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With Camellias— Summering Means Watering

By Claude Chidamian

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'The camellia,' writes Berlése in his *Monographie du Genre Camellia,* 'likes almost a constant humidity, especially in summer. Frequent waterings during the hot season powerfully contribute to reanimate and sustain its beautiful appearance.'

There is surely no single substance so essential to the life of a camellia as water. The basic cultural practices of summer care — irrigation, shading, syringing, mulching—are simply round-about ways of expressing this straight fact: Summering is Watering.

Perhaps the most striking climatic feature of the Pacific Coast 'camellia belt' is the ordering of its seasons, of which it has practically but two, the wet and dry. The winter, or 'rainy season,' lasts approximately six months, with the heaviest precipitation occurring on the coast of the Pacific Ocean and gradually decreasing as it proceeds inland. From San Diego, at the extreme southern end of the belt, the annual rainfall averages rise from 10 inches to 14.56 at Los Angeles, 23.54 at San Francisco, up to 80 or more inches on the coast of Northern California, Oregon and Washington. This northerly trend in rainfall is also marked by a corresponding increase in humidity, larger streams, and vastly richer forestation. It is not surprising, therefore, to find that Western camellias reach their greatest well-being in the cool, even temperature and abundant moisture of the upper Coast region, from the San Francisco Bay area north to Seattle.

But the camellia, with its broad tolerance to climatic variations, thrives in the arid southwest portions of the belt too. This subtropical area, including the coast section of California from Santa Barbara south to San Diego and inland through all the citrus belt, displays a wide diversity in sunlight, temperature, air currents and moisture. The ocean breezes and fogs which temper the bright sun and rainless summers of the coastal strip, keeping temperatures moderate and humidity high, are not to be found in the inland areas of the Pacific Southwest. Proper regulation of shade, moisture and humidity becomes an increasingly difficult problem as one moves inland from the coast—until a point is reached in the interior valleys and deserts where excessive summer heat and drought make camellia growing wholly impractical or impossible.

It is apparent, then, that the local situation has more to do with summering camellias than any general discussion such as this can hope to show. Successful summer care depends upon a

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thorough knowledge of the cultural conditions in one's own locality, and more particularly, in one's own garden.

Watering

For six months after May 1, rain is practically unknown over a large part of the Western camellia belt, particularly in California, and the proper regulation of moisture becomes the primary concern of every grower. The practice of watering camellias at this time calls for a great deal of common sense and careful observation. No one can tell beforehand how often a plant is going to require watering, for this depends entirely on the character of the soil; the prevailing atmospheric conditions; the plant's exposure to sun, shade, and wind; and its state of growth. The experienced grower avoids scheduled irrigations, carefully tests soil moisture beneath the surface, and waters deeply but not too frequently. The soil is allowed to dry to a medium point, then a wide basin is built around the plant, filled up with water, and refilled as often as it will drain away within a reasonable time. By this means the soil is thoroughly wet down to the full depth of the feeding roots; and yet, because it is not kept saturated, proper aeration and root growth are encouraged throughout the entire soil mass.

The water that is absorbed by the roots is used primarily in keeping the plant turgid (like air in a balloon) and unless the plant receives an adequate supply of water, complications develop. Excessive transpiration of moisture from the leaves in very hot or dry weather results in greater demands for water in the root area. Frequent, shallow waterings which fail to wet the whole soil mass about the feeding roots will seriously affect the plant in such a period of moisture stress. When the plant uses water faster than the roots can take it up, a temporary wilting occurs. If the moisture deficiency continues, the plant may become sunburned; and if the permanent wilting point is reached, the plant may actually die. Camellias which are actively growing and forming new shoots, leaves and buds must be watered thoroughly before the distress signal of wilting appears. Most of the difficulty with bud-drop in the blooming season may be traced back to periods of insufficient moisture in the summer and early fall. Camellias should never be permitted to wilt badly or permanently for they seldom recover from such injury. Any

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TEST GARDEN TOPICS

By David W. McLean

'Twas a balmy afternoon in April, 1944. William Hertrich, Curator of the Huntington Botanical Gardens, was showing Anne Galli through the Japanese Canyon of the Huntington Estate. Trailing down the long path to the Japanese and Water Gardens, Anne's amazed eyes encountered some 1600 large camellia trees, with small seedlings growing under them like weeds. Many of the large plants themselves were seedlings.

