

I.

ANNUAL REPORT

1959

Project No. 17

Extension Division

by

A. G. Smith, Jr.

Horticulture Department

Virginia Polytechnic Institute

Blacksburg, Virginia

II.

C O N T E N T S

	<u>Page No.</u>
I. COVER PAGE . . . . .	1
II. TABLE OF CONTENTS . . . . .	11
III. ACCOMPLISHMENTS. . . . .	2
IV. STATISTICAL SUMMARY . . . . .	18
V. EXHIBITS . . . . .	20

Agricultural Extension Service  
of the  
Virginia Polytechnic Institute

Blacksburg, Virginia  
December 18, 1959

Mr. W. H. Daughtrey, Associate Director  
Extension Service  
Blacksburg, Virginia

Dear Mr. Daughtrey:

I am submitting herewith the Annual Report for Project No. 17,  
Landscape Design and Ornamental Horticulture for the period  
beginning December 1, 1958, and ending November 30, 1959.

PERSONNEL

The personnel and time for the period of this report are as  
follows:

A. G. Smith, Jr. - 60%

A. S. Beecher - 60%

W. P. Judkins, Head, Department of Horticulture - 8 1/3%

This report includes only a partial summary of statistics and details  
related to the work in this project. Examples of the type of work  
and the manner in which it was carried out are given.

### III. ACCOMPLISHMENTS

A. 1. 85% of time

2. In the Plan of Work for 1959 it was stated:

a. That the section of Ornamental Horticulture at V.P.I. is the only major agency where citizens of Virginia can ask for information on such subjects as:

- (1) Lawns and lawn management.
- (2) Community beautification.
- (3) Landscape design for homes, schools, churches, community buildings, office buildings and factories.
- (4) Selection of ornamental plants for particular uses.
- (5) Identification of ornamental plants.
- (6) Growing annuals, perennials and nursery stock.
- (7) Pruning and care of ornamental plants.

b. That demands on the time of the specialists in Ornamental Horticulture would be greater in 1959 because of the following:

- (1) Increase in state population.
- (2) Growth of gardening as a hobby.
- (3) Continued growth of garden clubs and other plant societies.
- (4) State-wide goal of the Virginia Federation of Home Demonstration Clubs for community beautification.
- (5) Community improvement contests.
- (6) Interest because of the "tourist" industry, which is one of the largest sources of income in Virginia.
- (7) Construction of new homes, churches, schools, and industrial plants.

(8) Continued local and regional publicity on ornamental horticulture through radio, television, newspapers and magazines.

(9) Requests for talks before community, regional and state-wide groups.

(10) Requests for information on new and old lawns.

(11) Increased number of requests from extension agents and others for demonstrations on pruning, planting and propagation.

(12) Need for bulletins, circulars, etc., to be written or revised by the specialists.

(13) Further development of the 4-H Club projects in the Home Grounds Beautification, which in 1959 was carried on in 91 counties of the state.

(14) Answering letters from individuals and from magazines which refer letters to this section.

(15) Time necessary for study.

(16) Time for meetings of extension groups.

3. Exact figures for the number of residences built in Virginia during the past year are not available. However, reports from some communities indicate that the activity in building during 1959 has exceeded that of 1958.

An unusual number of churches and schools have been constructed in Virginia during the year. There has also been a great increase in the number of manufacturing plants and office buildings, not only in and around the larger cities, but also in

town and small rural communities. Unlike the custom in past years, all of these buildings have been landscaped or are to receive some improvement in the way of proper grading, establishment of lawns and the planting of trees and ornamental shrubs.

The population of Virginia has increased since last year. (Exhibit 1). This increase is reflected in the number of nurserymen who are producing ornamental plant material on ever-increasing acreage. (Exhibit 2). Many of the nurserymen are new in their work and need some help from the specialists.

The specialists worked in 31 counties during the year. (See map).

