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.

DENVER BOTANIC GARDENS
DENVER, COLORADO

This is a non-profit organization supported by municipal and private funds.
THE GREEN THUMB
VOLUME TWENTY-FIVE, 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 Membership Chairman, Botanic Gardens House, 909 York Street, Denver, Colo. 80206, or call 297-2547.
PLANT OF THE MONTH
Boettcher Memorial Conservatory

There are legends and medical testimony connected with the frangipani's white sticky juice which exudes from the cut bark, but it is the tree's fragrant flower that now accounts for its fame and popular cultivation. Plumeria is the favorite flower in Hawaii to say "Aloha", the blossoms being fashioned into leis to be hung around the visitor's neck.

The family Apocynaceae, of which the genus Plumeria is the best-known member, is characterized by the presence of a milky sap in the inner bark. It is this latex-like juice that gives rise to the tree's common name, frangipani. The first French settlers in the Caribbean discovered that the milky sap will run profusely from a cut in the bark or stem of the frangipani. A term in the French language, "frangipanier", means coagulated milk and, by association, this word was used to refer to the Plumeria trees.

Another legend dates back to the twelfth century in Rome. An Italian nobleman, taking time off from his official duty as bread-breaker of the Holy Sacrament to pursue his hobby, combined a number of volatile oils and produced a tantalizing perfume. The man's name was "Frangipani" and the perfume was named for him. The early European settlers in the Caribbean area identified the sweet-smelling flowers of this particular tree with the famous perfume of their homeland. This popular name, frangipani, may be applied to nearly all of the 40-odd species of the genus which grow in the tropics and subtropics. Other provincial names include temple tree, graveyard flower, peach-blow jasmine, and nosegay frangipani.

The low-spreading Plumeria tree has stiff, blunt, forking branches and averages 15 to 20 feet in height. The stems and branches are fleshy and exceptionally thick for a small tree. Its bright green leaves are smooth in texture and are handsomely feather-veined. They are obovate to oblanceolate, five to eight inches long, and are arranged alternately in tufts at the ends of the branches. The most conspicuous characteristic of the Plumeria is the way the flowers and foliage are concentrated at the extreme ends of the branches, leaving the interior of the tree naked. The frangipani's flowers form thick, rather flat-topped clusters, with the terminal central flowers blooming earliest. The blossoms continue in succession upon the same flower-cluster for many weeks. This tree may bloom year round, but bears its greatest number of flowers before the rainy season. The flower is composed of five overlapping petals, which spread in star-fashion. The oval petals curl salverlike at the edges. It is a funnel-type flower with the lower portion of the petals united in a tube, with an almost invisible calyx at its base. The flowers are long-lasting and their exquisite fragrance persists even after the blossoms fall from the trees.

Plumeria acutifolia syn. P. acuminata bears fragrant waxy-white flowers with yellow centers. P. rubra has prominent flower clusters of rose-pink or cerise petals, usually yellow-throated. Plumeria is too small a tree to have much timber value, but the wood, which is yellow-brown with purplish streaks, has been used to make bowls, cabinets, and small furniture. The milky latex of the trees is medicinal, but it is also poisonous in quantity. In Yucatan it is used in the treatment of wounds. The Javanese use the blooms to make an extremely sweet candy.

Several species of this much-loved tropical American tree are included in the Boettcher Memorial Conservatory collection.
A Tribute to
MARY HELLRIEGEL, Volunteer

The quiet work and intense dedication of Mary Bingham Hellriegel will be felt as long as the Helen Fowler Library is a part of the Denver Botanic Gardens.

A graduate of North Denver High School and the University of Denver School of Librarianship, Mary had been employed at the Denver Public Library and later was chief librarian at Lowry Air Force Base. Mary came to Botanic Gardens House and the Helen Fowler Library in 1959, shortly after the former Colorado Forestry and Horticulture Association moved from its home at 1355 Bannock Street. At that time the library was comprised of about 4,000 volumes, the largest of its kind between St. Louis and the West Coast. Mary was the first professional librarian to volunteer her service on a regular basis. She expanded the classification system according to the national standards of library practice. She improved the general catalog by use of printed cards from the Library of Congress and established a uniform "call-number" lettering system. The library continued to grow through many gifts and memorials, and these new acquisitions were catalogued under her supervision. Occasionally she contributed book reviews to The Green Thumb magazine. Her voluntary service to the library was interrupted only by illness or vacation with her late husband, Arthur.

The chairman of the Library Committee in 1960 reported that Mary Hellriegel had devoted two days a week to orientation and instruction in library procedure to other volunteers in order to carry on the increased work load. In the months preceding her death, in late October, she had assisted in the Conservatory Gift Shop.

Pat Gallavan, Director of Colorado Forestry and Horticulture Association when Mary began her service here, praised her work as tedious and exacting, and which could be accomplished only by a dedicated librarian.

In tribute to capable and devoted volunteers, Dr. A. C. Hildreth, on his retirement as Director of Denver Botanic Gardens, wrote that without the work of such people "he could not have operated the Gardens during their hectic 'growing-up' years. Such helpers cannot be hired or commanded. Their motivation comes from within... they must derive satisfaction in having contributed greatly to the development of a worthwhile institution that will outlive all of us."

Mary Hellriegel was a volunteer.

To honor her service the Mary B. Hellriegel Memorial Fund has been established. Friends and co-workers can contribute by sending checks to Denver Botanic Gardens. B.E.P.

Report of The Director
1967

INTRODUCTION

To begin, 1967 was a good year at and for the Denver Botanic Gardens. Problems we had, and irritations we had; untimely hail, snow and rain we had; delays and last minute planning we had; apathy and spirited actions we had; some successes and some failures we had; however, the sum total of 'life as lived in a botanic garden organization' resulted in benefits for all. We think that after reading through the 1967 history that you had a hand in making, you will arrive at the same conclusion.

We have confined our remarks to what we felt were the most notable or interesting 'happenings'. It was not intended that any individual or group be slighted. Please be generous in forgiving us if in fact we forgot someone. Detailed reports by some of the volunteer organizations are to be found elsewhere in this same issue of The Green Thumb.

CONSERVATORY SECTION

The Boettcher Memorial Conservatory continued to be the hallmark of the Denver Botanic Gardens.

New plastic display labels, a gift of the Associates, were applied to 200 plants along the walkways. Another 200 labels will be in place early in 1968. A collection of vine species was established using wires attached to the light poles and sides of the Conservatory, as trellis. This trick added botanical value, shaded and softened the physical aspect of light standards and walls.

Flying down to Florida in July, Ernie Bibee returned with a large collection of tropicals. Replacement of our two coconut palms (Cocos nucifera) was possible through the Gertrude Holwell Memorial Fund. The budget of the City and County of Denver supplied the balance of the funds. An account of the trip and brief notes about the plant species appeared in The Green Thumb for Sept.-Oct., 1967, authored by Peg Hayward.

