This is a non-profit organization supported by municipal and private funds.

A botanic garden is a collection of growing plants, the primary purpose of which is the advancement and diffusion of botanical knowledge. This purpose may be accomplished in a number of different ways with the particular placing of emphasis on different departments of biological science.

The scientific and educational work of a botanical garden center around the one important and essential problem of maintaining a collection of living plants, both native and exotic, with the end purpose of acquisition and dissemination of botanical knowledge.
THE GREEN THUMB
VOLUME TWENTY-FOUR, NUMBER ONE

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By becoming a member of Denver Botanic Gardens, you will receive THE GREEN THUMB and the monthly NEWSLETTER. You will also have unlimited access to the use of the books in the Helen K. Fowler Library at Botanic Gardens House.

For further information write to the Membership Chairman, Mrs. William Stanley, 3800 East Long Road, Littleton, Colorado 80120 or call 771-3617.
Second Annual Report
For The Associates Of
Denver Botanic Gardens

MRS. GRAHAM MORRISON, Retiring President
MRS. ROBERT M. KOSANKE, Incoming President

On October 14, 1966, the Associates of Denver Botanic Gardens held their second annual meeting. Mrs. Graham Morrison, President, reviewed the year's activities and noted the shift of emphasis of volunteer effort to accommodate new and more urgent needs.

Anticipating the opening of the Edna C. and Claude K. Boettcher Memorial Conservatory, The Conservatory Guide Committee was organized in September, 1965, under the chairmanship of Dr. Robert Perry. Mr. Ernest Bibee, Superintendent of the conservatory, Dr. Perry and other Associates prepared maps and gathered information on plants to be featured in the conservatory. This material was used in training nearly 40 volunteer guides prior to the formal opening in late January, 1966. Additional material was supplied as new plantings were added, and the active guides spent many hours weekly in individual study mastering this information. Scheduled tours for groups of more than ten persons proved extremely popular with schools, garden clubs, conventions and other groups. Beginning with guests at the opening ceremonies, the guides have conducted more than 6000 persons through the conservatory-greenhouse complex. This service was provided on a more limited basis through the summer months, but during this time the training of new guides continued under the guidance of Mrs. Herbert Franson, Mr. Frank Keppelmann and Mrs. Phil Hayward. Much of the plant list information used in the conservatory issue of The Green Thumb was prepared by Mrs. Hayward and other members.

Additional Associates became involved in the actual planting work, and Mr. C. Edward Ridenoar still devotes much time to this. Others undertook greenhouse chores of potting, air-layering, cuttings, transplanting and cleaning. Mr. Gilbert Blount, Chairman of the Houseplant Committee for the plant sale, supervised the growing and care of many plants for this purpose.

The Gift Shop, under the direction of Mrs. Chard P. Smith, Jr., experienced many problems germane to its new location. It soon became apparent one of the more important contributions to be made by the Associates would come through the additional responsibilities now assumed by women staffing the Gift Shop. Mrs. Charles V. Petersen supervises the training of these volunteers who must attend to customers, answer the conservatory telephone, greet the public, schedule tours, handle ticket sales for the garden tours and other official Denver Botanic Gardens events, supply all manner of information and fulfill the role of receptionist-hostess.

The Gift Shop opened a special booth for garden tools and supplies in the garden area during the plant sale and also manned a special shop in the South Room of the conservatory. Here the visitor found landscape pottery, starter planters for children, handcraft items and Mother's Day gifts.

Highlight of the Associates' annual meeting came when Mrs. Morrison announced the purchase of a cash register for the shop, a greatly increased inventory and then proceeded to present a check for $1000 to Dr. Martin for use by Denver Botanic Gardens.

Much of the financial success of this venture is directly related to the dedicated work of the Crafts and Arts Committee under Mrs. J. P. Steele, Jr., and Mrs. C. J. Christensen. These Associates meet at Botanic Gardens House on the first Thursday of each month to work on items which later appear for sale in the Gift Shop or are earmarked for the annual Christmas Sale in late November. Many additional meetings are scheduled in members' homes for special projects. This key group has snowballed a handful of dollars invested in materials into the sizeable funds needed to stabilize the Gift Shop throughout this period of groping infancy. Each of its members must feel real pride in watching the shop evolve into a profitable concern.

More than two-thirds of the Associates' members were involved in some area of the Annual Plant Sale. Associates Mrs. Ed. Honnen and Mrs. Jess Gibson, both members of Denver Botanic Gardens Board of Trustees, served as General Co-chairmen. Numerous other chairmanships were held by Associates. The excellent publicity for this sale and many other events was prepared by Publicity Chairman, Mrs. J. V. Petersen. This material included newspaper articles, spot announcements for TV and radio and personal appearances on TV. Mrs. Petersen also helped prepare and produce the new brochure containing a brief resume of the history, purpose and facilities of Denver Botanic Gardens.

Mrs. Ted Washburne, Chairman of Garden Guides, reported her committee had provided tours for more than 900 persons throughout the year. She also supervised the more than 200 members of 15 Girl Scout Troops in an amazing late fall "clean-up-the-garden" project.