'How wonderful it would be,' quoth Anne, 'if a project similar to the Test Garden conducted by Roy Wilmot at the University of Florida for the clarification of camellia nomenclature, could be conducted here by grafting the various camellias on these seedlings.'

'It would indeed,' replied Mr. Hertrich.

'Could it be done?' asked Anne.

'I think probably it could. Certainly I would be all for it.'

This, in effect, was the conversation which initiated the Test Garden idea, to become a reality under the joint sponsorship of the Huntington Botanical Gardens and our society. It has grown physically through its four years of existence, even though war and postwar personnel troubles afflicted the Huntington as every other activity. Some 500 more seedlings were moved in. A thousand feet of additional paths were built. Much clearing and grading were done. Hundreds of grafts, on large seedling rootstock, were made by Curator Hertrich himself. Have you ever made a graft, on your knees, on a steep sloping hillside? On understock so large that you conceived the idea of setting the humidifying jar on a piece of stovepipe? All this our Curator did rather than trust surgery on these choice varieties to others.

Today there are some four to five hundred varieties in the garden, in addition to many duplicates as a hedge against accidental death of a choice variety. But the Test Garden has grown even more tremendously in concept. From an experiment in varietal nomenclature it has become a depository for camellia varieties from all over the world; from a local dream it has become a project known not only throughout this country but in many countries. It has become not only a major interest of our society, but part of the stuff and substance of its lifeblood. For it is unselfish thought and activity that keep the soul alive. And how many of our activities can truthfully be placed in that category? Research (perhaps). The Test Garden. Any others? You name them.

A true understanding of the physical setup of the Test Garden, a garden within a garden, and of its administration, cannot be had without a knowledge of background and past history. Let's, for a moment or two, do a little delving.

Collis P. Huntington was one of the pioneers in transcontinental railroads, helped convert them from dreams to realities and himself from pioneer to magnate.

His nephew, Henry E. Huntington, grew up in railroad transportation, became largely interested in the Southern Pacific and in steamship building companies, became president of the Pacific Electric and Los Angeles Railways. In 1892 he moved from San Francisco to Los Angeles. In 1903 he bought a large ranch in the San Marino area and established his home ranch of 560 acres, the development of which he started in 1904.

William Hertrich came into the picture on January 1, 1905, as Superintendent in charge of developing the gardens and the estate generally, from the horticultural standpoint. In 1905 he commenced developing the palm garden, the water garden, and the large cactus garden, a personal hobby of both Huntington and Hertrich. In passing, this collection of cacti is generally conceded by authorities to be among the finest, if not *the finest* in the world. This is one of the accomplishments which have made Curator Hertrich an international figure in the world of horticulture.

The rose garden followed in 1907 and 1908; construction of the home

buildings now used to house the Huntington Art Gallery and Museum followed in 1909 and 1910, the Library building in 1919. In its heyday the ranch contained 15 acres of avocados (the first commercial planting in Southern California), 10 acres of persimmons, 10 of stone fruit (peaches, etc.), 300 acres of oranges, and its own packing house. In all there were some 50,000 plants and trees. Other 'firsts' were the first plantings of cymbidiums and cypripediums in the ground in this area.

The first camellias in the garden were purchased in 1909 or 1910 from a French nurseryman named Fleur, whose nursery was near the center of San Marino.

The celebrated Oriental Garden and Japanese Canyon, present home of the Test Garden, was started in 1912, planted in camellias, rhododendrons, azaleas, Japanese cherries and other orientals.

In 1918, camellias were imported from the Yokahama Nursery Company, of Japan. Among these were 'Bleichroeder,' the variety now known as 'Anne Galli,' the present 'Edward Rust' and 'Madame Jannoch,' and a flock of other seedlings. At the side of the Hertrich home, northwest of the present Botanical Gardens, a 'Meredith Lake' reaches the second story, one of three fine strains of this variety on the old ranch; one has the usual color, one is lighter, and the other a blush that is almost white.

Many of these early camellias were planted in the gardens adjoining the Huntington home, where an extensive camellia garden of some three hundred plants still enthralls visitors on Saturdays, Sundays and other days when the Library, Art Gallery and Museum are open to the public. A large part of the estate, however, is never open to the public. The Test Garden, located in the Japanese Canyon, has not as yet been open to the public and should not be confused with the Huntington Botanical Gardens which were in existence long before the Test Garden was conceived. During the past winter members of this society and its affiliates were invited to view the Test Garden and were conducted through the canyon. Eventually it will be opened to the public.

