Northern California Camellia Society

A Non-Profit Organization

Volume I, No. 6 **OFFICIAL BULLETIN** May, 1948

RESULTS OF THE ELECTION OF BOARD OF DIRECTORS AND OFFICERS — MAY 1948

The following members were duly elected to the Board of Directors of the Northern California Camellia Society, Inc., as of May 1, 1948, to serve for the ensuing year:

D. L. Feathers, Lafayette
L. P. Glaudon, San Anselmo
Barlow Hollingshead, Orinda
L. J. Macchia, San Carlos
Harold L. Paige, Oakland
Gordon W. Richmond, M.D., Richmond
Walker M. Wells, M.D., Piedmont

At the May 11, 1948 regular meeting of the Board of Directors, the following Directors were elected as officers:

D. L. Feathers, President
Walker M. Wells, M.D., Vice-President
Barlow Hollingshead, Secretary-Treasurer

THE CAMELLIA FAMILY

By Walker M. Wells, M.D., Vice-President
Northern California Camellia Society, Inc.

The name, Camellia, commemorates that Moravian priest, George Joseph Kamel, who lived his obscure life in the Philippines and died in Manila in 1706. Certainly he might well thank Linneaus, who enshrined his name forever in this glorious shrub, the flower of which he had neither seen nor picked. He was primarily a novitiate of the Society of Jesus, but he was, also, a naturalist and an apothecary who wrote various articles on Philippine plants. At least one of these articles came to the attention of the great Swedish botanist Linneaus, who was impressed with the man's writing and knowledge.

The Camellia is a native of China, which has the richest temperate flora in the world. Fully 2,000 species of flowering plants are known to grow there, including many of our garden treasures, such as magnolias, flowering crabapples and cherries, most of our fine rhododendron species, roses, hydrangeas, and thousands of others. But of all the plants that China has given us, one of her greatest gifts has been the Camellia. Its merits are obvious: magnificent variation of flower form and color, clean glossy foliage, freedom from insect pests and disease . . . a treasure of blossoms for a penny of care.

The above lecture was given at the April 5, 1948 meeting of the Northern California Camellia Society. It is interesting to note that Dr. Walker M. Wells specialized in Botany before becoming a Doctor of Medicine.

CAMELLIA FAMILY

Of the nineteen provinces of China, only one is of particular interest to the Camellia enthusiast—the province of Yuannan in Southwestern China. In recent years more plants have been introduced to the United States and Europe from Yunnan than from all the other provinces of China combined. Here is the natural habitat of the Camellia—this high lonely land, characterized by great mountain ranges and deep river valleys.

The Camellia was brought down from this high mountain province and cultivated by the Chinese in their gardens for an unknown number of years before it was ever seen by European eyes. It was unknown in Europe before the 18th century.

The Camellia, including all the species, belong to a rather select plant family, the Ternstromiaceae. Unlike the orchid and many other plant families which contain several thousand species, the Camellia family consists of only six genera and several hundred species. The genera are:

1. Camellia
2. Gordonia
3. Thea
4. Stewartia
5. Eurya
6. Cleyera

The Gordonias are ornamental shrubs or trees, which are grown for their showy flowers and handsome foliage. There are about fifteen species, some of which are native to our Southern States.

The Stewartias consist of six species in Eastern North America and Eastern Asia, most of which are desirable ornamental plants with large handsome bright green foliage and beautiful white cup-shaped flowers. They are, also, cultivated extensively in England.

The genus, Eurya, consists of about thirty species of ornamental foliage plants, the most important of which is a native of Japan.

(continued on page 10)

THE STRANGE BEHAVIOR OF CAMELLIAS

Report on Sunset-Cal Tech Research Program

By Dr. F. W. Went, California Institute of Technology

Most Camellias come from the mountains of Southern China. They were first introduced in England in the eighteenth century. As evergreen shrubs, they were grown in warm greenhouses, but they did not thrive. It was soon found that in the winter Camellias should not be kept warm but merely protected from excessive cold. When we first grew Camellias here—for their beauty, not as tests—we made the same mistake. Thinking of Camellias as shrubs from the subtropics, we placed them in warm greenhouses. They did very well, formed new shoots and shining dark green leaves, and looked as if they had ideal growing conditions. They also formed new buds and some flower buds. But every time, the flower buds dropped off just before they opened, or the petals separated from the flower base and came off like a hood. After a year, when flower bud after flower bud had dropped off in the temperature of 80° F., which was maintained day and night, the plants were placed in a greenhouse kept constant at 68° F. The flower buds promptly swelled and opened, but before the flowers were in full bloom, they dropped off.

Then winter came, and because we lacked greenhouse space, we placed the Camellias outside in a lathhouse . . . and behold! The very next flower bud to open developed into a perfect flower and all subsequent flowers stayed on.

Bud Drop Clue

Since bud drop is such a serious problem with Camellias, and since we seemed to have a clue to the nature of the trouble, we decided to experiment further. Camellia growers in the Pasadena area donated hundreds of young plants for these experiments, and Dr. J. Bonner of the California Institute of Technology undertook the research work.

First, a group of plants was brought into the greenhouses in the spring. By that time they were through flowering and had vegetative buds, but no flower buds. These two kinds of buds can easily be distinguished: the flower buds are flat and round, almost like marbles, while the vegetative buds, which give rise to leafy shoots, are usually thin and pointed.