Mrs. Robert Barr, House Grounds Maintenance Chairman, spent many hours planting, transplanting, weeding and cultivating the borders around Botanic Gardens House. Jim LaBrash began the tedious job of de-grassing the flagstone walks and terrace. Members of this committee also lent a hand with work in the rose gardens and whatever task required attention. This is one area where many more working hands...
are needed to keep our gardens presentable to visitors.

Library Chairman, Miss Lucy M. Crissey, noted that recruits to the staff had been increased to eight. This allows the library hours to be extended from 10:00 a.m. to 3:00 p.m. daily, Monday through Saturday. She also reported that the Gift Shop is handling the sale of “What Tree is This?” Revenue from this is assigned for use by the library.

Mr. Frank Keppelmann, Committee Chairman, and Mrs. Herbert Franson prepared an attractive display of unusual plants from the conservatory for exhibit at the Garden and Home Show in March. This booth was staffed at all times by members of the Associates.

Christmas decorations in Botanic Gardens House were designed and placed by members of the Associates under the direction of Mrs. Robert M. Kosanke, who also placed several floral arrangements there throughout the year.

The Board of Trustees called on the Associates for assistance on several special occasions which included the fund raising campaign for Horticulture Hall, opening ceremonies for the Edna C. and Claude K. Boettcher Memorial Conservatory, two silver benefit teas sponsored by the Denver Presidents’ Council, and the art show featuring the work of Mr. Lee Adams.

1965-66 has been a year of great change and progress for both the Associates and Denver Botanic Gardens. With more than two hundred members now on its roster, the coming year should see even greater contributions of energy, time and talents by Associates to their beloved Denver Botanic Gardens.

As the Denver Botanic Gardens Family Tree developed, an unusual bud appeared which became Around the Seasons Club. The family album records the date as January 19, 1961.

Through the years friendships and contacts in The Colorado Forestry and Horticulture Association and Home Garden Club of Denver had brought 20 charter members together. Many of these had served on the latter organization’s board; four are honored among its past presidents.

These members supported Colorado Forestry and many were active on its various committees — library, membership, garden tours, plant sale and auction, The Green Thumb magazine editorial and the herbarium. In fact, the herbarium at Botanic Gardens House is known as the Kathryn Kalmbach Herbarium, honoring a late loyal member of Colorado Forestry and charter member of Around the Seasons.

With a new Botanic Gardens headquarters developing at 9th and York Street, need for a nucleus of volunteer workers was evident. On September 8, 1960, seven enthusiasts met at Cheesman Park to plan a service organization. In these critical months, its aims
Denver Botanic Gardens became part of us and we of it. Twenty members of Around the Seasons serve both groups as officers, chairmen, and members.

Primarily experienced gardeners, the planners were seeking basics of plant identification and botany. The nucleus would be a study club under the guidance of two devoted botanists, Mrs. Katharine Bruderlin Crisp (former teacher at North and East High Schools and recognized in “Rocky Mountain Naturalists”) and Dr. Helen Marsh Zeiner (assistant professor at the University of Denver).

Meetings were to be held at Botanic Gardens House with supplementary field trips and workshops. Suggested field trips were visits to greenhouses, parks, nurseries, following S. R. De Boer’s flower trails. With Mr. De Boer’s blessing, he became the club’s godfather and we assumed the name “Around the Seasons Club,” the name taken from his delightful book, “Around the Seasons in Denver Parks and Gardens.” The club’s insignia, designed by Mrs. J. P. Steele, Jr., is an adaptation of this theme.

And so, in January 1961, 20 persons organized with this purpose: to develop interest and understanding of horticulture through study and field trips and to cooperate with other groups whose aim is promoting civic pride and beautification. Regular meetings were to be held September through May at 10:00 a.m. with workshops or field trips following a sack lunch.

Mrs. Crisp, with Mrs. C. O. Parker as vice-president, mothered the club through its infancy. In the first month members made 231 nut-animal favors for Denver Botanic Gardens Annual Dinner. Appropriately, plant study began with “Roots.” On Arbor Day, to honor Mrs. Crisp, three ‘Paul’s Scarlet’ hawthorns were planted at the York Street Unit of Denver Botanic Gardens. Summer field trips took us to Lookout Mountain and Apex.

The club assumed responsibility for a Denver Botanic Gardens membership booth at the garden show. Handicrafts (place mats, plaques, dish gardens) netted $400 profit when sold at a fiesta, part of the annual plant sale and auction.

During the first full club year, under Mrs. Parker’s leadership, the club again decorated the tables for the annual dinner and assisted at the garden show. A Christmas buffet, with the Gardens’ staff as guests, became a tradition. At Dr. Hildreth’s request, the club assumed responsibility for selling and dispensing information about comparatively unknown woody plants at the plant sale in Cherry Creek Mall. Profit from this enterprise was more than $600.

Through the years, study programs have included lessons in series on basic botany, basic ecology, a survey of the plant kingdom and ecology of this region. Plant families studied include exotics in gardens and at the conservatory, and those families predominant among native flowers, shrubs and trees. Field excursions took the club from tropics to high plains to tundra via parks, gardens, nurseries and greenhouses, from nearby hillsides to Colorado Springs, Bailey and Mt. Goliath.