Huntington had the soul of a public benefactor, as witness his will, establishing and endowing the Botanical Gardens, Library and the rest of the great estate, for the benefit of mankind. William Hertrich, after Huntington's death, carried on in the same spirit. Material from the Botanical Gardens was exchanged with other botanical gardens, a common custom of all of them. The Rust, Jannoch, Galli (generally known as 'Huntington Pink' until Mr. Hertrich registered it with our society as 'Anne Galli') all found their way, with cost to no one, to commercial growers for dissemination to the public.

Sixty-six camellia plants were purchased for the Botanical Gardens in 1942. Twenty-nine were acquired from a commercial grower in 1942 and '43 in exchange for 5,000 seeds and about 2,000 small seedlings. Thirty plants were donated to the Botanical Gardens in 1942 by a person or persons who remained nameless, choosing to be known only as the 'Friends of the Huntington Library.' All of these operations were quite apart from the Test Garden which had not yet been organized or even suggested.

The first scions for the new Test Garden were donated in 1944 from Anne Galli's collection. Mrs. Galli was tireless in tracking down and obtaining scions throughout the three years during which she was chairman of the Test Garden Committee. Funds were obtained from our own Test Garden Fund, from garden clubs, the Friends of the Huntington Library and some other individuals. This writer was close to the project, which has from its inception been close to his heart. In no instance has he ever known any but the most faithful and unselfish devotion on the part of Test Garden workers.

In the case of a recent contribution of rare material, for which the society will always be grateful, stipulation was made that the grafted plants be labelled by number only. Curator Hertrich has a private list of these names well locked away in safety; the names are not even in the card index of the gardens, lest some dishonest workman cull them from

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AUSTRALIAN VARIETIES FOR THE TEST GARDEN

By The Interested Observer

The Garden has scored another scoop. One of our staunch and enduring friends is Mr. Walter G. Hazlewood, of Epping, New South Wales, and if we have any better ones right here at home please raise your hands, there is use for all such. Read carefully:

More than a year ago Mr. Hazlewood sent to the Garden, as a contribution from Australia, a bundle of fifty some camellia scions by air express — flying boat, as they call it 'down under.' Under existing regulations, however, it was necessary that the scions be fumigated not only at Sydney, N.S.W., but at San Francisco, the point of entry. Despite the full and generous cooperation of the Federal and Los Angeles County Departments of Agriculture to expedite the shipment, the scions were dead on arrival. It was discouraging, but Mr. Hazlewood found a method of obviating the hazard of fumigation at his end of the line, and hoped to get another shipment through alive. Accordingly last summer he sent an additional batch through, all at his own expense, mind you!

The Agricultural Departments redoubled their efforts to get these new and rare varieties to us with all possible speed, and everyone along the line was alerted that there might be no unnecessary delay. They were carefully prepared for fumigation at San Francisco; they were most meticulously repacked, and were immediately sent on to us. The scions upon arrival appeared to be in splendid condition, and more than ninety grafts were promptly made. We were all jubilant and blood pressures ran high from suppressed excitement. Again we were doomed to disappointment. At the end of one week, every scion suddenly withered and died.

We were in despair, but it must have been heartbreaking to Mr. Hazlewood. In fact, a less determined individual would have abandoned the quest after the first failure, but not Hazlewood!

Bill Wylam had visited Mr. Hazlewood's gardens, and made his acquaintance while he was in the navy during the war with Japan. Those Australian varieties intrigued Bill as much as they did those interested in the Test Garden, and upon his return he set about to obtain them. Bill's trials and tribulations are recorded in previous issues of the Bulletin, and it is unnecessary to review them here.

The Wylam approach to the problem was different, and, it may be added, a bit more expensive. He determined to import camellia plants instead of scions, and at the expense of much time, effort, energy and money, succeeded in getting through and preserving a goodly number of fine, though small, specimens. Of course, some of the plants did not survive the ordeal of shipment bare root and fumigation, and these Mr. Hazlewood replaced, gratis. Yes sir, without expense to Bill, if you can imagine that!

These replacements, it may be added, came through in excellent condition. With scrupulous care Mr. Hazlewood selected plants so free from possible objection that upon arrival at San Francisco on May 7, 1948, they passed the very rigid inspection regulations of the U. S. Department of Agriculture, and then upon arrival in Pasadena were again inspected and passed by the Los Angeles County Bureau of Plant Inspection. That made approximately one hundred different varieties of Australian camellias in Bill Wylam's garden, and Bill is very justly proud of the fact. He hopes that no one will mention in the presence of these plants the fact that he has crossed up the seasons on them enroute between Australia and Pasadena, and that right after passing through one summer over there they now face another summer here in America.