4. Since it is impossible for the part-time specialists to personally handle all the requests on ornamental horticulture, various other means of meeting the problem have been devised. Among these, one of the most effective is the preparation and distribution of bulletins, circulars, leaflets, slides and movies on different phases of ornamental horticulture.

a. Publications - During the year, the following publications have been made available to extension agents and other interested groups ~~and~~ individuals:

BULLETINS REVISED IN 1959:

Garden Roses for Virginia, Bulletin 189 (Exhibit 17)

BULLETINS REPRINTED IN 1959:

Design of the Home Grounds, Bulletin 217 (Exhibit 18)

Lawns for Virginia Gardens, Bulletin 236 (Exhibit 19)

NEW CIRCULARS IN 1959:

Ornamental Fruit for the Home Grounds, Circular 796 (Exhibit 20)

Attractive Driveway Entrances, Circular 824 (Exhibit 21)

Pruning Ornamental Plants, Circular 834 (Exhibit 22)

CIRCULARS REPRINTED IN 1959:

Boxwood in Virginia, Circular 503 (Exhibit 23)

Peony Culture in Virginia, Circular 577 (Exhibit 24)

NEW LEAFLETS IN 1959:

Transplanting Dogwood, Leaflet 95 (Exhibit 25)

Monthly Landscape Notes, No Number (Exhibit 26)

In addition to these, the following publications have been sent to all county agents by the specialists:

Landscaping Church Grounds, Bulletin 236

Landscaping Slopes, Circular 622

4-H Home Grounds Beautification  
Unit I, Project and Record Book, Circular 415

4-H Home Grounds Beautification  
Unit II, Project and Record Book, Circular 415

An Attractive Mail Box, Circular 770

LEAFLETS WITHOUT NUMBERS:

Some Notes on African Violets

Care and Maintenance of Trees and Shrubs

List of Trees

Flowering Shrubs for Virginia

Plants for Foundation Planting

Some Notes on Azaleas

Spring Flowering Bulbs

Gladiolus for the Home Grounds

Bumus for the Garden Soil, Reprint of Circular 395 (Exhibit 27)

Home and Community Beautification Goal (Demonstration)

b. Slides - 77 sets of slides were loaned to extension agents and community leaders. These are arranged to tell a story, which the agent may find outlined on the syllabus which goes with each set.

c. Movies - Movies and other visual aids were supplied county workers for special meetings.

d. Loans - In addition to these, numerous books and other publications from the personal files of the specialists were loaned to extension agents and others to help them prepare a special lecture or parts of programs.

5. Garden Clubs

Work with the garden clubs has been conducted on the county, district and state levels.

The Virginia Federation of Garden Clubs with 552 clubs and 16,257 members, is the largest garden club organization in the state. The Garden Club of Virginia has a membership of about 3,500. Other garden clubs, not affiliated with these organizations, have a membership of about 3,000. This makes a grand total of approximately 22,757 active garden club members in Virginia.

Work with the garden clubs include:

Judging Schools  
Landscape Schools  
District Meetings  
Board Meetings  
Council Meetings

Club Meetings  
Committee Meetings

Two Judging Schools, sponsored by the Virginia Federation of Garden Clubs and directed by the specialist, were held in February and August. (Exhibits 3 and 4).

One Judging School sponsored by the negro garden clubs was held at the Virginia State College.

At the request of the Virginia Federation of Garden Clubs, the extension specialists cooperated in sponsoring two Landscape Study Courses during 1959. These courses were started because it was the feeling of the state officers of the garden club federation that a greater emphasis should be placed on Landscape Design.

A series of four schools has been arranged. Two of them already have been given. The specific objectives of these four schools shall be to guide garden clubs and members:

1. To develop an even greater appreciation and love for the natural country-side which is their good fortune to have as their environs.
2. To develop a greater sense of pride in the home grounds and surroundings.
3. To see the whole as well as the details and to appreciate how details effect the whole.
4. To change their surroundings so they will be more useful, convenient and beautiful; and within their limits of time and energy to so keep them.
5. To stimulate their interest in phases of broader planning

that affect all of their lives.

It is to be hoped that a large army of able assessors, or critics, of Landscape Design can be developed out of garden club members, throughout the nation. Such informed persons are needed to intelligently serve as members of Park Boards, Highway Commissions, School Grounds Committees, etc., to collaborate with members of the design professions in planning grounds of public buildings, parks and roadsides; and also to use their influence with public officials to insist that competent experts in landscape design be employed to plan our public outdoor areas.

The specialists in this project have worked closely with the Landscape Chairmen for the Virginia Federation of Garden Clubs in planning and in the execution of these schools. A detailed Study Manual for students attending these schools was prepared by the specialists. In addition, members of this department have served as instructors at these schools.

6. Nurserymen

At the present time there are 583 registered nurserymen in Virginia, with an estimated 8,779 acres devoted to the growing of ornamental plants. This represents an increase of 10 nurserymen and 305 acres since 1958. (Exhibit 5).

