

The *Camellia Bulletin*

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Camellia Hybrid FLUTED ORCHID

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The Camellia Bulletin, in keeping with the fundamental concept of the amateur organizations it serves, is a non-profit enterprise published quarterly (Jan., Apr., July and Oct.) by the Northern California Camellia Society, Inc. Its principal objects and purposes are furtherance of the enjoyment and benefits derived from the culture of camellias and the dissemination of knowledge related thereto. By special arrangement with, and through the co-operation of, the Pacific Camellia Society, The Camellia Society of Sacramento and The Camellia Society of Santa Clara County, this Bulletin is also available in conjunction with membership, which is open to the general public upon application to the Secretary of any of the societies mentioned, at the respective addresses shown above. For full membership in the Northern California Camellia Society, Inc., and with respect to all persons resident in the counties of Alameda, Contra Costa, Marin, San Francisco and San Mateo, the annual dues are \$5.00—outside that area, limited membership privileges, including the right to all Society publications, are \$3.00 per year. MEETINGS are held on the first Monday of each month November through May, at 8 p.m. in the Claremont Junior High School Auditorium, Oakland, and include an informal flower display and refreshments. All matter regarding the content of the Bulletin should be addressed to the Editor. CHANGE OF ADDRESS should be reported promptly to your Secretary, as the Post Office will not forward periodicals. Remit dues to Treasurer.

THIS SEEDLING BUSINESS

There are many fascinating aspects of the camellia hobby; the thrill of growing an outstanding bloom, the excitement of that first ribbon, the satisfaction in developing a perfect specimen plant, the good feeling one gets of success and accomplishment when our efforts have gained the approval of a fellow hobbyist. It is good that we strive to excel and, though there may be two schools of thought as to the wisdom of holding a competitive show, even if there are no ribbons you can be sure there will always be competition. That is as it should be for there is no denying the fact that the effort of one to outdo another is conducive to the highest attainment, whether it be a foot-race or growing specimen blooms.

Notwithstanding all this, there is a lesser known facet of camellia culture that has everything else beat when it comes to thrill, excitement and a sense of personal satisfaction, because it combines with all these the gratification of that innate urge for self-expression which we all have to some degree—the creative urge. Now perhaps you play the piano well, or paint, or build great dams, or do something else that serves to satisfy this urge. To one not so gifted, the growing of plants from seed serves as a remarkably satisfactory outlet. If one may reason out such things, perhaps the motivation is much the same as that which gave rise to Arbor Day—a day off in which to plant trees. At any rate, let us talk a little bit about camellia seedlings.

Camellia seed is relatively easy to come by these days. If you have none yourself, it is usually obtainable through friends or your society. However, the mere planting of camellia seed is not enough—you should have some definite purpose or objective; that is, if you plant it in any quantity. Your objective can be two-fold: to produce a camellia plant that you can call your own, even though it may not be outstanding, or to endeavor to produce something new and different. In the process you will get—at worst—some of the very finest grafting stock there is, because you will then obtain a camellia with a

natural root system. Perhaps more camellia seed is planted for this purpose than any other.

The green, brown, variegated or red seed pods are ripening as you read this and, as they begin to split, thus to "open the purse and release the precious contents," the careful harvester of camellia seed begins his work of gathering in the crop. This is no small job on a big place. Ideally, one should keep the seed from each variety separate, properly identified, which means numerous small containers. The first consideration must be to prevent the formation of mold. This means that the pods must be placed in trays or screens—uncovered—so that all moisture will dry out, permitting the capsule to split back and readily release its contents, much as is done in harvesting nut crops. The clean, dry seed—usually one to eight to the pod—is then gleaned and may be packed in cans, small milk or cottage cheese cartons, etc.—each variety separate—until ready for use. Dusting with a fungicide powder is often done to protect against mold and rot. The sooner thereafter that the seed is planted, the better. If from hand-pollinations, the seed from each cross should be kept by itself, properly labeled.

Nature has protected camellia seed extremely well, with a dark brown or variegated coat (shell) that is so strong it cannot be crushed in the fingers. The tough "hide" is, of course, for protection—to preserve the inner seed from the time it drops to the ground (in early Fall) until there has been sufficient rainfall to permit entry of the tap-root into the soil. It must be remembered that the camellia seed gets little or no protection under natural conditions after it falls. Perhaps, being round mostly, it will roll under a fallen leaf or into a crevice but, in the main, the seed has no protection other than its formidable shell. One marvels at the tenacity of camellia seed toward survival and growth. It will simply amaze you with its ability to take hold. Camellia seedlings will sprout on a steep hillside, in gravel, on the barest, most exposed ground and this demonstration

of rugged character sometimes makes me wonder whether, in planting the seed, we do not coddle it too much—kill it with kindness, as it were. Surely, by its very appearance, one should give camellia seed credit for a remarkable ability to take care of itself. Because it naturally roots on the surface of the ground, one thing seems abundantly clear: we should never bury it in planting—simply push it into the soil, and—be sure not to keep it too moist because it could not possibly be soaked continuously in Nature, being on the very surface of the ground.

There are, however, ways of short-cutting the slow germination process which occurs under natural conditions. When the pod splits, the seed is ready to "go" as quickly as moisture can penetrate through the shell. We can speed this up artificially in two ways: (1) by creating an opening in the shell, through filing or clipping off an edge or point, or (2) by placing the seed in sterilized (boiled) peat moss, saturated but with the excess water slightly squeezed out, enclosed in an air-tight jar and placed in a heater-room, on top of a water heater, or some other convenient place where the temperature will be uniformly warm. The fastest results can be obtained by a combination of the foregoing methods, seed thus handled often germinating in about ten days. It should be planted out, where it will get the light, before the tap root gets more than an inch long.

If just a few seed are involved, they can be planted in shallow clay pots or tin containers but, where 25 or more are to be handled, it will probably be found preferable to plant them en masse in boxes or flats. A wooden fruit box will do very well, as it is deep enough to accommodate sufficient soil to permit unhindered development of the tap root. Paper or plastic "Plantainers," about 3" square and 4" high, are very suitable as they permit individual planting (and thus less disturbance of the roots when potted up) and can be held in place in an ordinary seed flat, being deeper than the flat. However, unless a hot-bed or greenhouse is available, a deep box is to be preferred because it permits covering

with a pane of glass and thus the seed is protected from birds and mice, and germination is speeded up. The seed should be planted by pressing it into the soil, with the "eye", or artificially-created opening, down—it *should not* be buried entirely. Plastic or aluminum plant labels are the best to use for identification, with the name of the seed-parent or cross and number of seed planted written on the label, as well as the date. If the speedy method of germination (jar of peat moss) has been used, the same planting technique will serve, except that a dibble (sharp wood pencil is fine) should be used to make a hole for the tap root, which would otherwise be damaged.

There are many satisfactory planting medium combinations—involving such materials as sand, peat moss, sponge rock, Perlite, compost, old pine or red-wood sawdust, vermiculite or even sandy loam. The aim should be to get a light, moisture-retentive, well-draining mix and a combination of 3 parts moist peat to 1 part coarse sand, with perhaps a little sponge rock or vermiculite added, will do the trick—in fact, even the first two items, which are generally at hand, will be found very satisfactory. The peat should not be screened—it is better to have about half of it lumpy, up to ½" diameter in size. The foregoing relates to the seed germinating mix—the transplanting, or potting-up soil should have components of a higher nutrient value, such as compost, sand, peat and sandy loam in about equal portions, to which ½ part of well rotted steer manure may be added. The loam and sand may be omitted but, in that case, cut the manure to ¼ portion (1 part to 8).