Activities paralleled the Gardens’ growth. Mrs. Lucian Long and Mrs. Graham Morrison led or shared responsibilities for three successive plant sales and the club continued selling special plants at the annual sale.

In 1964, responsibilities zoomed. With Mrs. Morrison again co-chairman, the club assumed responsibility for the sale of all plants other than herbs or those donated from private gardens. Greenhouses and nurseries cooperated by growing for the sale those plants especially successful in the Gardens and city parks, or plants perfectly hardy, but little known or grown here. Club managers handled a special plant sale issue of The Green Thumb magazine. They sought publicity and help. Enthusiastic workers responded from the Colorado Federation of Garden Clubs, Inc., the Denver Botanic Gardens Guild, the Swingle Study Club, Men’s Garden Clubs, independent garden clubs and unaffiliated volunteers. Netting about $6000, the event was a sell-out and the auction was eliminated! Club activities induced more dedicated workers to seek membership in Around the Seasons and the club roster was filled.

Despite its success, the sale was grossly understaffed. Earlier, Mrs. Long suggested need for an organization of volunteers wishing to aid the Gardens but for whom membership was not available in either service organization. Mrs. Morrison, with members of the latter groups, the encouragement of Director A. C. Hildreth and the Board of Trustees, brought this idea to fruition in 1964. Associates of Denver Botanic Gardens became part of us and we of it. Twenty members of Around the Seasons serve both groups as officers, chairmen, and workers.

Better known for its contributions of muscle than money, Around the Seasons Club retains a “supporting membership” in Denver Botanic Gardens. After six years this study group continues with members active in 42 places on 10 committees functioning for the Gardens. 15 members are involved in buying, selling or producing arts and crafts items for the Gift Shop. Mrs. Crisp heads the editorial committee and Dr. Zeiner, the herbarium committee. In addition, members assist the plant sale project by managing or assisting at the booths for annuals, perennials, rock plants, unusual woody plants, geraniums and hanging basket materials, and house plants. Every member participates in this effort.

— B. E. P.

Reservations for guided tours of the Conservatory at Denver Botanic Gardens may be made by calling the Conservatory number, 297-2348, between 9:00 a.m. and 4:00 p.m. daily.
The Children's Garden
1966 Activities

Marilyn A. Holmes

The Children's Garden project, which was begun at Denver Botanic Gardens under the direction of Dr. A.C. Hildreth, completed its seventh successful year with graduation exercises on September 10, 1966. There were 110 plots, each containing approximately 150 square feet. The purpose of the Children's Garden is to interest youngsters aged 9 to 14 in plant life and encourage them to grow different kinds of garden plants.

The graduation ceremony was complete with ribbons, awards and prizes. Certificates for the successful completion of the course were given to 108 children.

In conjunction with the graduation, a Fair was held to display products the children had grown in their individual plots. Each gardener was allowed three vegetable and two flower entries—to be chosen from a list of 30 garden plants. Plots were judged on layout, number of varieties of vegetables and flowers and general upkeep and appearance.

Judges for the Fair included Mrs. Claude Burt, Mrs. Russell Qualls and Mrs. W. G. Gressett. They awarded first, second and third prize ribbons for the best entries of each product in the advanced and beginners' groups.

Plants, seeds, bulbs, tools and water were provided by Denver Botanic Gardens, and the children were allowed to choose any plants except vines.

Before planting their gardens, the children were instructed in gardening, and through the season they were advised and helped by Brian Kimmel, summer staff member at Denver Botanic Gardens, plus six advanced young gardeners. Mrs. James Layden and Dr. John R. Durrance were co-chairmen of the Children's Garden Committee and Dr. Joseph W. Hovorka was the Garden Supervisor.

In the advanced group, Debra Yeager was the first-place winner, Donna Stanley placed second and Danny Schopp third. Honorable mention awards went to: Susan Smiley, Debby and Ricky Vittetoe, Randy Cordova, Mike Edwards, Joyce Murray, Jeanie Marranzino and Joan Mosley.