The specialists serve this group through:

- a. Educational meetings.
- b. Training Schools. (Exhibit 6).
- c. A monthly news letter. (Exhibit 7).
- d. Meetings with committees and directors.

e. Visits to nurseries.

f. Letters about special problems.

The annual meeting of the Virginia Nurserymen's Association was held in January and the summer meeting in August. At these meetings, the specialists are assisted by members of the Horticultural Staff, representing the college and the Agricultural Experiment Station.

A training school for nurserymen and their employes was held in January with an attendance of 50. Here too, members of the college and Experiment Station staff helped to make the school a success.

#### 7. Amateurs

Many men and women in Virginia make gardening their hobby. These amateur gardeners make an annual pilgrimage to V.P.I. to attend the Garden Lovers' Short Course. (Exhibit 8). This Short Course is arranged and directed by the specialists with the help of numerous staff members from the college and Experiment Station.

Next year will mark the twenty-fifth anniversary of the Garden Lovers' Short Course at V.P.I.

#### 8. Highway Landscaping

With the cooperation of the Virginia Highway Department, the specialist arranges an annual landscape course at V.P.I. This Short Course is attended by representatives of all highway districts and by those in charge of public and private grounds. (Exhibit 9).

In this instance also, the specialist has the help and

cooperation of numerous staff members from the college and Experiment Station.

It is believed that the tourist business represents the largest source of income in Virginia. The beauty of the highways should have a great influence on the growth of the tourist business.

9. Home and Community Grounds Beautification

There are 1703 home demonstration clubs in Virginia with a membership of 38,000. The clubs in 27 counties, or about one-third of the total state membership, selected the beautification of home and community grounds as their goal for 1959.

These counties are:

Accomac	King George	Russell
Appomattox	Lancaster	Shenandoah
Bath	Loudoun	Smyth
Blind	Mecklenburg	Washington
Campbell	Middlesex	Highland
Charlotte	Norfolk	York
Dickenson	Pulaski	Page
Hanover	Roanoke	Scott
Isle of Wight	Rockingham	

The specialists have helped with this program through:

1. The preparation of written material.
2. Talks at 25 leader training meetings.
3. Talks at special meetings. (Exhibits 10, 11).
4. Use of slide sets.
5. Demonstrations.
6. Workshops. (Exhibit 12).
7. Conferences with agents.
8. Letters

10. Community-Wide Meetings

As a means of accomplishing as much as possible when the specialist is asked to talk to a club, the extension agent is requested to make the meeting community-wide. In this way, the specialist can meet representatives of garden clubs, women's clubs and home demonstration clubs at one time and very materially reduce the number of trips to counties. (Exhibit 13).

11. Leader Training and Community Meetings

Leader Training and Community Meetings:

Appomattox	Franklin (2 talks)	Rappahanock
Charlotte	Amelia	Montgomery
Fauquier (2 talks)	Craig (2 talks)	Prince William
Radford	Gloucester	Henrico
Augusta	Orange	Wythe
Warwick (4 talks)	Shenandoah	Louisa
Clarke	Nottoway	Prince George
Bland	Nansemond	Dickenson
Russell	Bedford	Tazewell
Wise	Fluvanna	Culpeper
Rockingham	Chesterfield	Princess Anne
Norfolk	Powhatan	

Tours:

Roanoke	Mathews
Gloucester	Montgomery
Southampton	Amelia
Pittsylvania	Arlington
Fairfax	Henrico

Institutions:

During the year the specialist has visited the following institutions to meet with extension agents and committees to help with some phase of improving the grounds:

Presbyterian Church, Gloucester  
Presbyterian Church, Robbins Neck  
Baptist Church, Hillsville  
Presbyterian Church, Hillsville  
Methodist Church, Fieldale