When it comes to transplanting, the time for this is preferably after two sets of leaves have formed and the wood has hardened off. Some disturb the roots as little as possible—others deliberately cut off the major part of the tap root to induce branching. We would say that the method you should follow depends upon your objective. It is a well-established fact that confinement of the root system induces earlier blooming and the fastest growing part of the root structure is the

tap-root. If left undisturbed, it will rapidly fill the available area in a 1-gallon can and, thus restricting the space for nutrients and water, will tend to induce floescence rather than continued growth. If, however, one is more desirous of growing root stock, with no concern about the bloom, then the root-pruning method may be preferred as it tends to develop more feeder roots and the seedlings are easier to transplant.

We find that, in planting over 500 seed a year, it is best to make our own flats out of $\frac{1}{4}$ " x 6" unfinished redwood woven-fencing material, which can be cut into any desired lengths and thus the flats made large or small, a full 6" deep. Because of the weight involved, it will be found that a 16" x 20" flat is about as large as one will wish to lift and it will hold 35 seeds planted 3" apart. An 18" x 24" flat will accomodate 50 seeds with the same spacing but will weigh about 75 pounds when wet. Until well established, the little seedlings will require as much protection as you can give them from hot sun and extreme cold. They respond beautifully to frequent applications of liquid fertilizer of *very mild* strength. One of the simplest and best ways of bringing them along speedily is to soak a quart of pulverized sheep manure in a 3-gallon can for a few minutes, draining off the liquor twice into another container, which should then be "cut" further by adding an equal amount of water. The third filling of the manure-containing can may be used as is because it will then be sufficiently dilute. By watering the little seedlings once a week with this solution, they will grow very rapidly. Of course, prepared liquid fertilizers may also be used diluted but, because they are usually stronger in nitrogen, care must be taken to avoid burning. Perhaps one-fourth the recommended strength would be all right—it is always best to err on the low side.

Under ordinary conditions, camellia seedlings will flower in from three to about ten years, much depending upon the plant's inherent nature as well as its environment. Under greenhouse conditions, with high temperature and humid-

ity, heavy feeding and, particularly with the use of continuous light, much time can be saved, some seedlings blooming 18 months after planting. We try to keep the seedlings in 1-gallon cans until they bloom, in which some reach 5 ft. or more without flowering. By that time the soil that was in the can has largely disappeared and keeping the plant moist then becomes a problem. When moved up to a 2-gallon tin the seedling "takes off" again and may spend another year or two in seemingly carefree growth, without bothering about reproduction (flowering). The time element thus becomes a major factor in growing camellias from seed. Taking care of a plant for several years without any results is a fair test of one's patience and many will give up the battle and "chop off their heads" without ever having seen the flower. This may be all right where ordinary seed is concerned, for the chances of getting something outstanding from commonplace parents are a bit slim. However, there is just no way of telling. The fine varieties GUILIO NUCCIO and MRS. D. W. DAVIS, just to name two of recent origin, came from what had been regarded as unpromising parents (KINGYO TSUBAKI and ELIZABETH BOARDMAN, respectively).

The question is often asked whether grafting from a seedling will not yield blooms sooner. We have never found that one gains anything except, of course, insurance against the loss of a promising plant. However, Mr. John Sobek's technique of root-grafting tiny seedlings, mentioned elsewhere herein, is reputed to be quite a time-saver, yielding blooms in 18 months. It should be worth trying.

The complaint is often made that there are too many new varieties coming onto the market. To the extent that the new ones are not an improvement over existing varieties, nor an innovation of some sort, the complaint is valid. It is certainly true that too many new camellias take the country by storm only to fade away within a few years, leaving the established ones pretty much undisturbed. However, within the past few years a considerable "breakthrough" has been

(Continued on page 20)

COVER FLOWER

(Color cut courtesy Camelliana, Antioch, California)

FLUTED ORCHID, a hybrid camellia obtained by crossing *C. saluenensis* with *C. reticulata* CRIMSON ROBE, originated by David L. Feathers. A distinctive semi-double, white with orchid pink shading and venation, which becomes deeper at the petal edges and folds. The strap petals are fluted and curved back; the center a trumpet-shaped collection of stamens, frequently with flags and petaloids. Size will vary from medium to

fairly large according to environment, reaching 5½ inches in the greenhouse. The plant is bushy and has unusual pointed, glossy foliage, the blooms developing from the leaf axils as well as the terminals of the branches. This hybrid has been tested in the Deep South and indications are that it is both cold hardy and sun tolerant.

—John D. Lawson, M.D.

NOTES

The Fall Meeting of the Governing Board of American Camellia Society will be held at the Experiment Station, Tifton, Georgia, on November 10, 1960, and the program will include visits to nearby points of interest as well as inspection of the new A.C.S. offices and Test Garden. Among the interesting gardens and greenhouses to be visited in the area are those of the Hugh Shackelfords and Spencer Waldens at Albany, while the nurseries of the Hayes, Hjorts and Powells at Thomasville, as well as the estate of Ambassador Whitney will also be included in the tour. Speaking from personal experience, it should all be very much worthwhile, including the luncheon at Radium Springs.

Since our last issue, Dr. W. G. Lee of Macon, Georgia, and E. Carl Tourje of San Gabriel, California, have been elected Fellows of the American Camellia Society—recognition that is richly deserved.

The outstanding sasanqua seedling "Harriette Ruster," raised by Mr. Martin Ruster of Pasadena, California, was selected as the winner of the 1959 Peer Sasanqua Award provided by the late Ralph S. Peer.

That grand old gentleman and perennial camellia enthusiast, Judge Arthur W. Solomon, recently added another honor to his many laurels in a ceremony at Asheville, N. C., attended by 500 persons at which he was presented with the Johnny

Appleseed Award, bestowed by the Men's Garden Club of America for his support of beautification projects in his area, Savannah, Georgia.

Mr. George Du Brul has been elected State Director for Texas by the Board of Directors of the American Camellia Society, to fill the vacancy created by the passing of Mr. Vance Burks whose service, though brief, was distinguished and who will be sorely missed by his many friends.

BETTY SHEFFIELD SUPREME, the striking sport of "Sporting Betty," has been offered in limited quantity for delivery this fall by the Thomasville Nurseries, of Thomasville, Georgia.

Mr. Ernest A. Judice, Membership Chairman and State Director for Louisiana of the American Camellia Society, is offering to the persons enrolling the largest numbers of new members, as

First Prize: a 1-year graft of BETTY SHEFFIELD SUPREME.

Second Prize: a 1-year graft of GLADYS WANNAMAKER (donated by Tick Tock Camellia Nursery).

Third Prize: the new, profusely illustrated Japanese book, "CAMELIAS," by Choka Adachi.

To be eligible, all memberships must be mailed to Mr. Judice at 2113 N. Claiborne Ave., New Orleans, La., bearing postmark prior to January 31, 1961.



This has been a difficult summer for watering camellias. The heat came early and stayed long; humidity was not high. Camellias planted in the ground, especially in the foothill areas, just couldn't get enough water. Some hillsides which, up to now, have had a little moisture underground, seemed to dry up. Even containers seemed harder to keep watered. All of which adds up to a warning that camellia growers must keep a close watch on their plants in this kind of a summer, even though camellias are more drought resistant than many other plants.