Additions to the Conservatory, but not of the plant type, were: an acoustic ceiling applied to the South Room, noticeably reducing the reverberating sounds; two stone benches for the lobby; a most attractive and functional bulletin board; north and south cloakrooms secured by Dutch doors; a 20' x 30' shop area in the garage created by fencing; and, emergency electric power from the standby generator supplied to all necessary operating equipment.
YORK STREET UNIT GROUNDS SECTION

Mrs. Alexander L. Barbour provided funds for the plantings along the south side of the Conservatory. The recinding of our 1967 capital improvement money by the City halted the completion of the entire project. A sidewalk, connecting the east and west ends of the Conservatory, was to have been built by October. A list of the plants appears in a separate section.

In pastel green stands our quonset storage unit. This was obtained late in 1967. New paint, new floor and a loading dock readied the structure for use. We now can separate the ‘daily used’, from the ‘seldom used’.

Other intrinsic additions were: drain tile connecting Conservatory roof drains, thus stopping hillside erosion; mortarless rock retaining walls constructed at the south Gaylord entrance; over an acre of new bluegrass lawn south of the Conservatory; many loads of wood chips (courtesy of Public Service Co.) incorporated in planting area soils; one thorough clean-up in the plantings surrounding Gates Garden pool; the installation begun of redwood headers around each bed of the Guest iris collection; and, with the aid of young boys from the Juvenile Hall, much weeding and general clean-up was possible at the Lew Hammer low maintenance garden, the parking lot area and the Children’s Garden.

Two pieces of equipment aided our efforts for better maintenance: a 76” Toro Professional gang mower and an eight-cubic-yard trash container. Insignificant as these two items may appear for an annual report, when one counts the man-hours saved on mowing time and the reduction of man-hours and wear on our faithful old truck going 40 miles to the dump, one can come up with quite a saving for 12 months.

From the visiting public, we received many favorable comments on the beauty and general maintenance of the Gardens during the year.

CITY PARK UNIT

We continue to claim some 100 acres at City Park, the original site of the Denver Botanic Gardens. No changes were possible there in plantings and maintenance, a condition which has existed almost from the time the headquarters of the Gardens were moved to York Street. We received considerable free publicity regarding the Rose Garden; unhappily, no constructive criticism accompanied this rhetorical endeavor nor any material assistance.

BOTANICAL GARDENS HOUSE

A new look was afforded the upstairs offices through the efforts of the House Committee of the Board of Trustees. In part, financed by the Associates, funds were provided for the complete painting of all working areas plus the hallway. Staff and visitors alike are delighted with the effect.

BOTANICAL RESEARCH

A botanical science contribution of significance was afforded the Denver Botanic Gardens by two professional amateurs, Dr. D. H. Mitchel, M.D. and Mrs. Mary Wells. They moved their collections of native Colorado mycological (fungi) species to the Gardens from the Denver Museum of Natural History. The laboratory equipment, the collection specimens, nearly 1700 color transparencies, some 70 technical books and all other items connected with their work have been given to the Denver Botanic Gardens, total value exceeding $2,500. Dr. Mitchel and Mrs. Wells will retain authority over the use of all these properties as long as they so desire. In addition, Dr. Mitchel and Mrs. Wells organized the Colorado Mycological Society, which holds monthly meetings at the Gardens, sponsors collecting field trips and numbers about forty active members.

Our number of herbarium cases was increased from four to twelve. In part they house the fungi collection; in part they allowed expansion of our native flora collections which are under the care of Dr. Helen Zeiner. The cases were purchased through funds from the Kathryn Kalmbach Memorial and Mrs. Florence W. Green’s research grant to Dr. Mitchel.

EDUCATIONAL ACTIVITIES

“Mrs. Vittetoe, my pepper is hollow!” exclaimed a first-year gardener. This was recorded during the eighth year of our Children’s Garden Program. Approximately one hundred twenty-eight gardeners (of these half were first-time gardeners) planted, cultivated and harvested individual 100-square foot plots of vegetables and flowers. Mrs. Irene Vittetoe was the volunteer General Supervisor.

From the first planning session in March to the Clean-Up Day in October, she was everywhere in evidence. Assistance was given her through mothers and fathers, Dr. A. C. Hildreth and members of the Children’s Garden Committee of the Board of Trustees; however, her concern for the entire program was primarily responsible for its success.

A first in education was the Summer Botany class of the Denver High School District conducted for eight weeks at the Gardens. Mr. Ken Mills, botany instructor, used the South Room for formal classroom sessions, the greenhouse and grounds for laboratory. Nineteen junior and senior students received class credit for this program.

Our Elementary School Conservatory Tours had a change in procedure beginning in October. Mrs. Peg Hayward, Chairman of Tour Guides for the Associates, arranged for all Denver School Tours to be scheduled through Denver’s Special Services Division rather than through our Gift Shop. This was also arranged for the Jefferson County School District offices. The plan was successful and reduced our incoming calls significantly. Also, Denver schools were guaranteed one tour each morning, five days a week. Jefferson County was allotted three tours a week. This procedure made scheduling of our volunteer Guides more efficient.

To make school tours a better ‘real life learning experience,’ Mrs. Hayward assisted by three Tour Guides, authored two bulletins aiding the teacher. One was a general pre-tour preparation sheet. The second was an outline for the grade tour requested (3rd, 4th, 5th, or 6th). These outlines supplement the unit of study at the particular grade level, including a special vocabulary list the children will use while on tour. Their bulletins are sent to the teacher prior to the class tour at the Conservatory.

The 1967-68 Education Committee Lecture Series began with much enthusiasm. Dr. Wayne Christian, Chairman, assisted by Mrs. Alice Willis of our staff, assembled a noteworthy program of six speakers. Dr. James Feucht’s “The Foreigners in Our Home Landscapes,” attracted an audience of 45. The sequel, “Native Plants for the Home Landscape,” by Dr. William Klein saw 68 in attend-

In November Dr. Feucht, Extension Specialist for Colorado State University, and whose office is in the Botanic Gardens House, offered a course in Plant Propagation. Available greenhouse space limited class size to 25. This six-week session was for commercial plantsmen; however, we are considering a second session for the home owner.

SPECIAL EVENTS

April 14 through 16 found members of the Denver Botanic Gardens touring four major botanical offerings in the Los Angeles, California area. Included were: Los Angeles State and County Arboretum, Descanso Gardens, Huntington Botanical Gardens and Rancho Santa Ana Botanic Gardens. Not only was the pace fast and the educational features in quantity, but also much fun was generated and new friendships established.

The Denver Artist Guild sponsored an oil and water color art show for many months in the South Room of the Conservatory.

