

Northern California Camellia Society

A Non-Profit Organization

Vol. 1, No. 3

OFFICIAL BULLETIN

December, 1947

THE DECEMBER MEETING

The December meeting of the Northern California Camellia Society will be held Monday evening, December 1, 1947, at Chabot School, Chabot Road and Patton, Oakland.

7:45- 8:00 p.m.—Display of Camellia blooms grown by members. Please bring blooms by 7:30, or at 7:45 the latest.

8:00- 8:05 p.m.—Announcements.

8:05- 8:50 p.m.—"CAMELLIA CORSAGES AND ARRANGEMENTS"—Mrs. William J. Roth of San Francisco.

8:50- 9:00 p.m.—Intermission.

9:00- 9:15 p.m.—"TRANSPLANTING CAMELLIAS"—Dr. H. V. Allington.

9:15- 9:30 p.m.—Report by Chairman O. E. Hopfer of Lakeside Park Camellia Planting Committee.

9:30- 9:45 p.m.—Question and Answer Period.

9:45-10:00 p.m.—Drawing of DOOR PRIZE, a 3 to 4-foot graft of Mrs. Charles Cobb, and EXHIBITOR'S PRIZE, a one-year graft of High Hat, both donated by Gordon Courtright, East Bay Nursery, Berkeley.

MEMBERSHIP DUES ARE DUE AND PAYABLE

Directions to Chabot School FROM SAN FRANCISCO: Take E train at Bay Bridge Terminal and transfer at Chabot Station to waiting bus. (Ask ticket taker in San Francisco for transfer.) Get off bus at Patton, in front of Chabot School.

FROM EAST BAY POINTS: Go out College Avenue to Chabot Road, turn east and drive 6-tenths of a mile to Patton. OR drive out to end of Broadway, to Y-intersection of Patton and Broadway Tunnel Road, turn left on Patton and drive one block to Chabot Road.

CAMELLIA SEEDS AND SEEDLINGS

By Louis J. Macchia, San Carlos

A Founder Member

Many camellia lovers enjoy growing plants from seed. The more arduous and painstaking the procedure, the greater the delight when success crowns their efforts.

While there are a number of ways in which camellias may be propagated, the principal method in which new varieties may be obtained is by planting seed. Strange as it may seem, seedlings usually vary from the parent plants in form, color, blooming season, or other characteristics.

In order to explain how seeds are produced, I shall devote a few minutes to a discussion of terms.

Flower Parts

The design on the blackboard shows the male and female parts of a camellia—stamens and pistil.

The stamens or male parts are composed of filaments topped with anthers. Each anther has two lobes containing pollen, which is shed when the anther matures.

The pistil or female part, located within the circle of stamens, consists of stigma, style, and ovule-bearing ovary. The style is a slender column, which divides into from three to five parts at its upper end, each part being tipped with a stigma. At the lower end of the style is the ovary, which

*This talk was given at the October 6, 1947, meeting of the Northern California Camellia Society. Mr. Macchia has had many years of practical experience growing camellia seedlings.

NORTHERN CALIFORNIA CAMELLIA SOCIETY

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OFFICIAL BULLETIN—

EDITOR

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(Orinda 2054)
12 La Cintilla Av, Orinda

The Northern California Camellia Society is a non-profit organization of camellia fanciers interested in the culture, propagation, and development of camellias. Meetings are held on the first Monday in each month from October to May inclusive, at 8 p.m., at the Chabot School Auditorium, Oakland. Membership is open to all those with a serious interest in the subject. Annual dues \$5.00. Membership application blanks may be obtained from Barlow W. S. Hollingshead, Secretary-Treasurer, 12 La Cintilla Avenue, Orinda, California.

Camellia Seedlings—

is divided into from three to five cells, containing ovules. In each ovule there is an egg cell.

Cross-Pollination and Hybridization

POLLINATION refers to the transfer of pollen by wind, insects, or other agent, from an anther to a stigma.

SELF-POLLINATION refers to the transfer of pollen from an anther to a stigma of the SAME FLOWER.

CROSS-POLLINATION refers to the transfer of pollen from an anther of ONE VARIETY to the stigma of ANOTHER VARIETY, where the two varieties belong to the SAME SPECIES.

HYBRIDIZATION refers to the transfer of pollen from an anther of ONE VARIETY to the stigma of ANOTHER VARIETY, where the two varieties belong to DIFFERENT SPECIES.