In addition to the heat and water shortage, there have been unprecedented numbers of small leaf-hoppers all summer. These little insects are leaf-eaters and can do much damage to tender, new camellia leaves. The larger ones make lace-like holes in the leaves; the smaller ones suck out the sap and cause the young leaves to wrinkle and curl in a most unsightly manner. Camellia people can be grateful that this swarm of bugs didn't appear in great numbers during the April growing period, although there were some. The worst damage was done to foliage on new grafts which were growing in May and June, and later.

WELCOME—LOS ANGELES CAMELLIA SOCIETY!

It is with a great deal of pleasure that we announce the participation of the Los Angeles Camellia Society's membership on a voluntary basis, in *The Camellia Bulletin* co-incident with this issue. This addition brings the total of the California camellia societies associated with this publication to the impressive number of five and all of us join in extending the

My 32-year-old *Covina* has sent up a new plant from its roots 9 feet from the main trunk. This plant is two years old, 36 inches high, and has extremely thick foliage. The flowers are typical *Covinas*. This is the first occurrence of the kind that I've heard of. The original plant, incidentally, is 7 feet, 8 inches high and has a spread of 13 feet 4 inches. This root-sucker would indicate that a camellia's roots extend much beyond its actual circumference.

Camellia seeds have established a new record for early ripening this summer—perhaps it was the heat. Normally, the first ten days of August will see the first seed pods burst open, but this year there were several open pods on July 15. Al Parker reports that bud-set was unusually early at his place this summer.

The annual picnic of the Pacific Camellia Society was held July 23 at Descanso Gardens and was, as usual, well attended. This is the one meeting of the year at which there is a minimum of discussion of camellias, but it is always good to see camellia people; it is never out of season for them.

hand of greeting to a society whose membership includes some of the outstanding camellia people in its area. Let us say at the outset that we hope you will enjoy our chats about camellias and we hope that some among you will contribute your thoughts to these pages from time to time.

—D.L.F.

THE POLLEN BANK

John R. Sobeck, Los Angeles, California

About five years ago, it occurred to me that it would be very desirable to have reticulatas that would bloom early, because the varieties we now have flower during the height of the camellia japonica season and later. Assuming that japonica and reticulata would cross, the natural approach to early-blooming hybrids would be through inter-specific crosses, such as *C. saluenensis* x *C. reticulata*, early varieties of *C. japonica* x *C. reticulata* (wild form) and similar combinations.

The problem that immediately arose was the difference in blooming seasons, which was such that pollen could not be gathered from the flower of one species and placed directly into the flower of the other. This necessitated some form of pollen storage or, as I like to term it, creation of a "pollen bank." There is, of course, a successful method of storing pollen so I set about gathering pollen of early-flowering japonicas, as well as of other species such as *C. saluenensis*, *C. grantbamiana* and *C. reticulata* (Yunnan varieties). It was necessary to store the pollen of the late varieties until the next season, inasmuch as the early varieties had finished blooming. As the resulting hybrids have demonstrated, it is possible to preserve pollen successfully over a considerable period of time and, for the benefit of those who are not already familiar with the technique I shall explain how this is done.

First, the pollen should be collected when it has matured and before it darkens and loses its viability. It will usually be at the right stage in a newly-opened flower—when it will release at the least touch. Tap the anthers sharply with a pencil, or shake the flower over a small piece of glass or similar receptacle, going from flower to flower of the same variety until you have sufficient pollen to fill a small medical capsule. Another method is to clip off the anthers with a pair of manicure or surgical scissors and place the pollen-containing anthers in the capsule. Label the capsule with the name of

the variety and date or, if you wish to record it in a book, by number. It is important that the pollen be gathered on a dry day and preferably in the afternoon, when all moisture has been dissipated.

The pollen-containing capsules, snugly closed, must be stored in a test tube or any small jar with an air-tight lid, in the bottom of which must be placed an inch or two of Calcium Chloride flakes held in place by an equal depth of sterilized cotton. The Calcium Chloride is a drying agent that will absorb any moisture present in the container. The pollen-filled capsules should be placed in the jar or tube with the label up, so that they may easily be identified. Be sure that the stopper or lid fits tightly, then place the jar or tube in the refrigerator—in the cold section, not in the freezing compartment. The receptacle may be removed and opened, either to add more capsules or use those it contains, without damage to the contents provided always that the lid is replaced tightly after minimum exposure of the contents to the air. Any excessive moisture will be absorbed by the calcium up to the limit of its capacity (when it turns blue). The pollen thus protected will keep for a year or more.

Last October I planted seeds obtained from crossing reticulatas BUDDHA, CONFUCIUS, SHOT SILK and the Wild Form with pollen of *C. grantbamiana*, which yielded seed pods up to 3" in diameter. These are now well established plants and some should bloom within another season—18 months from time of planting—as I am using my seed-grafting technique* to speed up the blooming. Among those which have already bloomed are reticulata hybrids with large flowers in colors of Rose Pink and Dark Red, some of which bloomed as early as November. I also have a fairly early blooming *saluenensis* x *reticulata* hybrid in solid Pink, with a double flower.

*See *Seed Grafting and Root Cuttings*, Vol. 10, No. 1, Oct., 1956.—Ed.



If you have not yet harvested your seeds, do it now, before the pods split open and the seeds fall into the leaves and litter on the ground, or bounce and roll to some place where they are hard to find. Speaking of seeds, so far as I know there is no better way to germinate them than to put them in damp peat moss in a gallon jar or polyethylene bag placed in a warm location, such as a sunny window.

It is also not too late to fertilize last year's seedlings or last year's grafts, using about one-half the recommended solution of fish emulsion for larger plants. It has been said "Do not fertilize one-year grafts or seedlings" but I cannot go along with this counsel. Of course, we all know that the fewer the leaves the less fertilizer one should use but the benefits of fertilizing small plants lightly are great. This treatment also applies to the *reticulatas* — feed them often but in small quantities.

The season of 1960 has been a fine one for growth, bud set and seed set, indicating a good camellia year in all phases of culture. We may now look forward to one of the best seasons in all respects if we will but observe the normal care that the camellia requires through the warm Indian Summer months ahead. After our first frosts, when the camellia goes into dormancy, we will find the *Daikaguras* and *Areishi* coming into flower. This is what we will have worked for all year! At this time we may not relax and count on fall and winter rains to do our watering for us. There will be many warm days and drying winds to require us to con-

tinue the care of our camellias, especially water-wise, into November.

It is presumed that you have done a good job of disbudding and, even if you have reduced the buds to one or two at each terminal it is suggested you go back and check them over again. Many times even after disbudding certain varieties will set more buds in the interior axils, which do not produce top quality flowers and take strength away from the desirable terminal buds. Such secondary buds should, of course, be twisted off.

If some of last season's grafts have sent up "buggy whips" you can either pinch them back or cut the top off as a scion for a friend. This should be done now, as it will cause lateral growth to develop and thus induce the plant to bloom sooner.

It is also a good idea to do some pruning along about December, not only to shape your plant but to obtain the desired growth, with accompanying bud set, for the following season. One of the best ways to do this is to thin out the interior of the plant, removing all small, slender and short growth on the inside. Such pruning concentrates the strength on the exterior of the plant, where the best growth occurs, and the best blooms develop. It is especially desirable to prune fast growers, such as "*Masterpiece*" and the *reticulatas*, in December in order to make these leggy plants more compact by developing lateral growth and bud set in the following season.