On Saturday, May 13, at about 1:13 p.m., we had an instant blizzard. That closed the 1967 Plant Sale. Profit to the Gardens, however, was slightly higher than 1966. Mrs. Elna Gibson, General Chairman, and her 200-plus helpers, indeed, merit our thanks for a successful sale. This is an annual Gardens event sponsored by the Associates, Guild, Around the Seasons Club and all other voluntary individuals and groups interested in the development of the Gardens.

If you think gardening is over in late July, you should have attended the Terrace and Garden Tour sponsored by the Denver Botanic Gardens Guild on July 27. The gardens and homes chosen for the tour furnished many new ideas and special garden effects for the visitors. This is also an annual event by the Guild which benefits the Gardens financially.

Three flower shows were staged in the Conservatory: Iris, Dahlias, and Orchids. Entry was open to all who grow any of these types of plants. Each show was planned and executed by the members of the particular society featured.

The American Iris Society Convention was held in Denver May 31 through June 3. It was also held here in 1963. This was quite an honor to have the Convention at the same place with so short a time between visits. The Guest Iris collection at the Gardens was in fine physical shape, although the cold spring weather produced fewer flowers than hoped for.

PUBLICITY AND PUBLIC RELATIONS

For the visitor, the Botanist-Horticulturist designed and prepared a printed guide and map to the Gardens at the York Street Unit. Approximately ten thousand of the guide pamphlets were distributed to the public. Mr. Walter Pesman's Meet the Natives, a spiral bound guide to native Colorado flora, was revised by a committee of: Dr. A. C. Hildreth, Dr. Helen M. Zeiner and Dr. Moras L. Shubert. This is the seventh printing and is sold at the Conservatory Gift Shop.

At the request of the May-D & F department store in downtown Denver, the Gardens participated in their "Salute to Denver" through a two-week window display and in-store events. The Director and Mr. Bibee each gave an illustrated talk in the May-D & F auditorium.

During the year, 27 newspaper articles were published, including many pictures; eight radio programs made announcements for us; and we appeared on television six times.

THE ADMINISTRATION

The Board of Trustees experienced a number of changes in its membership during the year.

Elected to the Board in January were: Mr. Neil Roberts, Mr. William W. Mercer and Mr. John Hall. The following were elected to the Board in late 1967: Mr. William H. Hornby, Mr. Frank Shafroth, and Mr. Van Holt Garrett, Jr.

Resignations during the year were: Mr. Everett C. Long, Mr. Aksel Nielsen, Mr. Daniel L. Ritchie, Mrs. James R. Arneill, Jr., Mr. Neil Roberts and Mr. William W. Mercer.

One of the most difficult resignations to accept was that of our President, Lawrence A. Long. He did this with great reluctance, but on the orders of his doctor. Mr. Long remains a member of the Board. We know he will continue his deep interest in the Gardens' activities and contribute in a vital way to our development in 1968.

The Planning Committee of the Board, Mr. Harley Higbie, Chairman, took on two major projects. First, to have long range effects, was the search for a qualified landscape architect who can furnish the Gardens with a Master Plan. At the close of 1967, the Committee was near to announcing its choice for the position. Second, was the problem of acquiring the two vacant lots north of the site for Horticulture Hall. The future parking needs of Horticulture Hall are involved.

The City Planning office of Denver requested that the Board submit Capital Improvement plans for the years 1968-1985. Although on very short notice, some 17 projects were reported. This was a considerable task since each project required thorough details to justify its need.

THE STAFF

Early in the year, Beverly Pincoski was promoted from secretary to Botanist-Horticulturist. In April, Constance Jones was added as the Director's Secretary. Mrs. Lucille Mark was appointed Clerk-Typist II, part time. In August, David Blades assumed the duties of our Assistant Conservatory Superintendent. David formerly was associated with the New York Botanical Gardens. Dave Lankhorst was promoted, through examination, from Utility Worker I to Gardener-Florist I; Harry Covillo was promoted from Utility Worker I to III and has assumed much of our maintenance work in the Conservatory.

Unofficially, Miss Esther Holt, now of Hobart, Tasmania, is our one field staff. Miss Holt collected plants and seeds, plus sending our library a number of books from 'downunder'. We appreciate Miss Holt's voluntary services for these otherwise unobtainable materials.

Our contracted Burns' Security Guards were a most welcomed assistance. Their twenty-hour, seven-day-a-week patrolling allowed effective crowd control and reduced vandalism to a minimum.
1968 AND BEYOND

Progress results from problem solving and luck. During 1967 we had a moderate share of solutions and luck. Only one serious setback occurred, the loss of $10,000 capital improvement money for sidewalk construction along the south side of the Conservatory.

But what solutions will be needed during 1968 and beyond? A number of examples may serve as markers along the path we should take.

In operation for two years, the mechanical systems of the Conservatory have passed the finger-crossing method of maintenance. With no provisions available from the City, sufficient funds must be made available by the Board to insure proper inspection and repair of the equipment. Preventative maintenance is the key to low cost repair bills.

Another year without a Master Plan for grounds development prolongs the display of annuals chiefly. No additions to the experimental plantings of hardy perennials, woody vines, shrubs and trees can be made. We are not serving the public in the broadest horticultural manner for a botanic gardens.

Staff positions such as a Plant Taxonomist, a stationary engineer, a grounds superintendent and assistant to the Director are much in need. There is enough staff to maintain the status quo of previous years. However, if we are to achieve real recognition nationally and in the professional field of arboreta and botanical gardens, we must more nearly meet the professional requirements than we have to date.

More financial assistance must be provided for our Children's Garden Program and for our Library. The Children's Garden Program generally terminates with a deficit. The Library, the only one of its kind in the Rocky Mountain states, has an annual budget of less than $1,000. One set of botanical or horticultural reference works now exceeds that amount, to say nothing for the library's keeping up to date with current literature of books and periodicals.

A very vigorous and sustained drive for new members must have high priority. The additional revenue would provide a small increase in operating funds. But more importantly, a wider audience is needed whose interests rally around the type of cultural institution we are developing.

For 1967, we cannot adequately thank the volunteers who have contributed so much time, energy and financial assistance to the Gardens. We must hope for their continued interest during 1968.

Looking beyond 1968, we see the need for real gains to be made in the organizational structure of the Gardens. These gains must consist of: (a) an increase in the number of professional and skilled staff; (b) an increase in numbers and kinds of physical structures; (c) a more nearly adequate budget for operating and maintaining Denver Botanic Gardens. Such gains are the responsibility of the Board of Trustees and the City and County of Denver.

It was a privilege and a pleasure to serve as Director during 1967. We wish to thank the Officers and Board of Trustees, the Staff and all the many other individuals, without whose interest and assistance our slightest goals could not have been accomplished. We look forward in 1968 to the opportunity of carrying on the progress of the Gardens in the company of such nice people.