To illustrate, a variety grown from a seed obtained by crossing C. Japon-

ica and C. Saluenensis—**TWO DIFFERENT SPECIES**—is a **HYBRID**. On the other hand, a variety grown from a seed obtained by crossing two varieties of C. Japonica, such as Lady Clare and Lotus, is a **CROSS** rather than a **HYBRID**, since the two parent blooms belong to the **SAME SPECIES**.

Need for Nutrients Before Pollination

If competition for the food supply is great, the young blossoms wilt and fall. With certain varieties, this seems to be a critical matter. This is one reason why I advocate giving fertilizer to the plants, especially to plants growing in containers and tubs, about a week before they come into bloom.

Fertilization

The process of fertilization is as follows: Pollen grains, which have been transferred to the stigma, germinate in a few hours if conditions are right and produce slender pollen tubes which grow down through the style

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PROPAGATION OF CAMELLIAS FROM CUTTINGS

By W. H. Hall of Camellia Hall Nursery, Sacramento

Effective methods of propagation and successful growing techniques should be better understood by amateurs who enjoy growing camellias. The usual propagating method practiced by commercial growers is to start new camellia plants by rooting cuttings.

The following rooting techniques have been used successfully in our nursery:

Taking the Cuttings

(1) For the best future interest of the parent plant, the cutting is taken down to the end of the last new growth. Branched growth on some varieties will not develop on the parent plant unless the cutting is taken this way—down to the beginning of the new growth. Many varieties are tall and leggy. *Te Deum*, *Miss Sacramento*, and *Marchioness of Exeter*, for example, will continue to grow in one straight line without much branching unless they are cut back to the end of the growth development. It has been our experience that many times when a cutting is taken so as to leave a node, the bud formed there is so weak that growth is not satisfactory from that point. On the other hand, if a summer cutting is taken to the bottom of the new growth on *Pope Pius IX*, for instance, from two to five new branches will grow to take the place of the single tip that has been cut.

(2) The cutting, if taken during the summer months, should be ripened wood that has completed growth.

(3) The cutting should be 2 or 3 leaf-nodes long and just brittle enough to snap when bent double.

(4) The tip ends of the shoots are commonly used, but in some cases, lower parts of the stem will also root.

(5) The leaves are removed from two or three nodes at the base of the cutting and a clean cut is made just below the basal node.

(6) If there is an excess number of leaves on the cutting, cut off all but 2 or at most 3 leaves. If the remaining leaves are large, cut off the tips to as much as one-half. This practice helps aeration among the cuttings and still leaves enough foliage to carry moisture from the air to the roots.

(7) Remove advanced shoot-bud from cutting if you are forced to start cutting at that time.

(8) For hard-wood cuttings, such as camellia cuttings, we use *Hormodin #3* to stimulate root growth.

Time to Take Cuttings

Summer cuttings may be taken from May to September, and winter cuttings from November 15th on for a few weeks.

Planting Mix

At the nursery, we use 25 per cent peat moss, well mixed with sand, and I do mean MIXED!

Sharp builder's sand, such as *Marysville* or *Olympia* sand, is satisfactory. However, we do not recommend *Sacramento River* sand because it is alkaline.

As to peat, *Delta* peat may be used, providing it is a good grade. But be sure that it is sufficiently processed to remove all salt and ash. Years ago, the peat in the *Delta* was set on fire and considerable ash resulted.

Some propagators prefer vermiculite, on the grounds that it is more efficient in its moisture retention.

*This talk was given at the November 3, 1947, meeting of the Northern California Camellia Society. Bill Hall is one of the stalwart sons of the distinguished Dr. G. J. Hall of Sacramento.

Preparation of the Plant and Planting Cuttings

The preparation of the flat is important. Ordinary seed flats do not permit the best results. The flat should be of sturdy wood of sufficient thickness to prevent sagging when lifted full of planting mixture. The home gardener, however, who wants to root only a few cuttings, may use a small box with a glass cover, in a shady area outdoors. Inverted fruit jars may also prove satisfactory.

After placing the thoroughly prepared mixture in the flat, it must be pounded in hard and solid. Then the mixture should be given a thorough soaking with water and the flat set aside for awhile before using.