THE SOUTHERN SCENE

Mrs. M. J. (Lilette) Witman, Macon, Georgia

This past April, as if to make amends for the many disappointments it gave us at show time, Nature surprised us by putting on a glorious late display of camellia blooms. Needless to say how gratifying this was to us.

After an unusually rigorous winter our spring season seemed lovelier than ever, although extremely short. In the Deep South we seem to rush into summer almost as soon as the late japonicas shed their blossoms. This is the time when friendly exchanges of visits among camellia lovers become rare. Mostly on account of the heat and of our absorbing summer chores we remain closer to home. On occasion someone drops in to boast about "hard-to-get-scions" that took, but even those soon lose their magnetism. Names of new cultivars become harder to remember. Then, before we realize it, we find ourselves plunged once more into that pleasant half-awake, half-somnolent, lethargic state induced by long hot days. True, we have to come back to life, whether we like it or not, for one imperious, inescapable duty . . . that of Watering. Whether it is by dragging the hose from plant to plant, moving the sprinkler pipes, or merely remembering to set the clock for the intermittent mist system, we have suddenly become slaves to Water. Of course we are grateful slaves, as we realize that without the precious fluid we could not keep anything alive.

Then some of the Miracles performed with Water come to our mind. I often think of what Fred Heutte, the Superintendent of Parks at Norfolk, Virginia, wrote me a year ago: In April 1957, at the request of the late Ralph Peer, he received a tiny scion of *C. granthamiana* from the superintendent of the Hong Kong Botanical Gardens. With infinite care, and "with a silent prayer," he inserted it into the finest understock he could find. The graft took. But one day, during the following summer, a squirrel jumped on it and broke it off completely. Fred immediately took scions from the

more mature wood and made two new grafts. Since it was summertime no jars were used. The grafted plants were merely placed under Intermittent Mist. By the fall of the same year both grafts were about twelve inches high and very healthy. Water had performed a miracle!

The last time I visited Norfolk Fred Heutte took me to his garden and showed me some other astounding results of Mist Irrigation. The summer before Fred had cut half way down all the limbs of some old straggly camellia trees and inserted several scions of rare cultivars in each remaining limb stump. The grafting operation had thus taken place at about five feet up in the air. Then Fred had simply turned on his Intermittent Mist System. The trees, as I saw them a year later, were once more very handsome and symmetrical, crowned with beautiful young foliage. This remarkable transformation had been accomplished easily with the proper use of Water.

Do you know where Fred Heutte received his inspiration for his intermittent mist device? In Northern California, while watching for the first time the Redwood trees in Muir Woods! Let Fred tell you about it as he told it in the fall 1959 *Bulletin* of the South Carolina Camellia Society: "Some years ago, when visiting Muir Woods, I stood, as many others do, in awe amid this giant stand of California Redwoods. We happened to have as a guide a young man who was most imaginative and eloquent. . . . He asked visitors to stand in silence for a few seconds, following which he told us that we were witnessing an ecological phenomenon, because that natural stand of Redwoods would not be possible today, in that location, had it not originated thousands of years ago when the rainfall of that region was far greater. . . . He continued by saying 'When you heard in your moment of silence the Drip-Drip from the boughs of these two to three hundred-foot giants it was possible only because their heads are most of the time in an atmospheric stratum from which

they gather moisture and which in turn they deposit to irrigate their own roots.' It was, of course, a very impressive visit, but I took very little stock of it until years later when Foliar Feeding became an innovation, and Mist Propagation supplanted an old system. So from time to time I began to think of Muir Woods and its irrigation system. . . ."

Few people, standing in the midst of a forest would think of what goes on inside a tree, but Fred Heutte would. He once suggested that I read Rutherford Platt's "This Green World." I did. Since then I have a better understanding of the perfect mechanism that is constantly at work inside plants, assuring their life and growth by lifting tons of Water through their roots and expelling it through their leaves. The author of this inspiring book calls plants "The World's Greatest Waterworks."

Fred Heutte has installed his own mist irrigation device in a public Test Garden for perennials, built in connection with the new Norfolk Botanical Garden. (See cut.) "Now that it is installed," he writes me, "it is beginning to attract attention." A Norfolk camellia fancier, Alan Hofheimer, has adopted this system to "mist-condition" his fine camellia collection. He told Fred, "I think it is fine and a means of saving me water besides the convenience of its operation."

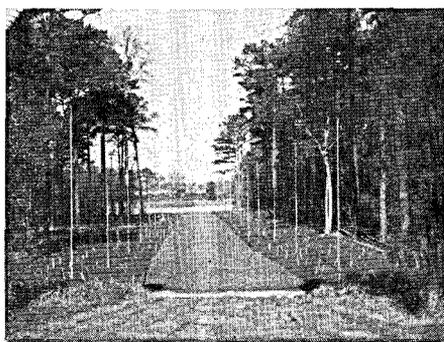
This way of imparting moisture to vegetation should prove very valuable in a climate such as California's with long periods of drought. Fred Heutte pointed out that it has another advantage. When a mist system is operating, the temperature drops by nearly 10 degrees at ground level.

Here at Lorraine Farms last summer we learned through a costly experiment that there is, however, a definite danger in keeping too moist an atmosphere around camellia plants. We had installed a water cooling system in the camellia house with the idea of cooling it and at

the same time imparting moisture to the shrubs. This water cooling system consisted of a large fibrous pad set at one end of the house, replacing the windows, and through which water dripped constantly. At the other end of the house we had installed two powerful fans that sucked the cool moist air through the pad, scattering it through the entire house.

We discovered later that using this device daily through the summer was a great mistake. The results were most disappointing. All the camellias then in the house bloomed very early, including the mid-season and late bloomers, such as *Mrs. D. W. Davis*, *Ville de Nantes*, *R. L. Wheeler*, *C. M. Wilson*, etc. Many of the buds bull-nosed and dropped before opening. Those that opened were small. Then, too, the foliage of the plants became infested with red spiders, as an excess of moisture, plenty of heat, and the extra darkness in the house caused by the pad, created a perfect medium for these pests. By comparison our tub plants that had been moved outside in the spring and brought back in the house in the fall behaved quite normally. They had healthy foliage and gave us magnificent blooms.

We are now going back to occasional overhead sprinkling and weekly watering.



View of intermittent mist system installed in Norfolk Botanical Garden.

SUN ENDURANCE—A SYMPOSIUM

The ideal situation for a camellia—and that means any species of the genus—is, as everyone knows, one of filtered sunlight all day or partial shade during the greater part of the day. The extent to which one may safely deviate from this condition depends largely upon the accompanying environmental circumstances; in particular the maximum temperature, humidity, whether or not there is regular or occasional filtration or screening of the sun by clouds or fog cover and the extent to which the root system may be protected by mulch. Consequently, when we say that a camellia is "sun tolerant" or "cold resistant" we are speaking in relative rather than absolute terms. What we mean is that some varieties will *endure* exposure to the elements better than others.

Peculiarly enough, there seems to be some correlation between these two extremes of hardiness, as will be developed later herein. At the present time, considerable attention is being given the subject of cold resistance and it is known that a number of camellia breeders are attempting combinations of varieties and species designed to develop strains that will resist the damaging effects of frosts and precipitous drops of the thermometer. It is generally agreed that the latter is the most damaging and the effects of sudden or drastic changes in exposure to high temperatures are resented by the camellia almost as much as in the case of low temperatures. In most of the marginal camellia-growing areas cold resistance is a matter of paramount importance and the popularity of varieties possessing this attribute has greatly enhanced, in some cases notwithstanding what are regarded as commonplace blooms in other areas. Thus the point should be made that real hardiness—to sun or cold—will be a matter of first consideration under some circumstances.