Warmth for Buds

The Camellia plants grew under all conditions of temperature and light. In very cool surroundings the new shoots coming from vegetative buds remained short and produced a stockier plant than those growing in warm climatic conditions. From the growth of the leafy shoots it would seem that Camellias could grow equally well in both cool and warm climates. There was one important difference between the plants, however. Only the plants kept warm both day and night formed flower buds. Those plants kept at night temperatures below 60° F. did not have any flower buds by the end of the summer. From this, we can conclude that Camellias must be grown in a climate with warm summers in order to set buds and flower.

Another group of plants was kept outside in a lathhouse all summer. By September they had produced plenty of flower buds. In October, they were brought into the greenhouse and subjected to a variety of climatic conditions. Again there was vegetative growth in all plants, irrespective of the conditions under which they grew.

The big difference between the groups lay in the flowering. The flower buds on the plants which were

The above article is reprinted through the courtesy of SUNSET MAGAZINE from its May 1948 issue.

kept warm in an extended summer, so to speak, were swelling rapidly, but some time before opening they became brown, dried up and dropped off. Yet the plants themselves seemed to be in good condition.

The plants kept cool at night were slower in their flower development, but all flowers opened normally, and were of good quality. When the nights were even colder—45° F.—flower development was slowed further, but all flower buds opened in the course of six months. At day temperatures of 65° F. the flowers were somewhat larger than those in 80° F. days.

From these experiments it is clear that Camellia plants can flower only when they are subjected to a period of warm weather while their flower buds are being formed. When these have developed to the proper size, in the course of four or five months, the plants need lower temperatures to make the flower buds unfold.

Therefore, Camellias will flower well only in regions with warm summers and cool, but not too cold, winters. This explains why bud drop often occurs after an unseasonal period of warm weather during the winter.

At the same time that these temperature experiments were conducted, the plants were subjected to short and long-day treatments. It was found that neither the long days of summer nor the short days of winter influenced the Camellias. Therefore, Camellias do not belong to that group of plants which tells time by the position of the sun in the sky, but they notice the seasons by means of the succession of cool and warm periods. In this respect they resemble the flowering bulbs such as tulips, hyacinths, and daffodils.

Camellias in Summer

If the conclusions drawn from the foregoing experiments were correct, it should be possible to make Camellias flower in summer, by subjecting them to a warm climate in winter, and keeping them in a refrigerated greenhouse in summer. Experiments to test this possibility were entirely successful. Camellias flowered in the middle of summer after such a temperature treatment. This indicates that plants kept at the right temperature were unaffected by day length.

In the future, it is not likely that Camellias grown on a commercial scale will be made to flower in the summer. The expense of maintaining greenhouse temperature low enough during long periods of summer weather would be too great. Experiments have shown that the cool treatment has to be continued for a few months to produce results. The flowering cannot be touched off by only a short cold spell. But, after all, the Camellia is valued because it does flower during the winter; in summer there is an abundance of other flowers.

Acid Soil

Other experiments were conducted to discover whether Camellias had any nutritional preferences. For this purpose, plants were grown in cans filled with sand, soil, peat, and combinations of these. They were watered daily with solutions containing various proportions of the necessary nutrients. It was found that Camellias need the same nutrients as other plants, in about the same proportions. They need nitrate of ammonium salts, phosphate, potassium, calcium, iron, magnesium, and sulfate. They differ from other plants in that they are unable to use some of these nutrients unless the soil is slightly acid. This is one of the reasons why Camellias do so much better when a lot of peat is worked in around their roots. There was no nutrient solution found which caused bud drop. We concluded that flower bud drop in Camellias is due mainly to weather conditions, especially warm spells in the middle of winter.

(continued on page 10)

PRESIDENT'S ANNUAL REPORT

The Northern California Camellia Society, organized December 9, 1945, has now been in existence just two and one-half years. In this short time our young society has held 21 program meetings, staged three successful camellia shows, and grown from a membership of 14 to 165. Since our memberships include husband and wife on one membership card, it is nearer the truth to say that our present membership is about 300.

Activities of the first two years, under the leadership of our first President, O. E. Hopfer, have been summarized in the first two issues of the BULLETIN.

I should like here to present a brief summary of the 1947-48 season which ends with the publishing of this BULLETIN, our sixth issue.

Organization

This was our first year with regularly scheduled monthly board meetings for the transaction of all business, leaving the membership meetings free for programs of general interest to camellia lovers. The Directors all took their responsibilities seriously and attendance neared the 100 per cent mark. A perfect score was earned by Director Louis P. Glaudon of Marin County, who travelled the longest distance, always arrived early and stayed through until adjournment, no matter how late the hour.

Our incorporation was guided through the necessary legal steps by Mr. Charles Ehlers, to whom the Board offers this public appreciation for his performance of a very important piece of legal work.

Finance

Financial statements show that most of the money received from **dues** has been used to defray the cost of publishing the BULLETIN.

The Third Annual Camellia Show netted $797.14 from ticket sales amounting to $1,565.55.

With a balance of $310.47 in the treasury at the beginning of the fiscal year, we are closing the books with a current balance of $540.32 and all major bills paid.

Every Director will wish to join me in a word of recognition for the superior services of Secretary-Treasurer, Barlow Hollingshead. He not only kept the minutes and took care of the correspondence, but also handled all financial records, installing an accounting system excellently adapted to our particular needs, and membership files that must be seen to be fully appreciated.