It is quite obvious that during all this time both Mr. Hazlewood and Bill had just about, if not completely, arrived at the correct combination; and so, when Mr. Hazlewood informed us that he was ready to send another group of forty varieties to the Test Garden not in the form of scions but of plants, it was concluded to ask him to send these plants

to Bill also, in order that they might have the benefit of Bill's experience and 'know how.' This was passed on to Mr. Hazlewood who promptly made shipment by 'flying boat,' and they now are also in Pasadena, happy to be again with their erstwhile companions.

This article would not be complete without adding that Mr. Hazlewood used the same meticulous care in the selection of this last lot of forty varieties for the Test Garden, and that upon arrival in San Francisco on May 20, these also passed the rigid inspection regulations of both the United States and the Los Angeles County Departments of Agriculture without requiring fumigation.

We therefore are able to announce to the members—yes, with pride and thanksgiving—that through the courtesy and generosity of Mr. Hazlewood, and the help of energetic Bill Wylam we shall presently have available to be grafted upon those big seedlings in the Test Garden approximately one hundred and forty of Australia's finest varieties of camellias. Many thanks to you Mr. Hazlewood. The society will forever remain in your debt. P. S.: It certainly pays to know the right people, doesn't it?

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the index. Have no fear that Huntington officials are unaware that the Huntington reputation for integrity is too precious to be bartered for any group of plants, however choice.

Illuminating is the attitude of the Curator regarding the offer of rare scions which a prospective donor had been bound not to release for two years. These would be forthcoming if the Curator would keep the gift a secret.

'Thank you very much,' said the Curator in effect, 'but let's wait two years. The Huntington Gardens are endowed. They will be here five years, fifty years, from now. There is no hurry. Let's wait two years for them.'

Visualize if you will the greatheartedness of Huntington; the quiet trustworthiness of the Curator who remains after almost half a century to carry on in the same tradition; the serene permanence of the gardens themselves. Then look into the future and visualize the completed project, if indeed it will ever be complete. The camellia canyon, containing varieties from the four corners of the earth, to be viewed and enjoyed by beauty-lovers from this country and from beyond the seven seas. Surely here is a project to be nurtured and treasured; a project in which each smallest contributor may feel pride.

THE EDITORIAL

'The journey of a thousand miles begins with one step,' said the Chinese philosopher Lao-tse, and in his wisdom summed up the beginning of all things.

Some years ago Dr. McLean took the first step which led to this Bulletin. And he came a long way from that first little newsletter to the 32-page issue of March, 1947.

Then it fell upon Dave Cook to take up the task, and now it is my turn. I hope that I may do as well as they have done.

In future issues of the Bulletin you will find articles designed to meet the needs and interests of every class of reader — beginners, experts, collectors, and nurserymen. They will be specially commissioned from leading authorities in every phase of camellia lore.

There will also be greater emphasis on inter-society coordination in our pages by free exchange of news with our affiliates and camellia societies throughout the country.

Then too, we hope to inaugurate a number of regular features—an Editorial which will permit me to chat with you each time on any subject that comes to mind, a Camellia Round Table in which guest experts discuss a question of wide interest, and special columns on the Test Garden, on Research, Nomenclature, and reviews of current camellia literature.

It will be our purpose to reach and inform a larger number of camellia enthusiasts than we have ever been able to reach before, and thus in the end to unite them all, wherever they may be, in our common interest, the Camellia.

CLAUDE CHIDAMIAN

THE HOVEY STORY

Editor's Note: At the Director's meeting the other night, Mr. Frazee Burke suggested that a question column be added to the Bulletin. 'My motives are purely selfish,' said Mr. Burke, 'because there has always been a question that I've wanted to ask: How did I ever get into this camellia business in the first place?' Well, we're going to ask three leading collectors that question on the Camellia Round Table in the next issue, but for the present here is how the great American collector, Charles Mason Hovey, got started. These extracts in Mr. Hovey's own words are taken from an article he published in THE GARDEN (1884).

