described as carmine red and peach red.

'Early Crimson' ('Zaotaohong') has a large to very large early blooming crimson semi-double flower with numerous irregular upright petals. There are reports that in different locations the flower may be more pink than crimson. Crimson is generally thought to be a strong red color inclined to purple but the name is now sometimes also used for slightly bluish-red colors that are between black and rose.

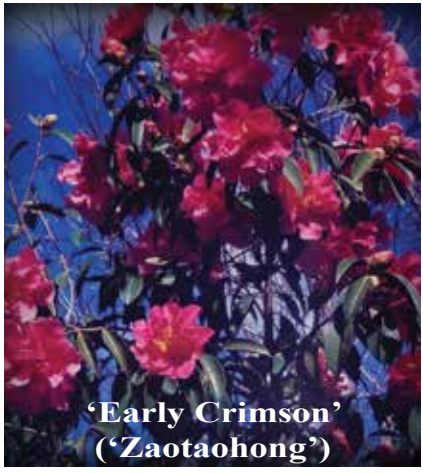
This cultivar is one that was lost. Later cultivars were imported by Colonel Tom Durrant to New Zealand in 1964 and the University of California Botanical Garden in 1980.

'Large Osmanthus Leaf' ('Daguiye') was apparently not officially released by Rancho del Descanso, but was imported in 1980 to the University of California at Berkley. It has a deep carmine large semi-double to peony flower. This cultivar's

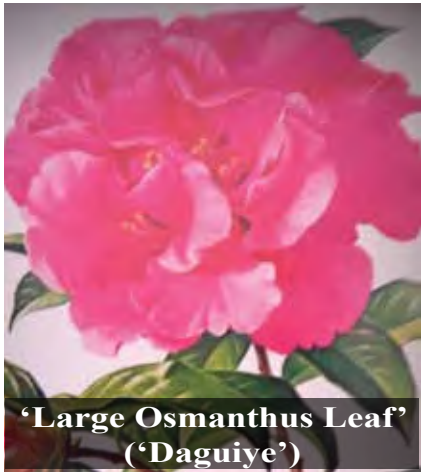
'Cornelian' ('Domanao')

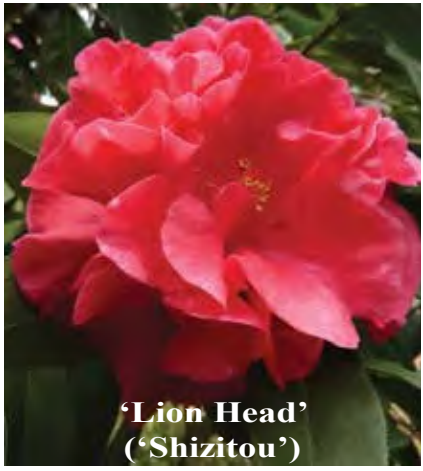


'Crimson Robe' ('Dataohong')
Photo by Jim Stephens, UK



'Early Crimson' ('Zaotaohong')


‘Large Osmanthus Leaf’ (‘Daguiye’)


‘Lion Head’ (‘Shizitou’)


‘Moutancha’ (‘Mudan Cha’)

leaves are similar to Osmanthus fragrans, a species native to Asia, which is commonly called sweet olive, tea olive, or fragrant olive.

‘Lion Head’ (‘Shizitou’) has a deep red large to very large peony flower with irregular, heavy crinkled petals at the base that may arch and cover the center of the flower as it matures, not unlike a lion’s mane.

‘Moutancha’ (‘Mudan Cha’) has a large to very large formal double bright pink flower with white veins, with white stripes inside the wavy crinkled petals. It is interesting that Descanso kept the Chinese name for this cultivar, which means peony flower due to its similarity to the peony.

‘Noble Pearl’ (‘Baozhu Cha’) has a large to very large semi-double red flower with large heavily textured red under petals and crinkled under petals.

‘Small Osmanthus Leaf’ (‘Xiaoguiye’) has an orchid pink medium rose form double flower. Descanso renamed it ‘Osmanthus Leaf’ because they didn’t release ‘Large Leaf Osmanthanus’. Colonel Tom Durrant imported this cultivar in 1964 to Australia.

‘Pagoda’ (‘Songzilin’)

has a deep scarlet, formal double to rose form double flower. The depth of the flower and its striking color makes for a popular variety, both in China and America. (Photo of 'Pagoda' on page 63.)

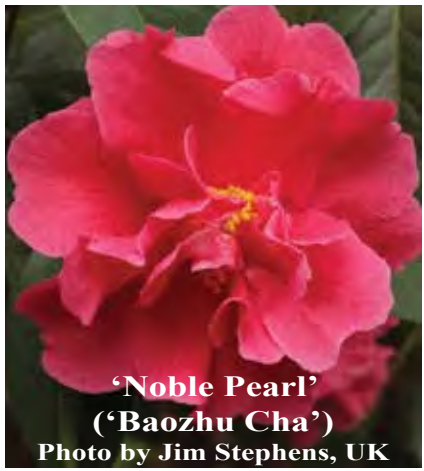
'Professor Tsai' ('Maye Taohong') has a medium rose pink semi-double flower with undulating petals. It is a cross between 'Butterfly Wings' and 'Moutancha' done by Professor Tsai Hse-Tao in China and named for him by Rancho del Descanso. (Photo of 'Professor Tsai' on page 65.)

'Purple Gown' ('Zipao') has a large to very large formal double to peony dark purple-red flower with pin stripes of white to wine red on the wavy petals.

'Shot Silk' ('Dayinhong') has a large brilliant pink semi-double flower with loose wavy petals. It grows vigorously, is easy to graft, and has vivid lively flowers, which has led to it being widely distributed.

'Tali Queen' ('Dali Cha') can have red to pink flowers. The very large semi-double bloom has large, textured, irregular outer petals and wavy inner petals that intermingle with the stamens.

'Willow Wand' ('Liuye


'Noble Pearl'
('Baozhu Cha')
Photo by Jim Stephens, UK


'Purple Gown'
('Zipao')


'Shot Silk'
('Dayinhong')


‘Tali Queen’
(‘Dali Cha’)


‘Willow Wand’
(‘Liuye Yinhung’)


‘Show Girl’

Yinhung’) has a large rose form to semi-double light orchid pink flower with irregular wavy petals with a silky texture. The foliage is long and narrow, like the willow tree leaves for which it was named.

The Next Generation of *C. reticulata hybrids*

According to population biologists, a generation time is the average time between two consecutive generations. Therefore, in human populations, the generation time ranges from 22 to 32 years which is frequently simplified to 30 years. For this article, the second-generation American *C. reticulata hybrids* are those which were introduced between 1949 and 1979.

Howard Asper

Howard Asper was Curator of Camellias at Descanso Garden, in La Canada, California. He assisted Dr. Walter Lammerts with the planting and propagation of the “original” Yunnan *C. reticulatas*. He was also a prolific camellia breeder who introduced sixteen *reticulata hybrids*. ‘Valley Knudsen’, his 1958 introduction, contin-

ues to be popular today. This *C. saluenensis* seedling x *C. reticulata* 'Buddha' has won many awards for its large semi-double to lose peony deep orchid pink flower.

In 1962, Asper introduced 'William Hertrich' which is a 'Cornelian' seedling. He had left Descanso Gardens for The Huntington Botanical Gardens to work under the leadership of William Hertrich, who planned to develop a world class camellia collection in cooperation with the Southern California Camellia Society. 'William Hertrich' has a deep cherry red very large semi-double flower with heavy irregular petals that are intermingled with the stamens.

In 1963, Asper registered 'Fire Chief', a large deep red irregular flower and a very large salmon pink flower that he named for himself. They are both attractive cultivars that are seen in public camellia gardens and older private gardens.

Two of his "girls" have lovely pink-tinted flowers. 'Flower Girl' has a large to very large pink semi-double to peony flower and 'Show Girl', a large to very large pink semi-double to peony flower. In 1966, he intro-


'Mouchang'


'Pharaoh'


'Valentine Day'


'Valentine Day Var.'


'Francie L.'


'Curtain Call'

duced 'Mouchang' which has a very large semi-double salmon pink flower. The very large old rose-hued 'Pharaoh', with wavy petals, is another wonderful flower he introduced in 1971.

Many people consider 'Valentine Day' the very best of his introductions. It is a cross between *C. reticulata* 'Crimson Robe' ('Datao-hong') and *C. japonica* 'Tiffany'. It has a large salmon pink formal double flower with a rosebud center borne on a slow growing plant. It has a spectacular flower that continues to win at camellia shows. It won 40 points in the 2015-2016 season, placing third in the large *reticulata* class behind 'Valentine Day Variegated' with 43 points and 'Larry Piet' with 42. The variegated form is a striking pink blotched white formal double flower.

The Huntington Botanical Gardens

In 1960, the Huntington honored a Southern California Camellia Society member Carl Tourje, who collaborated with The Huntington in developing their camellia collection. 'Carl Tourje' has a large soft pink semi-double flower with wavy petals. It is a cross of *C. pitardii*

var. *yunnanica* and 'Cornelian'. This illustrates that early crosses included *C. japonica*, as well as other camellia species.

Nuccio's Nurseries

In 1964, Joe and Julius Nuccio introduced their first *C. reticualta hybrid*. 'Francie L.' is a cross between *C. saluenensis* 'Apple Blossom' and *C. reticulata* 'Buddha'. The flower is a very large rose pink semi-double with upright wavy petals. It has been widely distributed, including in Australia and New Zealand. There is a virus variegated form available. 'Curtain Call' has a very large semi-double deep coral rose flower with irregular petals. It was registered in 1979 and continues to win at camellia shows today.

Shade and Shadow Nursery

This nursery in Mountain View, California, introduced 'Mandalay Queen' in 1966, which is a seedling of 'Tali Queen'. It has a very large rose pink semi-double flower with fluted petals. This outstanding cultivar is widely distributed and continues to appear at camellia shows.

Kramer Brothers

While this Southern


'Mandalay Queen'


'Sara Oliver'


'Pink Sparkle'


'Royalty'


'Dolores Hope


'Dr. Clifford Parks'

California nursery is better known for its *japonica* and *non-reticulata hybrids*, they also registered *reticulata hybrids*. 'Sara Oliver' was a *reticulata* seedling they introduced in 1977. The salmon pink loose peony flower is large to very large.