Respectfully,
Louis B. Martin, Director

January 1968
CONSERVATORY ACQUISITIONS FROM FLORIDA

Aleurites moluccana
Allamanda violacea
Alocasia macrorhiza (var.)
Asphodelus australis
Amorphophallus sp.
Ananas comosus
Annona squamosa
Antigonon leptopus
Beaucarnea recurvata
Begonia sp.
Belamcanda chinensis
Beloperone guttata (yellow)
Bignonia magnifica
Bixa orellana
Brutafia americana
Bulnesia sp.
Byrsonima crassifolia
Canella winteriana
Capsicum sp. (Bird's Eye Pepper)
Capsicum sp. (Purple Pepper)
Casimiroa edulis
Casia fimbria
Chamaedaphne sp. (Leather Leaf Fern)
Chamaedorea sp.
Chrysothemys cainito
Cinnamomum camphora
Citrus grandis
C. limetta (Rangpur Lime)
C. limon (Sweet Lemon)
Clerodendron sp.
Cochlospermum vitifera
Cocos nucifera
Colocasia esculenta
Conocarpus erectus (Green Buttonwood)
Conocarpus erectus (Silver Buttonwood)
Cordia sebestena
Costus sp.
Crestenia cujete
Cyldista sp. (Garlic Vine)
Cyperus sp. (dwarf)
Cyrtium falcatum
Datura arborea (salmon)
Dicksonia fibrosa
Dillenia indica
Dipladenia splendens

VINSES ESTABLISHED IN THE CONSERVATORY

Asparagus falcatus
Clerodendron splendens
Fatsahedea licei
Hippeastrum benghalensis
Holmskioldia sanguinea
Jasminum gracile
J. multiflorum
J. sambac
Lantana montevidensis

Dracontea sp.
Eugenia dicrana
E. piliang
Ficus panduriformis
F. repens
Fortunella japonica (Meiwa)
F. japonica (Nagami)
Heliconia rostrata
Hibiscus sp. (carnation flowered)
Hyophorbe verschaffeltii
Ixora sp. (white)
Jacaranda sp. (dwarf)
Jasminum sp.
Jatropha sp. (pink)
J. multifida
J. podagrica
Kopsia sp.
Leea coccinea
Lonicer a sp. (Cuban Honeysuckle)
Lucuma nervosa
Lysiana sp.
Manihot esculenta variegata
Maranta arundinacea (var.)
Muraya exotica
Pachira elliptica (pink)
Pandorea ricasoliana
Passiflora quadrangularis
Platycentra sp. (Elk's Horn Fern)
Plumeria acuminata
Punica granatum (dwarf)
Rhoeph discolor (var.)
Salvia sp.
Synechocystis angustifolia
Synepleatum dulcisicum
Tabebuia sp.
T. argentea (Gold Tree)
Tamarindus indica
T. senegalensis
Thepseptia sp. (Seaside Mahoe)
Thrinax parviflora
Thryallis sp
Thunbergia grandiflora
T. grandiflora (blue)
Tibouchina sp.
Triolara amerciana
Wedelia trilobata

YORK STREET SECTION GROUNDS PLANTINGS

1. Grape species and number of each — Donor: Dr. Morris L. Shubert
   Carman ........................................ 10  
   Catawba ..................................... 10  
   Concord ..................................... 10  
   Delaware .................................... 10  
   Fredonia ...................................... 10  

2. Planting south of Conservatory — Donor: Mrs. Charlotte Barbour
   Juniperus scopulorum "Gray Gleam" ........................................ 10  

3. Gladious "Kelly Girl," 1500. Donor: Mr. Ray Tillery, Kelly Services
   Incense cedar. Donor: Mrs. C. E. Burt
   Hardy hibiscus. Donor: Col. R. Hargreaves
   Maxwell Honey Locust. Donor: Mrs. Jackson Thode
   Annual Display (pink/white petunias): Mark V. Sulzbach Memorial Fund
   Annual Display (mixed): W. W. Dressell Memorial Fund

10. Number of plants for test and display:
   Geraniums, 13 varieties, display
   Pelargoniums, 7 varieties, display
   Snapdragons, 26 varieties, display — 1 variety, test
   Petunias, 54 varieties, general test, of these
   54 varieties were tested for four seed companies

11. Total number of transplants handled: 31,800
12. Total number iris varieties readied for Guest Iris Collection at time of 1967 Convention:

1,008.

ADDRESSES BY STAFF

1. Ernest Bibe:
   Garden Clubs (4) — Tropical plants, illustrated
   May-D & F Department Store — Conservatory tropicals, illustrated
   Denver High School Botany Class — Plant propagation
   Associates of Denver Botanic Gardens — Plant Propagation
   Children’s Garden Program — Plant propagation

2. Louis B. Martin:
   Swingle Study Group — Air Pollution Research
   Denver Botanic Gardens Guild — Denver Botanic Gardens
   Associated of Denver Botanic Gardens — Basic Botany, six lectures
   American Society of Landscape Architects, Colorado — Plans for Denver Botanic Gardens
   Colorado Nurserymen’s Association — Denver Botanic Gardens
   Colorado State University Extension, Metro College — Plant Development, six lectures
   Denver Botanic Gardens Annual Membership Meeting — Future of Denver Botanic Gardens
   Civic Garden Club of Denver — Denver Botanic Gardens
   Park Hill Garden Club — Denver Botanic Gardens
   Denver Public Library Assoc. — Denver Botanic Gardens future
   Men’s Garden Club of Denver — Denver Botanic Gardens future
   Education Committee Series — Denver Botanic Gardens future
   The Garden Club of Denver — Denver Botanic Gardens future
   Morning Bells Garden Club — Denver Botanic Gardens future
   Crestmoor Park Garden Club — Denver Botanic Gardens future
   Fine Arts Garden Club — The Modern Botanical Gardens
   May-D & F Department Store — Denver Botanic Gardens
   American Horticultural Congress — Moderator for Educational Panel, "The Skilled Plantsman Gap."