Membership

The very gratifying and steady growth in our membership speaks for the effectiveness of our Membership Committee of nine members, under J. D. Black, Chairman; also testifies to the fact that many of our very new members seemed to enjoy our society so well that they wanted to bring their friends into the group as well. Consequently we were able to double our membership again this year. While size alone should not be overstressed, it does help to bring down unit costs, especially the unit cost of publishing our BULLETIN.

Programs

Programs for the year were thoughtfully prepared to cover a full season's activities in the garden, each program directly related to the current seasonal problems. Attendance at every meeting was extremely good. Even at the March meeting which happened to fall the night after the Show, when weariness and surfeit of flowers might have justified a lull in interest, there was no let-down, nor at the final meeting when the season was ended for all but a very few. No better tribute could have been paid Program Chairman, Dave Feathers, for the success of his programing, nor the many program speakers, who cooperated so willingly with this Committee.

Here it is appropriate to compliment Mr. H. G. Sanders, who handled the door prize and exhibitor's prize drawings so efficiently. He secured plants from many of our professional members, who offered their plant material so generously and so enthusiastically that we still have a back-log of prizes available for drawings for the 1948-49 season.

A much appreciated feature of every program was the informal flower show, each of such high quality that it was sometimes hard to get the regular meetings under way. Mr. Harold Wescott proved himself another faithful behind-the-scenes worker, coming early to open the auditorium, arrange and cover the tables and take charge of the placing of exhibits.

Bulletin

Perhaps the most important new feature of the current season was the official BULLETIN which made its first appearance in October, 1947, a slim 8-page publication, carrying an official record of our first show and our first year of club history.

By April, 1948, issue No. 5 had doubled in size and its 16 pages of information on camellia culture, show reports and other camellia miscellany, is eloquent testimony to the zeal and ability of our Editor, Mrs. Barlow Hollingshead, to get into written form the information presented by our speakers and to locate and present the kind of information that makes interesting and worthwhile reading.

Third Annual Camellia Show

With the last issue of the BULLETIN carrying an excellent report of this Show, there remains only the pleasant duty of expressing appreciation to the members who made this show one outstanding in the excellence of its horticultural material. Perhaps the outstanding characteristic of our shows has been the quality of their amateur exhibits. I hope that future shows will remain essentially amateur exhibits, stimulating the present friendly rivalry among our members to improve the quality of their plants and blooms.

Research Committee

The program of our Research Committee, Dr. Gordon W. Richmond, Chairman, is another new feature of the 1947-48 season that cannot be too highly stressed, for many still unsolved mysteries remain to keep camellia growing a year-round garden and arm-chair sport.

There are two types of horticultural research. One enlists the best brains and the best laboratory facilities available on the largest possible scale and we cannot have enough of it. The other is done on a small and more intimate scale. Here every man is his own technician and only a few plants (some for possible sacrifice), an unquenchable curiosity and intense interest are needed to qualify one for membership.

There is no essential rivalry between the two types of workers, any more than there is rivalry between the owner of a large estate who hires the finest landscape architect to produce a Magnolia or a Bellingrath Garden, and the owner of a small city plot, who knows intimately every one of the plants in his collection by doing all his own gardening.

We do not have to duplicate the magnificent facilities of the California Institute of Technology with its temperature-controlled hothouses and its trained research workers. Minutes away from the weather peculiar to the Bay Area are valleys ten degrees hotter in summer and ten degrees colder in winter, forming natural laboratories where all manner of small and highly important tests can be carried on and every experimenter can be sure of an audience of interested co-experimenters to compare notes with him.

Inter-Club Cooperation

A final noteworthy event of the season was an informal conference of

officers of four California Camellia Societies at the home of your President on April 25th, prior to the California Spring Garden Show, which helped to bring President John Taylor and Mrs. Taylor here from Pasadena. President Arthur Mohr and Mr. A. E. Morrison represented the Camellia Society of Sacramento; President T. J. Moniz and Mr. C. Breschini represented the Camellia Society of Santa Clara County; and Dave Feathers and Barlow Hollingshead helped to represent our own Society in the discussions.

Show dates for 1949 were cleared to prevent the conflicts which occurred this year.

The four-hour informal discussion proved very profitable and stimulating and it is to be hoped that more of these conferences will be possible in the future to continue the friendly relationships which have made inter-club contacts so enjoyable for us all.

Elections

The remaining Directors keenly regret the loss from the Board of three of its earliest and hardest working Directors: O. E. Hopfer, dynamic President during our first two seasons of existence and originator of the Lakeside Park Camellia Planting project which, while still in the planning stage, he is promoting with his characteristic vigor and drive; Arthur Tucker, who got us off to a good financial start as Treasurer during our first two seasons and who, as Chairman of Reception, has helped to set a tone of friendly informality that we hope an increase of members will never destroy; Herbert V. Mitchell, whose dependable and capable support was always available whenever ability and dependability were needed (never more conspicuously than at show time) and whose good humor and sound judgment could always be relied upon when policies had to be made or changed. These three have voluntarily set a sound precedent for a constantly changing Directorate that is almost synonomous with sound organizational growth and vitality.

We are all to be congratulated on the election of Louis J. Macchia, Dr. Gordon W. Richmond, and Dr. Walker M. Wells, who succeed them.