Private Growers

In the early years, nurseries and large institutional gardens introduced new cultivars. However, beginning in 1967 and 1968, amateur growers introduced new varieties. Two good examples are 'Pink Sparkle' and 'Royalty'. 'Pink Sparkle' has a large to very large semi-double light pink flower with iridescent petals. Is this the first example of a *reticulata* with shine or what we now call "frosting"?

'Royalty' has a very large bright pink semi-double flower which has a deeper pink in its center. It has wavy and crinkled petals. It is a cross between *C. japonica* 'Clarise Carleton' and *C. reticulata* 'Cornelian'.

David Feathers, the well-known camellia breeder, lecturer and writer from Northern California, introduced a wild form *reticulata* seedling in 1970. He called the very large pink to wine red,

loose peony flower 'Arch of Triumph'. It was used in breeding later *hybrids* but is rarely seen today outside of older private gardens.

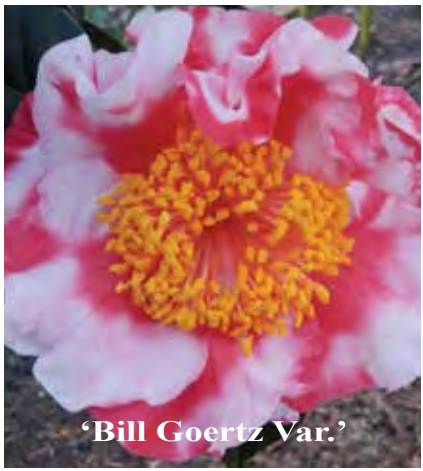
In 1971, Ralph Peer introduced a *C. reticulata* x *C. japonica* he named for his Hollywood friend. 'Dolores Hope' has a very large light rose pink flower veined orchid with white central petals.

Dr. Clifford Parks was a young botanist working in the Los Angeles County and State Arboretum in Arcadia, California. At this point in Dr. Parks' career, he was breeding *reticulata hybrids*. Two that are widely distributed and popular today are 'Dr. Clifford Parks' and 'LASCA Beauty'. 'Dr. Clifford Parks' has a very large red flower. It is one of the cultivars with several forms—semi-double, anemone, loose peony and full peony. It is still a camellia show winner. For example in 2015–2016 season, it won 12 points. 'LASCA Beauty' also is capable of winning show points with its lovely soft pink semi-double flower. LASCA is the acronym of the Los Angles State and County Arboretum. Parks continued hybridizing when he moved to North Carolina,


'LASCA Beauty'


'Harold L. Paige'


'Miss Tulare'


'Bill Goertz Var.'


'Al Gunn'


'White Retic'

but shifted to breeding cold hardy and yellow cultivars. He is still active today.

In 1972, a very large bright red rose form double bloom named 'Harold L. Paige' was registered in Oakland, California, by Jack Osegueda. This is an example of an amateur grower introducing such an impressive cultivar that it has been propagated widely. This late blooming cultivar has continued to be popular, winning 36 points in camellia shows in the 2015-2016 show season.

Another example of a popular variety originated by a private grower is 'Miss Tulare', registered in 1975. In the 2015-2016 show season, this large to very large bright red to rose red flower won 17 points at shows. The form can be formal double, rose form double, or full peony. This early to mid-season bloomer was registered by Maurice W. Abramson of Tulare, California.

In 1975, a very large dark red semi-double to lose peony flower was registered by William Goertz, of San Marino, California, which he named 'Bill Goertz'. The variegated version is very attractive. Goertz and Al Gunn also registered 'Al Gunn' in 1979. 'Al Gunn' is a very


'Jean Pursel'

large rich pink semi-double with curled, incurved petals.

A very significant color breakthrough in camellia hybridizing occurred in 1977. A large semi-double white flower, with blush white under the petals, was introduced by Hamilton Fish, of Santa Cruz, California. Until this point, *reticulata hybrids* were in tones of red or shades of pink. 'White Retic' has been used extensively in breeding *reticulata hybrids*, seeking to overcome the genetic dominance of red in *reticulata* seedlings.

Frank Pursel introduced the first of his 112 *reticulata hybrids* in 1975. This first seedling he named 'Jean Pursel' for his wife. The flower is a very large peony, light purplish pink that can still be seen in camellia shows. Pursel is one of the camellia breeders who ushered in the third generation of *hybrid* seedlings. 'Linda Carroll', which has a very large semi-double light pink flower, culminated his breeding program in 1995.

Meyer Piet and Lee Gaeta from Arcadia, California, like Pursel, overlap the second and third generation of *reticualta* introductions. 'Emma Gaeta' was registered in 1979. The flower is a very large deep rose semi-double that gained many followers. The variegated form developed in 1980 became even more popular frequently winning camellia shows in the 1980s and 1990s, before 'Frank Houser' was registered in 1989


'Emma Gaeta'

and took over top place. Piet and Gaeta registered sixteen *reticulata hybrids* from 1979 to 1989. 'Larry Piet' is arguably their most popular. It it won 42 points in 2015-2016 camellia show season.

Conclusion

While Americans were hybrizing *reticulata* seedlings, so were breeders in Australia and New Zealand, who also obtained the Yunnan *reticulatas* from China. Most of these early *hybrids* have never become popular in the States.

The vast numbers of the second generation *reticulata hybrids* were introduced in California where the Yunnan *reticulata* first landed. The original *reticulatas* and their *hybrids* began migrating east, where camellia breeders such as Dr. Walter Homeyer and Hulyn Smith from the southeast joined Frank Pursel and Philip Mandarich as the most successful breeders of the third generation *reticulata hybrids*.

The current generation of *reticulata* hybridizers are led by John Wang, who introduces new light shades of white, cream and pink flowering hybrids, and Dan Charvet is known for self-grooming, disease resistant *hybrids* that can thrive in cooler parts of the northwest.

Return to TOC

HIGO Camellias

Camellia japonica 'Higo' Gift of the Nippon Bonsai Grower's Cooperative, Kyushu Branch, 1976, National Bonsai & Penjing Museum. Photo courtesy of U.S. National Arboretum.

By Bradford King

'Ohkan' Bonsai
Photo by Bradford King

The Higo camellia is unlike any natural species. It is a *hybrid* developed between *Camellia japonica* and the lesser known *Camellia rusticana*. Therefore, they are frequently described in camellia books in their own chapter due to their unique flower form and process of development. In addition, the way a Higo is traditionally appreciated in Japan is as a bonsai. A choice Higo scion is grafted on crooked rootstock. The more mature the rootstock, the more it is valued.

The Japanese Higo rule of "go ben senkaku" expresses the aesthetic principle which a top Higo cultivar seeks to reach. Five "go" petals, arranged on a flat plane "ben" with three central main petals creating a triangle "senkaku".

An organization of Higo samurai, the Hana Ren, improved Higo camellias by developing large flowers, with many flared central stamens. Higo camellia stamens are divided into two types. Those Higo flowers with two-or-three ringed

layers of stamens are known as Wa-jin which means circular stamens. While those with many independent stamens that flare out from the center, like those of a Japanese apricot flower, are called Ume-jin. These tend to look like spokes of a wheel and are highly prized.

The Higo Camellia Society was founded in Kumamoto, Japan in 1958. They established a Higo camellia registration system which as of 2010 listed 183 cultivars. To register a new variety, the five-member Higo Society Registration Committee observes it for five years to see the stability of the flower pattern, and there must be more than 100 plants available for sale at the time of registration. However, there are Higo cultivars that have been introduced and not approved by The Higo Society.

The Japanese Higo rule of "*go ben senkaku*" expresses the aesthetic principle which a top Higo cultivar seeks to reach. Five "*go*" petals, arranged on a flat plane "*ben*" with three central main petals creating a triangle "*senkaku*".

Higo Camellias with Circular Stamens

In Japan Higo camellias with two or three ringed layers of stamens are called Wa-jin. They account for less than fifteen percent of the Higo camellias. They are less popular than those with a cluster of spoke-like stamens, known in Japan as Ume-jin. This is illustrated by Nuccio's Nurseries, who offer seventeen Higo cultivars, all of which have many flared stamens—a key characteristic of the Japanese apricot-style stamens. We come across Wa-jin Higo camellia varieties more often in large public gardens or in private gardens with a diverse Higo collection. The Huntington Botanical Gardens in San Marino, California has a Higo that has been registered is 'Asahi-nishiki' (Dawn Brocade). The flower is a medium pure white stripped red and mottled with white virus variegation. It has six or seven petals and 130 to 150 stamens. It is an excellent example of the Wa-jin style Higo.

'Asahi-nishiki'
(Dawn Brocade)
Photo by Bradford King

'Sakura-tsukasa'
(Lord of the Cherries)
Photo by Bradford King

A second example in The Huntington is 'Sakura-tsukasa' (Lord of the Cherries). It has a cherry pink flower with six petals and 100 to 120 white stamens in a spreading circle. It blooms mid-season, but is a slow growing variety suitable for pot or in the ground. It is an old variety that originated in Kumamoto Prefecture, Japan.

Apricot flowers
Photo by Bradford King

Franco Ghirardi, in his book H*igo Camellia: Un Fiore Per Il Terzo Millennio,* describes several of the varieties with circular stamens as second tier. In conclusion, the Wa-jin style Higo stamens are not as highly thought of as the more appealing flared stamens typical of the Ume-jin style.

Higo Camellias with Apricot Stamens

The Japanese name for the apricot Prunus mume is "Ume". The Ume-jin arrangement of Higo stamens is like that of a bloom of an apricot, in which the stamens flair out in the center like a sunburst. The character for jin may also be translated as soul or sprit. Since the flowers bloom in winter cold, Ume is a symbol of a warrior's courage. One tra-

Fuji'
(Peerless)
Photo by
Jim Dwyer

'Goshozakura'
(Imperial Palace
Cherry)
Photo by
Jim Pruckler

'Hatsuwarai'
(Babies' First
Smile)
Photo by
Bradford King

dition was to lay Higo flowers on a warrior's grave or to plant one nearby so that flowers fall, decorating the grave. Due to this practice, old cemeteries have been a source for rescuing ancient cultivars.