As distinct from cold resistance, which has reference to broad regional areas, sun tolerance relates much more to the immediate environment, meaning location in the garden. Not everyone who wishes to grow camellias has shade trees or a

lath house and, if possessed of good counsel in this regard, may be able to utilize varieties or species in greater abundance than if left to his own devices. As a matter of fact, one of the most common questions on camellia culture concerns what varieties to plant where. Here in California, where we have no summer rains, the sun problem is accentuated because we do not get the more or less regular respite from its burning rays which occurs on overcast and rainy days and, of course, this means less humidity.

Inasmuch as exposure to sun has a drying effect, it is self-evident that the degree of open sun a camellia will withstand depends greatly upon this factor of humidity. It not only tends to offset transpiration of moisture through the leaves but, in addition, upon the amount of vapor in the air depends the imperceptible filtration of the sunlight which accompanies humidity. Mulching, of course, not only helps to keep the roots cool and moisture available to them at all times but, by prolonging evaporation, also tends to raise the relative humidity of the air. Furthermore, evaporation is, in itself, a cooling process, so that the presence of moisture on or about a camellia—at any time of day and particularly when the sun is hottest—acts to reduce surface temperature of the leaves. This is in direct contradiction to the notion that it is harmful to water a camellia overhead during the middle of the day because of the contention this accentuates burning of the foliage. The writer never hesitates to do so, has always done so and has yet to see any deleterious effects of doing so. It may well be that the notion "the camellia" will not stand watering overhead in the open sun arose from the fact that *exposed blooms* will often be damaged under such circumstances. That is, of course, a very important consideration during the flowering season. On this point, we would completely substantiate the conclusions set forth by a fellow Californian recently in an interesting article entitled "Sun Tolerance of Camellias," which appeared in the 1959 *Yearbook* of the American

Camellia Society (pp. 213-216)—one that is well worth reading. In it the author, Mr. J. Carroll Reiners, makes plain, however, that his conclusions are based upon the presence of the following conditions:

1. The camellias are grown in the ground—not in containers.

2. A heavy ground cover or mulch is maintained at all times.

3. The humidity is raised artificially through comparatively frequent (twice daily) overhead watering.

4. The exposure is constant, not variable as it would be where the plant is moved from shade into sun.

My own experience with camellias in more or less open sun is somewhat limited due to the protection afforded by numerous trees, a lath house and high hills to the west. Nevertheless, we do have plantings in the ground that are subjected to the most intense heat of the day and, in a number of cases, this is magnified by paved walks and driveways. One has but to eliminate the shade provided by limbs of a tree to learn quickly what the reaction on camellia foliage will be to such sudden change. The leaves are likely to become burned to a crisp and eventually drop off. However, with its great capacity for adaptation, in general the camellia tends to weather the assault and replace the browned foliage with new leaves—the plant itself is not permanently damaged as a rule—particularly if it is large enough to provide self-shade.

This leads one to reflect that the laws of nature are often quite universal. The youth who grows up shielded from the rigors of life is much less likely to be self-reliant than one who has had to make out for himself; the weed that grows in the lushest part of the garden is much easier to pull out than one which has survived on a rocky hillside. So it is with the camellia. When the conditions are such that it has little need to search out for nutrients, nor protect itself from the elements, it makes less roots and superstructure. In short, it is then a more "dependent" camellia, much less able to survive when confronted with a situation where more rigorous conditions exist.

Perhaps that is why it often takes two or three years for a container-grown, "coddled" camellia to become properly established after being "on its own" when planted out in the ground.

There does not seem to be any particularly discernable rule, where leaf type or pattern is concerned, in the degree of sun tolerance of a camellia. One would think that, the larger the leaf the more shade would be indicated, because so many of the tropical plants in the deep, dark forests and jungle have immense leaves, evidently to compensate for the scarcity of light. We find some indication of this principle among the white japonicas, notably LOTUS and some of its many seedlings, MATHOTIANA ALBA and perhaps some others. On the other hand, the small-leaved species, particularly sasanqua, seem to have better capacity to take the open sun than most japonicas. However, we would not go so far as to say there is a rule involved here.

The writer's first hand knowledge, as heretofore indicated, does not include growing any camellias that are subjected to open sun from dawn until sunset. Besides this qualification, we should like to add a further word of warning. The foregoing remarks refer primarily to foliage and plant health. In the case of whites and the light pinks, especially, flowers that are exposed to the morning sun when there is dew on the petals, or to sun at any time of day after a rain or overhead watering, will almost invariably be spotted so badly as to be completely ruined.

Recently, we have been doing some work involving consideration of the relative cold resistance of camellias and, after compiling the list shown herein, it became apparent that many of the varieties included were also among those listed as being cold resistant. It was so obvious that there was some connection between the two that recent data on the cold resistance factor was consulted. It was rather surprising to find that 49% of the camellias mentioned herein had also been listed for their cold tolerance and, if the whites are excluded (in general they seem to be constitutionally less

hardy) the percentage reported as both sun and cold tolerant becomes 52% (46 out of 88)! This notwithstanding the fact our 1960 Sun report is being compared with the most comprehensive Cold report of the several consulted, under date of 1955, as a consequence of which we have listed several of the newer varieties not reported on for cold resistance five years ago—thus no basis of comparison. On a strictly comparative basis, therefore, it is obvious that a fairly substantial majority of the camellias listed herein as sun hardy are cold hardy as well. We may conclude that "hardiness" in relation to camellias generally means ability to withstand both extremes of temperature.

The conditions which affect the performance of a camellia—cultural, climatic and environmental—are seldom identical and almost never so where there is a wide geographical difference. Consequently, one person's views on a "marginal culture" subject as this—particularly in the evaluation of varietal performance—may not prove out for the other fellow. The chance that they will is greatly heightened where there is concurrence in such views, particularly by one or more other persons and where the reports are from widely different areas. For this reason, in presenting the list of sun tolerant varieties which follows we have drawn from the experience of 11 growers over a fairly broad area, besides including the views of five persons, representing a good cross-section of California, on the subject. Considerable weight should therefore be attached to the number of "mentions" a particular variety has received—three or more would seem to constitute absolute confirmation. In the list given below, for the sake of space an initial or initials have been used to designate the grower reporting, whose identity and location appears at the end of the list accompanied by references as to sources of the information we have been privileged to draw upon.

—D. L. F.

Richard C. Brown, Sacramento

All plant life requires some sunshine and such sunshine is not only beneficial but an actual necessity for proper devel-

opment. However, it is generally accepted that Camellias require protection from the hot afternoon sun as well as wind, to perform their best.

Most people grow Camellias for the fine depth of color of the leaves and the breath-taking beauty of the flowers, which objectives are attained by giving them the protection from the above-mentioned exposures.

It is true that there are many Camellias growing in the full sun in Sacramento. If one inspects these plants, they will generally be found to have more dense growth and a very heavy bud set. Plants thus grown also have a poor color (bleached or burned) in the leaf. The flowers generally are smaller than normal to the variety and usually the bloom is of poor color and form.

However, there are some Camellias that will endure more sun than others—in fact, actually require more sun and light.

The *Reticulatas*, the *Sasanquas*, as well as many of the *Saluenensis* hybrids fall into this category. These species will not only perform poorly bloom-wise, but also become leggy in their growth in heavy shade.