About 1830, I had collected together about a dozen varieties of Camellias. I had read all that I could find upon Camellia culture, and particularly what Chandler of Vauxhall had to say, the pioneer of the growth of seedling Camellias in England. I was also familiar with L'Abbe Berlése's 'Iconographie' and had looked up all the plates of Camellias in Sweet, Paxton, *Flore des Serres,* etc. In that year I visited New York for the first time, and the garden of the late Michael Floy of that city, to see his great collection of seedlings. This gave me Camellias on the brain, I thought of nothing but Camellias, dreamt of them, read about them, purchased them —yes, one hundred and fifty. About as worthless a lot today as one could get together, though some cost twenty and some thirty francs each. And to add to the flame, I also visited Philadelphia for the first time, and there found my good old friend Robert Buist, with a houseful of fine young Camellias and lots of seedlings.

As stated, about 1830 I had a small collection of the then and now good Camellias, amongst them Peoniflora and Middlemas Red. It then occurred to me that if I had the old Waratah or Anemone Flowered variety, I could fertilize it and get plenty of seed. I had no lack of seed pods, and found it quite a task to keep in view the various fertilizations. For a time the record was kept of the fertilizations, but as many of the seedlings did not bloom for six or seven years, the labels were broken, defaced or lost. I then had under cultivation some three or four hundred seedlings.

The first seedling that was really beautiful was in 1847, now known as 'Mrs. Anne Marie Hovey.' It was a lovely flower of prevailing colour white, beautifully pencilled with carmine. The 'Letter I,' now known as C. M. Hovey, followed later. And oh! What a sight! There was no good Scarlet in existence, and to find not only a brilliant Scarlet, but a flower so bold and grand, in fact perfection, was a treat such as only a raiser of novelties can appreciate. Nature gives us wonders in the floral world; but the Creator has placed in our hands only the raw materials, and has left it to the industry, intelligence and power of men to work out of these simple materials forms which appear almost beyond conception. Of all the flowers of the conservatory the Camellia is and ever will be, unrivaled.

Other seedlings I have are, however, quite as beautiful and quite as distinct as the C. M. Hovey. Three of these (C.M., C.H. and Mrs. Anne Marie Hovey) are better known to English florists than to American cultivators.

The parent plants of all of these are now of very large size. Most of them are from twelve to eighteen feet high and from six to eight feet in diameter. Of some, I do not even have a duplicate plant, of others only three or four, and of some five or six. I am just now increasing this stock. All were fertilized by my own hand, potted and repotted and entirely managed by myself, till they attained a height of eight feet.

None of my large plants have been repotted for six or seven years. They number upwards of 500, and fill two houses 180 feet long, 30 feet wide and 20 feet high in the center. Yet I had to cut back the heads of the largest this year, two feet to prevent them touching the roof. Of course I do not recommend such treatment, but they are so very large, the house would not hold them if encouraged to grow. As it is, I have excavated two feet of earth to lower them down from the glass, yet they are in vigorous health and bloom. The best evidence of this is the fact that the first

prize of the Mass. Hort. Soc. for the finest twelve cut-blooms has been awarded to us for twenty consecutive years; and often the second and first prizes for the best display of flowers. One year ago I exhibited cut-flowers of thirty seedlings.

Some of the stems of our plants measure thirteen inches in circumference at the ground, and are growing in twenty-one and twenty-eight-inch tubs. Some of the pots are so densely covered with Moss that Holly Ferns with six or eight leaves are growing all around the outside. All that they get is a semi-annual top dressing of Standard's manure or bone-dust and soot. All the plants are grown from cuttings—no grafting, budding, or inarching. The soil that I use is a brownish one from the surface of Oak woods, with leaf-mold or very old, decayed manure, and a very little sand for old plants.

It was one of the most delightful occupations of my younger days, after attending to business in the city, to return home, and after tea to ramble among the beautiful Camellias, with the temperature outside at nearly zero—and at 9 o'clock give them a thorough spraying. The water, as it fell from the glossy leaves, sparkled in the candle-light, and the leaves reflected the brightness of the flame. Such work was a source of unbounded pleasure, enhanced by anticipation of adding a new flower that would be worth a place, even by the side of the Old Double White (Alba Plena) or Lady Hume (Lady Hume's Blush).

Did You Know - -

A chemical substance, camellin, is obtained from the seeds of *C. japonica.* It is a glucosid ($C_{53}H_{84}O_{19}$), a substance which, when decomposed by dilute acids, alkalis, or certain ferments, yields glucose or some other sugar not belonging to the class of carbohydrates.

Camellia japonica, despite its name, may not be a native of Japan at all, but was probably brought to that country from China and Korea by Buddhist monks early in the Christian era.