'Asagao' (Morning Glory) is an old variety registered in 1912. It has a wonderful medium to large pale pink flower with 140 to 170 yellow flared stamens with yellow-white filaments. The morning glory is one of the ornamental flowers highly valued in Kumamoto.

'Fuji' (Peerless) has a splendid white medium flower with five to six petals and 160 to 200 creamy yellow stamens. It makes a good bonsai as it grows vigorously. Mount Fuji is the highest mountain in Japan with a symmetrical cone that may be snowcapped in the winter. It is a historic site and well known symbol of Japan that is frequently depicted in art and visited by sightseers and mountain climbers.

'Goshozakura' (Imperial Palace Cherry) has a medium pale pink flower with 120 to 130 stamens. The petals tend to softly fold back. It produces numerous flowers and will set seed. The importance of the cherry tree blooms in Japanese culture is hundreds of years old. The cherry blossom represents the beauty and fragility of life that can be short lived.

Higo 'Hatsuwarai' (Babies' First Smile) has a creamy white flower to blush flower with a cluster of several rows of yellow stamens. It is imperative when translating Japanese to read the written character and know the context to make an accu-

'Hinomaru' (National Flag of Japan) Photo by Bradford King

'Jitsugetsusei' (Host of Heaven) Photo by Gene Phillips

'Kakehashi' (Suspension Bridge) Photo by Bradford King

rate translation. I wonder if, in this case, the actual meaning is Babies' First Smile.

'Hinomaru' (National Flag of Japan) has a large, deep dark red flower with wavy petals, red filaments and yellow pollen pockets. It has 120 to 150 stamens. Many rate this as the finest red Higo. The name denotes the Japanese Flag, also known as the rising sun.

'Jitsugetsusei' (Host of Heaven) is a variegated mutation from 'Asahi-no-minato' which is a sport from 'Higo-kyô-nishiki'. The medium red flower has various amounts of white. The white is symbolic of the stars, the yellow stamens are symbolic of the moon, and the red symbolizes the sun making the hosts of heaven. There are 150 to 200 stamens with red filaments and pistils.

'Kakehashi' (Suspension Bridge) has a white flower with various amounts of slender pale red stripes. The medium flower has five petals that are slightly wavy and 100 to 140 stamens.

'Kuni-no-hikari' (Glory of the Nation) has a rose red medium flower with 150 to 180 stamens. It is one of the better red Higo camellias. It blooms midseason on an upright compact plant, which makes a good bonsai. It was a chance seeding of 'Yamato-nishiki' grown by Tatsuo Fujimoto.

'Mikuni-no-homare' (National Honor or Nation's Pride) has a lovely veined pink medium to large flower which may have an occasional red strip and a fine white border. It is a mutation from 'Higo-kyô-nishiki' and recognized by the Higo So-

'Kuni-no-hikari' (Glory of the Nation) Photo by Bradford King

'Mikuni-no-homare' (National Honor or Nation's Pride) Photo by Bradford King

'Nanakomachi' (Seven Nice Girls) Photo by Bradford King

ciety in 1960.

'Miyako-no-haru' (Spring Comes to Town) has a medium to large pink bloom with less than 100 stamens. It grows vigorously and upright, blooming midseason.

'Nanakomachi' has a medium flower with a few red stripes on a light pink background. There are 150 to 200 stamens with pale yellow stamens. The name has been translated as "Seven Nice Girls", "The Seven Faces of Beauty" and "The Seven Pictures of Komachi".

'Nioi-fubuki' (Fragrant Snow Storm) has a large white fragrant flower with a few random red stripes. There are seven petals and about 150 stamens. It was originated by Tsugio Ôta, named by Chôka Adachi in 1968 and officially registered in 1971. It is popular in the west, and has produced several interesting seedlings. For example, Meyer Piet and Lee Gaeta, of Arcadia, California used it in their breeding program.

'Ohkan', also spelled 'Okan', (Kings Crown) has a medium white flower with a lovely rose red border and about 160 stamens that have white filaments. It has a beautiful unforgettable flower, and is my personal favorite Higo. Its slow growth makes it easy to keep in a pot. 'Ohkan' mutated from 'Yamato-nishiki' in 1980 and was registered in 1982. It has itself mutated: 'Kyokkô-kan' and 'Nagoi-no-haru'. (Photo of 'Ohkan' on page 100.)

'Osaraku' (Pleasure of a Long Life) is a typical ancient Higo camellia registered in 1912. The pale pink

'Nioi-fubuki' (Fragrant Snow Storm) Photo by Bradford King

'Ôzeki' (Large Gate in Kumamoto) Photo by Bradford King

'Shinonome' (East Clouds) Photo by Bradford King

flower has six or seven petals with wavy edges and has 130 to 180 stamens with white filaments.

'Ôzeki' or 'Higo-ôzeki' (Large Gate in Kumamoto) has a large crimson flower with darker red veins and 150 to 180 stamens with pink filaments. Flower buds are dark maroon and the narrow green leaves are veined.

'Shinonome' (East Clouds) has a light peach flower with some scarlet spots and 180 to 200 stamens. It mutated from 'Yamato-nishiki'. This cultivar is not often seen and was not extensively propagated, but The Huntington has a healthy plant.

'Shôwa-no-hikari' (Light of Shôwa) has a pale pink flower stripped red with a white border. There are five or six petals and 200 to 220 stamens with white filaments. It is a mutation from 'Yamato-nishiki' and was registered in 1960.

'Tsuboi-no-haru' (Tsuboi River Spring) Photo by Bradford King

'Tanchô' (Manchurian Crane) has a pure white flower with random crimson stripes with 140 to 180 stamens. The vivid red markings on the seven white petals make a striking flower. The red crowned crane, also known as the Manchurian Crane, is a large East Asian Crane which symbolizes luck, longevity and fidelity.

'Tenjû' (Long Life) has a medium to large delicate

'Shôwa-no-hikari' (Light of Shôwa) Photo by Bradford King

'Tanchô' (Manchurian Crane) Photo by Bradford King

'Tenjû' (Long Life) Photo by Celeste Richard

pale pink flower with six petals. There are 140 to 160 stamens with white filaments.

'Tsuboi-no-haru' (Tsuboi River Spring) has a deep pink flower with deep red stripes with finely frilled petals and a white border. It has 120 to 140 stamens with pink filaments. It is dedicated to the Tsuboi River which flows around Kumamoto and beside the city.

'Umegaki' (Plum Tree Hedge) Photo by Bradford King

'Umegaki' (Plum Tree Hedge) has a red flower with wrinkled petals and150 to 180 stamens with thin red filaments. It blooms late season.

'Yamato-nishiki' (Brocade of Japan) has a wonderful white flower striped red with white filament and 200 to 210 stamens. It is an old cultivar from 1830 and is an example of a first-class variegated Higo bloom. It has produced eight mutations, several of which are illustrated in this article.

Other Higo Camellias

'Dewatairin' (Large Camellia from Dewa) has been known for many years with a 300 year old tree still thriving in Kansai, Japan. However, it is no longer rated among the elite in Kumamoto because it frequently develops petaloids among its 100 to 120 stamens. However, its large size and clear rose pink flower, coupled with the fact

'Yamato-nishiki' (Brocade of Japan) Photo by Bradford King

'Dewatairin' (Large Camellia from Dewa) Photo by Bradford King

'Happy Higo Var.' Photo by Gene Phillips

it is a strong grower, have made it popular. It won the coveted Royal Horticultural Society Award of Merit in 1953. It grows well in the cool climate of Great Britain where it is appreciated. It is propagated by Camellia Forest Nursery in Chapel Hill, North Carolina.

In 1992 Nuccio's Nurseries introduced 'Happy Higo'. While the Higo Society in Japan may not recognize it as a valid Higo, it has become very popular in America due to its very large size and bright red flower. The single flower has a central mass of flared yellow stamens. It blooms midseason on a vigorous open upright plant. When in top form, it can win points as a gibed entry in a camellia show.

Higo Class, Southern California Camellia Council Show Photo by Bradford King

Generally, Higos with their irregular single flowers are not competitive in the *japonica* show classes, as Americans seem to find complicated symmetrical flowers more attractive. Therefore, the Southern California Council show held late February at Descanso Gardens has a Higo class. Linda Tunner has decorated an attractive table for the Higo entries for the last few years. The cultivar 'Ku-

'Kumagai' (Hero in a Kabuki Drama) Photo by Bradford King

'Kumagai' (Nagoya) Photo by Bradford King

'Yoshiaki Andoh' Photo by Celeste Richard

magai' (Hero in a Kabuki Drama) is a very large deep red Higo while 'Kumagai' (Nagoya) is also red but has 150 to 170 stamens tipped in white to blush pink petaloids.

Meyer Piet and Lee Gaeta honored a camellia friend and ardent Japanese camellia grower in 1986 by naming a *C. reticulata hybrid* for Yoshiaki Andoh. The flower is a medium to large single dark red flower with many flared golden stamens. This vigorous upright compact plant is a cross between *C. reticulata* 'Cornelian' and *C. japonica* 'Mrs. D. W. Davis'. While there is no evidence of *C. reticulata* in the lineage of the registered Japanese Higo, there may have been other species besides *C. japonica* and *C. rusticana* used over the hundreds of years they have been cultivated in Japan.

Conclusion

The Higo camellias reflect the differences in aesthetic appreciation between Japanese and American culture. Americans tend to prefer large, complicated symmetrical camellia flowers. The Japanese are drawn to single flowers with clear bright colors. The Higo camellia with its single irregular shaped flower and a mass of central stamens that, at times, may have random variegation is deeply loved in Japan, especially when three of the five large petals form a triangle. Higo camellia names are extremely interesting and picturesque, one of the many reason they are treasures from Japan.

Return to TOC

Cover Story

Nuccio's Nurseries

World Famous Camellias and Azaleas

Story and Photographs By Bradford King

Reg Ragland presenting the 1969 Illges Seedling *Japonica* Award for 'Grand Slam' to Julius Nuccio, with Joe Nuccio and Bill Woodruff witnessing.