3. Beverly Pincoski:
   Denver High School Summer Botany Class — Role of a Botanist-Horticulturist
NEWS COVERAGE

Junior High Schools

Baker 128
Cole 104
Kepner 36

High Schools

East 27
Kennedy 53
Manual 49
North 63

Parochial Schools

Lutheran 80
St. Anthony 45
St. Josephs 30
Cathedral High 16

JEFFERSON COUNTY SCHOOL DISTRICT

Elementary Grades

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<tr>
<td>Fremont Elementary</td>
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<td>Fitzmorris</td>
<td>93</td>
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<td>Foster</td>
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<td>Maple Grove</td>
<td>86</td>
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<td>North Alameda</td>
<td>105</td>
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<td>32</td>
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<td>Mitchell</td>
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School Year, September 1966 - June 1967

DENVER SCHOOL DISTRICT

Elementary Grades

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<td>Hallett</td>
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</table>

Junior High Schools

Baker Jr. High 137

High Schools

Manual High 69
North High 28

Total number of children 1560

Total number of children 1967

School Year, September 1967 - December 1967

DENVER SCHOOL DISTRICT

Elementary Grades

<table>
<thead>
<tr>
<th>Name of School</th>
<th>Number of Children</th>
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<tbody>
<tr>
<td>Asbury</td>
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<td>Harrington</td>
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</tbody>
</table>

Junior High Schools

Baker Jr. High 137

High Schools

Manual High 69
North High 28

Total number of children 1560
### Jefferson County School District

**Third Annual Report**

**Associates of Denver Botanic Gardens**

*Flexibility and cooperation — these are the watchwords of the Associates. Within the framework of the by-laws of the Associates, "The purpose of this organization shall be the betterment of Denver Botanic Gardens by physical aid and financial assistance." As the needs and emphasis of Denver Botanic Gardens shift to assure a healthy growth, so the work of the Associates has been adapted to meet these changing needs. During the past year, many jobs have been completed and others barely begun. This report will adhere strictly to major tasks undertaken in the name of the Associates. It would be difficult to delineate all the separate contributions our Associates have made and continue to make as members of the Library Committee, Editorial Committee, Education Committee, Herbarium Committee, and other similar committees appointed by the Board of Trustees of Denver Botanic Gardens.*

At the Third Annual Meeting of the Associates held in the South Room of the Conservatory on October 26, 1967, it was apparent three commitments continue to absorb the major proportion of our efforts. These include the Conservatory Guides, the Gift Shop, and the Arts and Crafts Workshop.

The Conservatory Guide Committee, under the expert leadership of Mrs. Phil Hayward, involves twenty-nine regular and six alternate Guides. During the school year, tours are scheduled seven days a week from 10:00 a.m. to 4:00 p.m., Monday through Saturday; from 7:00 to 9:00 p.m. on Friday evenings; from 2:00 to 4:00 p.m. on Sundays. During the summer months, Guides were available during these same hours, but tours were scheduled only by special arrangement. This less demanding schedule allowed Guides to devote more time to their families.

The number of individuals served by Guides increased from 342 in September, 1966, to 3,892 in May, 1967, with an impressive total of 13,112 persons. Over one-half this number were school classes. Garden clubs, church groups, conventions, home demonstration clubs, Campfire Girls, scouts and similar groups comprised the remaining number. Members of the American Iris Society, special visitors from Africa, the Western Regional Conference of the Council of State Governments, and the Town Planners of Great Britain and Irish Republic were among the special summer visitors served.

An intensive study of school needs was made, and an improved system of scheduling tours and guide programs resulted. Under Dr. Louis Martin’s direction, a committee of Guides completed a series of specialized tours correlated with classroom work at various grade levels. Teacher preparation guide sheets, vocabulary lists, and general information sheets plus a confirmation sheet sent to each teacher scheduling a tour have done much to increase the efficiency of the Guide program.

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#### Elementary Grades

**Jefferson County School District**

October through December 1967

<table>
<thead>
<tr>
<th>Name of School</th>
<th>Number of Children</th>
<th>Name of School</th>
<th>Number of Children</th>
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</thead>
<tbody>
<tr>
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<td>Johnson</td>
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<tr>
<td>Belmar</td>
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<td>Kullerstrand</td>
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<td>Miller</td>
<td>13</td>
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<td>Coal Creek</td>
<td>31</td>
<td>Pleasant View</td>
<td>75</td>
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<tr>
<td>Columbine Hills</td>
<td>125</td>
<td>South Alamó</td>
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<tr>
<td>Edgewater</td>
<td>46</td>
<td>South Lakewood</td>
<td>64</td>
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<tr>
<td>Fairmont</td>
<td>120</td>
<td>Swanson</td>
<td>125</td>
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<tr>
<td>Fremont</td>
<td>172</td>
<td>Pleasant View</td>
<td>75</td>
</tr>
<tr>
<td>Green Mountain</td>
<td>112</td>
<td>Total number of children</td>
<td>1710</td>
</tr>
</tbody>
</table>

### Miscellaneous Guided Tours for Children

- Kindergarten level: 121
- Pre-School level: 16
- Ridge School: 36

---

### Other Guided Tours, September through December 1967

- Arapahoe teachers: 20
- Senior Citizens, Ft. Collins: 30
- North School, Englewood: 26
- Town Planners, Great Britain and Irish Republic: 90
- Women’s Grange group: 15
- Denver General Hospital: 15
- Theta Sigma Phi: 10
- North Elementary, Englewood: 28
- National Jewish Hospital: 16
- Brownies: 24
- Randall Craggs School: 10
- Village Heights Elementary (Arapahoe): 30
- Castle Rock School: 37
- Walt Whitman (Arapahoe): 57
- Mark Hopkins Elementary (Arapahoe): 63
- Mount Airy Hospital: 16
- Blue Birds: 21
- Cub Scouts: 10
- Sheridan Jr. High: 34

### Grand Totals

**September, 1966 through June, 1967 (10 months)**

1. Total number of persons given guided tours through the Conservatory: 13,112
2. Total number of Denver Schools: 62
3. Total number of Jefferson County Schools: 20

**September, 1967 through December, 1967 (4 months)**

1. Total number of persons given guided tours through the Conservatory: 4,634
2. Total number of Denver Schools: 32
3. Total number of Jefferson County Schools: 17

---

Number of individuals served: 957
Beginning in September, Denver Public School scheduling is done exclusively by the coordinator of the Special Services Department, who supplies this same service for the Denver Museum of Natural History, the State Historical Society of Colorado, and the Denver Zoo. Each weekday, the hour of 9:30 to 10:30 a.m. is reserved for Denver Public School tours, and on Monday, Wednesday, and Friday, the hour of 10:30 to 11:30 a.m. is reserved for Jefferson County Schools. This has greatly reduced the telephone load formerly carried by the Gift Shop workers in charge of scheduling all tours.

The Guides make every effort to increase their knowledge of established conservatory plants and are alerted to all new plantings. During the winter months, Dr. Louis Martin, Dr. Hugh Pote, Dr. James Feucht, and Dr. Helen Zeiner conducted a series of 12 two-hour classes in basic botany for members of the Associates. Twenty-five Guides attended a total of 198 class sessions. It is the sincere hope of the Associates this series may be continued during the coming year.

In January 1967, Mrs. Charles V. Petersen assumed chairmanship of the Gift Shop Committee. She increased the trained staff to 28 persons including the special committee of five members. The Gift Shop assumes all Associate expenses such as mailing, badges, entertainment, and office supplies. It has also made possible the purchase of new tables for use in the Conservatory, some redecorating in Botanic Gardens House, additional volumes for the library, Christmas decorations for the Conservatory, the new permanent labels on plants in the Conservatory, and similar projects.