To make holes in the sand-peat mix for placing cuttings, we use a stick with nails in it. There are thirteen nails, equally spaced, in our cutting stick and the flat is 18 inches long. The nails are roughly 1¼ inches apart.

After placing the cuttings in these equally-spaced holes, the sand-peat mixture around them must be made firm, allowing no air spaces to interfere with the development of callous and root.

Care of Cuttings During Rooting Period

The flats of cuttings are placed in frames under glass to maintain a close humid atmosphere.

During warm weather the glass is covered with wet burlap to prevent the coldframe from becoming a steam room. An occasional fogging of the foliage with water in the morning may be necessary to prevent drying. By fogging, I mean a fine mist, finer than you can get by thumbing the end of the hose. But the sand-peat mixture must NOT be kept TOO wet.

Be sure never to let the temperature in the frame get above 85 degrees under any circumstances. It is best to cover the box with wet burlap

when the temperature reaches 75 to 80 degrees. If the temperature rises still more, go out and wet the burlap again.

Remember that the cuttings will remain healthy if you do not overwater and do not let them get too hot. The maximum temperature is 85 degrees.

In the winter, bottom heat may be used if it is properly handled. There is not the danger of overheating that there is in the summertime. The use of bottom heat merely speeds root development. Because of the expense, we do not use bottom heat in our cold frames.

Camellia cuttings will generally show root development in from 6 to 12 weeks. Then they can be potted in a soil mixture such as that described by Mr. D. L. Feathers in his recent article, "Camellia Culture in the East Bay Area," which appeared in the October issue of the BULLETIN of the Northern California Camellia Society.

If it is not convenient to transfer to pots as soon as the roots have developed, occasional watering is necessary to keep them alive and growing. At this stage they use more water and need ventilation, just as if they were in pots.

Summer Cuttings Versus Winter Cuttings

(1) Winter cuttings require less frequent inspection than summer cuttings because less heat is developed in frames or under jars. Summer cuttings should be inspected 2 or 3 times daily for the first six or eight weeks, in order to control heat and humidity.

(2) Early winter is the ideal time for rooting cuttings, for then they will be ready for spring growth. Summer cuttings have to be transplanted at a less favorable time as regards the weather. But nurserymen take summer cuttings for several reasons:

(a) Summertime is less busy at the nursery, so there is more time for cutting activities.

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AZALEAS AND THEIR USE WITH CAMELLIAS

By Charles O. Phillips, Oakland

As companion plants for camellias, evergreen azaleas are ideal, since their cultural requirements are the same. Moreover, the growing habits of the evergreen varieties make them especially fitting subjects to plant at the base of camellias and in the foreground. Some of the low-growing, spreading varieties not only make excellent ground cover but glorify the camellia garden by adding masses of color.

Picture a garden arrangement of Kumasaka Lotus, and Herme camellias in the background, with groupings of Snowdrift, *Vervaeneana Alba*, and Eric Schame Azaleas in the foreground. Then for variety, introduce a change of texture by adding such shrubs as *Spirea Astilbe* and Japanese *Andromeda* (Lily of the Valley shrub). I can assure you that blossom time will present a garden picture long to be enjoyed.

Species of Azaleas

While camellia varieties are derived principally from one specie, the Japonica, azaleas are derived from many species. I agree with Harold Hume's statement that "The bewildering number of azaleas available for gardens worries us more than any other shrub. While there are many, many spireas, etcetera . . . they give us no worry because but a few of these are worthy of cultivation. The problem with azaleas is very different—each sort has some merit."

Generally speaking, azalea species are segregated into five series:

- (1) CANADENSE (example, Vaseyi)
- (2) LUTEUM example, *Calendula-ceum*
- (3) OBTUSUM (example, Kurume)

(4) SCHLIPPENBACHII (example, *Reticulatum*)

(5) INDICUM (example, Robert Fortune's *Vittata*)

In making selections from all of these sorts together with their numerous hybrids, the garden builder must indeed be discriminating.

In their selection of azaleas, the British sacrifice everything to hardiness. But, what they consider a greenhouse variety, is a hardy garden sort in the Bay region. We then may choose the more exotic types, with an eye to color and form.

Although many of the deciduous types are charming and colorful, especially the Chinese mollis hybrids, I have personally chosen the EVERGREENS as my special interest. From this group, it is possible to choose MOST of the colors and ALL of the perfection of form to be desired in any garden subject. The evergreen family is divided into three principal groups: Belgian Indica Hybrids, *Macrantha*, and Kurume.