Nuccio's Nurseries roots are firmly established in their Italian America family. The nursery started when Joe and Julius Nuccio began to grow camellias and azaleas in their parents' (Guilio and Katherine Nuccio) backyard in Alhambra, California, in the 1930's. The two brothers began to propagate camellias and azaleas, which led them to grow seedlings that they hoped would produce new cultivars. When Julius went in the Army at the beginning of World War II, Joe built a lath house in his home in Santa Monica to accommodate

Julius Nuccio (Left), father of Tom and Jim Nuccio and Joe Nuccio, (Right), father of Jude Nuccio. Julius and Joe Nuccio began growing camellias in their parents back yard in the 1930s.

Tom Nuccio (Top Left), Jim Nuccio (Bottom Left) and Jude Nuccio (Right), now manage the nursury started by their fathers in the 1950s.

***C. japonica* 'Katherine Nuccio', the first cultivar introduced by Joe and Julius Nuccio and named for their mother.**

their stock plants. Joe worked during the war as a shipwright.

After the war they purchased forty acres for $12,500 and moved the nursery to Altadena, California, which is the present location. Today the nursery is managed by Joe's son, Jude, and Julius' two sons, Tom and Jim. New camellia cultivars have been introduced since 1950 when the founding fathers introduced a rose pink, medium, rose form double for their mother, Katherine Nuccio. Katherine's favorite camellia was 'Drama Girl'. When seeds from 'Drama Girl' were propagated by the Nuccios,

***C. japonicas* 'Katie' (Left) and 'Katie Variegated' (Right) were also named with Katherine Nuccio's nickname.**

***Non-reticulata hybrid* 'Joe Nuccio' is a great camellia that commemorates one of the founding fathers of Nuccio's Nurseries.**

one developed a very large, semi-double, salmon rose pink flower, that bloomed early to midseason on a vigorous, compact, upright plant. Since Katherine was a plus-sized woman known as Katie, the family decided that this very large, coral pink flower was fitting to be named in her honor. The variegated form is also very lovely, with the pink flower marked with white blotches.

Joe and Julius honored their father by naming a large to very large, coral rose red, semi-double flower with irregular petals that stand up like rabbit ears, 'Guilio Nuccio'. The var-

***C. japonicas* 'Guilio Nuccio' (Left) and 'Guilio Nuccio Variegated' (Right) were named for Joe and Julius Nuccio's father.**

***C. japonica* 'Julius Nuccio' was introduced in 2014 to commemorate the 97-year-old founder of the nursery, who passed away in 2016.**

iegated form of 'Guilio Nuccio' is dramatic, with a striking contrast between the red blooms and their white markings.

When I asked Tom and Jude how they named the two-toned pink, formal double flower with incurved petals 'Joe Nuccio', Tom said his father persuaded them. Jude recalled that his father really liked the flower, which was the clincher for them. 'Joe Nuccio' is a great camellia that commemorates one of the founding fathers of Nuccio's Nurseries. The flower is a *non-reticulata hybrid* seedling of 'Garden Glory'.

'Julius Nuccio' is a large to very large, beautiful, brilliant dark, red semi-double with large, shiny petals and golden stamens. It was introduced in 2014 to commemorate the 97-year-old surviving founder of the nursery, who passed away in January 2016. Julius really did not want any camellia named for himself but the "boys" (Jude age 76, Tom 65, and Jim 63) overruled

'Nuccio's Gem' has stacked petals which resemble a circular staircase. It is very impressive in the garden and cherished as an espalier.

him. Nuccio's claims there will be no new camellia introductions bearing the family name.

'Julius Nuccio' is getting lots of attention and looks like 'Royal Velvet' on steroids. It won 42 show points in 2015 and six "Bests" in California camellia shows. It tied for first with 'Nuccio's Bella Rossa Variegated' in 2016, after only being available since 2014. It will be distributed by Monrovia Nursery, as well as Nuccio's Nurseries.

Nuccio's Award Winning Camellias

Nuccio's Nurseries introduced 208 camellias from 1950 to 2016, which includes sports and variegated cultivars. The American Camellia Society (ACS) provides awards to outstanding camellias each year. The Illges Seedling *Japonica* Award is given to the originator of a seedling, not a sport or mutation, each year since 1945. Nuccio's Nurseries has won this

'Show Time', (Left) is a very large, clear light, pink semi-double with fluted petals and 'Cherries Jubilee' (Right) is a medium to large burgundy red with white petaloids. 'Cherries Jubilee' photo by Gene Phillips.

prestigious award thirteen times. These award-winning cultivars are still popular and widely distributed as they are some of the best camellias available today.

Japonica Winners

'Grand Slam' has a very large semi-double to anemone, brilliant dark red flower. I grow and admire this very large flower, while a local grower jokingly says the name is due to its tendency to fall off the calix causing the grand slam.

One of the most popular and classy white, medium, formal double camellias is 'Nuccio's Gem'. When stacked with the petals looking like a circular staircase, it is very impressive in the garden and cherished as an espalier.

The excitement and anticipation of attending a show one has been looking forward to, is like the experience of camellia people waiting for a new camellia to bloom. The camellia 'Show Time', with its very large, clear light, pink semi-double flower with fluted petals generates similar feelings of appreciation.

'Cherries Jubilee' has a medium to large burgundy red flower with white petaloids. It has a delicious bloom just like the famous dessert from which it gets its name. Cherries jubilee is made with cherries and Kirschwasser or brandy, which is flambéed, and served as a sauce over vanilla ice cream. The recipe is generally credited to Auguste Escoffier, who prepared the dish for one of Queen Victoria's Ju-


'Nuccio's Jewel', (Left) is a medium, peony, white flower with coral pink petal edges and 'Moonlight Bay' (Right) is a very large semi-double, pale pink flower.

bilee celebrations, though it is unclear whether it was for the Golden Jubilee of 1887 or the Diamond Jubilee in 1897.

The British Crown Jewels are the most famous jewelry worldwide. They are part of the Royal Collection and the most powerful symbols of the British Monarchy. They hold deep religious and cultural significance.

The mystique and beauty of the diamonds and precious jewels in the royal regalia have always held an unparalleled allure to visitors from across the globe. 'Nuccio's Jewel' has a medium, peony, white flower with coral pink petal edges, cherished by camellia collectors like a family heirloom.

On a lovely summer evening, lounging by a secluded lakeside bay with a lovely full moon casting blush white light in the sky that reflects in the water, is a time of tranquility and beauty to be remembered when the cold of winter drives us indoors. The camellia 'Moonlight Bay' captures the simple beauty in winter with its very large semi-double, pale pink flower.

'Royal Velvet' got its name from Jim Nuccio. He was sitting on the throne and noticed a dark velvet red bathroom mat under his feet. When he turned over the mat, the label read "Royal Velvet". This camellia has an impressive large, velvety, dark red semi-double flower that regularly wins points in camellia shows. When variegated, it is also a popular camellia.

Traditionally, in American


Jim Nuccio chose the name 'Royal Velvet' (Left) from a label on a bath mat. The contrast of the rich red and white tones make 'Royal Velvet Variegated' (Right) a popular show camellia.

high schools, the junior class sponsors a spring prom with dance music. Dress is formal—women in gowns and men in tuxedos. Pleasant memories are recalled of that night when we see 'Junior Prom', a large rose form double white with a tint of blush.

'Nuccio's Bella Rossa' has a large, beautiful, red formal double bloom with a heavy bud set and a long blooming season, which makes for a great landscape camellia. Nuccio's Nurseries is located in the foothills of the San Gabriel Mountains where their 'Nuccio's Bella Rossa' flowers—even those in one gallon pots—tend to be large to very large. This reminds us of the importance of different microclimates in flower devel-


'Nuccio's Bella Rossa' (Left) and 'Nuccio's Bella Rossa Variegated' (Right) are striking *japonicas* and popular show varieties.

***C. japonica* 'Junior Prom' is a large rose form double white with a tint of blush that is reminiscent of a lady's elegant formal gown.**

opment and, in this case, larger flowers developing at higher altitudes. The variegated form has a striking flower, as the contrast of white markings on the red petals is very showy. The variegation is induced when a scion is grafted on 'Adolphe Audusson Variegated' or 'Shibori-egao'.

The Rose Parade is a very popular New Year's Day activity in Pasadena, California, just a few miles from Nuccio's. It has a famous person lead the parade as its Grand Marshal, which is how 'Grand Marshal' got its name. 'Grand Marshal' has a medium to large, rich deep red,

'Grand Marshal'(Left) and 'Grand Marshal Variegated' (Right) have dignified anemone to peony blooms which win camellia shows.

***C. japonica* 'Black Magic' is a very dark, glossy red, semi-double to rose form double flower with thick, waxy petals.**

anemone to peony flower. The variegated form is also a beauty.

A black red camellia has a magical quality. 'Black Magic'—a very dark, glossy red, medium, irregular semi-double to rose form double flower—has one of the darkest red blooms. The thick, waxy petals give rise to its name.

In Victorian England, the harlequin was routinely paired with the clown figure. The clown, with his brutishness, acted as a foil for the more sophisticated harlequin. The most influential such pair was the Payne Brothers. They were active during the 1860s and 1870s and helped shape slapstick comedy of early television. The joyful and classy 'Happy Harlequin' has a medium to large semi-double, veined, strawberry pink flower, with rose red stripes, toning deeper in the center, and a narrow white margin on the edges of the petals.

Sasanqua Winners

'Happy Harlequin' is a joyful and classy medium to large semi-double *japonica*.

***C. sasanqua* 'Yuletide' is a beautiful plant in the landscape and a winning bloom on the show circuit.**

One of the best of all the sun camellias is the Nuccio's introduction 'Yuletide'. It produces many single, bright red flowers with equally bright yellow stamens. The plant has attractive, small green foliage, born on a sturdy compact upright shrub, that blooms typically in the holiday season. It won the Ralph Peer *Sasanqua* Award in 1974 and continues to be a very popular landscape plant that thrives in full sunlight and in most microclimates.

'Francie L.' won the Harris *Hybrid* Award and the Charlotte C. Knox *Reticulata* Award.