Some *Japonicas* benefit greatly from a high percentage of sun. Among those that have proved they require more than average sun, are: *Masterpiece*, *Guilio Nuccio*, the *Mathotiana* Family, *Gigantea*, *Lady Clare*, *Mrs. Chas. Cobb*, *Reg Ragland*, *Drama Girl*, *Emperor of Russia*, *Tomorrow*, *Donckelaari*, *Joshua Youtz* and *R. L. Wheeler*.

Ralph G. Gladen, M.D., Modesto

I have found the most tolerant are, in order: *Hito-maru*, *Edith Churchwell*, *Cameo Pink*, *Quercifolia*, *Feasti*, *Elena Nobile*, *Rio Rita* (*Magnolia Gardens*), *Covina*, *Church Pink*, *Brilliant*, *Maraschino*, *Dixie Pink*, *Romany*, *Mrs. Josephine M. Hearn*, *Favorite*, *Josephine Duell*. However, since these have very little to offer in the way of satisfactory blooms, with the possible exception of *Dixie Pink* and *Elena Nobile*, I am listing below the more desirable beauties in order of sun tolerance.

Of course, camellias do best in the sun, *if* they are planted young, nursed carefully and given some protection in the early years. I believe that any of the ones which follow will, under proper conditions, do quite well in the sun: Magnolia-flora, Yohei-Haku, Tricolor (Siebold), White Empress, Lady Mary Cromartie, Pearl Harbor, Herme family, Dr. W. H. McIntosh, General George Patton, Lady Vansittart, Martha Brice, Masterpiece, Paulette Goddard, Undaunted, Adolphe Andusson & Var., John Illges, Faith, Guest of Honor, Emily Wilson, Debutante, Daikagura, Princess Irene, Tomorrow, Betty Sheffield, and Tinsie.

Inasmuch as Debutante seldom blooms well in the sun, one could select one of the following sun tolerant camellias as replacement: California or Hana-Fuki.

It does not appear to be entirely true that the small, narrow leaves are most tolerant of the sun in this area. Of course the smaller leaved species and hybrids can almost be called sun-lovers, but on my list, Tinsie is the only narrow leaved plant. Others such as Pax are definitely for the shade.

Harold L. Paige, Lafayette

Sun tolerance must be considered in connection with climatic conditions. When we lived in Oakland our camellias took full sun without too much harm, especially if they were well rooted in the ground. Our chief concern there was to protect the blooms and we soon found that an overhead trellis more than doubled the number of usable flowers that we could cut.

When we moved to Lafayette sun tolerance took on much more meaning. Our present home is on the south side of a range of foothills in a half circle whose only outlet faces toward the south. Normally we expect to have a June hot spell of four or five days with temperature highs of 98 to 105 degrees. In September we are almost certain to have one or two weeks of equally warm weather but with much shorter days. Our nights are always cool. Between June and September we can expect, for example, a week or two of cool overcast weather followed by a

sudden change to three or four days of hot, dry north winds, which bring temperatures up into the high nineties. Unlike the interior valleys where temperatures build up gradually from hot to hotter days, our weather is subject to wide fluctuations which are apt to be damaging to many plants and to camellias in particular. The June days with their high temperatures of longer duration present us with our greatest problem. If our plants, with their new lush growth survive the sudden onslaught of heat, we can be sure that they are adequately protected from the sun for the rest of the season.

Since about 90% of our plants are in containers, the following remarks on sun tolerance will be confined to container culture, leaving the subject of plants in the ground to others.

Most of our plants are under lath or in the shade of Monterey pines. Some varieties are in almost complete shade under walnut and chestnut trees. A few varieties (Lotus for example), are purposely placed in this deep shade because they will not perform for us if exposed to even a small amount of sun. This is not to say that the plants will not grow well but that they will not produce worthwhile flowers. There are a number of varieties that share this peculiarity with Lotus, though to a much lesser degree.

Some of our plants are exposed to full sun up to 1 p.m. This year, during hot spells, they have required daily waterings. When watered every second day, as in other years, some have suffered leaf burn and even sustained damage to the root system which showed up the following year in an undue loss of leaves. It is only fair to say that these plants are somewhat rootbound although they are in 16" and 18" containers.

Theoretically it would be ideal to grow camellias in as much sun as they can stand, with special attention given during hot weather, and then move them into protected places for the blooming period. However, most growers do not have the time, the extra space, or the labor required for so much moving. It is possible,

however, to grow them in full sun with special equipment for watering, as witness large blocks of plants seen at Chico, California, about 15 years ago, exposed to a broiling sun. They were protected by overhead sprinklers during mid-day heat. Without this special protection it would seem that plants should be placed where no extremes of temperature could damage them.

Moving plants to provide protection from sun may create the hazard of shifting a plant too suddenly from light to shade, especially if the plant is left too long in the shaded location. Twice during blooming season we have moved a Purple Gown *reticulata* from the lath house to a sheltered location in the patio, only to have it lose most of its older leaves. A *saluenensis* hybrid suffered in the same day. *Reticulatas*, according to Howard Asper,* resent being suddenly put into deep shade. On the other hand, we have had Butterfly Wings put out 15 or 20 new shoots from old wood when recently placed in a more sunny position. Some of the *Sylvia* May hybrids seem to like plenty of sun. It may be possible to develop hybrids that will take full sun in our warmer regions but how the flowers can be protected remains to be seen.

We find it difficult to decide which varieties are more sun tolerant than others. Dealing as we do with tubbed specimens, one only of a kind and grafted plants at that, we are never quite sure what has made one plant resist the burning effect of the sun better than another. There are too many variable factors. Does a particular plant have an exceptionally good rootstock or was it grafted on a seedling of whose vigor we know practically nothing? Assuming a good root system, is the container large enough to supply water as fast as the plant can evaporate it? Is it badly rootbound, needing frequent watering? If we water enough to take care of the rootbound plants, we undoubtedly over-water adjacent plants to their detriment. Certainly a soggy root system will be of little help

*See "Camellia Culture," by E. C. Tourje, page 180.

to a plant in full sun. Since we cannot see inside the container, we can only guess at the condition of the root, but even if we knew its exact condition, would we be able to adjust our watering routine to suit each individual plant? So unless we achieve controlled conditions for experimentation with a sufficiently large block of plants of each of the different varieties, it is difficult to make comparative statements on varietal sun tolerance, speaking of course, of container-grown camellias.

Personal experience leads us to conclude that time and energy are saved by protecting plants from too much sun. They may not be as bushy as if grown under maximum sun but they will have no burned leaves, the leaf color will be a good green, there will be less excess wood to prune to make room for flowers to develop and their will be less disbud-ding to do.

Considerable risk is involved in placing container specimens in full sun. If the watering is overlooked just once in really hot weather, the plant may be set back for a whole season. During the period of new growth it is quite evident even to the beginner that, as the leaves show signs of wilting, the plant is not getting enough water. Later in the season as the leaves harden it becomes more difficult to determine lack of water, although the grower with long experience will be conscious of the fact that leaves are drooping, even if only very slightly, and he will increase the water accordingly. This presupposes, however, that the grower is around to observe the plants when the heat is at its peak. We believe there is enough hazard in raising camellias in containers without tempting fate unnecessarily by over-exposure to the sun.