A complete revision of shop procedures has been instigated with excellent results. Workers must master a greatly increased and constantly changing inventory, the value of which now approaches $4,200.00. The Gift Shop maintains a seven-day-week schedule with hours from 10:00 a.m. to 4:00 p.m. on Monday through Saturday, and from noon to 4:00 p.m. on Sunday. In addition to duties of a salesperson, each Gift Shop worker must act as official greeter and hostess for all persons entering the Conservatory, provide efficient secretarial service for in-person and telephone messages, book Conservatory tours, and help maintain the neat appearance of the Gift Shop. It is a very complex and demanding job, often revealing heretofore untapped talents of our Associates.

The Gift Shop also shouldered the responsibility of maintaining the Botanic Gardens' booth at the Colorado Garden and Home Show in February. Sixteen Associates manned the booth and promoted goodwill for the Gardens by handing out plant sale fliers, encouraging people to visit the Gardens, answering all sorts of questions, and selling Gift Shop items.

Mrs. J. V. Carroll was Chairman of the Arts and Crafts Workshop Committee. This group continues to meet the first Thursday of each month in the main room of the Botanic Gardens House. At this time they concentrate on making items designed specifically for sale at the Gift Shop, either for seasonal items or for the Annual Christmas Sale. Associates attending this workshop are, for the most part, a devoted handful of women whose combined talents do much to retain the unusually high standard of original and handcrafted items offered to Gift Shop customers. Other unscheduled workshops are held as needed in members' homes.

One Associate project completed during this year was that undertaken by our hard working Greenhouse Committee under the chairmanship of Mrs. Graham Morrison. An extensive clean-up of hundreds of plants designated for plant sale use was completed by the end of May, 1967. At that time this committee was phased out in cooperation with Dr. Martin’s re-organization policies.

This was a tremendously rewarding year for all the Associates, especially your outgoing President. The prospect of even greater challenges looms large for our incoming President, Mrs. Hayes W. Neil. This entire group continues to embody a rarely-found enthusiasm and devotion to duty which makes each membership a privilege. The continued success of the Associates stems, we feel sure, from the excellent spirit of cooperation given us by our Director, Dr. Louis Martin, and his entire staff.

As my year of leadership closes, may I thank each Associate for the thoughtful dedication with which you have accomplished your work thus far. May this coming year see even more goals completed for "the betterment of Denver Botanic Gardens."

AVALONNE KOSANKE,
Retiring President

As the seasons continue their cycle, so dedicated members of Around the Seasons Club continue to serve Denver Botanic Gardens.

Efforts of the club’s members are deeply involved in the standing committees appointed by the Board of Trustees and intertwined with activities of Associates of Denver Botanic Gardens. Chairmen of the Editorial Committee and the Herbarium Committee are members of Around the Seasons. The president of the Associates, the Arts and Crafts Workshop chairman and Tour Guide chairman are also members of Around the Seasons.

With the increasing growth of the Annual Plant Sale the club cannot be identified with one particular project. Yet its 30 members consider the plant sale as their major annual activity. Last spring Around the Seasons' members served as special assistants to the plant sale chairman and as buyers, truckers, diggers and sales personnel in the booths that handled annuals, perennials, geraniums, house plants, ground cover and rock garden plants, trees and shrubs. Every active member worked.
They serve regularly on the Herbarium Committee, the Education Committee, the Editorial Committee and the Library Committee. For example, their editorial contributions during the past year were: Club members produced 22 articles and 42 illustrations for The Green Thumb magazine, compiled monthly gardening tips for the Green Thumb Newsletter, participated in updating and revising the seventh edition of M. Walter Pesman’s Meet the Natives, and revised the special “Conservatory Issue” of The Green Thumb.

As Associates many are active in the Tour Guide program, the Gift Shop and the Arts and Crafts Workshop. In addition, Around the Seasons, as a club project, sold dried plant materials and produced “What Cone Is This?” (a decorative plaque useful in identification of native cones) as part of the Gift Shop’s recent Christmas sale.

Study under competent teachers has been the reward for membership in Around the Seasons. Here, Dr. Helen M. Zeiner presents regular lessons in ecology and botany. In the field, Mrs. Katharine B. Crisp and Dr. Zeiner are guides in identifying native and introduced plants. Highlights of the club year were talks by Dr. John D. Johnson, “Plains Conservation Center”; Ruth Ashton Nelson, “English Gardens”; Dr. Louis B. Martin, “Los Angeles Arboretum”; and Dr. John Long, “Native Orchids of Colorado.”

Climax of the year’s program was a field trip, led by Dr. Long, to see orchids in their native habitats.

In the name of the club 36 trays and a chalk board with easel were gifts for use at Botanic Gardens House.

In January 1968 Around the Seasons Club begins its eighth year, or twenty-ninth season, in study and service.

Pauline R. Steele, Retiring President
Bernice E. Petersen, Program Assistant

Denver Botanic Gardens Guild
Annual Report

The Denver Botanic Gardens Guild had a successful seventh year. With a capacity membership of 40, it is an active, learning group of young women.

With the growing interest in herbs, our Herb Booth at the Annual Spring Plant Sale is increasing in popularity. We were successful in selling over 2,500 herb plants this year.

The formal herb garden at the south side of Denver Botanic Gardens is the Guild’s chief project. With the lovely statue of the “Boy and Frog”, the Herb Garden is a point of interest for the many visitors to Botanic Gardens. Again this year the Herb Garden has been planted and maintained by the members of the Guild. Plans are now being made to complete the undeveloped section.

We were gratified by the response to the vinegar sales in 1966 and the proceeds totaled $300. The profit from the vinegar sales is used to plant and expand the Herb Garden. Hopefully, by increasing our production of vinegar this year we can complete the Herb Garden. At this time orders for herb vinegar have exceeded last year’s.

The Annual Garden Tour in July was well attended and the gardens were lovely in spite of a cold, wet summer. More than 500 people attended the tour and enjoyed the box suppers at the Gardens. The $1800 earned from the tour was given to the Board of Trustees for the general fund of Denver Botanic Gardens.

We are looking forward to another productive and enjoyable year.

Gloria Falkenberg, President

Denver Botanic Gardens Lecture Series

FEBRUARY 22 — Dr. Roger A. Anderson
THOSE STRANGE PLANTS CALLED LICHENS

MARCH 21 — D. H. Mitchel, M.D.
MUSHROOMS AND TOADSTOOLS, NATURE’S HOUSE CLEANERS

APRIL 25 — Dr. R. M. Kosanke
FOSSIL PLANTS — A LINK WITH THE PAST

MAY 23 — Jack Fason
THE CREATIVE PHOTOGRAPHER

These lectures will be presented in the Boettcher Memorial Conservatory, 1005 York Street at 8:00 p.m. Tickets are $1.00 and should be purchased in advance as the seating capacity is limited.
Walk down your street today — any street in any town — and note how many people have gardens planned to live in and enjoy. You will find it a very small proportion, I am afraid.