Reticulata Hybrids

The American Camellia Society presents the Harris *Hybrid* Award each year to the originator of a seedling (not a sport) involving a cross of two or more camellia species. Nuccio's Nurseries has won with three *C. reticulata hybrid*s and two *non-reticulata hybrids*. The *reticulata hybrids* are 'Francie L.', which has a very large rose

'Nuccio's Ruby' (Left) and 'Curtain Call' (Right) are two *reticulata hybrids* that have won the American Camellia Society's Harris *Hybrid* Award.

red semi-double flower with irregular upright wavy petals; 'Nuccio's Ruby', which has a large semi-double, rich dark red flower with ruffled petals, and 'Curtain Call' one of the largest *reticulata hybrids,* which has a deep coral rose semi-double flower. 'Francie L.' is widely distributed internationally in areas warm enough for the reticulatas to bloom. On a trip to Australia, we were pleased to see a mature small tree in full bloom. There are also variegated forms of 'Francie L.' and 'Nuccio's Ruby' that are very attractive with contrasting white markings.

In addition, 'Francie L.', 'Curtain Call' and 'Queen Bee' have won the Charlotte C. Knox *Reticulata* Award. 'Queen Bee' has a very large, irregular semi-double, beautiful soft pink bloom. A queen bee refers to an adult female who is the mother of all bees in the hive. The queens are developed from larvae selected by worker bees and specially fed in order to become sexually mature.

There is normally only one adult, mated queen in a hive. The worker bees will follow and fiercely protect her. The

'Queen Bee' also won the Charlotte C. Knox *Reticulata* Award.

'Buttons'n Bows' (Left) and 'Island Sunset' (Right) are *saluenensis hybrids* introduced by Nuccio's Nursuries noted for their lovely colors and floriferous habit.

term "queen bee" can be used to describe a dominant woman. It can be complementary, or depending on tone of voice and connotation, critical or even sarcastic. The flowers of camellia 'Queen Bee' stand out among other blooms due to their size and lovely pink tone.

Non-reticulata Hybrids

Two of the most recent awards were made to Nuccio's for 'Buttons'n Bows', a beautiful *saluenensis* formal double *hybrid* with a small light pink flower that shades to deeper pink, and 'Island Sunset', a medium semi-double *saluenensis hybrid* flower with rich coral pink petals that become progressively lighter in the center. It is easy to imagine walking on the beach in the Caribbean islands and seeing a sunset that resembles 'Island Sunset'. The shades of pink and coral make a wonderful bloom. *Hybrid* camellias are noted for being floriferous and having new color tones.

'Red Hots' is a red, tubular *japonica* with occasional petaloids.

The Kathryn and Les Marbury Award

This award is issued each year to the originator of the

'Tama Peacock' is arguably the best of the seedlings bred from 'Tama-no-ura'.

best small or small to medium *C. japonica* or *non-reticulata hybrid*. 'Buttons'n Bows' won the award in 1995. In camellia shows, it is one the favorites of young women and children with the ruffled pink, formal double flower resembling buttons and bows on a party dress.

The *C. japonica* 'Red Hots', a small to medium, bright red, tubular semi-double flower with an occasional white petaloid, won the Marbury Award in 2012. This cultivar is a frequent show winner as a small, due to its vibrant color and upright petals, which are eye catching. It also has wonderful, long, dark green foliage on a columnar upright shrub.

In 2015 'Tama Peacock', which has maroon tones that bleed into a wide white border, became the newest Nuccio award winner. This small semi-double flower is arguably the best of the seedlings bred from 'Tama-no-ura'. These two cultivars are very fertile seed parents that can produce picotee characteristics.

Sports

The Sewell Mutant Award is awarded to the originator of a sport showing a distinct break in color or form, not due to virus variegation. Nuccio's Nurseries was awarded a silver Revere bowl in 1980 for 'Elegans Champagne' which has a large to very large impressive, white anemone flower with a creamy

'Elegans Champagne' is a sport of 'Elegans Splendor', which is a sport of 'C. M. Wilson', which is a sport of the 'Elegans'.

center. When looking down into the bloom it reminds us of our favorite champagne, with creamy yellow bubbles created by the petaloids and the mostly hidden yellow stamens.

This cultivar is a sport of 'Elegans Splendor', which is a sport from 'C. M. Wilson' (a sport of 'Elegans'), was grown from the seed of 'Anemoniflora' by Chandler and Booth from Vauxhall, England in 1831. 'Anemoniflora' was brought to England from China in 1806. The flower is the prototype of the anemone form with a row of large, outer guard petals and a central convex mass of petaloids and stamens. Hybridizers such as Chandler of England and Macarthur of Australia used it extensively, so its genetic material is present in hundreds of modern cultivars. This reminds us that flowers, like people, can have international family lineage. In this case, an American flower has roots that can be traced to England, with genetic links to China.

Camellias Named Nuccio

Nuccio's Nurseries has named ten of their most outstanding camellias with "Nuccio" in their name. Those honoring immediate family and those having won ACS awards have already been discussed. The remaining four couple the Nuccio name with beautiful, picturesque objects. The medium to

'Nuccio's Cameo' (Left) and 'Nuccio's Carousel' (Right) are two camellias that pair the Nuccio name with beautiful, picturesque objects.

large, coral pink, formal double flower of 'Nuccio's Cameo' reminds us of the beautiful cameos frequently worn as brooches by women. Cameos are hand carved portraits of people, animals or scenes made from colored conch shells or banded agate. The beauty of a cameo is in the three-dimensional carving. The carver selects a section of the conch shell or agate determining the layers of color then creates a design that will reveal colored layers, making the polished cameo a work of art.

'Nuccio's Carousel', a medium to large, semi-double tubular, soft pink flower that shades to deeper pink on the petal edges, is linked with a carousel or merry-go-round. This amusement ride, a favorite of children, consists of a rotating circular platform with seats for riders. The "seats" are traditionally in the form of rows of wooden horses or other animals mounted on posts, many of which are moved up and down by gear work to simulate galloping, to the accompaniment of looped circus music.

'Nuccio's Pearl', a medium, formal double, blush white with deeper pink tones in the center and petal edges, is as lovely as a pearl. A pearl is a hard, roundish object produced within the soft tissue of a living, shelled mollusk. Pearls are commonly used in jewelry-making. The pearl is one of the birthstones for the month of June. Pearls have been associated with innocence and modesty. Because it comes from the sea, it also has associations with the moon and water.

One of the most famous

'Nuccio's Pearl' (Left) is blush white with deeper pink tones in the center and petal edges and 'Nuccio's Pink Lace' (Right) is blush pink.

pieces of pearl jewelry is The Girls of Great Britain and Ireland Tiara. It was one Queen Mary's wedding presents in 1893. The tiara is a diamond design of festoons and scrolls set on a bandeau base of round and lozenge shaped diamonds, topped with nine large pearls that could be separated from the tiara and worn as a necklace.

In 1914, Queen Mary removed the pearls to make the new Cambridge Lover's Knot Tiara. The design consists of 19 openwork diamond frames each with a large pearl drop. Queen Mary left the tiara to her granddaughter Elizabeth II. The Queen later gave it to Diana, Princess of Wales, as a wedding gift. Princess Diana wore it often during her marriage. After her divorce from Charles, the Prince of Wales, it was returned to Queen Elizabeth, who gave it to Kate Middleton, who first wore it to a diplomatic reception.

'Nuccio's Pink Lace' has a medium to large blush pink anemone to loose peony flower. Lace is an openwork fabric, patterned with open holes in the work, made by machine or by hand. The holes are most often created as part of the lace fabric.

Lace-making is an ancient craft. True lace was not made until the late 15th and early 16th centuries and is created when a thread is looped, twisted or braided to other threads independently from a backing fabric. Originally linen, silk, gold, or silver threads were used. Now lace is often made with cotton thread, although linen and silk threads are still available. The beauty of

'Henry E. Huntington' (Left) was named for an American railroad tycoon and 'Rudolph' (Right) was named for an iconic character.

pink lace makes for a delicate and feminine color and form that describes 'Nuccio's Pink Lace'.

Flower Names

In the camellia world, there is a long tradition of naming camellias for family, friends and famous people. Nuccio's Nurseries, just like many others, has continued this tradition. For example, they named a large red, semi-double camellia for Bob Hope, the famous comedian noted for entertaining American Service men during times of war and conflict.

They also named a large to very large, rich light pink bloom for Henry E. Huntington, the American railroad tycoon who established The Huntington Botanical Gardens, Library and Art Collection in San Marino, California. Anyone who visits Southern California must go to The Huntington, as there is something for everyone from children to bibliophiles, to gardeners and art lovers. The signature garden is the camellia collection.

Art lovers will not want to miss the best American collection of English portraits by Gainesboro and Romney. The most famous of the Huntington's paintings are Lawrence's "Pinky" and Gainesboro's "Blue Boy" that hang in the newly refurbished Thornton Gallery.

It is interesting how flowers get named. For example, a medium anemone red flower with a great center of raised red petaloids was named 'Rudolph', for Rudolph the red-nosed reindeer.

Fire is one of mankind's greatest discoveries. It kept

***C. japonicas* 'Firedance' (Left) and 'Firedance Variegated' (Right) are named for one of mankind's greatest discoveries.**

early man warm protected him from predators and cooked his food. Therefore, it isn't surprising that red camellias would have fire as part of their names.

Sitting watching flames in the fireplace leap and dance sparked the Nuccios to name a medium, orange red, tubular semi-double flower 'Firedance'. In addition, 'Firedance Variegated' is striking with white markings that remind us of white smoke floating among flames.

Fire can also be very dangerous and destructive of property and life. The hot dry summer months are the fire season in the western States. They named an orange red, medium, semi-double flower that blooms readily 'Wildfire'. It is one of my favorites, because it blooms from December into early March in front of the window where I write, read and watch hummingbirds feed and protect the sugar water feeder all year long.