Belgian Indica and *Macrantha* Hybrids

Some two centuries ago, floriculture began to ride the crest and plant hunters were sent from Europe to the four corners of the earth seeking new subjects. Robert Fortune and his contemporaries explored China and Japan and returned to Europe with the Indica and *Macrantha* varieties of azaleas.

At this time, the Belgians were very active in hybridizing and, after about a hundred years of breeding and selecting, produced the Belgian Hybrids, which in my opinion, are the acme of azalea perfection, both in color and in form. The varieties of this group bloom from February to May.

*This talk was given at the November 3, 1947, meeting of the Northern California Camellia Society. Mr. Phillips is a successful amateur grower, hybridizer, and authority on azaleas.

Japanese Macrantha Hybrids

The Macrantha group has been mentioned above in connection with Belgian hybridizing.

Now, a word about Macrantha hybrids produced by the Japanese. These hybrids are comparatively new to this country. Seed from Japan became available to us before World War II. Fine plants with gorgeous color combinations have resulted—something entirely different in color production. They bloom in June, ending the azalea season.

Kurume Azaleas

The Japanese are responsible for the breeding and culture of the Kurume group. About a hundred and twenty-five years ago, the specie of this azalea was discovered on Mt. Kirishima and taken to Kurume, where it was cultivated and studied by Motozo Sakamoto, resulting in the development of Kurume azaleas.

In 1914, E. H. Wilson of the Arnold Arboretum, saw some small Kurume plants in bloom while visiting Japan and became interested in them. At his suggestion, an importation of Kurumes was made in 1917, with satisfactory results. In 1918, Mr. Wilson again visited Japan and arranged for the shipment to the United States of fifty varieties then in bloom, which he described as "the loveliest of all azaleas."

Since all of these azaleas were labeled in Japanese, considerable confusion in nomenclature has resulted.

Brilliance of color and profusion of blooms make the Kurumes veritable gems of the garden in January and February.

Azalea Culture

As stated above, the cultural requirements of evergreen azaleas are identical with those of camellias. Since Mr. D. L. Feathers covered almost every phase of this subject in

his article, "Camellia Culture in the East Bay Area," which appeared in the October 1947 issue of the BULLETIN of the Northern California Camellia Society, I shall not go into detail regarding the culture of azaleas. Just change the word "camellia" to "azalea" and you will have the essentials of correct azalea culture. To summarize:

SOIL: Loose and friable, containing leaf mold or peat.

pH: 5.5 (sub-acid to minimacid).

WATER: often and deep in summer.

PESTS: Thrips—Spray with contact insecticide. Brachyrrhinum—Use applebait.

Propagation

Have you ever tried propagating azaleas? It's fun, and it's easy!

LAYERING is perhaps the easiest form of propagation. Just peg down a low branch and cover all except four or five inches of the tip with soil. In about six months, cut this branch away at the trunk and you will have a new plant.

Making vegetative CUTTINGS is also simple. In May, using the current year's half-ripened wood, take four-inch tip cuttings. Strip the leaves from the first two inches. Place cuttings in a flat of sterile rooting medium—sand or vermiculite—and pack down well. Water and place the flat in warm shade, away from drafts. In about ninety days the cuttings will be rooted, providing they have been syringed daily during the rooting period.

Growing Azaleas from Seed

Azaleas may also be grown from seed. Harvest the seeds in November when the pods turn brown, just before they explode. Place the pods in a sealed envelope in a dry place. In a few days, the pods will break open and the seeds are ready for planting.

For a planting medium, screen leaf mold or woody soil into a seed pan. Moisten thoroughly and let stand twenty-four hours. Broadcast the seeds, which are fine and powdery, over the surface of the soil. Water with a spray syringe. Cover with a pane of glass and paper to keep dark. When true leaves appear, prick out the tiny seedlings and place them in screened leaf mold. Most varieties will bloom in from four to five years.

Some Fine Winter Reading

For those who wish to learn more about azaleas, the following references will provide some fine winter reading:

"Azaleas and Camellias" by Hume.

"Rhododendrons for Amateurs" by Cox.

"Azaleas and Rhododendrons" by Warson.

"Rhododendrons and Azaleas" by Bowers.

"The Monograph of Rhododendrons and Azaleas" by Wilson and Rehder.