St. Stephens Baptist Church, St. Stephens  
Episcopal Church, Charlotte  
Episcopal Church, The Plains  
Methodist Church, Cobbs Creek  
Baptist Church, Amelia  
Episcopal Church, Hampton  
Methodist Church, New Castle  
Red Oak Church, Charlotte  
Brethren Church, Botetourt  
Sweet Briar College  
Jamestown Festival Park  
Bland Correctional Home  
Floyd County Clinic  
Rocky Mount Community Hospital  
Nottoway Court House  
New Castle School  
Fancy Gap School  
Blend Masonic Building  
Four new schools, Carroll County  
Two schools, Smyth County  
North Holstein School  
Western State Hospital  
Nansemond County Court House  
Virginia State Hospital, Petersburg  
Future Farmers of America Building, Fairfax  
Booker T. Washington School, Franklin  
Brookville School, Campbell County  
White House Motel, Fairfax  
Drainsville Methodist Church, Fairfax  
Madison Heights Community Club, Amherst  
Unionville School, Orange  
Cox's Chapel Recreation Hall, Grayson  
Jamestown 4-H Camp, James City  
Blacksburg High School, Montgomery  
Gate City High School, Scott  
Spruce Run Community Center, Giles  
Rich Valley Elementary School, Smyth  
Cak Grove Elementary School, Roanoke  
Chatham Hall, Pittsylvania  
Concord Church, Pittsylvania  
Powhatan High School, Powhatan  
Hidden Valley Golf Course, Roanoke  
Roanoke Municipal Building, Roanoke  
Amelia Community Building, Amelia  
Tuckahoe Junior High School, Henrico  
Shenandoah County High School, Shenandoah  
Mt. Jackson High School, Shenandoah  
Woodstock School, Shenandoah  
Dundas Baptist Church, Lunenburg  
Mt. Hebron Cemetery, Frederick  
Greenwood Church, Chesterfield

## 12. County Schools

Many county groups are now holding annual schools on ornamental horticulture. The plans for such meetings vary from year to year, but most of them fall in one of the following categories:

1. The County Committee on ornamental horticulture holds a planning meeting in November, which is attended by the Extension Agents and the specialist. At that time, decisions are reached on the date, place and type of meeting, which usually is held in the spring. (Exhibits 14, 15 and 16).
2. Local organizations work with the extension agents on a plan for the school.
3. Local nurserymen make most of the plans.

## 13. 4-H Clubs

Some of the most effective work in ornamental horticulture is that done with young people. For this reason, special attention has been given to the 4-H Home Grounds Beautification Project.

During the year, 4-H club members in 91 counties selected the Home Grounds Beautification Project. (See Map).

The Plant Virginia Association, Inc., donated \$160.00 to assist in the sponsoring of 4-H Home Beautification Projects.

The money was used as follows:

- \$37.50 - Bond for State Award
- \$120.00 - District Award of a scholarship trip to State  
4-H Short Course.
- \$2.50 - Ribbon and Contest expenses.

Through the generosity of the Plant Virginia Association it was possible to award 12 scholarships to the 4-H Short Course. To win the scholarship, the 4-H boy or girl had to win or be runner-up in a District Landscape Demonstration Contest. The scholarship winners computed at Blacksburg during the Annual 4-H Short Course for the State Award. Carlton Price of Fairfax was the winner, and the title of his demonstration was Planting Meyer Zoyzia. Clare Garden of Lunenburg was the second place winner and the title of the demonstration was Arranging Flowers. Carlton Price, when asked to comment on what the 4-H Project meant to him, wrote:

"This award, which I have received, has meant a great deal to me. In addition to the personal pride, the winning of this award appears to me as the crossing of one of the main stepping-stones to some of the finer 4-H goals. It has given me an even greater interest in 4-H work and strengthened my ambition to climb higher in club work."

During the Annual 4-H Short Course at V.P.I., four classes in the Home Grounds Beautification Project were taught by the specialists.

14. Meetings on the V.P.I. Campus

Topics were:

- Institute of Rural Affairs
- Garden Lovers' Short Course
- Landscape School
- 4-H Short Course

Agents Conference

Home Demonstration Workshop

B. Reports from County Agents

The following statements are typical of the comments made by many County Agents:

"As usual, at this time of the year, the Agent has had a number of calls from people building new homes. They want their home grounds planned and suggestions for shrubbery, shade trees and lawn grass. The Agent has made plans for eight or ten homes during the month. He is careful to tell them that they do not necessarily have to follow this plan, but that it is only a suggestion. Although a good number of people in Buchanan County are building nice homes, it is surprising how few know anything about planning their home grounds. The Agent believes that he is rendering a service to these people in helping them with their plans."

\* \* \* \* \*

"Many visits were made to observe home lawns planted to different types of lawn grasses in order to determine what varieties were doing best in this area. Since this section is a problem area for maintaining adequate lawns, only a very few types can be recommended. A lawn meeting for all interested home owners is planned for September 1, which is about one month before the proper time of seeding, where information will be given on the various lawn grasses, fertilization of lawns and maintenance of lawns."