Tama-no–ura and Its Progeny

The Nuccios visited Japan many times over the years. They shipped flowers to camellia shows for the Japanese public to enjoy. They developed camellia friends and business contacts. They visited Japan looking for camellias and azaleas to bring back to America. The most famous *japonica* camellia of these importations was 'Tama-no-ura'. It was discovered in a remote area of Japan and was brought to the USA in 1978. The Nuccios propagated and distributed it widely. The flower is a perky, small, bright red bloom,

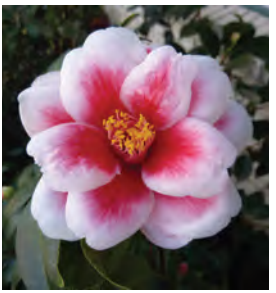

'Tama Americana' (Left) is one of the most popular of the seedlings from 'Tama-no-ura' which the Nuccios imported from Japan in 1978. 'Tama Beauty' (Right) has a loose peony form.

with a genetic white border. It grows vigorously, flowers freely and sets seeds readily, making it a great landscape plant that is a favorite with camellia breeders. It is the seed parent of nine picotee-bordered cultivars introduced by Nuccio's Nurseries. The most popular of these are 'Tama Americana', a medium, rose red flower with a wide white border; 'Tama Beauty', a medium to large, rose pink flower with a white border; 'Tama Electra', a small to medium, single, brilliant dark red flower with a sharp white border; 'Tama Vino', a small to medium semi-double, wine red flower that shades to a white border, and 'Tama Peacock', a small, maroon, tubular flower with a wide white border.

New Nuccio Introductions

'Showboat' has a large white flower with pink petal edges, which are occasionally incurved. This rose form double





'Tama Electra' has a single form bloom (Left), 'Tama Vino' has a semi-double bloom with long petals (Center), and 'Tama Peacock' has a semi-double bloom with a pendulous growth habit (Right).

'Showboat' (Left) has a long blooming period from early to late season. This pink sport of 'Ferris Wheel' (Right) reliably propagates the beautiful pink flower with bold red stripes.

non-reticulata hybrid was introduced in 2012. It blooms early to late season on a vigorous upright, somewhat open plant.

In 2016, Nuccio's introduced a large to very large, semi-double to loose peony, white flower, with wonderful red and pink stripes that earned it the name 'Ferris Wheel'. It shows promise to compete well with other large camellias at camellia shows.

This cultivar can have some interesting red markings on its foliage and seed pods. It has already mutated a red sport and a blush pink flower with the lovely red stripes. The Nuccios are very careful to mark any branches showing the mutations in order to propagate plants that will flower consistently as described. The mutations are being evaluated—with the pink sport a likely future introduction, if it reliably propagates the pink flower with red stripes. It has a beautiful flower.

Nuccio's Nurseries blooms, including 'Maroon and Gold' and 'Ferris Wheel'.

Azaleas

In addition, to bringing camellias to America, the Nuccio's have imported Japanese azaleas. A major achievement was their introduction of Satsuki Azaleas to the USA. These beau-

'Arcadia' (Left) and 'Nuccio's Carnival' (Right) are popular azalea varieties introduced by Nuccio's Nurseries.

tiful, late blooming (May-June) azaleas are treasured in Japan as they make wonderful bonsai. Nuccio's Nurseries offers over two dozen of these cultivars. My favorite was introduced to celebrate the centennial of my hometown, Arcadia, California.

In their azalea breeding program, the Nuccios used 'Koromo Shikibu', a Japanese native azalea with a single lavender flower and narrow, well separated, spaced petals. This petal trait has provided a few unusual, cluster-blooming, spider chrysanthemum-like azalea flowers. They are eye catching, unique flowers. In 1999, they introduced 'Nuccio's Purple Dragon', which inspired them to call these seedlings "Dragon Azaleas".

A dragon is a mythological representation of a reptile. Dragons were mostly envisaged as serpents until the Middle Ages when it was common to depict them with legs, resembling a giant lizard. There are two distinct cultural traditions of dragons: the European dragon, derived from European folk traditions, and the Chinese dragon, with counterparts in Japan, Korea and other East Asian countries.

Currently there are five "Dragon Azaleas". The two newest are 'Nuccio's Bewitched', a large single with a soft, orchid pink toned, lighter flower with full, broad petals that taper to a very narrow base and 'Nuccio's Wicked Witch', which has a large single, dark reddish purple flower with narrow well-spaced petals. Wicked Witch is a name for the hag, a stock character in fairy tales. The Wicked Witch of the West is a fictional character and the most well known in L.

'Nuccio's French Lace' (Left) and 'Nuccio's Spitfire' (Right) were 2015 azalea introductions.

Frank Baum's children's book *The Wonderful Wizard of Oz*.

The Nuccio's have been breeding azaleas for 80 years, introducing well over a 100 new varieties. The 'Nuccio's Carnival' azalea is noted for large blossoms and a long blooming season. They are vigorous, sun tolerant plants. 'Nuccio's Carnival' has a large, single rose red flower.

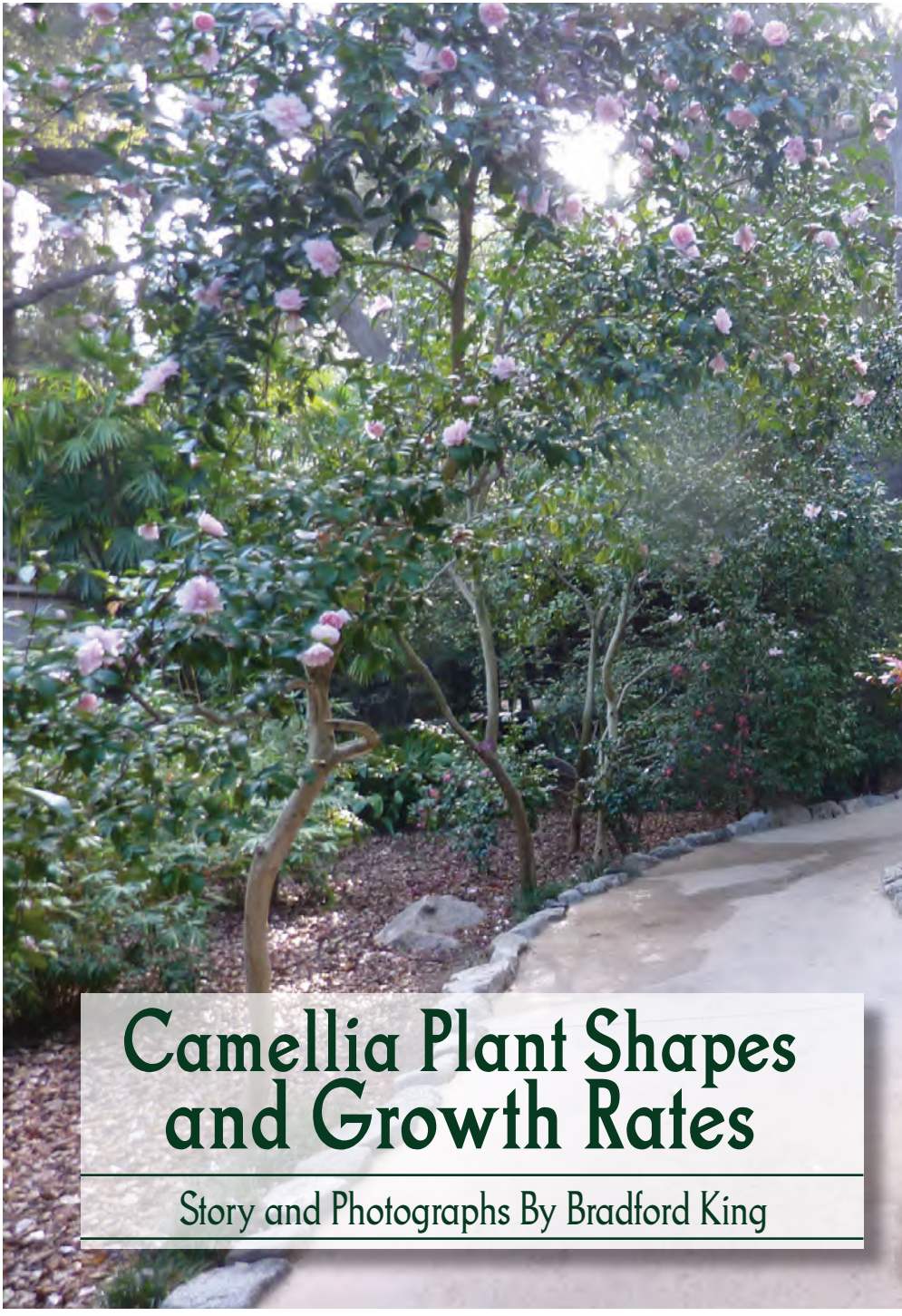
In 2015, they introduced 'Nuccio's French Lace' which has a medium, single to semi-double, lavender to white flower with ruffled petals and 'Nuccio's Spitfire' which has a medium, single white flower with brilliant, orange red speckles and stripes. It sports a few red flowers and occasionally a solid pink bloom.

Conclusion

Nuccio's Nurseries began when two brothers propagated camellias and azaleas in the backyard of their parent's home. The present location of the nursery is in the foothills of the San Gabriel Mountains, which is a desert. The average rainfall is only 12 to 14 inches per annum with 2013 setting a record of less than four inches. Fortunately, a private mutual water company supplies Altadena, including the nursery.

The first buildings were built with the help from family members. Jude, Tom and Jim Nuccio took over the business when their fathers were ready to retire. Two generations of the Nuccio's family's dedication and commitment to propagating high quality camellias and azaleas has led to the introduction of over 200 camellias and 100 azaleas, with many finding their way throughout the camellia and azalea world.

Historical references retrieved from https://en.wikipedia.org.



Camellia Plant Shapes and Growth Rates

Story and Photographs By Bradford King

Two important camellia characteristics that should not be overlooked are growth rate and plant shape. These characteristics are listed for most cultivars in the *Camellia Nomenclature*, as provided by the originator. They are also listed in many nursery catalogs to help the buyer in selecting plants.