In the beginners' group, Mia Kawakami placed first, David Dow placed second and Kathleen Carroll was third place winner. Honorable mention awards were given to: Susan Watson, Mary Murray, Mary Kay Kenney, Doreen G. Yamamoto, Pamela and Miki Ando, Mary Pat Knudson and Bobby Bush.
<table>
<thead>
<tr>
<th>Name of Tree</th>
<th>Height</th>
<th>Habit</th>
<th>Transplant</th>
<th>Subject to</th>
<th>Density of</th>
<th>Structure in Regards Breakage</th>
<th>Growth Resistance</th>
<th>Disease Resistance</th>
<th>Insect Pests</th>
<th>Roots</th>
<th>Flowers</th>
<th>Fall Color</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SILVER (SOFT) MAPLE</strong></td>
<td>50-70'</td>
<td>spreading</td>
<td>readily yes heavy</td>
<td>weak</td>
<td>poor</td>
<td>fair</td>
<td>few</td>
<td>shallow</td>
<td>inconspicuous</td>
<td>yellow</td>
<td>Not too desirable for small home sites. Subject to serious heart rot.</td>
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<tr>
<td>(Acer saccharinum)</td>
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<tr>
<td><strong>NORWAY MAPLE</strong></td>
<td>40-60'</td>
<td>compact</td>
<td>round</td>
<td>difficult</td>
<td>yes</td>
<td>heavy</td>
<td>fairly sturdy</td>
<td>poor</td>
<td>good</td>
<td>few</td>
<td>deep</td>
<td>inconspicuous</td>
<td>yellow</td>
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<tr>
<td>(Acer platanoides)</td>
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<tr>
<td><strong>SCHWEDLER MAPLE</strong></td>
<td>40-60'</td>
<td>spreading</td>
<td>round</td>
<td>readily yes heavy</td>
<td>weak</td>
<td>poor</td>
<td>good</td>
<td>few</td>
<td>deep</td>
<td>shallow</td>
<td>inconspicuous</td>
<td>orange</td>
<td>Desirable because of its red leaf color during spring.</td>
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<tr>
<td>(Acer plat. var. schwedleri)</td>
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<tr>
<td><strong>OHIO BUCKEYE</strong></td>
<td>30-40'</td>
<td>round</td>
<td>difficult</td>
<td>no</td>
<td>heavy</td>
<td>weak</td>
<td>poor</td>
<td>fair</td>
<td>few</td>
<td>deep</td>
<td>greenish-yellow</td>
<td>clusters</td>
<td>orange</td>
</tr>
<tr>
<td>(Aesculus glabra)</td>
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<tr>
<td><strong>HORSE CHESTNUT</strong></td>
<td>40-50'</td>
<td>round</td>
<td>difficult</td>
<td>no</td>
<td>heavy</td>
<td>fairly sturdy</td>
<td>poor</td>
<td>fair</td>
<td>few</td>
<td>deep</td>
<td>showy white in long spikes</td>
<td>yellow</td>
<td>none</td>
</tr>
<tr>
<td>(Aesculus hippocastanum)</td>
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<tr>
<td><strong>TREE OF HEAVEN</strong></td>
<td>30-40'</td>
<td>round</td>
<td>readily</td>
<td>no</td>
<td>light</td>
<td>weak</td>
<td>good</td>
<td>good</td>
<td>none</td>
<td>deep</td>
<td>small yellow in clusters</td>
<td>yellow</td>
<td>none</td>
</tr>
<tr>
<td>(Alnus thysiflora)</td>
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<tr>
<td><strong>EUROPEAN WEEPING BIRCH</strong></td>
<td>30-40'</td>
<td>weeping</td>
<td>pyramidial</td>
<td>readily if timed right</td>
<td>no</td>
<td>light</td>
<td>weak</td>
<td>poor</td>
<td>fair</td>
<td>few</td>
<td>deep</td>
<td>showy white in upright panicles</td>
<td>yellow</td>
</tr>
<tr>
<td>(Betula pendula tristis)</td>
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<tr>
<td><strong>CATALPA</strong></td>
<td>40-60'</td>
<td>open</td>
<td>pyramidial</td>
<td>readily yes medium</td>
<td>sturdy</td>
<td>fair</td>
<td>good</td>
<td>few</td>
<td>deep</td>
<td>inconspicuous</td>
<td>yellow</td>
<td>none</td>
<td>Very beautiful in bloom, however drops faded blooms and cigar-like pods.</td>
</tr>
<tr>
<td>(Catapa speciosa)</td>
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<tr>
<td><strong>HACKBERRY</strong></td>
<td>50-60'</td>
<td>spreading</td>
<td>round</td>
<td>no</td>
<td>medium</td>
<td>sturdy</td>
<td>very</td>
<td>good</td>
<td>few</td>
<td>deep</td>
<td>inconspicuous</td>
<td>yellow</td>
<td>none</td>
</tr>
<tr>
<td>(Celtis occidentalis)</td>
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<tr>
<td><strong>DOWNY HAWTHORN</strong></td>
<td>20-30'</td>
<td>compact</td>
<td>oval</td>
<td>difficult</td>
<td>no</td>
<td>heavy</td>
<td>sturdy</td>
<td>fair</td>
<td>good</td>
<td>few</td>
<td>deep</td>
<td>showy white</td>
<td>red fruits</td>
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<tr>
<td>(Crataegus mollis)</td>
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<tr>
<td><strong>WASHINGTON HAWTHORN</strong></td>
<td>20-30'</td>
<td>spreading</td>
<td>round</td>
<td>difficult</td>
<td>yes</td>
<td>heavy</td>
<td>sturdy</td>
<td>fair</td>
<td>good</td>
<td>few</td>
<td>deep</td>
<td>showy white</td>
<td>scarlet</td>
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<tr>
<td>(Crataegus phaenopyrum)</td>
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<tr>
<td><strong>RUSSIAN OLIVE</strong></td>
<td>20-30'</td>
<td>spreading</td>
<td>round</td>
<td>difficult</td>
<td>no</td>
<td>light</td>
<td>sturdy</td>
<td>good</td>
<td>good</td>
<td>few</td>
<td>shallow</td>
<td>small but fragrant</td>
<td>silver</td>
</tr>
<tr>
<td>(Elaegus angustifolia)</td>
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<tr>
<td><strong>GREEN ASH</strong></td>
<td>40-60'</td>
<td>compact</td>
<td>pyramidial</td>
<td>readily yes heavy</td>
<td>sturdy</td>
<td>fair</td>
<td>good</td>
<td>few</td>
<td>deep</td>
<td>inconspicuous</td>
<td>yellow</td>
<td>none</td>
<td>Relatively new in this area. Has good possibilities.</td>
</tr>
<tr>
<td>(Fraxinus pensylvanica)</td>
<td></td>
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<tr>
<td><strong>HONEY LOCUST</strong></td>
<td>40-60'</td>
<td>open</td>
<td>pyramidial</td>
<td>readily yes light</td>
<td>sturdy</td>
<td>very</td>