Of course, all of us who read The Green Thumb appreciate and enjoy gardens and have them planned to use over most of the year, but we are (hopefully) 2 per cent of the community, and what are we doing to show the other 98 per cent some of the joys and benefits of gardens?

The annual Garden Show is planned to make gardening a little glamorous and attract thousands of non-gardeners in the hopes that a little of this interest will rub off on them and eventually make gardeners of them.

This spring the theme of the show is “Gardens Around the Seasons.” There will be eight large gardens designed by the best gardeners and set up to demonstrate that gardens can be attractive and useful year around, here in our wonderful Colorado climate. (Some of us old confirmed gardeners may even be able to pick up a few good ideas). To the public attending this show, these gardens will demonstrate many ways to extend the interest indoors to the outdoors and use the grounds around our homes most of the year. This year in addition to the gardens there will be demonstrations of “Leisure Living in Colorado” by bringing some of the outdoor influences indoors. There will be 20 rooms decorated in the most modern manner by the American Institute of Interior Designers.

All of us old “Green Thumbers” should take this opportunity to invite all the home owners in our block (and a few other blocks) to attend this show, in the hopes that we may recruit a few of them in our campaign to make a more beautiful and livable nation, state and community.

The dates this year are February 2-11, 1968 and the place the Denver Coliseum complex.

**COLORADO GARDEN AND HOME SHOW**

**FEBRUARY 2-11, 1968**

*Gardens are for people to enjoy ALL AROUND THE SEASONS*

Roses For This Area Recommended By The Denver Rose Society

**HYBRID TEAS**

1. Peace
2. Crimson Glory
3. Tiffany
4. Charlotte Armstrong
5. Eclipse
6. Show Girl
7. Tropicana
8. Kings Ransom
9. Picture
10. Chrysler Imperial

**FLORIBUNDAS**

1. Fashion
2. Little Darling
3. Fire King
4. Vogue

**GRANDIFLORAS**

1. Queen Elizabeth
2. Montezuma
3. El Capitan

**MINIATURES**

1. Cinderella
2. Ruby Gondola
3. Pixie Rose
4. Baby Darling
5. Scarlet Gem
6. Yellow Doll
7. Red Imp

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The dates this year are February 2-11, 1968 and the place the Denver Coliseum complex.

I’ll see you there.

George W. Kelly

**COLORISEUM**

**ARENA**

Feature Gardens, American Institute of Interior Designers Pavilion of Rooms.

**COMPETITIVE FLOWER SHOW**

**Lower West Concours**

Garden and Home Displays.

**Arcade**

Vacation Home Section; Modern Home Living Arcade; Building Products; Kitchens; Home Products.

**NATIONAL WESTERN BUILDINGS**

**Exhibit Hall**

Antique Showcase; Cartoon Theater; Special Feature Groups; Hobby Displays; Home and Garden Displays.

**STADIUM**

Stereo Stadium — Stereo, Hi-Fi and TV Equipment.

**HOURS**

Fridays, 6-10 PM; Mon., Tues., Thur., 6-10 PM

Saturdays, 2-10 PM; Wed., 2-10 PM

Sundays, 2-10 PM
Is It a Mushroom or a Toadstool?

DR. D. H. MITCHEL

This is the most common question asked by the gardener or nature-lover when first he finds one of the strange little plants known scientifically as fungi. It seems unbelievable to him that there are as many species of fungi as there are of the vascular plants with which he is familiar, and it is only after he becomes interested in looking for them that he starts finding them everywhere he turns—in his lawn, at the foot of his shade trees, in his compost pile, under his shrubs and in every forest glade or mossy bank he examines with care. Wherever any vegetation can grow, from arctic tundra to tropical forest and from mountain top to lowland plain, these inconspicuous, evanescent, curious little plants appear. Since they have no chlorophyll and obtain their food by breaking down organic material rather than synthesizing it from inorganic salts and sunlight as do the green plants, fungi may be found even in dark caves or tunnels where no green plant could grow. Actually the fungus plant is killed by sunlight and grows underground or inside wood away from the light, but it sends its fruiting bodies out into the air so that its spores may be distributed by the wind to “seed” itself in other areas. This is why the visible fleshy fruiting bodies seem to spring up mysteriously overnight and “mushroom” into abundance after a rain only to disappear in a few hours or days even though the body of the plant, or mycelium, may live for hundreds of years in one location.

This sudden appearance, apparently from nowhere, has led to a great deal of speculation and superstition from ancient times regarding these mysterious plants. Many of the common names for mushrooms reflect the superstitions which evolved about their occurrence. “Witches’ butter,” “dead man’s fingers,” “elf cups,” “fairy ring mushrooms,” “dryad’s saddle,” and “toadstool” are all names which date back to the days when witches’ brews of toads and bats, and midnight revels of tiny creatures on moonlit lawns and in the depths of dark forests were commonplace. With the recent popularity of LSD, there may be a more modern association between toads, whose skins contain bufotenine and mushrooms which contain the hallucinogenic drug, psilocybin. Perhaps the long hair and unkempt garb of today’s hippies have more in common with the Macbeth witches than just superficial uncleanness. So far, at least, the modern witches seem able to take their “trips” without the aid of broomsticks!

The question, “Is it a mushroom or a toadstool?” then seems to really mean, “Is it a familiar mushroom that has a common name and can be bought in cans at the store, or is it a strange mysterious ‘toadstool’ that may be harmful and is unfamiliar to all but witches and students of fungi called mycologists?” The mycologist would say that there is no such thing as a “toadstool” and that all the fleshy fungi should properly be called mushrooms, but I’m sure many a mycologist would like to have the easy out of being able to step on all the mushrooms he can’t identify and call them “toadstools”.

Is It Edible?

This is the next most common question of the neophyte. The answers may be: “Yes”, “No”, “Yes, but who wants to?” or “I don’t know!” Many wild mushrooms are edible and delicious; some are deadly poisonous. Most mushrooms, like most green plants, are not particularly palatable even though they may not be poisonous. Of the thousands of species of fungi only a hundred or so have ever been tried as food because of their microscopic size, bad taste or unattractive consistency. Why the edibility of this group of plants should be of so much more interest than that of other plants is hard to understand. Very few people are concerned about the edibility of trees or flowers or grasses, yet for some reason they immediately react to the sight of a mushroom with the question: “Is it edible?” Perhaps the only mushrooms they have seen before have been those served as food, and the association is immediate.