\* \* \* \* \*

"Additional assistance was given to many home owners who requested help in establishing lawns during the month. A monthly bulletin

was published and set out to many home owners in the area giving timely information connected with the control of insects and diseases of various shrubs and ornamental plants. About 20 soil samples were tested from home grounds where the results of the test were distributed in each case along with recommendations for lime and various fertilizer materials based on the results of the test were distributed in each case along with recommendations for lime and various fertilizer materials based on the results of the test made. In order to give as much assistance as possible to the ever increasing number of people desiring information on improving their home grounds, newspaper articles, home visits, office calls, and telephone calls were used extensively."

\* \* \* \*

"Obtained specialist help in landscaping three county homes. Helped specialist and made follow-up. Diagnosed ornamental shrubbery insect damage and made recommendations for control."

\* \* \* \*

"Ornamental Horticulture was again in the spotlight this month."

\* \* \* \*

"Received numerous calls about reseeding old and seeding new lawns. Made recommendations in regard to oak trees that are dying as a result of applying weed killer too close by. Took number of soil samples in lawns."

\* \* \* \*

"Many calls for assistance on various problems connected with the

growing of ornamentals were received in the month which required the distribution of many leaflets and bulletins, receiving of office and telephone calls, newspaper articles, and the making of many personal visits. The majority of the calls dealt with the establishment of lawns with particular emphasis on varieties of grasses to seed and the proper fertilizing of the soil. About 25 soil samples were tested and information given on the proper type of fertilizer and lime to use and the amounts necessary based on the results of the soil test made."

\* \* \* \*

"Landscape Notes, which are sent by the specialist each month, give timely information on the care of ornamental plants and trees. These were distributed to nurseries, Home Demonstrators and members of the York County Landscaping Committee."

\* \* \* \*

"Four lawn plots were seeded on the home grounds of Mr. Floyd Bradd in Hampton for demonstration purposes. Additional lawn plots will be seeded in the spring with various types of Bermuda Grasses. Ornamental Horticulture, controlling diseases and insects on ornamental plants, landscaping of home and public grounds continue to require increase demands from the local extension office."

\* \* \* \*

"The requests for assistance in Ornamental Horticulture continue to increase with an enormous number of people who contact the Extension Office for help."

IV. STATISTICAL SUMMARY OF WORK DONE BY SPECIALISTS

Days in Office . . . . .	243½
Days in Field . . . . .	179½
Miles Traveled . . . . .	25,130
Letters Written . . . . .	2,078
Farm or Home Visits . . . . .	251
Leader Training Meetings . . . . .	20
Conference with County Agents . . . . .	239
Seminars . . . . .	16
Circulars Prepared . . . . .	3
Bulletins Revised . . . . .	3
Leaflets Prepared . . . . .	10
Circular Letters . . . . .	25
Slide Sets Loaned . . . . .	77
Plans Prepared . . . . .	24
Schools Visited . . . . .	35
Church Grounds Landscaped . . . . .	18
Result Demonstrations Visited . . . . .	22
Tours or Field Days . . . . .	17
Talks to Groups . . . . .	53
News Articles . . . . .	45
Radio and T.V. Programs . . . . .	6
Public Projects . . . . .	70

Respectfully submitted,

*A. G. Smith, Jr.*

A. G. Smith, Jr.  
Associate Horticulturist

cc

Total counties visited by the specialists  
in 1959.