We are particularly fortunate that the post-election organization meeting promoted David L. Feathers to the Presidency. One of the original founders of the Society, his well known work as Secretary for the first two years and as Vice President for the past year, his invaluable cooperation in the promotion and management of our shows, and the imagination and expertness of his work as Program Chairman, all add up to rich promise for the 1948-49 season under his experienced leadership.

HAROLD L. PAIGE, President.

RESOLUTION OF BOARD

The newly elected Board of Directors at their first meeting, held on May 11, 1948, unanimously passed the following resolution as a means of formally expressing the gratitude of the Society to the three retiring Directors who, for personal reasons, requested that their names should not be placed in nomination this year:

"RESOLVED, that this Board of Directors, on behalf of the Northern California Camellia Society, expresses its deep appreciation for the invaluable service rendered the Society from its inception to date, to the following retiring Directors who have contributed so much to the growth and success of this organization:

Mr. O. E. Hopfer
Mr. Herbert V. Mitchell
Mr. Arthur J. Tucker

NOTICE

The attention of the members and potential exhibitors is directed at this time to the matter of preliminary preparation for our 1949 Annual Camellia Show.

The American Camellia Society will hold its annual meeting at Sacramento next year, the same week-end as the Sacramento Camellia Show of the Camellia Society of Sacramento.

Since our own show falls on the preceding week-end, it is anticipated that we shall have quite a number of camellia enthusiasts from the Deep South and other distant points as visitors.

Your 1949 Show Committee, headed by D. L. Feathers, Chairman, and Dr. Walker M. Wells, Vice-Chairman, have already begun investigating possible new show quarters in the East Bay area, the principle object being to secure larger quarters and space for a greater display of growing plants.

As announced at our May meeting, the members are invited to bring to the attention of the Show Committee any building or hall considered suitable, keeping in mind the necessary requisites: transportation, parking facilities, central location, a large ground-floor auditorium, the right to charge admission, and to be available to us February 26-27, 1949, and accessible by Friday noon preceding. (Public schools and churches are generally unobtainable for our purposes.) Here is a chance to lend important assistance to your Show Committee!

It is suggested that those of us who have potted plants suitable for exhibiting start now to prepare them by shaping the plant, sprucing up the old container or getting a new one, and otherwise dolling up our favorites so that we can show our visitors from afar how well camellias can be grown in the Bay Area.

D. L. FEATHERS, Chairman
1949 Camellia Show Committee

BOOKS AND PAMPHLETS ON CAMELLIAS

The Oakland Public Library compiled a list of books and pamphlets on Camellias as of April 1948, which may be obtained at the Main Library, 14th and Grove Streets or at any Branch Library in Oakland. Through the Library's branch delivery service, circulating books are sent upon request from the Main Library to branch libraries. The list is as follows:

Books and Pamphlets

BERLESE, LORENZO. Monography of the genus camellia. Translated from the French. 1838 (1947).

BUTTERFIELD, H. M. Growing camellias in California. 1943. (California agricultural extension leaflet on ornamental horticulture.)

CAMELLIAS ILLUSTRATED. (1948?) Sponsored by the Oregon Camellia Society. (Ordered.)

GERBING, G. G. Camellias. 1943.

HALLIDAY, R. J. Practical camellia culture. 1880 (1945).

HUME, H. HAROLD. Camellias in America. 1946.

NORTHERN CALIFORNIA CAMELLIA SOCIETY. 3rd Annual Camellia Show. 1948.

SMYTH CAMELLIA NURSERY, ROSS, CALIF. Camellias: history, culture, and care.

SOUTHERN CALIFORNIA CAMELLIA SOCIETY. The camellia: its culture and nomenclature. 1947.

VERSCHAFFELT, A. A. New iconography of the camellias . . . 1848-1860. Translated from the French. 1945.

Diseases and Pests

MORRISON, A. E. Insects infesting camellias. (In California Dept. of Agriculture Bulletin, Vol. 35, No. 3. July-Sept. 1946.)

Periodicals

NORTHERN CALIFORNIA CAMELLIA SOCIETY. Official bulletin. Vol. I, Nos. 1 to 6. October 1947 to date.

SACRAMENTO THE CAMELLIA CITY

By Jerry J. Olrich, State Gardener

Every year many people travel a good many miles to view the many Camellias in and around Sacramento. The sight they see is worth all their trouble.

There are hundreds of large old trees growing throughout the old residential areas which were once the elite of the city. There isn't any record of when some of these trees were planted. If there were, it would stop many arguments as to which trees are the oldest.

These old trees are gradually disappearing as the old homes are torn down or are occupied by people who don't have much love for flowers or don't know the value of these plants. I have seen some of these old monarchs sold for little or nothing and moved at the wrong time of year, causing loss of the tree.

How many of you have seen some of these trees? They can be seen by driving up and down the streets in the old section of town.

How many of you have seen the trees at the Edinger Place just sixteen miles south of Sacramento on the river road, which is known as Freeport Boulevard?

These old trees really intrigue me, and I have spent considerable time trying to find out how old they are and which is the oldest. I've given up and I doubt that anyone will ever really know for sure.

Some of the trees growing in the Capitol Grounds are very close to the century mark. The grounds were landscaped in the early sixties, and there were fifteen Camellia trees in the original planting in the four blocks around the Capitol Building. When planted, these trees must have been somewhere between five and ten years old. Out of those first fifteen trees there are nine left and these are doing very well. Two were lost in moving, but they were in very bad condition. The other four had disappeared before my time.