CAMELLIAS IN FICTION

One of the most interesting manifestations of the growing popularity of the camellia is its reappearance in fictional literature.

When the first great wave of interest in the flower swept Europe and America a century ago, it left behind a rich body of reference and allusion in the poetry, novels and drama of several lands. Chief among these works, of course, was Alexandre Dumas *fils* poignant novel of a lost lady, *La Dame aux Camélias,* which later became the play *Camille* and the opera *La Traviata.*

Contemporary authors have not yet produced anything comparable to Dumas's masterpiece, but they have rediscovered the camellia as a literary symbol of flawless beauty, refinement, and taste.

A recent example of this trend is found in the novel by Gladys Schmitt, *Alexandra* (Dial Press, 1947), in which the following episode occurs:

'. . . the gentleman with the little white box pushed aside the curtain and came in. He stood close to us, his faded brown hair showing pale under the harsh light, his lips moving in a strange smile, at once mocking and tender. "I've taken the liberty of bringing you this," he said, laying the box on Alexandra's knee.

' . . . We did not speak at once. We sustained the legendary mood with silence while she opened the box and held it up so that I could see and smell the flower. It was a big, rosy camellia, the creamy petals streaked with red, the stem adorned with a double bow of red and white. The card was scarcely legible; the words had been written with the jerky uncertainty of a hand that has only lately learned to write. "For my favorite Rosalind, with high hopes for her success," it said.'

Now I am very interested in this fragrant camellia Miss Schmitt describes. Could it be Herme or one of its sports? Or has Miss Schmitt just added the fragrance for literary effect?

Fortunately most of her readers won't know or care, but a thing like that can drive a camellia fan crazy. Just in case any of you would like to write to Miss Schmitt for scions of this super camellia, address her as Assistant Professor of English at Carnegie Institute of Technology, Pittsburgh, Pennsylvania.

SUMMERING . . .

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temporary wilting that may occur during the summer should be quickly relieved by thorough watering and syringing.

Syringing

Increasing the amount of moisture in the air by means of a fine spray (syringing) reduces the amount of water lost by the plants through their leaves. With this increase in humidity comes a reduction in temperature, too, for as the water evaporates, it cools. Transpiration is thus cut down to a rate that is lower than the absorption by the roots and, as a result, wilted leaves and stems become turgid. Frequent syringing also keeps the foliage free of dust, controls red spider and aphids, and helps the plants look fresher and greener.

The foliage is best sprayed early in the morning or evening, to avoid possible scalding in the full heat of the day. And this is why. As long as a leaf transpires rapidly, its temperature is kept near or below the air temperature, even though the full sun beats upon it. But without this evaporative cooling, the leaf temperature usually would be 10 to 20 degrees higher than it actually is. When a film of water is sprayed over the leaves in midday it interferes with this normal transpiration, and the leaf temperature may increase to a point of scalding or burning. Humidity may be maintained more safely in the hottest part of the day by wetting-down the walks and ground areas around the plants several times. But this sprinkling must never be confused with the regular process of watering. Syringing is primarily intended for the foliage and not the roots of the plants.

Mulching

The surface-rooting camellia may be protected against injury in dry weather by mulching the ground with leaf mold or peat moss so that more water is retained about the feeding roots in the top 3 or 4 inches of soil. The mulch keeps the roots cool and moist, prevents excessive evaporation and weed growth, and serves as an excellent medium for applying fertilizer. Some Western growers also use a groundcover of Angel-Tears *(Helxine soleiroli)* to shade the base of their plants.

Shading

Wherever there is considerable heat, wind, or drought in the summer months, it is usually advisable to provide some kind of shading or shelter for camellias. In coastal or near-coastal areas where summers are moist and cool, camellias can be grown in almost any location or exposure. There are many fine old specimens thriving in full sun in the earlier settled sections of Central and Northern California. In the San Francisco Bay region, where sunlight is never intense because of foggy overcast skies, even the reputedly tender *C. reticulata* has been grown in full sun. As a general rule, however, an eastern exposure sheltered from the hot afternoon sun is best for coastal plantings, and a full northern exposure is most satisfactory in the hot inland valleys.

In all parts of the Western camellia belt the filtered sunshine under trees or lath is preferable to either full shade or full sun. The moving foliage of high-branching trees such as oak, olive, or elm provides camellias with the alternate sun and shade characteristic of their native woodland habitat. This natural shelter reduces the intensity of the sunlight, lowers summer temperatures, and protects plants against wind injury and excessive evaporation. Care must be taken, however, to keep the plants at some distance from the trunks of such trees as oaks, which may be killed by the abundant summer watering given to camellias.