"Azaleas and Rhododendrons from Seed"—Circular #68, U. S. Department of Agriculture.

PRIZES OF CAMELLIA PLANTS

At the November 3, 1947 meeting of the Society, the Door Prize, a Reticulata plant, donated by an Oakland florist-nursery, was won by Bruce Harless of Berkeley. This nursery did not wish to have its name publicized.

The Exhibitor's Prize, an Alba Plena plant, donated by Uliana Nursery, Oakland, was won by Dr. G. Myron Grismore of Oakland.

At the December 1, 1947 meeting, there will again be a Door Prize and an Exhibitor's Prize consisting of camellia plants donated by Gordon Courtright, East Bay Nursery, Berkeley.

THE NEW VARIETAL AND NOMENCLATURE BOOK

Our Board of Directors has made arrangements for the purchase of the new nomenclature book, entitled "The Camellia, Its Culture and Nomenclature," to be distributed free to the paid-up membership, in lieu of a January issue of the official BULLETIN.

This nomenclature book, consisting of 67 pages, has been prepared and published by the Southern California Camellia Society. The galley proofs on nomenclature were submitted to our Society and reviewed by a voluntary Nomenclature Committee.

The main features of the book are:

(1) Alphabetical list of varieties, together with descriptions, priority names, and synonyms.

(2) Cultural directions, tips on choice of location, planting, soils, pot culture, irrigation, fertilization, pests and diseases, pruning, disbudding, and transplanting.

(3) Methods of propagation.

(4) Brief historical outline.

(5) Discussion of sources of varietal names, together with the causes and suggested remedy for the great confusion now existing in camellia nomenclature.

We have been advised that the book will be accepted for use by the California Association of Nurserymen, which will materially reduce confusion in nomenclature so far as the nurserymen have been responsible.

INSECTS INFESTING CAMELLIAS

Mr. A. E. Morrison, Agricultural Commissioner of Sacramento County, has written an article on "Insects Infesting Camellias," which appeared in the July-August-September 1946 issue of the California State Department of Agriculture Bulletin, Vol. 34, No. 3. (This Bulletin is free upon application to A. A. Brock, Director, Department of Agriculture, Sacramento, California.)

THE DECEMBER MEETING

The original members of the Society will recall the highly interesting and instructive talk given before this Society about two years ago by Mrs. William J. Roth of San Francisco, on the subject, "THE USE OF CAMELIAS IN HOME DECORATION AND CORSAGES." The visitors to our annual camellia shows, too, will remember vividly Mrs. Roth's outstanding arrangements, both at Berkeley and San Francisco, the past two years. By popular request, your Program Committee has arranged for a return engagement of this exceedingly capable artist in flower decoration. We are indeed fortunate to have Mrs. Roth appear at this timely pre-holiday season. An artistic treat is in store for all.

Dr. H. V. Allington, the exceedingly popular Medical Doctor, who gave us such an interesting talk last year on triangular notch grafting, has consented to give us another talk, this time on "TRANSPLANTING CAMELIAS". His subject is timely since the transplanting season is now with us.

NEWSPAPER PUBLICITY

Norville Gillespie, Garden Editor for the SAN FRANCISCO CHRONICLE, published an article in the Sunday issue on November 9, 1947, regarding Mr. D. L. Feather's article on "Camellia Culture in the East Bay Area," which appeared in the October BULLETIN.

Since then we have received 20 inquiries regarding the activities of the Northern California Camellia Society. Two of these people have already applied for membership and others have asked for membership application blanks.

Membership dues are now due
and payable.

OREGON CAMELLIA SOCIETY

The Oregon Camellia Society holds its meetings the third Friday in each month at 8 p.m., in the Art Museum, Portland, Oregon.

PRESIDENT: Clyde P. Bradley
4045 King Road
Milwaukie 2, Oregon

Propagation —

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(b) It is possible to obtain second growth of some varieties and thus obtain cuttings twice each year from the parent stock.

(3) Summer cuttings of some varieties, such as Alba Plena, Elegans, Francine, and Mathotiana Alba, root with less success than winter cuttings and there is a greater percentage of losses.

(4) If all available cuttings are taken from the parent plant in the summertime, it may suffer severe shock. On the other hand, winter cuttings of the varieties mentioned in section (3) cause no setback to the parent plant.