<td>good</td>
<td>few</td>
<td>deep</td>
<td>inconspicuous</td>
<td>golden</td>
<td>none</td>
<td>Relatively new in this area. Has good possibilities.</td>
</tr>
<tr>
<td>(Gleditschia triacanthos)</td>
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</tr>
<tr>
<td><strong>THORNLESS HONEY LOCUST</strong></td>
<td>40-60'</td>
<td>open</td>
<td>pyramidial</td>
<td>readily yes light</td>
<td>sturdy</td>
<td>very</td>
<td>good</td>
<td>few</td>
<td>deep</td>
<td>inconspicuous</td>
<td>yellow</td>
<td>none</td>
<td>Relatively new in this area. Has good possibilities.</td>
</tr>
<tr>
<td>(G. Triacanthos var. inermis)</td>
<td></td>
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</tr>
<tr>
<td><strong>KENTUCKY COFFEE-TREE</strong></td>
<td>40-50'</td>
<td>open</td>
<td>difficult</td>
<td>no</td>
<td>light</td>
<td>sturdy</td>
<td>fair</td>
<td>good</td>
<td>few</td>
<td>deep</td>
<td>inconspicuous</td>
<td>none</td>
<td>none</td>
</tr>
<tr>
<td>(Gymnocladus dioicus)</td>
<td></td>
<td></td>
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</tr>
<tr>
<td><strong>BLACK WALNUT</strong></td>
<td>40-50'</td>
<td>rounded</td>
<td>upright</td>
<td>difficult</td>
<td>yes</td>
<td>light</td>
<td>weak</td>
<td>poor</td>
<td>good</td>
<td>few</td>
<td>deep</td>
<td>very deep</td>
<td>inconspicuous</td>
</tr>
<tr>
<td>(Juglans nigra)</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td><strong>GOLDEN RAIN TREE</strong></td>
<td>15-25'</td>
<td>rounded</td>
<td>to vase</td>
<td>readily yes</td>
<td>light</td>
<td>weak</td>
<td>poor</td>
<td>good</td>
<td>deep</td>
<td>very</td>
<td>showy white to red</td>
<td>none</td>
<td>Very picturesque small tree, but hard to establish. Sometimes shrubby.</td>
</tr>
<tr>
<td>(Koelreuteria paniculata)</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td><strong>FLOWERING CRABS</strong></td>
<td>15-30'</td>
<td>varied</td>
<td>readily yes</td>
<td>light</td>
<td>fairly sturdy</td>
<td>poor</td>
<td>good</td>
<td>few</td>
<td>shallow</td>
<td>very showy</td>
<td>white</td>
<td>none</td>
<td>Many varieties available. Very good for ornamental use.</td>
</tr>
<tr>
<td>(Malus sp.)</td>
<td></td>
<td></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td><strong>COTTONWOOD</strong></td>
<td>50-80'</td>
<td>open</td>
<td>spreading</td>
<td>readily no medium</td>
<td>weak</td>
<td>good</td>
<td>fair</td>
<td>few</td>
<td>shallow</td>
<td>inconspicuous</td>
<td>yellow</td>
<td>Massive tree at maturity. Should not be considered for small home sites.</td>
<td></td>
</tr>
<tr>
<td>(Populus sargenti)</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td><strong>RED OAK</strong></td>
<td>40-60'</td>
<td>spreading</td>
<td>round</td>
<td>readily yes medium</td>
<td>sturdy</td>
<td>fair</td>
<td>fair</td>
<td>few</td>
<td>deep</td>
<td>deep</td>
<td>inconspicuous</td>
<td>scarlet</td>
<td>The best oak for this area.</td>
</tr>
<tr>
<td>(Quercus rubra &quot;borealis&quot;)</td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td><strong>BURR OAK</strong></td>
<td>40-70'</td>
<td>pyramidal</td>
<td>difficult</td>
<td>yes medium</td>
<td>sturdy</td>
<td>good</td>
<td>fair</td>
<td>few</td>
<td>deep</td>
<td>deep</td>
<td>inconspicuous</td>
<td>none</td>
<td>Should be used more.</td>
</tr>
<tr>
<td>(Quercus macrocarpa)</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td><strong>WEEEPING WILLOW</strong></td>
<td>50-70'</td>
<td>weeping</td>
<td>round</td>
<td>readily no heavy</td>
<td>weak</td>
<td>poor</td>
<td>poor</td>
<td>many</td>
<td>shallow</td>
<td>inconspicuous</td>
<td>yellow</td>
<td>None</td>
<td>Large tree, requires more space than found in average home site.</td>
</tr>
<tr>
<td>(Salix babylonica)</td>
<td></td>
<td></td>
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</tr>
<tr>
<td><strong>MOUNTAIN ASH</strong></td>
<td>20-30'</td>
<td>spreading</td>
<td>round</td>
<td>readily yes light</td>
<td>weak</td>
<td>poor</td>
<td>poor</td>
<td>many</td>
<td>shallow</td>
<td>inconspicuous</td>
<td>yellow</td>
<td>None</td>
<td>Showy flowers and persistent fruit, good for ornamental use.</td>
</tr>
<tr>
<td>(Sorbus aucuparia)</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td><strong>AMERICAN LINDEN</strong></td>
<td>40-60'</td>
<td>upright</td>
<td>readily yes heavy</td>
<td>sturdy</td>
<td>poor</td>
<td>good</td>
<td>few</td>
<td>deep</td>
<td>small but fragrant</td>
<td>yellow</td>
<td>Good shape. A clean tree.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Tilia americana)</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td><strong>LITTLE-LEAF LINDEN</strong></td>
<td>30-50'</td>
<td>compact</td>
<td>pyramidial</td>
<td>readily yes heavy</td>
<td>sturdy</td>
<td>poor</td>
<td>good</td>
<td>few</td>
<td>deep</td>
<td>small but fragrant</td>
<td>yellow</td>
<td>None</td>
<td>Excellent small tree, has good possibilities.</td>
</tr>
<tr>
<td>(Tilia cordata)</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td><strong>AMERICAN ELM</strong></td>
<td>50-70'</td>
<td>spreading</td>
<td>vase</td>
<td>readily no light</td>
<td>sturdy</td>
<td>good</td>
<td>fair</td>
<td>many</td>
<td>deep</td>
<td>inconspicuous</td>
<td>yellow</td>
<td>None</td>
<td>Despite its many drawbacks, still a reliable tree.</td>
</tr>
<tr>
<td>(Ulmus americana)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>CHINESE ELM</strong></td>
<td>40-60'</td>
<td>compact</td>
<td>round</td>
<td>readily no medium</td>
<td>heavy</td>
<td>weak</td>
<td>fair</td>
<td>few</td>
<td>shallow</td>
<td>inconspicuous</td>
<td>yellow</td>
<td>None</td>
<td>Very rank and weak growth under irrigation. Not a good city tree.</td>
</tr>
</tbody>
</table>
THREE ITEMS are worthy of reporting about the Helen K. Fowler Library for the year that is just closing. They relate to staff, finances, and the book collection.