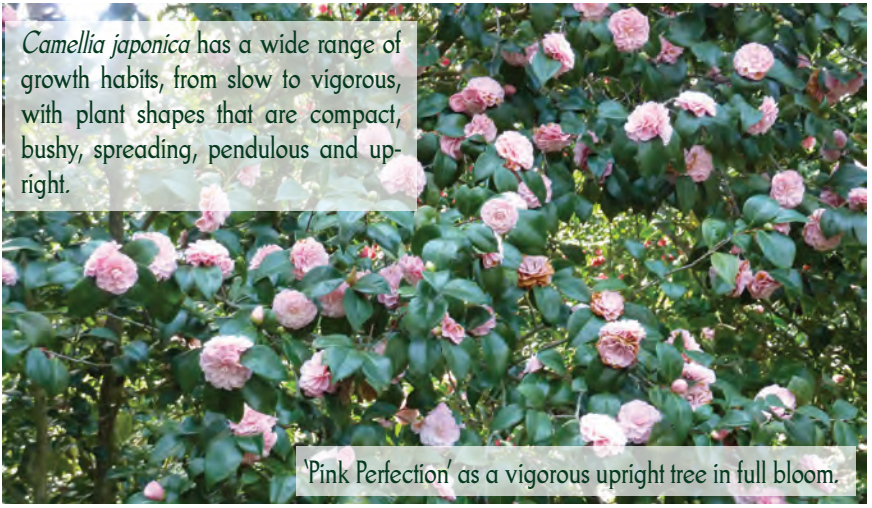
Common English terminology is used to describe these characteristics, which is intuitive, yet not always clearly defined. In this article, terms are defined and photos are used to illustrate the plant shapes and growth rates.

A collection of *camellia sasanquas* in Descanso Gardens.

Growth Habits of Popular Camellia Species

In general, camellias are a slow growing small evergreen tree, which in nature grow best under taller trees. In the home garden, these conditions may also be provided by shade cloth and pergolas. The 280 camellia species are varied in their growth habits. In addition, cultivars of the same species will also show significant variability.

Camellia japonica



Camellia japonica has a wide range of growth habits, from slow to vigorous, with plant shapes that are compact, bushy, spreading, pendulous and upright.

'Pink Perfection' as a vigorous upright tree in full bloom.

Camellia reticulata

Camellia reticulata generally has similar characteristics to *C. japonica.* However, it typically has stronger, heavier and more robust growth, but at times is tall and leggy. 'Emma Gaeta' is a good example of the tall and leggy growth type.

'Frank Houser' and 'Curtain Call' as robust plants in bloom.

Camellia saluenensis

'Coral Delight' in bloom.

C. saluenensis, including most of its *hybrids*, are neat, compact and bushy, producing many flowers.

Camellia sasanqua

These traits are shared by *C. sasanqua*, which blooms in the fall and makes up for their smaller flowers by producing an abundance of blooms. They also thrive in full sunlight.

'Old Glory' in bloom.

Camellia Plant Shapes

Camellia plants are described as open; loose or spreading (main branches and sub branches are more than 45 degrees); bushy (growing thickly into a bush); compact (branches are dense and tight); pendulous (hanging down, cascading or weeping); and upright (the main branches and sub branches on the trunk are less than 45 degrees, producing an erect plant).

Open

C. nitidissima

Open Upright

C. nitidissima hybrid 'Senritsu-ko'

Bushy

C. hiemalis 'Shishigashira'

Compact

C. sasanqua 'Jewel Box'

Compact and Upright

C. sasanqua 'Yuletide'

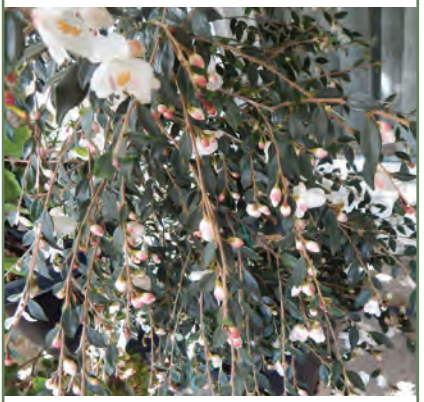
Upright *Reticulata*

C. reticulata 'Pink Sparkles'

Upright *Japonica*

C. japonica 'Julius Nuccio'

Pendulous



C. tsaii var. *synaptica* 'Elina Cascade'

Camellia Growth Rates

Slow Growth Rate

Annual growth shoots are about two inches or less

Examples: 'Dahlohnega', 'Dwarf Shishi' and 'Nuccio's Jewel'

Average/Normal Growth Rate

Annual growth shoots are about four inches

Examples: 'Betty Foy Sanders', 'Hishikaraito' and 'Lady Laura'


C. japonica 'Betty Foy Sanders'

Vigorous Growth Rate

Annual growth shoots are more than four inches

Examples: 'Nuccio's Gem', 'Royal Velvet' and 'Tata'


C. japonica 'Nuccio's Gem'

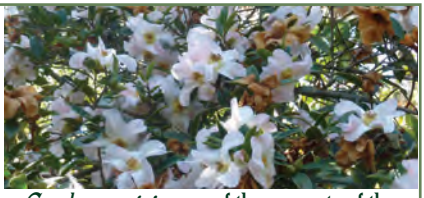
Camellia Species

The 280 camellia species are divided into nineteen sections according to Professor Chang Hungta's taxonomical system. They all are native to Southeast Asia, with 80 percent originating in China. A few of the most well know species' growth habits and plant forms are highlighted here.

Section *Archecamellia* has only three species with *C. amplexiacaulis* the one seen in the US. It grows fast into a very open, small tree, with a tropical look. When young, it may be rather gangly and need staking.


New growth of *C. amplexicaulis.*

Section *Camellia* has sixty species which includes *C. reticulata, C. japonica* and *C. saluenensis,* the three most popular in America. Each of these species has hundreds of cultivated varieties. The plant shapes and growth habits are highly variable.


***C. saluenensis* is one of the parents of the *williamsii hybrids* noted for being floriferous.**

Section *Eriandria* has fourteen species with long hairs on the plant shoots and on the back of its leaves. A good example is *C. assimilis* which has a small white flower with a beautiful form and plant growth habit, as the new growth is a light maroon color. The plant has a bushy, somewhat lacy growth habit.

C. assimilis with beautiful maroon new leaves. Photo by Gene Phillips

Section *Oleifera's* chief characteristics are its white, slightly fragrant flowers that bloom in fall and early winter. *C. sasanqua* is a species distributed throughout the camellia world. The native *C. sasanqua* flower is a single white bloom. However, the hundreds of varieties have a range of colored flowers, as well as diverse plant shapes and growth habits.

A native *C. sasanqua* flower.

Conclusion

Flower color, size, blooming season, plant shape and growth habits are all important in selecting and planting camellias. The growth rate and shape of a camellia are important characteristics in landscaping or adding to an existing garden.

Dwarf and slow growing cultivars will show best in the foreground, serve as a border, and are good choices under low windows. The upright and vigorous varieties are best suited for the back of the garden, and look stately when used as a specimen plant. The vigorous growing cultivars also make good screens, hedges and espalier.

Compact camellias are useful in small spaces and along pathways. The bushy and spreading camellias need more space and will fill more area. A variety of plant shapes in the garden make an attractive and interesting display.

Vigorous grower *C. japonica* 'Tom Knudsen' as an espalier.

Return to TOC

Camellia Foliage Morphology

Story and Photographs
By Bradford King

***C. azalea* leaves**

A leaf is a vascular plant organ. They are the principal lateral appendage of the stem. The leaves and stem together form the shoot. Leaves are collectively referred to as foliage. Plant morphology is the study of the physical form and external structures. The term is also used to refer to the physical appearance, i.e., size, shape, color, and texture. This is also referred to as the architecture of a leaf.

The main purpose of foliage is its ability to convert energy in sunlight into chemical energy the plant can use as food. It uses a process known as photosynthesis, which converts the energy from sunlight and synthesizes water and carbon dioxide into sugar. This is accomplished by molecules within chlorophyll.

Leaf Margins

Leaf margins are one key characteristic used to describe, identify and classify plants. The margins of leaves are smooth (level and flat), serrated (jagged or saw like), sinuate (wavy) or dentate (tooth-like projections). The majority of camellias have

serrated leaf margins. The space between the teeth varies in the species. For example, *C. sasanqua* generally has more space between the teeth than *C. nitidissima* and *C. amplexicaulis*. The typical camellia leaves of *C. japonica* and *C. reticulata* are clearly serrated. There are no camellia leaf margins that are wavy or have tooth-like projections. However, *C. azalea* has a smooth leaf edge and surface, one of the key characteristics in differentiating this species from other camellias.

Leaf Shapes

Botanists use leaf shape to help classify trees and shrubs. There are over a dozen different recognized leaf shapes. A common tree leaf shape is called palmate (hand-like with fingers extended). Maples, oaks, sycamores and even some kinds of corals as well as the antlers of moose are palmate.

The Southern live oaks (*Quercus virginiana*) and California live oaks (coastal live oaks) (*Quercus agrifolia*), under which many camellias have been planted, have elliptic-shaped (oval) to obovate-shaped (inverted egg shaped) foliage. Camellia foliage is generally described as elliptic (oval) or oblong (longer than wide). This is true for the *C. japonica* cultivars. *C. reticulata* cultivars have a somewhat broader oval shape. *C. sasanqua* cultivars have a more variable oval shape. *Camellia hybrid* cultivar leaf shapes are variable—dependent on the species used in the crosses—but are usually still oval to egg shaped. Most *hybrids* have smaller leaves than the *C. japonica* and *C. reticulata* cultivars. *C. azalea* foliage is technically described as obviate (inverted egg shape) to oblanceolate (broadest above the middle, and roughly twice as long as it is wide) with a rounded tip and cuneate base (triangular at the base). These characteristics can be observed in the photo of *C. azalea.*

One of the most unusual and interesting camellia leaf shapes is found on *C. japonica* 'Kingyo-tsubaki' which is commonly known as the "fish tail" or goldfish camellia due to its foliage shape. The leaf margin is serrated and oval like other *C. japonica* cultivars but has a leaf tip with three or more separate tips. A beautiful botanical painting on velum by Akiko Enokido illustrates this camellia cultivar.