We have moved many old trees into the grounds from various parts of town and have had success with them. Some are very fine specimens and it is hard to believe that they were moved during the past few years.

In the Capitol Grounds we now have a collection of 1,465 Camellia plants and are adding new plants right along. There are about 580 varieties and seven species.

A worthwhile job for all the Camellia Societies and Garden Clubs would be a program of some sort to try to save all the old Camellia trees as there are some in nearly every locality.

SPRING GARDEN SHOW AWARDS

Two of our members, Dr. Walker Wells and Mr. Barlow Hollingshead won awards for Camellia specimen blooms in the amateur classes in the 16th Annual California Spring Garden Show, in Oakland, April 26 to May 2, 1948. Dr. Wells won three first awards, two seconds, and two thirds. Mr. Hollingshead won two first awards, three seconds, and three thirds. Each totaled fifteen points.

O. E. HOPFER CAMELLIA ARTICLE

In the 1947 American Camellia Yearbook of the American Camellia Society, there is a reprint of Mr. O. E. Hopfer's article, "Camellia's from Seed," by courtesy of SUNSET MAGAZINE. The step-by-step process of cross-pollinating, producing seed, and growing seedlings is covered in ten photographs with accompanying explanations.

STRANGE BEHAVIOR

(continued from page 4)

Propagation

Because Camellias are much hybridized, seedlings do not come true to their parents. To get plants from a superior variety it is necessary to propagate them vegetatively, either by grafting or budding onto a seedling, or by making cuttings. But Camellias belong to the group of plants which is hard to root. It usually takes cuttings three months or more to produce enough roots for potting. It has been found that this is due to a lack of the growth hormone in the cutting. When Camellia cuttings are treated with a synthetic growth hormone before they are placed in the cutting frame, they root in half the ordinary time. The treated rooted cuttings are usually more vigorous than the untreated ones. This is due at least in part to the much larger root system which develops after the hormone treatment.

The treatment itself is very simple, with synthetic growth hormones mixed with talc or other inert materials. The base of the cutting is first dipped into the hormone dust or powder. Enough dust sticks to the cut surface of the cutting to improve rooting. If the growth hormone were not diluted with the talc to about 1 part in 1000, the base of the cutting would be burned by the chemical. These hormone dusts, usually containing napthaleneacetamide or a similar compound as the active ingredient, usually can be bought in feed stores.

B-1 and Leaf Mold

Finally, Camellias have another peculiarity which should be mentioned. They belong with those plants which do not produce enough vitamin B-1 for their own needs. Therefore, they have to absorb it through their roots. When a Camellia is planted in a soil which does not contain any vitamin B-1, its growth stops completely. Peat, leaf mold, and good garden soil contain enough vitamin B-1 to make Camellias grow well.

WHAT THESE TESTS MEAN IN YOUR OWN GARDEN

By Garden Editor of **Sunset Magazine**

Camellia performance in relation to temperatures is now being recorded in more than fifty gardens. If garden performance follows the Caltech greenhouse tests, we'll find, in localities where summer temperatures are high, that there will be more blooms per bush next winter than on bushes of the same variety in a cool summer climate. For example, more buds will set on Camellias in Sacramento than on those in San Francisco or Eureka or Seattle.

Varieties addicted to bud drop will follow their bad habit when winters are unseasonably warm. If winter nights are cold, flower buds will hold and develop naturally.

In short, cultural ministrations and loving care will prove to have little to do with preventing bud drop. Blame the weather, not yourself.

CAMELLIA FAMILY

(continued from page 2)

The genus, Cleyera, consists of about nine species of evergreen shrubs, the most common of which is Cleyera ochnacea, a tender shrub from the Himalayas, which has glossy foliage and creamy white fragrant flowers.

The tea genus, Thea, includes about two hundred separate species including vines, shrubs, and trees, all of which are native to warm temperate or tropical regions and many of which have large showy flowers. Among these is the tea plant of commerce.

From the genus, Camellia, we have in cultivation at least nine species, many being little known in the United States:

1. Camellia japonica
2. Camellia saluenensis
3. Camellia reticulata
4. Camellia taliensis
5. Camellia oleifolia
6. Camellia sasanqua

7. Camellia cuspidata
8. Camellia maliflora
9. Camellia Hongkongensis

Many more species of Camellias are believed to be in existence and in cultivation in the Orient. Nakae, the Japanese botanist, as recently as 1940 placed thirty-three species in the genus Camellia. When subjected to more critical study, many of these may be transferred out of this genus, but certainly there are numerous species which still have not been introduced into cultivation.

Following is a brief account of the cultivated species listed above:

Camellia saluenensis

This species was first known as C. speciosa and also as C. Pitardii, and was introduced by George Forrest who discovered it growing in Yunnan at altitudes up to 9000 feet. It is an early flowering species with pale pink, five-petaled flowers, with centers of rich yellow stamens.

It is interesting to note that this species has been successfully crossed with C. japonica, resulting in an excellent garden hybrid known as "J. C. Williams."

Camellia reticulata

Camellia reticulata had been cultivated by the Chinese for a long and indefinite period before George Forrest, the great botanical explorer, discovered it growing wild in the mountains of Yunnan, where he collected specimens in 1912 and again in 1913, 1924, and 1925.