Recruits to the volunteer staff raised the total of active members to eight. This makes it possible, barring the unforeseen, to man the library six days a week (excluding Sunday) from 10 a.m. to 3 p.m.

When the Board of Trustees was unable to provide a budget for current library expenses, Mrs. Alexander Barbour once again came to the rescue, generously contributing a substantial sum to be used exclusively for library purposes. She also assigned to the library the total revenue from the sale of the booklet, "What Tree is This?" a second printing of which she had financed.

By permission of the Executive Committee, a large number of duplicate books and periodicals was sold at the Annual Plant Sale, netting $140. At the same time a recent encyclopedia on orchids was acquired in exchange for a series of duplicate issues of Horticulture.

The adequacy of the book collection was tested, in part, during the winter when guides were being trained for the conservatory tours. The number and quality of books and pamphlets on tropical plants were found to be unexpectedly good. The collection in general continued to be augmented by gifts and purchases, making possible a certain amount of withdrawal of duplicates and older books to basement storage. If these books prove to be as little needed as now seems probable, they may form the nucleus of an exchange collection to be offered to other botanic libraries.

DO YOU KNOW what timberline is? I don't mean a sober definition: "the height on mountains at which the growth of trees stops." Let us therefore say: "Have you experienced timberline?"

The spell seems to hold some trees crouching, while others point their gaunt fingers and hide their evil eyes among their arms. Then we find, hidden in protected spots, such choice ethereal flowers as the shy wood nymph, half afraid to look up, the fairy slipper orchid and, later, the dainty pipsissiwa.

Timberline in the Rockies is high: it ranges from 10,000 feet above sea level in the Yellowstone National Park to 12,530 feet in New Mexico. Even at the same latitude it varies considerably, depending upon wind, exposure and moisture. It creeps up in protected valleys, it dissolves into scattered tree groups where freakish winds sweep an exposed west slope, for the high winds come from the west, charging up the mountain side.

Is it due to this eerie feeling of timberline that the very wind seems to howl in a specific timberline wall?
"sensed" timberline when crossing the divide between Norway and Lapland, even if it was only 514 meters "Højde over Havet" (above sea level). Perhaps it is the dense quality of the timberline foliage which produces a different note?

Although always picturesque in form, timberline trees are of few types. Limber pine, *Pinus flexilis*, is the most spectacular kind and it is easily recognized by its weird "timberline look." Bristlecone pine, *P. aristata*, at best a scrubby, often malformed tree, changes into a prostrate shrub at timberline. It is much less common in Colorado than the limber pine; the Rocky Mountain National Park does not have any, and Pikes Peak has only a few small groves, but in the San Juan Forest in southwestern Colorado there are enough to make cutting profitable.