Roy T. Thompson, Glendale

My experience with sun tolerance of camellias is limited but here are a few observations:

GEN. GEORGE PATTON—A plant on the south side of a white garage has grown vigorously, had good color, and bloomed unusually well for ten years. Has had about seven hours of direct sun per day.

ST. ANDRE—Has had five or six hours of sun the year round and still maintains its dark green color and grows vigorously.

GOV. EARL WARREN—Has had five or six hours of sun for five years and shows no ill effects.

WILDWOOD—Gets seven or eight hours of direct sun all summer but has some shade in the winter. Looks vigorous and healthy and has fine blooms.

COVINA—Has had seven or eight hours of sun for 32 years and has maintained its dark color throughout this time. Of late years it has had a light filter of

shade in the summer from a diseased sycamore which never has its full quota of leaves.

On two occasions in the past thirty years an unusually intense sun, combined with very low humidity, has caused widespread leaf-burning on camellias which were exposed to it for half an hour or more. There was some damage even under lath. Some plants lost half their leaves, and these leaves did not die gradually, but right away as though they had been fried. This condition was widespread in Southern California and did much damage, but no camellia plants were killed; all put out new foliage within weeks.

CAMELLIAS FOR SUN—COLD RESISTANCE ALSO NOTED

| VARIETY | REPORTED BY: | RCD | HDB | C | F | G | WEH | FH | OEH | P | R | T |
|-----------------------------|--------------|-----|-----|---|---|------|-----|----|-----|------|---|---|
| RED (Predominantly) | | | | | | | | | | | | |
| †‡ADOLPHE AUDUSSON (& VAR.) | | | | | | x(2) | | | | x | | |
| †AREJISHI | | | | | | | x | | | | | |
| *BLOOD OF CHINA | | | | | | | x | x | | | | |
| BRILLIANT | | | | | x | x | | | | | | |
| CARDINAL RICHELIEU | | | | | x | | | | | | | |
| ‡C. M. HOVEY | | | | x | | | | | x | | | |
| ‡COQUETTI (Glen 40) | | | | | x | | | | | x(2) | | |
| COVINA | | | | x | | x | x | | | | | x |
| DAIKAGURA (& VAR.) | | | | | | x(2) | x | | | | | |
| ‡DONCKELAARI (& VAR.) | x | | | | | | | | | | | |
| DR. J. V. KNAPP | | | | | x | | | | | | | |
| DR. W. H. McINTOSH | | | | | | x(2) | | | | | | |
| ‡ELENA NOBILE | | | | | | x | | | x | | | |
| †EMPEROR OF RUSSIA | | | | x | x | | | | | x(2) | | |
| *FLAME | | | | x | | | | | | x(2) | | |
| †FRED SANDER (& VAR.) | | | x | | | | | | | | | |
| GREAT EASTERN | | | | | x | | | | | | | |
| *GUILIO NUCCIO | x | | | | | | | | | | | |
| ‡JARVIS RED | | | | | | | | | | x | | |
| †JOHN ILLGES | | | | | | x(2) | | | | | | |
| KRAMER'S SUPREME | | | | | x | | | | | | | x |
| MARASCHINO | | | | | | x | | | | | | |
| ‡MATHOTIANA | x | | | | | | | x | | x | | |
| †MRS. CHAS. COBB | x | x | | | | | | | | x(2) | | |
| ‡PAULETTE GODDARD | | | | | | x(2) | | | | | | |
| PEARL HARBOR | | | | | | x(2) | | | | | | |
| †PRINCE EUGENE NAPOLEON | | | | | x | | | | x | x(2) | | |
| †‡PROF. C. S. SARGENT | | | | | | | | | | x | | |
| QUERCIFOLIA | | | | | | x | | | | | | |
| REG RAGLAND | x | | | | | | | | | | | |
| †RIO RITA (Magnolia Gard.) | | | | | | x | | | | | | |
| ROMANY | | | | | | x | | | | | | |
| ST. ANDRE | | | | | | | | | | x(2) | | x |
| †TINSIE | | | | | | x(2) | | | | | | |
| TOMORROW | x | | | | | | | | | | | |
| ‡WAKANOURA (& VAR.) | | | | x | | x(2) | | | | | | |
| YOSEMITE | | | | | x | | | | | x(2) | | |

*=Most cold resistant based on consensus report.

†=Mr. Wendell Levi lists as cold resistant (A.C.S. 1955 Yearbook, p. 263).

‡=Presnall and Brown list as cold resistant (A.C.S. 1959 Yearbook, pp. 230-1).

(2)=Placed in Class 2 as to sun tolerance.

(Continued on next page)

CAMELIAS FOR SUN— COLD RESISTANCE ALSO NOTED

| VARIETY | REPORTED BY: | RCB | HDB | C | F | G | WEH | FH | OEH | P | R | T |
|-----------------------------------|--------------|-----|-----|---|---|------|-----|----|-----|---|------|---|
| ROSE-PINK | | | | | | | | | | | | |
| BREAK O'DAY | | | | | | | | | | | | x |
| CAROLYN TUTTLE | | | | | | | | | | | | x |
| FAITH | | | | | | x(2) | | | | | | |
| FAVORITE | | | | | | x | | | | | | |
| †GOV. EARL WARREN | | | | | | | | | | | x(2) | x |
| GUEST OF HONOR | | | | | | x(2) | | | | | | |
| *KUMASAKA | | | x | | x | | | | x | x | | |
| *LADY CLARE | x | x | x | x | x | x | x | x | x | | | |
| †LADY MARY CROMARTIE | | | | | | x(2) | | | | | | |
| †MRS. JOSEPHINE M. HEARN | | | | | | x | | | | | | |
| PRINCESS IRENE | | | | | | x(2) | | | | | | |
| †R. L. WHEELER | x | | | | | | | | | | | |
| UNDAUNTED | | | | | | x(2) | | | | | | |
| PINK | | | | | | | | | | | | |
| *BERENICE BODDY | | | | | | | | x | | x | | |
| BILLIE McCASKILL | | | | | | | | | | | | x |
| CAMEO PINK | | | | | | x | | | | | | |
| CHURCH PINK | | | | | | x | | | | | | |
| DEBUTANTE | | | | x | x | x(2) | | | | | | |
| DIXIE PINK | | | | | | x | | | | | | |
| †ELEANOR HAGOOD | | | | | | | | | | x | x | |
| EMILY WILSON | | | | | | x(2) | | | | | | |
| FLAMINGO | | | | | | | | | | | x | |
| †GEN. GEO. PATTON | | | | | | x(2) | | | | | | x |
| †JOSEPHINE DUELL | | | | | | x | | | | | | |
| LALLAROOK (incl. Vgt.) | | | | | x | | x | | | | | |
| *MAGNOLIAFLORA | | | | | | x(2) | | | | x | | |
| *MARJORIE MAGNIFICENT | | | | | | | | | | | x | |
| †MARTHA BRICE | | | | | | x(2) | | | | | | |
| †PINK PERFECTION | | x | | | | | x | | | x | | |
| ROSARY | | | | | x | | | | | | | |
| †THELMA DALE | | | | | x | | | | | | x | |
| WILDWOOD | | | | | | | | | | | | x |
| VARIEGATED (Predominantly) | | | | | | | | | | | | |
| BETTY SHEFFIELD | | | | | | x(2) | | | | | | |
| BLEICHROEDER (Baronne de) | | | | | x | | | | | | | |
| †COLLETTI | | x | | | | | | | | | | |
| †ELEGANS (& VAR.) | | x | x | x | x | | | x | | x | | |
| FEASTI | | | | | | x | | | | | | |
| GEO. W. TOWLE | | | | | x | | | | | | | |
| †GIGANTEA | x | x | | | x | | | | | x | | |
| HELENOR | | | | | x | | | | | | | |
| HERME (& VAR.) | | | | | | x(2) | | | | | | |
| *LADY VANSITTART (& VAR.) | | | | | | x(2) | | | | | | |
| LADY WHEELER | | | | | | | | | | | | x |
| †LINDSAY NEILL | | x | | | | | | | | | | |
| *T. K. VARIEGATED | | | | | x | | | | | | | |
| ††VILLE DE NANTES | | x | | | | | | | | | x(2) | |
| PICOTEE | | | | | | | | | | | | |
| *DR. TINSLEY | | | | | | | | | | x | x | |
| HELEN K | | | | | | | | | | | | x |
| HITO-MARU | | | | | | x | | | | | | |
| ††MRS. LYMAN CLARKE | | | | | | | | x | | x | | |

*=Most cold resistant based on consensus report.