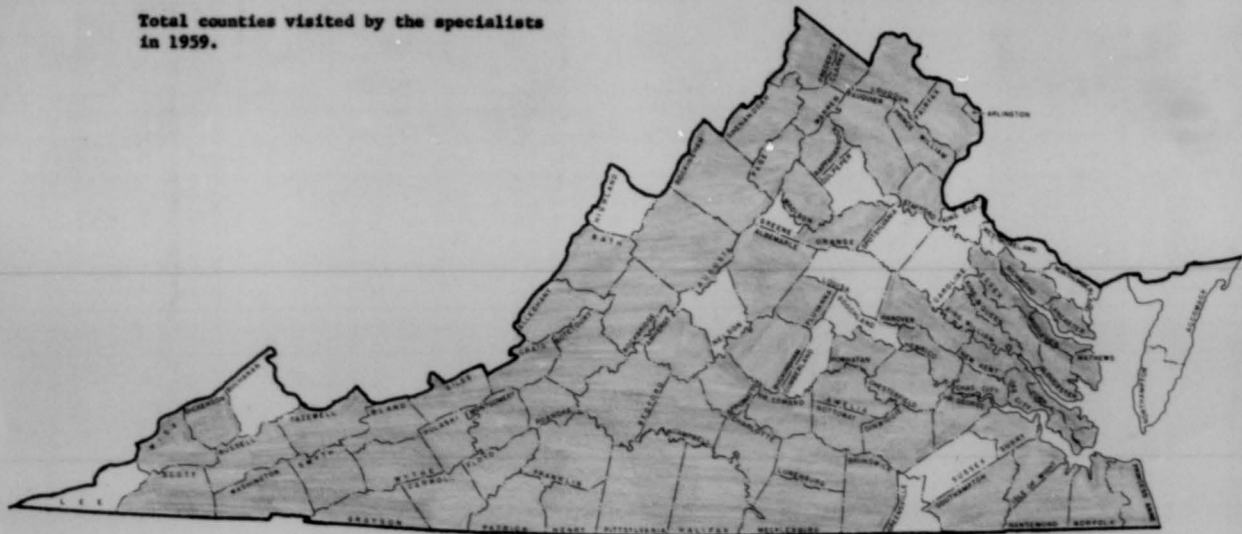
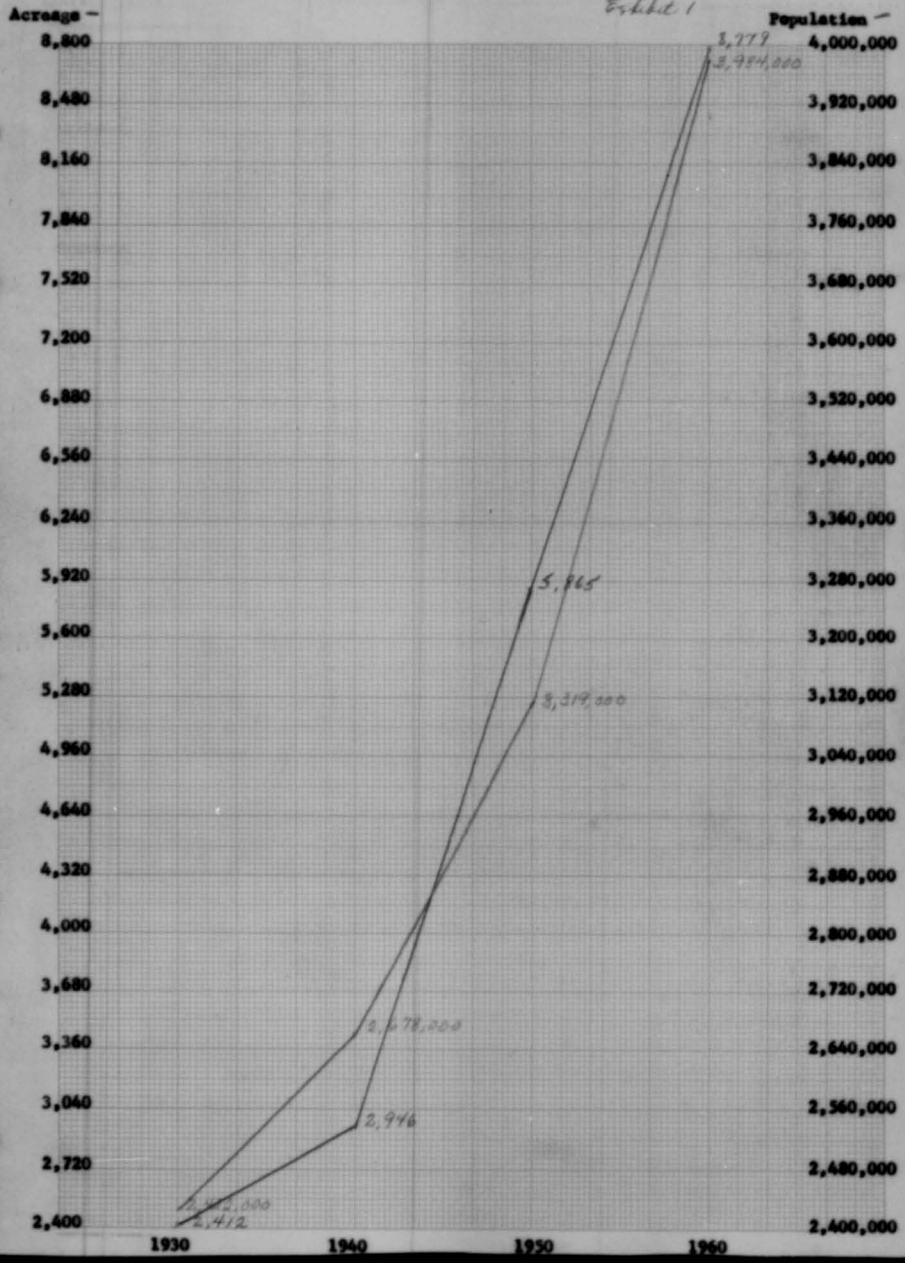