How does one recognize this bristlecone pine, also called foxtail pine? Botanists are sure to point out the curved prickle on each scale of the cone, and the bundle of five needles (the latter characteristic holds for limber pine as well). The matter-of-fact nature lover has a much simpler method of identification, especially if he has been "caught" while being initiated by a more seasoned nature lover — one with a mean streak or a sharp sense of humor. Needles of the bristlecone look, for all the world, as if badly infested with pine scale, those whitish specks of scale insects. In reality, the specks are bits of rosin, quite harmless, and almost always present in great quantities on bristlecone.

We have been talking specifically about timberline trees which are of different types. Pines account for the weird, grotesque shapes on windy points. Another sort of growth is just as typical of timberline and quite different from that of the pines. Spruces and firs form natural "sheds." These sheds are made out of dwarfed individual shrub-trees, growing close together, intertwining perhaps, forming such a close "roof" that you can walk over it on top without going through. Or you can walk or crouch under it and be protected from the wind. It is as if nature had constructed a live snowshed or windbreak of Engelmann spruce or subalpine fir, *Picea engelmanni* or *Abies lasiocarpa*.

At these high altitudes, the general wind direction is from the west and these winds are not zephyrs. Because of their force, although buds are formed on all sides of the trees, only those protected from the wind's velocity have a chance to develop. Twigs that do form are twisted around to the east, no matter where they originate. Growth protected by these "buffer" branches has a chance to reach for the light and thus extend just a little higher and to the east. As the process continues year after year (or perhaps century after century), a dense, sloping roof is built up from west to east. It may reach as high as 20 feet on the east side but come down to a foot or two on the windy west side. North and south these may stretch out for long distances — regular windrows.

Camping at high altitudes is made easier by these snowsheds. They are practically windproof and waterproof. Personally, I have lost all desire to spend a night under their protecting roof because of a porcupine encounter under such a welcoming shelter. This happened at midnight. I had tried to bed down in my sleeping bag on the porch of a deserted cabin but with little success because of the increasing ferocity of the wind. Having previously espied one of nature's outdoor bunk-houses, I decided to move my quarters and started out, drowsily, clutching sleeping bag and flashlight. Just as I found the ideal spot, the meeting with Mr. Porcupine took place. He sauntered in leisurely, his curiosity perhaps aroused by my flashlight or, perhaps, I had disturbed his own night's rest. Our meeting seemed to produce the same psychological reaction in both of us. Without a sound and without any superfluous, sudden motions from either party, we turned in our tracks and returned from whence we had come. Of one thing I am sure; there was no shooting of quills by the porcupine. For myself, in the future, I prefer to allow others to prove the veracity of the stories concerning Mr. P.'s shooting skill.

These sellsame timberline wind-breaks are also a mighty pleasant protection in daytime. Coming from a bleak mountain top above timberline, chilled and short of wind due to an overabundance of wind all around — there is chance for a warm, snug relaxation period is one of these protected...
openings among the maze of flattened greenery. High altitude sun is powerful and warm; there is a feeling of being hugged and mothered by its heat and protection. That, by the way, accounts for these amazing ski-resort pictures, showing abbreviated costumes despite the snow covered slopes. Any experienced mountaineer is familiar with this uncanny combination of warm sunshine and rather low temperature of the air itself.

Is timberline fixed and stable? Even though our climate should remain unchanged, there are some indications that timberline may be moving up as far as spruces and firs are concerned. Pines, on the other hand, seem to have reached as high as they will ever grow, according to the late Professor Francis Ramaley of the University of Colorado. In his book, *Colorado Plant Life*, he bases his premises on the following observations. Remains of limber pines, dead centuries ago, are found at present timberline; in some cases they seem to have been growing even higher up than the present live trees. If this is the case, timberline for the limber pine is stable — may even have receded a bit.

Not so for spruce and firs. Here the newer growth has outstripped the older; the extreme limit of tree growth evidently has not yet been reached and timberline is edging up, little by little. What is the secret? Why should timberline be fixed for pines but moving up for spruces and firs? Professor Ramaley felt that it has to do with their moisture requirements because spruces and firs are trees fitted to moist situations than pines. They occupy protected valleys, glacial cirques — places, in fact, occupied by glaciers during the last ice-age. Ah! There we have it!

The last ice-period was recent — as geological periods go, occurring a mere few thousand years ago. Spruces and firs are climbing up as the ice has receded in a slow, toilsome struggle. Give them another thousand years, or two or three or four (what is time to a geologist?), and they may reach their top limit, just as pines have already reached theirs, not being hampered by glaciers.

In the meantime, other life goes on, filling every nook and cranny as opportunity presents itself. Even at timberline both animal life and plant life are teeming. June and July are vibrant with the morning song of white-crowned sparrows and ruby-crowned kinglets. Both breed clear up to timberline. Thrushes and warblers may join the chorus. Townsend’s solitaire, for instance, has a song that fills birdlovers and poets with ecstasy. Alpine three-toed woodpeckers and Lincoln sparrows are also commonly found at this high altitude. Ptarmigans, rosy finch and American pipits were also mentioned as inhabitants of the alpine heights.