There is little doubt from the records that the first variety of C. reticulata to be introduced into England was an old cultivated plant from a Canton garden. Capt. Rawes brought a C. reticulata to a friend in England in 1820. The plant flowered in 1826 and became known as the "Capt. Rawes" Camellia.

Soon after, it was identified by the botanist, John Lindley, as a new species, though he did not know he was dealing with an improved cultivated form and not with the native species, which was still undiscovered.

About 1850, Robert Fortune, another great plant explorer in China, introduced a more double form of C. reticulata, called "Flore Plena." This form is illustrated in the Botanical Magazine, April 1857.

The final part of the story of C. reticulata was uncovered when George Forrest discovered the wild species in the mountains of Southwestern China in 1912. This species, the true type species of C. reticulata, has a much smaller flower than any of the cultivated forms. While these forms are most likely very numerous, few of them are known as yet in this country. Even as recently as March 17, 1942 the Royal Horticultural Society of England gave a special award of merit to one of these recently developed forms. This particular plant was obtained from collections of seed made by Forrest in 1925 and is known in England as C. reticulata "Mary Williams."

Camellia taliensis

Camellia taliensis, which was also introduced by Forrest in 1931, is an exceedingly rare Camellia. Only five such plants are known in England: two at Kew, two at Wisely, and one at Exbury.

C. taliensis has much softer looking leaves than most Camellias, and they are almost olive green in color and average more than five inches in length. The two-inch white flowers have an outer ring of five wide petals and an inner ring of five smaller and narrower petals. The yellow stamens are very numerous and project from the center of the flower about three-quarters of an inch. The most distinctive characteristic of this plant is the flower bud, which forms in the axils of the leaves along the whole length of the current year's growth, usually in twos and threes. The buds are

perfectly round, and when they reach the size of small peas, turn pure white and remain so until the flower opens, adding much to the attractiveness of the plant.

Camellia oleifolia

Camellia oleifolia has a distinctive fragrance. Its large pink buds open to a three-inch flower, almost semi-double in form, with the outer petals pink and the inner petals white. It has rich, shining serrated leaves about three inches long, and rivals C. sasanqua for hardiness.

Camellia sasanqua

C. sasanqua is an extremely hardy, single, small flowered type. Many garden forms have been developed which show some doubleness and a definite improvement in color, ranging from pure white to red.

This species was first introduced into England by a captain of the East India Company in 1811. It is well known in California. The newer forms are exceedingly fine flowering shrubs and should be cultivated more widely.

Camellia cuspidata

C. cuspidata is a late flowering, extremely hardy species with unusual small foliage and small white and abundant flowers.

This species is a native of West China, introduced by Ernest Wilson. It has already been hybridized with C. saluenensis to produce a very interesting pink flowered form with unusual foliage.

Camellia maliflora

C. maliflora with its small, double pink blossoms has been grown in England for over a hundred years.

Camellia Hongkongensis

C. Hongkongensis, as far as can be determined, has not flowered in cultivation. A plant is currently being sold in this country as Hongkongensis but, thus far, has not been verified as to species.

Camellia japonica

C. japonica is the most variable of all the Camellia species. Like so many Asiatic plants, this Camellia arrived first in Europe in a dried state. James Cunningham brought it with him out of China as an herbarium specimen. In 1702, James Petiver, an English apothecary, printed a picture of this Camellia. From 1712 on, many botanical works contained woodcuts of Camellias, and finally in 1737, Linneaus listed the name in his great system of classification.

How the first cultivated C. japonica reached Europe is not known, but in 1739, a certain Lord Petre was growing a small, single, red C. japonica at his estate of Thornden Hall in Essex. Lord Petre, cherishing his Camellia plants and fearing for their hardiness, placed them in his stove house. They quickly died in the hot, humid atmosphere. Lord Petre's gardener, James Gorden, who later started a nursery of his own, soon was able to obtain more Camellia plants and grew them successfully under cool conditions.

Through the Swedish East India Company, Linnaeus was sent two tea plants from China in 1745. Both of these proved to be single varieties of C. japonica, and it is largely believed that the cultivation of the Camellia in Europe probably dates from these plants.

In 1792, a Capt. Connor of the ship "Carnatic" brought from China the first double flowered variety. This was given to one John Slater, Esq. and was described as a variegated form and named "C. japonica flora pleno striata."

In quick succession, other forms of C. japonica reached England: in 1794, a double red; in 1806, Waratah or the anemone flowered form; in 1807, a delicate pink form named "Lady Hume's Blush"; in 1811, a large, white peony flowered Camellia by a Captain Rawes. This gentleman must be considered the first of our kind — a Camellia enthusiast. He became the first intensive collector, and by 1829, had introduced at least ten of the

twenty-nine varieties known in English gardens, including the entirely new species, C. reticulata.

In 1819, Alfred Chandler originated the Chandleri, a deep red flower sparingly marked with white; and in 1822, he obtained his Chandleri Elegans as a seedling from the original Waratah. He described this as a deep rose in color with the inner petals slightly paler than the outer.

In 1830, van Siebold introduced from China the famous variety Donckelaarii, one of the hardiest varieties known, which became the parent of many fine seedlings.