Exhibit 1



## NUMBER OF NURSERYMEN REGISTERED IN VIRGINIA AND ACREAGE USED

<u>Year</u>	<u>Number of Nurseries</u>	<u>Number of Acres Used</u>
1900	69	Not Recorded
1906	43	Not Recorded
1910	36	Not Recorded
1911	40	Not Recorded
1927	99	Not Recorded
1928	122	Not Recorded
1929	156	2,544 acres
1930	169	2,412 acres
1931	176	2,806 acres
1932	177	2,968 acres
1933	150	2,863 acres
1934	154	3,137 acres
1935	145	2,966 acres
1936	190	3,139 acres
1937	234	2,971 acres
1938	196	3,187 acres
1939	256	3,322 acres
1940	249	2,946 acres
1941	282	3,018 acres
1942	267	2,973 acres
1943	199	4,111 acres
1944	178	3,970 acres
1945	180	4,041 acres
1946	234	4,293 acres
1947	251	5,268 acres
1948	269	5,314 acres
1949	304	5,365 acres
1950	321	5,865 acres
1951	375	5,750 acres
1952	385	6,431 acres
1953	412	6,711 acres
1954	481	6,130 acres
1955	520	6,996 acres
1956	536	8,521 acres
1957	582	8,764 acres
1958	573	8,274 acres
1959	583	8,779 acres

FIFTH COURSE  
OF  
*The Flower Show School*  
NATIONAL COUNCIL OF STATE GARDEN CLUBS  
INCORPORATED

SPONSORED BY  
*The Virginia Federation of Garden Clubs*



FEBRUARY 16-19, 1959

HOTEL JOHN MARSHALL  
Richmond, Virginia

In Co-operation with  
THE DEPARTMENT OF HORTICULTURE  
VIRGINIA POLYTECHNIC INSTITUTE