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**DENVER BOTANIC GARDENS**

909 York St., Denver, Colo.

I hereby apply for membership in the Denver Botanic Gardens □

I wish my membership in the Denver Botanic Gardens extended □

Enclosed is $__________ for my annual dues.

Class of Membership desired: (check one)

□ Regular $ 5.00 □ Supporting $25.00

□ Participating $10.00 □ Contributing $50.00

□ Sustaining $100.00

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**Request for Membership Application**

**ASSOCIATES OF DENVER BOTANIC GARDENS**

909 York Street, Denver, Colorado 80206

**DUES:** NONE — **REQUIREMENTS:** Interest in and desire to aid programs of Denver Botanic Gardens

**Name (Mr., Mrs., Miss)___________________________**

Check One

**Address___________________________**

**City___________________________State___________________________**

**Telephone___________________________**

**Date___________________________**

Programs offered to volunteers include Annual Plant Sale, Maintenance, Membership, Promotion, Editorial Work, Education, Tour Guides and more. Complete this request for the regular Membership Application form now.
A spectacular small tree which may be seen in bloom at the Boettcher Memorial Conservatory during the next few months is the *Calliandra haematocephala*, commonly known as Redhead Powder Puff, a native of South America and a member of the Leguminosae family, mimosa subfamily. The blooming time is from December to April with sporadic flowering the rest of the year.

The handsome, dark evergreen, fern-like foliage consists of leaves divided into pairs, each of which is further compounded into small leaflets. These leaflets are graduated in size, the ones at the tip being largest, and each has two lateral mid-veins.

*Calliandra* is a combination of the Greek word for beauty with the word for stamen; it refers to the numerous lovely red stamens of the fluffy, pom-pom-like blossom. The massed crimson stamens of this nodding, four-inch, round head obscure the rest of the flower. The fruit of the plant is a flattened and sometimes curled pod.

Two other *Calliandras* may also be seen in the conservatory. *C. surinamensis*, a native of Guiana, is a small tree with a few short, slender branches. It is showy with numerous erect puff-like flowers which have silky white stamens tipped with pink. *C. emarginata*, common name Dwarf Red Powder Puff, from Mexico, is a clambering, small shrub with smooth bipinnate leaves which have a notch at the apex and inflorescence with bright red stamens.

Many of the tropical and sub-tropical plants have beautiful and exotic blooms. The Redhead Powder Puff is no exception and will probably be one of your favorites in the conservatory with its display of fluorescent blooms during the next few months.

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**PLANT OF THE MONTH...**

Boettcher Conservatory

PEG HAYWARD

**Take Care Of Your Storm Damaged Trees**

KEN WILMORE

— Green Bowers Nursery

Evidence of one of the most destructive snow storms in our recollection can still be seen throughout much of Colorado's eastern slope.

Most of the broken limbs and branches have been hauled away, but there is much work remaining to put many of these trees back in a healthy condition.

Just a word of warning against the amateur trying to do his own work on large trees. The money you spend engaging a qualified arborist for this type of work is a bargain considering the danger of broken bones or worse in trying to do it yourself.

There are several steps listed below that I think are necessary in caring for these storm-damaged trees.

A. Remove broken branches and limbs. They are not only unsightly but hazardous.

B. Cut large limbs back to the trunk, when necessary, taking care not to leave a stump. (See illustration No. 1.)

C. Trim broken branches back to a healthy terminal branch. (See illustration No. 2.)

D. Treat large cuts with a good tree-healing preparation. (Available at better garden shops.)

E. If cabling is required, call a qualified tree surgeon.

F. Co-operate with municipal crews for clean-up work.
I want to add a footnote to the discussion on the redbud tree (Dr. Helen Marsh Zeiner, March-April, 1966, and Roy E. Woodman, September-October, 1966).

There are three large redbud trees in my yard at 2556 Eudora Street. One of them measures 15 inches in diameter (breast high) and the other two are slightly smaller. All are about 25 feet tall; all are sturdy and healthy. They have never received any special care and have never suffered much from storms or frost. They appear to be perfectly hardy.

Their beautiful blossoms appear about three years out of five, are destroyed by late frosts on the other two. The seed pods fall all over the yard and seedlings sprout throughout the garden, in flower beds and cracks in the walks. I am constantly cutting them off or pulling them up. Perversely, those that I have dug and given to friends did not live.

Two of the trees are growing in a narrow passageway between two houses. They have been regularly pruned as their limbs hang over the roof of a two-story house. The other tree is out in the open with no protection of any kind. The kids find them great for climbing as the limbs are regularly spaced and smooth and strong.

These trees were here when I bought the place in 1959, and I know nothing at all about who planted them or when.

WES WOODWARD
DENVER BOTANIC GARDENS
DENVER, COLORADO

This is a non-profit organization supported by municipal and private funds.

A botanic garden is a collection of growing plants, the primary purpose of which is the advancement and diffusion of botanical knowledge. This purpose may be accomplished in a number of different ways with the particular placing of emphasis on different departments of biological science.

The scientific and educational work of a botanical garden center around the one important and essential problem of maintaining a collection of living plants, both native and exotic, with the end purpose of acquisition and dissemination of botanical knowledge.