A good rule-of-thumb to follow is: **Make winter cuttings only** of varieties which prefer the shadiest locations or which wilt during excessively hot days, even when kept sufficiently moist at the roots.

Remarks

Some varieties, notably Reticulata, do not root well. And some varieties, such as Colletti Maculata, do not produce a sufficient percentage of plants to justify the work involved in trying to root their cuttings. Still others, like Donckelari and Colletti Maculata, grow so slowly on their own roots that it is a waste of time waiting for them to grow up. Such varieties should be grafted.

So, take a dare, cut with care, and add a new camellia here and there!

CAMELLIA GARDEN TAKING FORM

The Northern California Camellia Garden, sponsored by the Society in cooperation with the Oakland Park Department, is rapidly being whipped into shape for planting. The Park Department has followed the suggestion of the officers of your Society in fencing off a very choice area of Lakeside Park, adjoining beautiful Lake Merritt, to protect this valuable camellia planting with a 6-foot chain link non-climbable fence.

Next to the fence the Society will plant a hedge of *Lonicera Nitidi*, a rapidly growing, fine foliaged hedge plant which somewhat resembles *Azara*. Within a relatively short time this hedge will completely obscure the steel fence and give an ideal background for a camellia hedge.

In the center of the area there is a large open space that receives full sun. The Society will utilize this for one large bed of a variety which will stand full sun so as to obtain that great splash of color which comes from massing a single variety.

In other beds, arranged to take advantage of the shade afforded by the Oak trees, individual specimen camellias will be planted and will be so spaced as to permit many years' growth without having to move any plants.

The Park Department has on hand some 20 loads of composted oak leaf mold which will be used in making a bed around the area extending 12 feet in from the fence. This bed will be excavated to a depth of 15 inches to receive the planting mixture. The entire area has a gentle slope and the soil drains quickly. With a friable planting medium the camellia hedge should grow quickly.

The committee in charge of the Camellia Garden is comprised of O. E. Hopfer, Chairman, Arthur Tucker, Dr. H. V. Allington, and Dr. Robert Custer.

The committee is now asking every member of the Society to take stock

of his collection of plants to determine which ones he can donate to this fine public enterprise. The selection of varieties is to reflect the fine taste and judgment of camellia experts. Since each camellia will bear a permanent label giving the name of the variety and the name of the donor, the committee hopes that considerable care will be exercised in choosing good varieties that will give years of public enjoyment.

For the specimen plantings, the committee is particularly interested in choice varieties, from 3 to 5 feet tall, in 5 gallon cans or lard tubs. Nurseries having large stock plants which they are willing to donate will find the committee very receptive. Any nursery, or combination of nurseries, which would like to donate, for example, *Chandleri Elegans* of 18 to 24-inches in gallon cans for the planting of the large central bed, will warm the hearts of the committee.

A stamped, addressed postcard is enclosed with this issue of the BULLETIN, and the committee asks that you please indicate on the reverse side of the card, the number of plants, the varieties, and the sizes of plants which you will donate. Mail this card to Mr. O. E. Hopfer, and when the inventory is complete, a committee will spot the camellias on a scale map of the garden. The donors will then be advised which varieties are wanted and where they are to be delivered. This will be done to avoid collecting too many plants of the same variety.

William Penn Mott, Superintendent of Parks, is very enthusiastic about this project and has told Mr. Hopfer that the Department is assigning one man to work with us and that they are "ready to go."

Since all the members of this committee are busy people, your prompt return of the postcard will be appreciated. Remember, offer to give anything you consider good, from gallon sizes up to specimen trees.

OREGON CAMELLIAS IN COLOR

At the November 3, 1947 meeting of the Society, kodachrome slides were shown, presenting "Oregon Camellias in Color". These slides were secured from the fine collection of Mr. H. H. Harmes of Portland, Past President of the Oregon Camellia Society. Our Past President O. E. Hopper handled the projection and President Harold L. Paige made descriptive comments.

The kodachromes were taken at the Portland Camellia Show in the Portland Art Museum and in Mr. Harms' private garden. Rare camellia plants, laden with exquisite blooms, were shown, growing in Mr. Harms' greenhouse, where they were protected from wind and rain. There were also extensive informal plantings of camellias, rhododendrons, and azaleas in full bloom, growing on gentle slopes under tall trees beside winding garden paths on Mr. Harms' grounds.