†=Mr. Wendell Levi lists as cold resistant (A.C.S. 1955 *Yearbook*, p. 263).

††=Presnall and Brown list as cold resistant (A.C.S. *Yearbook* 1959, pp. 230-1).

(2)=Placed in Class 2 as to sun tolerance.

CAMELIAS FOR SUN—COLD RESISTANCE ALSO NOTED

| VARIETY | REPORTED BY: | RCB | HDB | C | F | G | WEH | FH | OEH | P | R | T |
|-------------------------------|--------------|-----|-----|---|---|---|-----|----|-----|---|---|------|
| WHITE | | | | | | | | | | | | |
| DUCHESS OF SUTHERLAND | | | | | x | | | | | | | |
| EDITH CHURCHWELL | | | | | | x | | | | | | |
| ELISABETH (& VAR.) | | | | | x | | | | | | | |
| FRANK GIBSON | | | | | | | | | | | | x |
| JOSHUA YOUTZ | | x | | | | | | | | | | |
| †‡LEUCANTHA | | | | | | | | | | x | | |
| MASTERPIECE | | x | | | | | | | | | | |
| NOBILISSIMA | | | | | x | | | | | | | |
| *WHITE EMPRESS | | | | | | | | | | | | x(2) |
| WHITE PRINCESS (Lady Lourdes) | | | | | | | | | | | | x |
| YOBEDI DORI (Magnoliaf. Alba) | | | | | | | | | | | | x |
| †YOHEI HAKU (September Morn) | | | | | | | | | | | | x(2) |
| HYBRIDS & SPECIES | | | | | | | | | | | | |
| †DONATION | | | | | | x | | | x | | | |
| Hybrids (Saluenensis-Retic.) | | x | | | | x | | | | | | x |
| C. sasanqua | | x | | x | x | | | | x | | | |
| R. reticulata | | x | | | | x | | | x | | | x |

*=Most cold resistant based on consensus report.

†=Mr. Wendell Levi lists as cold resistant (A.C.S. 1955 *Yearbook*, p. 263).

‡=Presnall and Brown list as cold resistant (A.C.S. 1959 *Yearbook*, pp. 230-1).

(2)=Placed in Class 2 as to sun tolerance.

Explanation of Symbols Used and Source of References:

RCB=R. C. Brown, Sacramento, Calif. (herein).

F=D. L. Feathers, Lafayette, Calif. (herein).

G=Ralph G. Gladen, M.D., Modesto, Calif. (herein).

T=Roy T. Thompson, Glendale, Calif. (herein).

HDB=Helen D. Brown, Sacramento, Calif. "Camellias and Summer Sun," *Camellia Review*, July, 1957, Vol. 18, No. 8, pp. 4-5.

C=Claude Chidamian, Los Angeles, Calif., "Camellias for Everyone," p. 72.

WEH=Wm. E. Hertrich, San Marino, Calif., "Camellias in the Huntington Gardens," Vol. I, p. 8.

FH=Frederic Heutte, Norfolk, Va., *Newsletter*, Camellia Soc. of Potomac Valley, Oct. 1957.

OEH=O. E. Hopfer, Oakland, Calif., *American Camellia Yearbook*, 1951, pp. 255-257.

P=Clifford C. Presnall, Washington, D. C., *Newsletter*, Camellia Soc. of Potomac Valley, May, 1960.

R=J. Carroll Reiners, Sacramento, Calif., *American Camellia Yearbook*, 1959, pp. 213-216.

1961 AMERICAN CAMELLIA SOCIETY CONVENTION ADVANCE NOTICE

Alton B. Parker, Temple City, California

When a hobbyist or a professional goes to any convention, he wants to meet all of his old friends, make new friends, see as much as he can and learn all about the new developments in his hobby. The plans of the host organization, the "Los Angeles Camellia Council," for the coming convention of the American Camellia Society are to fulfill the above aims. The convention will have its headquarters at the Disneyland Hotel in Anaheim, California, from February 23rd through the 25th, 1961.

Current information about camellias and society activities in the various areas

will be developed by prominent speakers at the Inter-Society meeting, who will also tell about the new and worthwhile varieties in their areas. Slides will be exhibited of the newer varieties, also.

We plan an extensive tour program for your selection. This will include the famous gardens, prominent points of interest such as a movie studio, trip to San Juan Capistrano, Palm Springs, Santa Barbara (Dos Pablos Orchids), Disneyland, Knott's Berry Farm and Ghost Town, and other places. The complete program will be presented in a later issue.

THIS SEEDLING BUSINESS (Continued from page 5)

achieved in camellia breeding. Now that the belief has been thoroughly dispelled that a difference in chromosomes prevents crossing of the species, the scramble is on. The writer, for one, is not going to admit that it is impossible to inter-breed *any* of the species of the genus camellia until this has been thoroughly established in practice. There are a score of breeders, amateur and professional, waiting right now only for the flowering to demonstrate how elementary our knowledge of camellia hybridizing has been.

The current season will bring some sensational new developments and this

progress in camellia breeding will be magnified with each succeeding year, for it must be remembered that it is not the first generation of hybrids from which we can expect the most but rather the second and succeeding generations and that is the stage we are now entering. Let there be no misconception that all hybrids will be dainty, either. Now that japonicas and reticulatas have been crossed, we will produce them big enough and bold enough to satisfy even those who regard any camellia under 5 inches as a miniature. So hold tight, friends, some real thrills lie ahead!

REPEAT OFFER!

FREE — CHOICE CAMELLIA SEED

While it lasts, a supply of some 3,000 open pollinated, assorted Camellia seed freshly gathered from the garden of the Editor in September, 1960, will be *mailed postpaid* at the rate of 50 seeds for each new regular membership or subscriber-membership. Seed will be sent to those who request it and comply with the instructions below. The only limitation is the quantity available — first come first served. Source includes hundreds of varieties and new seedlings, from a garden containing most species and numerous hybrids. Someone is certain to be lucky! We will not sell it but this will be our way of saying THANK YOU! (Mail to the Editor — Address on Page 2.)

SUBSCRIPTION FORM

Name and Address to which seed to be sent:

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.....

Name and Address of new member(s):

.....
.....

REGULAR MEMBERSHIPS—\$5 per year SUBSCRIBER MEMBERSHIPS—\$3 per year
No. at \$5 each No. at \$3 each..... Check Herewith for \$.....

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TWO WONDERFUL GIFTS IN ONE FOR YOUR CAMELLIA FRIENDS