If natural shade is not at hand it can be provided easily by an inexpensive lath house. The protection afforded by lath is ideal for the cultivation of camellias throughout the Pacific Coast, but it is particularly effective in the arid Southwest. Growers in the interior valleys, faced with the hazards of heat, low humidity and frequent winds, space the laths ½-inch to 1-inch apart on the top, south, and west sides. A few have even installed overhead mist spray systems which are operated by a humidistat and an automatic magnetic valve that begins to operate as soon as the humidity gets below a certain point. In coastal areas the laths are spaced at twice the distance used in the warm interior sections, and humidity is easily maintained by frequent syringing and sprinkling of the paths and laths overhead.

Temporary lath pits are sometimes used for sheltering cuttings and container-grown grafts through the first summer. An excavation of 12 inches is half filled with wood shavings, and a frame 2 feet high is erected over it. Removable panels, 4x4 feet, with the same lath spacing as for a lath house are placed on the frame, making a compact and efficient shelter.

Transplants

Camellias recently planted out in exposed positions should be protected from strong wind and sun during the summer months with a lath or cloth covering. Such plants often lack moisture as there are not yet enough roots in the new soil to supply the plant with sufficient water, and the original soil ball dries out more rapidly than the new soil around it because it is full of roots. Wind and sun striking the leaf surfaces increase the transpiration beyond the ability of these roots to supply water, and the new plant wilts, burns, and dies. A lath or burlap shelter the first summer and a cheesecloth the second summer will provide ample protection until the roots become fully established.

Grafts

The 'hardening off' process is quite important in handling grafted camellias, for by its neglect many grafts are lost in summer after growth has actually started. The experienced grower makes a very gradual change for his plants from the humid atmosphere under the grafting glass to the free, open air. When the growing scions touch the top of the glass, the jar is raised on inch-thick blocks of wood for a week. In very warm, dry weather the jar may be kept on for a second week, raised higher by placing bricks under it. Finally the glass is removed at dusk; and if the next day proves hot or windy enough to cause wilting, it is replaced and again removed at night. After a few days the graft will harden and the glass will no longer be necessary. Subsequent protection from summer sun and wind may be provided by a lath or cloth covering, but no more shade should be given than is necessary to prevent wilting .

In all the time that the scions were callusing and knitting under the glass, the plant was kept on the dry side. With its top removed, the understock had little need for water and its roots could have easily been rotted by careless watering or even too much rainfall. But now that the scions have begun their incredibly rapid growth (which may reach a half yard or more in length by autumn), the roots of the plant must get adequate moisture. All plants and plant parts are made of cells, the size of which depends upon the amount of water they receive when they are enlarging. The scion's rapid lengthening of stem, which seems more like stretching than growth, is due to the water that each cell in that stem receives. A lack of moisture at this time will seriously affect the scion's development and result in a weak, short-stemmed plant with small leaves.

During the first summer the long, brittle growth may need protection against careless passers and prowling animals. A tall cylinder of window screening fastened around the plant will shield it effectively until the growth has hardened. In areas where high winds prevail during most of the summer months, growers sometimes cover the understock and scions with damp earth to protect the tender cambium callus from drying out too rapidly, but the banked soil must be removed in fall to prevent termites from entering the understock. If the swelling callus has not broken the raffia, rubber, or thread binding used in grafting, it is a good idea to relieve the pressure by cutting the ties off; then too, suckers which comes up from the understock in summer must be removed as soon as they appear.

Cuttings

Amateur growers have found that cuttings made of mature or nearly mature wood in fall or winter are more likely to succeed than cuttings made of the softer summer wood. With outdoor propagation in a lath house or coldframe these cuttings may take from 3 to 8 months to root. But even so, they are far easier to handle than the unripened summer wood which roots in 6 to 8 weeks in the commercial grower's greenhouse.

When the cuttings have made roots from 1 to 2 inches long, usually by May or June, they should be removed from the propagating frame and potted firmly in 2½-inch pots. Cuttings which are callused but still unrooted at this time should be dipped in a root-inducing hormone powder and potted with the rest. This treatment will stimulate rooting as effectively as the old practice of callus paring, and the cuttings will begin rooting almost at once. The potted plants are then placed in a shaded coldframe, sunk up to their rims in peat, sand, or wood shavings to conserve moisture. Careful attention must be given to watering and syringing, for moisture both at the roots and in the air is essential to success. The frame is kept rather close for a few days by raising the sash for ventilation only when the weather is warm and closing it entirely at night; this enables the roots to become established. Gradually more and more air is admitted until after three or four weeks the sash can be removed

entirely, both during the night and day. A cheesecloth or lath screen is then placed over the plants to furnish the necessary shading for the rest of the summer.