NEW MEMBERS

During the period, June 1 to November 15, the following 25 persons were elected to membership in the Society, bringing the total membership to 111:

A. W. Anderson, Novato
 Bert A. Bertolero, Oakland
 John B. Booth, Oakland
 Wallace H. Brown, Berkeley
 Ralph G. Cahn, Palo Alto
 Mrs. Henry Carmouche, Orinda
 Mrs. Olive M. Coffee, Oakland
 Gene Cooney, Piedmont
 Col. and Mrs. J. H. Cosper, Vallejo
 Mrs. Will Crocket, Piedmont
 P. J. Ferrarese, San Rafael
 Maurice R. Kane, Oakland
 E. C. Larsen, Oakland
 Dr. Philip J. Lipsett, M.D., Piedmont
 Harold E. Melling, Oakland
 Robert E. Menand, San Lorenzo Village
 George R. Moss, Albany
 Joseph D. Nicolet, Alameda
 James G. Parmelee, Oakland
 John F. Senger, Berkeley
 Mrs. Jessie I. Seward, Berkeley
 E. B. Stengel, Oakland
 R. N. Swope, Oakland
 Napier Tooker, San Lorenzo
 Bert E. Williams, Oakland

Camellia Seedlings—

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into the ovary. When a pollen tube comes into contact with an ovule, it enters and the male cell at the end of the pollen tube unites with the female cell in the ovule, causing fertilization. Thus, two germ cells are united to form one fertilized cell, called the zygote. The zygote divides and re-divides to form the embryo of the seed. At the same time, the ovary swells to form the outer shell. In a fully developed seed there is a tiny plant surrounded by cells containing a food supply, to give nourishment during germination.

Effect of Weather on Seed Production

If the weather is cold and windy during blossom time, bees and other insects do not fly and pollination may not take place. In cold weather, the growth of the pollen tube is slow and, even though the sexual parts of the plant do not freeze, fertilization may never occur. To insure production of seed, it becomes necessary to do the crossing artificially by means of hand-pollination.

Seedlings Usually Bear Single Flowers

The reason that most seedlings bear common single flowers is that the seeds were obtained through self-pollination or through pollination by another single flower, without being crossed with another variety.

From a combination of two different varieties many new varieties are possible, especially where the parent flowers are from different species.

Techniques of Artificial Pollination and Care During Development of Seed Pod

The following techniques may be used in crossing two varieties of camellias:

(1) The camellia bloom to be used as female parent should be selected, remembering that the only types that can be used to produce seed are those that contain the sexual parts

necessary for reproduction—stamens and pistil. Single and semi-double blooms are the most dependable seed-bearers; for example, Kimberley, Lady Clare, Mikenjaku and Anne Frost.

(2) Since the anthers may come to maturity even before the flower is fully open, it is necessary to prevent self-pollination. As soon as the bud is partially open and the stamens are visible, the anthers should be cut off with a small pair of sharp-pointed scissors, such as cuticle scissors.

(3) To prevent insects from reaching the stigma and to protect against the weather, the flower may be covered with a thin, transparent bag or a piece of thin, florist's waxed paper, and tied with a string. Such a covering permits light to enter.

(4) The stigmas should be observed each day. When they mature, they are covered with a sticky or viscid fluid. This is the time for pollination. The stigma is most receptive on a warm day between 12 noon and 2 in the afternoon. Professional propagators do their work in greenhouses where they have control of heat and light.

(5) Now the bloom to be used as the male parent must be selected. Such a bloom must have stamens on which the pollen has matured. In other words, the pollen must be free.

(6) By using a small, fine camel's hair brush, pollen may be removed from the anthers of the male parent and be transferred to the stigma of the female parent.

(7) After pollination, the transparent covering should be replaced to protect the female parent for three or four days.

(8) The pollinated flower must be left on the plant and must not be disturbed.

(9) In from five to ten days after fertilization, the flower has wilted and the seed pod begins to take form. At this stage it resembles a small green pea in the center of the flower. Now

is the time to start giving light, weekly feedings of liquid fertilizer, to be continued until the seed pod is well developed. For these feedings, I recommend the use of Plant Chem Salts—the kind for acid-loving plants—in the ratio of ½ teaspoonful to one gallon of water.

(10) Sometime during the following fall, the pod splits open to allow the seeds to drop to the ground. Just as soon as the pod is observed to be splitting is the time to remove it from the plant and prepare the seed for planting. Fresh camellia seeds germinate much faster than old seeds.