From this point, the interest in Camellias gathered tremendous momentum. Seedlings were raised and every sport and slight variation in the shape or color of the flower was noted and propagated. In 1831, one English nursery offered sixteen imported varieties and nineteen special seedlings of its own. Ten years later, one hundred sixty named varieties were being grown in England. This interest continued until by 1870, there were approximately twelve hundred cultivated varieties.

In 1860, Lord Falmouth demonstrated the hardiness of the Camellia when he planted a collection of over a thousand plants in his garden at Cornwall, which is still intact. Among its magnificent features is a wall, 240 feet long and 25 feet high, entirely covered with Camellias.

On the European continent interest in the Camellia did not lag. In France and Italy there were many active growers and propagators. By 1878, a collection in Italy is said to have numbered 30,000 plants. In France, the Camellia became "the flower for wearing in the buttonhole," and the first all-Camellia show was held in 1846, when 481 plants were exhibited. Belgian growers, too, were exceedingly eager to propagate this plant and soon became the principle distributors to other countries.

In America, the Camellia was introduced, probably, by the celebrated traveler and botanist, Andre Michaux, who established a botanic garden near Charlestown in 1787. It was not long before the Camellia began to appear in Charlestown gardens.

One of the first growers to pay special attention to the Camellia was the English-born Michael Floy, who came to this country in 1800. Soon after, he established himself as a nurseryman and florist between 125th and 127th Streets in New York City. In 1816, he raised an exceptionally large flowered seedling which he named Floyi, and this Camellia was very popular along Broadway at that time.

Reproduction

These Camellia species are our heritage. They are the wild forms and the raw materials with which we must work in order to obtain any new forms. New varieties of plants can only be produced by two methods—by sexual reproduction or by asexual reproduction.

Asexual Reproduction

The asexual method of reproduction is commonly termed mutations or sports and is always limited, affecting only a part of a plant. A very interesting example of this asexual method of reproduction is illustrated by the fimbriated or feather-edged Camellias, only four varieties of which are known today, having appeared only at very irregular intervals in the last hundred years of Camellia culture. The fimbriated character has never been reported to be a dominant characteristic in any seedling or sexually reproduced Camellia. All the fimbriated forms have been derived from mutations or sports of plain petaled varieties, and frequently these fimbriated varieties revert to the plain forms. Individually they are as follows:

1. **Alba Plena Fimbriata** which was discovered in China and introduced into England in 1826. It is probably a sport of Alba Plena.

2. **Fred Sander,** also known as Fimbriata Superba, originated in Belgium about 1912 and was later introduced into this country through importations from England. It is a sport of tri-color Sieboldi, has large semi-double blooms of a brilliant deep red, occasionally spotted with white. The petals are large, wavy, and deeply lacerated at the edges.

3. **Ville de Nantes,** originated at Nantes, France, about twenty years ago, and was introduced into the Southern States in 1933. Later it was re-introduced by the Cottage Gardens, Seattle, Washington, directly. The Western form is usually solid red and more irregular in form than the one introduced into the South. It is reported, however, that many of the Southern blooms are showing solid coloration. Ville de Nantes is a sport of Donckelari.

4. **Dainty** is the most recent of the fimbriated varieties. It was discovered and introduced by E. H. Carter of Monterey Park, California, as late as 1946. It is a remarkably lovely semi-double, medium sized flower, blush white, striped rich red, with somewhat ruffled and deeply fimbriated petals. It, also, is a sport of Tricolor.

There are many other types of mutations or sports. Any group of Camellia enthusiasts will report occasional variations which they have noted on particular parts of certain plants. In fact, the majority of the Camellias we are cultivating today have arisen by these chance mutations and by the continuous vegetative reproduction of these variations by cuttings or by grafting. Duplications, of course, are common and much confusion has arisen because of them.

Sexual Reproduction

Sexual reproduction is by far the most important method of plant improvement. Occasionally this method has been used to develop new varieties of Camellias. The process, however, has usually been unmanaged, haphazard, and although the results have occasionally been spectacular, they represent no systematic or controlled effort at plant breeding.

From thousands of Camellia seedlings whose parents were brought together indifferently through wind and insects, a few promising seedlings have been chosen and propagated; but on the whole, this method is extravagant, accidental, and with little hope of reward. This method of selecting seedlings is prevalent today in our Southern nurseries, fundamentally because there is little nursery wastage, as the unwanted and undesirable seedlings make good understock for grafting. Therefore, many of the outstanding varieties, such as Imura, have been the result or by-product of regular nursery procedure.

Scientifically controlled hand pollination was used on Camellias in America, at least, early in the 1800's when Marshall Wilder and C. M. Hovey used it to produce their new varieties of that time.

It is my belief that the finest improvements in Camellias will come through a carefully planned, well-defined program of hand pollination. The Camellia flower is large; its reproductive organs are well-defined, when present, and are readily accessible to the hybridizer.

Camellia Flower Form

Let us examine the Camellia a little more carefully. Its flower form and color are exceedingly variable, from a single flower with five petals to a completely double flower with innumerable petals. Its stamens may vary from 20 to 200, and these may be attached to the receptacle at the base of the pistil or may form a collar attached to the corolla. All of the stamens are potential petals, and it is by suppression and transformation of the stamens of the single Camellia into petals that the exceedingly double forms have been developed.

The female part of the Camellia flower may also vary. There may be from one to ten styles or the style may be completely absent.