The ONLY way to tell an edible mushroom from a poisonous one is to learn to identify the species. Just as one can recognize a Delicious apple as being different from all other varieties of apples, and certainly different from a gourd, so he can learn to tell one mushroom from another and know which is even poisonous. Most people seem to feel offended when they are told this answer. Why risk your life for 15 cents worth of vegetables!

Now one doesn’t have to be an expert to collect mushrooms for food.
There are species of tasty, edible mushrooms that are so distinct in their appearance that one can readily learn to recognize them from all the others. A person can learn one or two species, and learn when and where to find them so that he can harvest many pounds of these each season without knowing any other species. Just as many people gather blueberries or chokeberries for use without any real knowledge of botany so can a person enjoy wild mushrooms safely without being a mycologist. This is the "secret" of the Europeans, Orientals and American Indians who regularly eat wild mushrooms. It is not a silver spoon or silver coin test, or parboiling and discarding the water, or adding soda or lemon to the mushrooms that protects them from poisoning, but rather the knowledge passed down from one generation to another as to how to identify and where to find one or two species that are safe and "good".

How Can One Learn About Mushrooms?

There are many good books and pamphlets to get one started collecting mushrooms safely and sanely. Through prejudice, the first one listed is Colorado Mushrooms by Wells and Mitchel, published by the Denver Museum of Natural History in 1966. This little, inexpensive booklet has colored pictures and brief descriptions of 70 species of the most common mushrooms found in Colorado. With this guide alone, a person could learn some 20 or 30 edible species that he could collect with safety. Don't try to learn them all at once! Learn one species at a time until you get thoroughly familiar with its variations and distinguishing characteristics. Don't guess and don't experiment! Be sure you have the exact species before you eat it!

Probably the best book for the beginner is just what its name implies: The Mushroom Hunter's Field Guide by A. H. Smith, Ph.D., America's (and perhaps the world's) leading authority on the fleshy fungi. The second (1963) edition of this book has colored pictures to supplement the detailed descriptions and black and white photographs of the first (1958) edition. For those who want a more complete and slightly more expensive field guide, I suggest Edible and Poisonous Mushrooms of Canada by J. Walton Groves, published by the Queens Printer, Ottawa, Ontario, in 1962. Since much of Colorado is in the Canadian zone of plant distribution this is a particularly good book to use in this region. Many other books, some European, are available. Since many species of mushrooms are world-wide in their distribution, all the following are worthwhile:


One last pitch! There is a local mushroom club with the high-sounding name of Colorado Mycological Society which meets at 7:30 p.m. the second Monday of each month in the main room of the Botanic Gardens House. In addition to these regular monthly meetings which consist of discussions, lectures and slides to acquaint the members with various mushrooms, field trips are also scheduled on weekends during the summer months. These meetings and forays are open to the public without charge and the dues of the society are minimal. Denver Botanic Gardens has an herbarium containing about 2,000 dried specimens of mushrooms with photographs of most of these in their natural environment. Some active study of mushrooms is going on at the Gardens, and if interest is sufficient more articles about mushrooms may appear in The Green Thumb in the future.

EXOTICS OF COLORADO

TRAGOPOGON, SALISFY

DR. HELEN MARSH ZEINER

Common weeds are frequently exotic plants which have been introduced into a new area by one means or another and which have found the new habitat favorable. They are also plants with an efficient means of reproducing themselves.

Tragopogon, salisfy or goatsbeard, is such a weed. Three species of Tragopogon can be found as weeds in Colorado; all of them are adventives from Europe. Two of the Colorado species, Tragopogon pratensis and Tragopogon dubius, are yellow-flowered. The third, Tragopogon porrifolius, has purple or lavender flowers.

The Tragopogons are members of Compositae, the composite or daisy family. The flower heads, occurring singly on hollow peduncles and composed of ray flowers only, resemble those of dandelions and easily show their relationship to the composites. All have elongated, grass-like leaves with prominent veins and clasping bases where the leaves attach to the stem. They have bitter milky juice.

It is interesting to note that in the 1937 edition of Coulter and Nelson, Manual of Rocky Mountain Botany, Tragopogon porrifolius is said to occur sparingly near dwellings, and Tragopogon pratensis is reported in the state. Harrington's Manual of Plants of Colorado (1954) indicates all three species mentioned above are widely scattered throughout the state.

Tragopogon porrifolius, the purple-
flowered goatsbeard, is frequently found near fields or dwellings where it has escaped from cultivation in the vegetable garden. This plant is grown for its fleshy, edible roots, and you probably know it by the name of salsify, vegetable oyster, or oyster plant. In cultivation the white or slightly grayish roots may reach a length of one foot. They have a pleasant, rather delicate flavor which has led to the name “oyster plant”. The escapes from cultivation are rather scraggly plants with thickened taproots smaller than those of their cultivated “brothers”.

Purple goatsbeard and purple salsify are other common names for this species. A rather intriguing common name, “John-go-to-bed-at-noon”, is sometimes used. This is really a good descriptive name, because the flowers open in the morning and close by noon.

*Tragopogon pratensis* and *Tragopogon dubius*, the two yellow-flowered goatsbeards, are now common weeds throughout much of Colorado. To the casual observer, they are similar in appearance. The most obvious difference between the two is in the length of the green bracts which subtend the “flower”. *Tragopogon pratensis*, meadow salsify, has dandelion-yellow flower heads which are 1 to 2 inches wide and which are borne on stems 1 to 3 feet tall. The bracts are equal to or shorter than the rays. *Tragopogon dubius*, western salsify, is usually larger than the above. Its flower heads are lemon yellow, with bracts longer than the rays.

The two species share the common names of salsify, yellow salsify, goatsbeard, yellow goatsbeard, buckbeard, and morning sun (because of their habit of opening in the morning and closing by noon).

All of the goatsbeards have an efficient means of seed dispersal which has helped them to expand their range. Like the dandelion, they produce numerous seeds with “parachutes” which can be carried long distances by the wind. When the plants have gone to seed, the old flower head is transformed into a ball or globe 2 inches or more in diameter and white or tawny in color. The funnel-shaped “parachutes” form the outer part of the seed head and are responsible for the color of the ball. Seed heads are sometimes described as blowballs.

The name goatsbeard comes from the appearance of the seed heads.

If you visited Botanic Gardens House during the holidays, you saw the seed heads of *Tragopogon* put to a unique use. The exquisite, sparkling, almost fairy-like balls of blue and gold which decorated the Christmas tree and were featured in other decorations in the house were made from seed balls of these common weeds. The person responsible for creating these delicate ornaments from such commonplace materials is one of Denver Botanic Gardens' dedicated volunteer workers, Avalon Kosanke. We thank her for sharing her creative ability with us.
A botanical 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.