Treatment of Seed

Hard-shelled seed, such as camellia require drastic treatment to obtain quick results in breaking down the hard, outer shell, so that germination may begin. Various methods are used, such as:

(1) STRATIFYING—Space the seed at intervals of 1 inch between 2-inch layers of oak leaves. Place in the shade and keep moist. After two weeks, examine weekly for results.

(2) BOILING WATER BATH—Pour boiling water over seed. Allow to cool for ½ hour. Then place in refrigerator for 24 hours. Discard floaters.

(3) ACID BATH—Soak in sulphuric acid, commercial strength—80 per cent—for ¾ hour. Wash off and plant. (Do not use wood or metal. Be sure to wear rubber gloves.)

(4) CRACKING—Crack very slightly with hammer.

(5) FILING—File the smooth side or corner of seed to reduce the thickness of the shell about one-half.

(6) GLASS JAR METHOD—Place moist peat moss or moist vermiculite in a glass jar with screw top, leaving an air space of about three inches. Place the seed in this medium and screw on the top. Place the jar in a warm spot in the kitchen or furnace room where a temperature of about 70 degrees is maintained. If the seeds are fresh, germination may take place in about two weeks.

(7) OTHER—Place a 1-inch layer of damp peat in a metal container. Place seeds on top of this layer, one inch apart. Then cover with another 1-inch layer of peat. Place in refrigerator and keep there up to six months. Observe each week for results.

In each of the above treatments, the seed will commence to develop a tap root. As soon as the tap root is visible, the seed should be removed and planted.

Planting of Germinated Seed

Since seedlings require a loose, porous soil, I recommend a mixture of $\frac{1}{3}$ loam, $\frac{1}{3}$ sand, and $\frac{1}{3}$ peat.

Place three inches of this mix in a box that is properly prepared for drainage, pressing the mix down firmly. Then add an inch of sand and peat as a covering and water thoroughly. Sand and peat are recommended because there is nothing in this combination to cause the seed to rot. This covering also helps to keep pests away. I do not recommend leaf-mold for a covering since it is likely to cause rot.

Press the seeds down into this medium with the smooth side up, just even with the surface of the sand-peat layer, and about three inches apart. Place the box in a shady location and keep it moist at all times. During dry periods, water at least twice a week. The two essentials to seed germination are water and oxygen. The seeds will not germinate until water enters the embryo.

It is also advisable to cover the box with a 20-mesh wire screen to protect the seeds from birds or animals and from heavy rains.

If desired, bottom heat of at least 70 degrees may be used to speed growth, regardless of the method of handling and planting.

Treatment of Tap Root

When the white tap root has grown to a length of one inch or more, some propagators cut it at the tip, thus stopping its downward growth. It is claimed that this treatment speeds up-

ward growth and stimulates growth of the fine feeder roots. However, I have never used this method, but have allowed nature to take its course.

Transplanting of Seedlings

Transplanting should be done when three leaves have made good growth. At this time, the tap root is usually about six inches long, with only a few feeder roots.

By transplanting to larger and larger containers two to three times, at intervals of a year, it is possible to determine—usually within three to five years—whether the new cross or hybrid is worthy of extension. Some varieties will take even longer.

Fewer Flowers on Mother Plant

The following winter and spring, there will be fewer flower buds on the mother plant because so much of its strength has gone into the production of seed for reproduction. This law is basic in all plant life. Thus, blooms must be sacrificed if seed are developed.

GIFT OF CAMELLIA SEED

Through the courtesy of Mr. and Mrs. George J. Helms of San Leandro, some 300 fresh camellia seeds were distributed to the members attending the October meeting. This, no doubt, will do much to stimulate an interest in growing camellias from seed.

MEMBERSHIP COMMITTEE

Mr. J. D. Black, Piedmont, Chairman of the Membership Committee, reports having a committee of enthusiastic workers, as follows:

E. L. Anderson, Oakland
 Louis J. Glaudon, San Anselmo
 Woodford F. Harrison, Berkeley
 Mrs. Geo. J. Helms, San Leandro
 Barlow Hollingshead, Orinda
 Dr. Noble H. Logan, Oakland
 Louis J. Macchia, San Carlos
 Eugene Nebiolo, Oakland
 Alfred Stettler, San Francisco