Cross Pollination and Fertilization

Once the structure of the Camellia flower is analyzed, it is a relatively simple procedure to bring the pollen of one flower to the stigma of another flower. But what happens thereafter depends upon a great many factors.

This act of pollination does not mean fertilization. A drop in temperature, for example, may cause the pollen tube to fail to grow down to the egg cell. The genetic composition of the two germ cells may be incompatible. The stigma may not be sufficiently mature to receive the pollen. Moreover, there are a number of very variable factors inherent in the flowers. Practically all of the completely double types of flowers have incompletely developed or completely lacking sexual structures and are, therefore, sterile and can be reproduced only by rooting cuttings or by grafting.

There are, however, a number of single and semi-double varieties that have perfect reproductive organs but do not set seed. For example, Lady Clare. Some flowers are self-sterile, meaning that they will not set seed when fertilized with their own pollen. On the other hand, some flowers are self-fertile and will not set seed when crossed with other varieties. Still other varieties will set seed when fertilized with their own pollen or the pollen of other Camellias. Tricolor, Donckelari, Sara-Sa, Claudia Lea, Imura and quite a few other varieties set seed readily.

Briefly, and without going into all of the genetic details, when two plants are crossed, they gather together their hereditary characteristics and pass these on to their progeny. When two germ cells of two separate plants unite, there may be as many as ten thousand separate characteristics joining together in the fusion of these germ cells.

Analyzing Genetic Make-up

Camellias have a very confused heredity. They have hybridized readily without the aid of man, and their genetic composition is extremely complex and unpredictable.

It is my belief that anyone who is seriously interested in improving or bringing new Camellias into existence must proceed along very definite lines. By "selfing" or back crossing a single variety upon itself we can redistribute and reveal certain genetic characteristics that would not otherwise be discovered. By obtaining these new genetic combinations we not only are given the opportunity to discover new varieties, but we are also given the only method by which we can analyze the genetic make-up of any individual Camellia.

Nature will limit us in what we can do, but, once we have discovered the genetic backgrounds of some of our present hybrids, the more prepared we shall be to proceed. Then we shall be on our way to high adventure.

New Varieties Through Hybridizing

I have mentioned the various species of Camellias. Here lies an unexplored genetic world, and here we may find some of those characteristics such as fragrance, hardiness, improved plant form and so on that will make our Camellias even finer than they are today. This is not mere theory. Camellia japonica has already been crossed with Camellia saluenensis, and a fine flowering garden shrub with many unusual characteristics has been obtained through such hybridization — **crossing of species.** Other crosses between the species have been made and are probably being made in England today.

In my opinion, these fine flowers have only had their beginning and Camellias of the future will be even more interesting than those of today.

1948 MARIN ART AND GARDEN SHOW

THE PLACE: Art and Garden Center, Ross, California.

THE DATES: June 11, 12, 13, from 10 a.m. to 11 p.m.
(Sponsor's night, June 10.)

THE THEME: "One Hundred Years of Art, Gardens and Outdoor Living."

The Marin Art and Garden Show in the beautiful outdoor setting of an old Ross garden is perhaps the only show of its kind in California. Eight acres of landscaped grounds form the background.

The show is made possible through the cooperation of the eight member groups of the Art and Garden Center: the Ross Valley Players, the Marin Society of Artists, the Garden Society of Marin, the Marin Conservation League, the Marin Naturalists, the Marin Music Chest, the Marin Dance Group, and the Marin Garden Club.

The Centennial theme, contrasting art, gardens and outdoor living of 1948 with that of a hundred years ago, has been selected as the motif of the show.

ARTICLES OF INCORPORATION

Articles of incorporation for the Northern California Camellia Society, Oakland, were granted as of February 20, 1948 and filed with the Secretary of State, Frank M. Jordan, on February 26, 1948.

SOUND EFFECT SYSTEM

At the April 13, 1948 meeting of the Board of Directors a resolution was carried to send a letter of appreciation to Dr. Gordon W. Richmond, M.D., for furnishing the sound effect system for the regular meetings of the Society for the past two years.

HAROLD L. PAIGE IS HONORED

Our retiring President, Harold L. Paige of Oakland, has been advised by Secretary R. J. Wilmot of the American Camellia Society, which is a national organization, that he has been elected Vice-President of that Society for the Pacific Coast.

This is quite an honor since there are but three such Vice-Presidents, one for the Atlantic Coast, one for the Gulf Coast, and one for the Pacific Coast.

Last year, Robert Casamajor of Pasadena held this office.

VERMICULITE

According to the April 1948 issue of the American Camellia Society **News-Letter,** vermiculite has been recommended as one of the materials in the mixture for rooting cuttings.

Vermiculite has another use that has been given little consideraton—that of soil amendment. One of the measures of soil fertility is its exchange capacity or its ability to hold fertilizer materials and give them up as needed by the plant. The addition of vermiculite to light soil (San Franciscans take note) will increase its exchange capacity considerably. It will also give up about four times as much potash, 50 times as much calcium, and 25 times as much magnesium as a light sandy soil. The statement is usually made that it is inert chemically but this is not true of all vermiculites.

Vermiculite may also be used to lighten heavy soil.

This product may be purchased locally at nurseries and garden supply stores.

JOHN P. ILLGES MEDAL

The American Camellia Society has recently announced the John P. Illges Medal to be awarded yearly to outstanding new seedlings varieties of Camellias.