Painting of 'Kingyo-tsubaki'
Watercolor on Vellum by Akiko Enokido © 2015

Leaf Texture

Camellias, like many other plants, have tiny bumps, ridges and waxy coatings that protect the leaf surfaces from too much sun by creating shade and reflecting light. A waxy leaf surface can make the water run off more quickly, protecting the leaf from getting too wet. Some plant leaves also have tiny hairs that are also part of the protective architecture of their foliage. Most of the well-known camellia species have leaves that are glabrous, which means bald. *C. amplexicaulis*, *C. azalea*, *C. nitidissima*, *C. reticulata*, *C. salu-*

Long, soft hairs. *C. edithae*.

enensis and *C. japonica* all have hairless foliage. Many times, plant hair can only be seen under a magnifying glass or microscope, especially when the hairs are short or fine. *C. edithae* has foliage midribs and that are densely villous, which means that they have long, soft hairs. In the photo we cannot see the leaf hairs but the stems are clearly densely hairy.

The *C. japonica* leaf has a smooth upper surface with a raised mid vein and cork warts. Scientists have debated the origin and purpose of plant cork warts with little agreement.

Close-up of *C. japonica* leaf.

They are most likely genetic and help in regulating internal leaf moisture. The veining is called uniform craspedodromous. The straight midline and uniform slanting sub veins are easy to see on most *C. japonica* leaves.

The veining in *C. reticulata* foliage defines the species and provides its name. The leaf veins are netted (reticulate) with smaller veins branching out from larger ones repeatedly forming a well developed complex veined pattern. Since many of the *reticulata* cultivars grown today are the result of crosses with *C. japonica*, the leaves are frequently less reticulated and more similar to the *japonica* leaf. The texture of the foliage of *C. nitidissima* with its raised bumps and ridges that rise above the veins is an interesting leaf characteristic. This texture may be inherited by its *hybrid* seedlings in varying amounts.

***C. nitidissima* blooms, buds and leaves. Photo by Camille Bielby**

Leaf Variegation

Variegation is the appearance of differently colored zones in leaves, flowers and sometimes stems. This may be due to a number of causes. Some of the most popular and beautiful camellias have genetic or viral variegation. A common cause of genetic variegation is the masking of green pigment by other pigments, such as anthocyanins (water-soluble vacuolar pigments that appear red, purple, or blue depending on the pH) that occur in the tissues of leaves, stems, roots, flowers and fruits.

The classic genetic variegated camellia is 'Tama-no-ura', a small single red flower with a white border. Japanese researchers found the color red is suppressed by anthocyanins, resulting in the lovely white border which can be inherited. In these cases, there is no change in the foliage. The plant's flower is variegated but not the leaves.

‘Golden Spangles’

A few camellia cultivars have genetic foliage variegation. In fact, several are both interesting and ornamental because the variegated leaf pattern is fairly consistent. One example is ‘Golden Spangles’, a foliage sport of ‘Mary Christian’ which is a *saluenensis hybrid*. The foliage has a light green interior pattern with a darker green exterior. The leaf margin on ‘Hanadaijin-benten Special’ is another attractive example of genetic leaf variegation. It is a foliage sport of ‘Hanadaijin-benten’.

One of the most attractive *japonica* cultivars with variegated foliage is ‘Taiyô’ (“The Sun”). It has a medium single, coral rose flower that looks lovely against the rich green leaves with an irregular yellow pattern along the center of the leaf.

When the pattern displays lighter green on the margins of the leaf with a dark green interior, this is referred to as “bent-

‘Hanadaijin-benten Special’

en”. The word has been used in Japan to denote this pattern for many years. This is illustrated by ‘White Doves Benten’, ‘Hanadaijin-benten’ and ‘Shôwa-no-sakae Benten’.

Camellias may also have viral variegation induced naturally or purposely. It is recognized by white blotches or moiré markings that resemble watermarks on the flowers and by yellow or white on some, but not all, of the leaves. In this situation, foliage variegation is introduced by growers in order to get the lovely white markings on flowers. Researchers have found the virus is found in leaves, petals and stamens. It is in the camellia’s sap, and therefore, moves throughout the plant. It is not found in seeds, which means it cannot be inherited.

It is believed to be transmitted when the roots of an infected plant entwine with an uninfected plant, or when sap from an in-

‘Taiyô’

‘White Doves Benten’

‘Shôwa-no-sakae Benten’

Trio of 'Cornelian' flowers and leaves.

fected plant is transferred during pruning. There may also be insect or bird vectors. The virus may also be in the soil. It is not airborne. The virus originated in Southeast Asia, most likely China, as there are camellias hundreds of years old with viral variegation, such as the wonderful *C. reticulata* 'Cornelian'.

Leaf Damage

The most common damage to foliage is sunburn. A few sunburned leaves serve to warn the grower to move potted camellias to a more shaded area or find other solutions. When the plant is in the ground, investigate. Did shade trees die or get pruned causing too much sun on nearby camellias? If so, determine if the pruned tree will grow back to provide adequate shade or if you need to consider other ways to increase shade.

Adding a layer of mulch around camellias is a good strategy to increase moisture, and periodic late afternoon sprinkling

Trio of 'Cornelian' flowers and leaves.

of foliage will also be greatly appreciated by camellias. If you use an automatic watering system, is it providing water to all of the camellias? As plants grow and fill in, the sprinklers may not reach some plants that, in the past, received adequate moisture. In the years when we receive adequate rain, camellias may survive. But in times of drought, camellias and other established plants may not survive without additional water being provided.

Recently we were introduced to a summer fungi that can seriously damage foliage of certain camellia cultivars. It is called pestalotia. Tom Nuccio showed me examples of it this summer fungi that will damage the top foliage of some camellia cultivars. The damaged branches need to be removed and the pruning shears sterilized with

Leaves with pestalotia damage.

bleach. Nuccio reported that there was no known cure, but he plans on spraying with copper as a preventive measure in the spring. The fungi apparently does not remain in the plant, and attacks only certain cultivars.

A single yellow leaf among dark green foliage is an old leaf being shed, which is a normal part of the camellia life cycle. The most common reason that leaves turn yellow is from either over or under watering. If it is over watering, the soil is persistently wet and watering will need to be reduced. Conversely, if the soil is overly dry, more moisture is required.

Another common cause of yellow foliage is chlorosis. It is caused by a deficiency of magnesium or iron. Magnesium is not usually a problem, as it is available in a form that is readily used by the plant. While iron

Leaves with chlorosis damage. Photo by Gene Phillips

is in most soil, it may not be in a form that can be used by the plant. Chlorosis is easily treated by applications of commercial iron chelate for plants. Iron chelate is iron in a water soluble form that is readily available to plants. It may be used as a foliage spray or applied to the soil. Carefully read the label to be sure that the nitrogen level in the product is low (less than N10) as too much will damage plants. Follow the manufacturer's directions for camellias.

On occasion, damage to foliage in a potted camellia is seen. The foliage has multiple dark brown to black spots and the leaf edges are yellow. The Nuccios have seen it but are unaware of what it is called. It is most likely due to depleted soil that lacks necessary micronutrients. The solution is to repot or pot up the infected plant with a loose well drained potting mix with humus. If seen on a plant in the ground,

Foliage with black spots and yellow margins. Photo by Gene Phillips

remove old leaves or mulch around the camellia and sprinkle coarse peat mulch, and then cover with a thin layer of pine bark and water. Camellias planted too deeply or smothered with leaves or mulch may die. In the spring when new growth first appears, fertilizer with a product that contains nitrogen, potassium, potash and trace minerals, including iron every 45 to 60 days through September.

Spider mites are members of the mite family. There are about 1,600 species. Generally, they live on the underside of leaves where they spin webs to help protect the colony from predators; thereby getting the name spider mites. They cause damage to the foliage by puncturing the foliage cells to feed, which robs the camellia of its vitality. This can be critical in a drought, when adequate moisture is not provided. The spider mites are less than one millimeter in size

Underside of spider mite infested leaf.

Top of spider mite infested leaves. Photo by Camille Bielby

and vary in color. They lay small, spherical transparent eggs.

Spider mites are most prolific when conditions are hot and dry. When temperatures are 80 degrees or more and humidity less than 60 percent, a spider mite can hatch in as little as three days, and becomes sexually mature in five days. One female can lay as many as 20 eggs a day and live for two to four weeks, thus laying hundreds of eggs. This accelerated reproductive rate allows spider mite populations to adapt quickly and resist chemical control methods. When the same pesticide is used over a prolonged period, it becomes ineffective.

The first sign is usually foliage that looks dirty, but the dirt is not removed by a spray of water. The top of the camellia leaf turns a gray dusty green or rusty bronze when infested. The underside of the leaf is where the mites live and breed. It may be hard to see the spider mites themselves with the naked eye even when they are active. They look like dark bumps on the underside of the leaf. The presence of small white webs on the underside of the leaves is the conclusive sign of the presence of a

spider mite colony.

Spider mites can be controlled in several ways. Camellias in containers should be isolated and kept together. This will reduce the risk of the infestation spreading. Spider mites are able to move from plant to plant on the air currents. Keeping the infested camellias in a group will help in retaining moisture by reducing airflow between plants. Spider mites prefer dry conditions with low humidity; therefore, retaining humidity and moisture will assist in eliminating spider mite colonies.

The best way is to treat spider mite infestation is to spray them with a hose and cold water several times a day, thereby drowning mites and removing eggs, as well as providing moisture and cooling. Give special attention to spraying the underside of the leaves, as that is where they live and breed. Keeping potted camellias out of the hot afternoon sun is also one of the best ways to inhibit infestation and the spread of spider mites. Camellias planted in the ground obviously cannot be moved and isolated in clusters. However, a careful but firm spray of the foliage, especially the underside of the foliage, with cold water is a first step in controlling spider mites.

The use of insecticidal soap or oil spray is a good second step. Petroleum based horticultural oils or neem oils are acceptable, if applied when temperatures are less than 90 degrees. Oils and soaps must make contact to kill mites, so full coverage of the foliage, especially on the undersides of leaves, is essential. Spraying once a week for three weeks will control the outbreak. This is usually adequate for control, especially when there is plentiful moisture, as drought-stressed camellias are more likely to be damaged.

Conclusion

While camellias may be grown mainly for their flowers, the evergreen foliage makes for wonderful garden plants all year. The green camellia leaves are alternately arranged, serrated and glossy, contrasting nicely with their colorful flowers.

References retrieved from https://en.wikipedia.org.