Foresight

Through the summer months there is little evidence of the vital changes taking place in our camellias. Shoots and flower buds quietly enlarge and develop, leaves mature, new wood gradually becomes firm and hard. The processes are almost imperceptible, often overlooked, easily neglected—yet their effect endures forever. Winter's thrilling blooms and spring's lush growth are born in this quiet, difficult season, their fullness measured by the care and thought we give them now.

It takes a kind of tireless vision to see the camellia through its seemingly unproductive summer season, a kind of foresight which sees the rich rewards of winter and spring in the commonest chores of summer care. And at the bottom of it all we must never forget the vital role of watering, that commonest of all chores, which feeds, sustains, and cools our plants. Fertilizing in summer is neither necessary nor desirable, and there are no pests or diseases which sound cultural practices cannot combat—but watering is the whole indispensable basis of summer care. Summering means watering. No last-minute solicitude will overcome the neglected waterings of summer, the omission of shading, syringing, or mulching. Berlése was very right when he said, 'The camellia likes almost a constant humidity, especially in summer.'

Many writers have emphasized the fact that the camellia is a tough plant able to stand wide extremes of temperature, but none so well as Charles McIntosh in *The Book of the Garden* (1855): 'The camellia in its native country is exposed during the summer to a heat equal to that of Bengal, India; while in the winter the cold is nearly as intense as it is at Moscow, Russia.'

A CURE FOR WYLAM'S WOES

In two very interesting articles for the Bulletin (August and December 1947), Mr. William E. Wylam told of his trials and tribulations in importing camellias from Australia. To be sure, under existing quarantine laws the plants have to be brought in without soil and often be heavily fumigated, so that virtually all the small roots are dead when received. Only by the most careful nursing can such plants be brought back to normal growth, and then under ordinary methods the mortality of imported specimens is very high.

But some years ago Mr. E. A. McIlhenny, one of America's leading camellia importers, worked out a method for handling such plants that has proven 100% successful. He has described his technique as follows:

'Prior to the arrival of the plants there is on hand already an adequate quantity of vigorous young plants about the same size as those to be imported, growing on in pots in the greenhouse. These pot plants have been carefully brought into a condition of full growth so they are full of sap when the newcomers arrive. Immediately on unpacking the new plants, they are severely root pruned and partly defoliated and placed in specially prepared beds in the greenhouse, and to each limb (up to three on each plant) a vigorous growing potted Camellia is inarched close to the body of the imported plant. The vigor of the potted plant is thus thrown into the newly arrived plant which immediately takes on new life, enabling it to recover from the severe root pruning.'

In 1933, Mr. McIlhenny imported 300 camellias from abroad, and by giving them the above treatment not one was lost.

FACTS AND ODDITIES

According to legend, the first camellia in France was cultivated by Josephine Beauharnais, wife of Napoleon Bonaparte. From this original plant the gardener at La Malmaison, Tampomet, propagated another which was kept for many years at the renowned establishment of Courtois, becoming one of the most admired plants in all Paris.

Have you ever noticed that the Camellia's pattern of life seems to be arranged in four-month cycles? From early spring it grows four months and forms its flower buds. Then it takes about four months for these buds to mature. And finally, it goes into an average blooming season of four months.

It has also been observed that hand-pollinated flowers require four months to mature their seed, and the seed usually takes four months to germinate from the time of sowing.

The Chinese showed amazing skill in guarding the importation of the tea plant (*Camellia sinensis*) and many stories have grown up about their trickery. For example, Linnaeus was indebted to the Swedish East India Company for two camellia plants brought to Upsala in 1745 by Lagerstroem, who thought they were the true tea plant so jealously guarded by the Chinese. In 1769 Linnaeus tried again to secure the tea plant, this time importing from France a plant which again proved to be a camellia. He probably didn't know that even the King of France had been tricked by the Chinese in the same way. Finally the true species reached Sweden when the enterprising captain of a Swedish Indiaman, Gustavus Ekeberg, raised some tea plants from seed on one of his voyages home.