FIRST COURSE

IN

*Flower Show Judging*

NATIONAL COUNCIL OF STATE GARDEN CLUBS

*Sponsored by*

*The Virginia Federation of Garden Clubs*

AUGUST 3 - 6, 1959

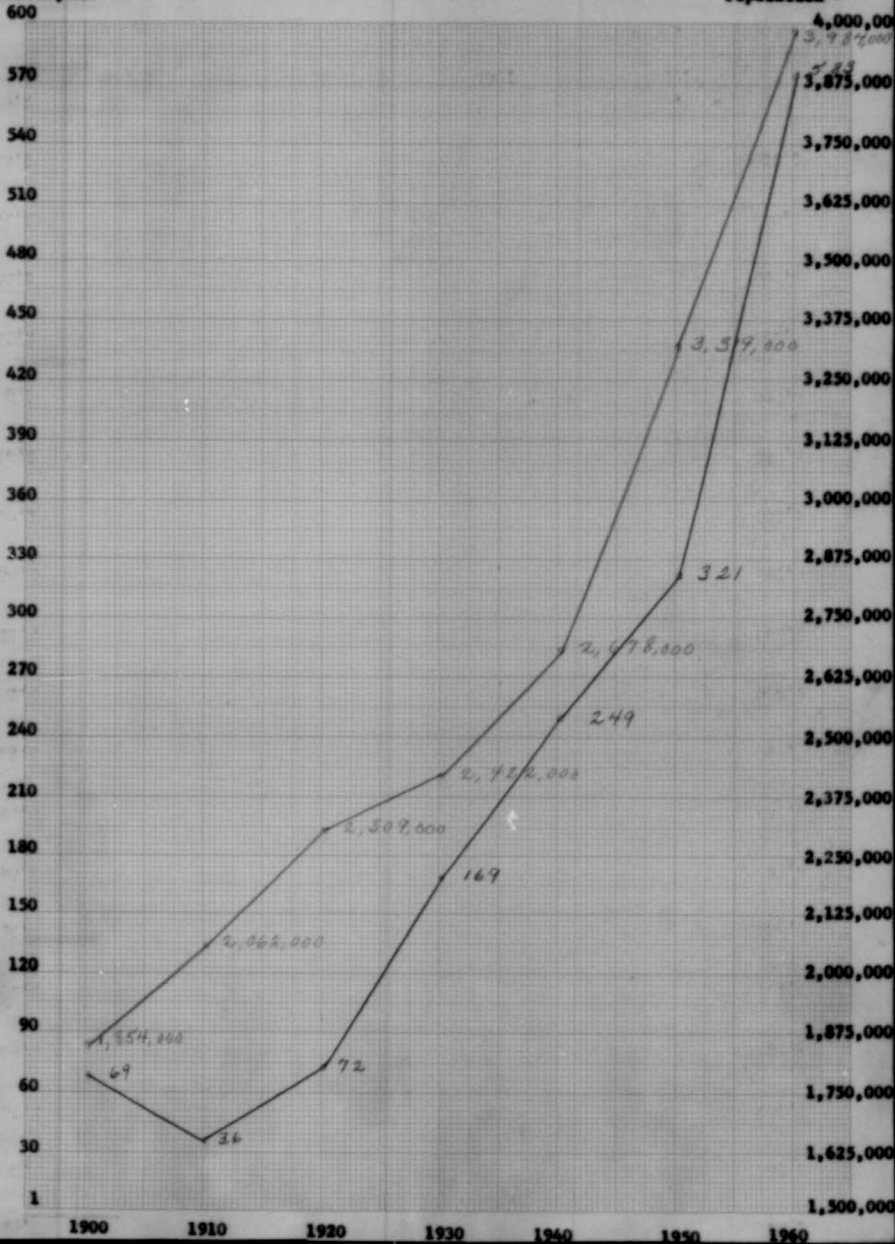
V. P. I. CAMPUS  
Blacksburg, Virginia

In Co-operation with  
THE DEPARTMENT OF HORTICULTURE  
VIRGINIA POLYTECHNIC INSTITUTE  
Blacksburg, Virginia

Nurserymen —

Exhibit 5

Population —



NURSERYMEN'S SHORT COURSE

DATES: January 6th, 7th, and 8th

PLACE: American Legion Hall, located on Oak Street, Fairfax, Virginia

TIME: Morning and afternoon sessions, classes start at 9 a.m.

SPONSOR: The Virginia Agricultural Extension Service in co-operation with the Northern Virginia Nurserymen's Association

COST: A \$3.00 registration fee

WHO MAY ATTEND: All registered nurserymen and Agricultural Extension Agents

PROGRAM:

Tuesday, January 6th

Morning Session:

Weed Control in the Nursery and Home Grounds by Dr. W. E. Chappell, Plant Physiologist, V. P. I.  
Cost Accounting for the Small Nurseryman, by W. J. Billerbeck, Appalachian Nurseries, Waynesboro, Pennsylvania

Afternoon Session:

Improving Heavy Poor Soils by Dr. M. S. Anderson of the U. S. Department of Agriculture  
Mulching and Watering Plants by Dr. W. P. Judkins, Head of the Department of Horticulture, V. P. I.

Wednesday, January 7th

Morning Session:

Mist Propagation of Deciduous Plants by Sylvester G. March, Propagator of the National Arboretum  
Canned Stock by Dr. J. H. Tinga, Horticulturist, V. P. I.

Afternoon Session:

Insect Problems by Dr. J. O. Rowell, Entomologist, V. P. I. and C. R. Willey, State Entomologist  
Plant Diseases by Dr. R. H. Gruenhagen, Plant Pathologist, V. P. I.

Thursday, January 8th

Morning Session:

Landscape Design by Meade Palmer, Landscape Architect, Warrenton, Virginia, and Albert S. Beecher, Landscape Specialist, V. P. I.

Afternoon Session:

Landscape Tour

# Virginia Nurserymen's Association, Inc.

## V N A NEWS



BECHER, EDITOR, DEPT. OF HORTICULTURE, V. P. I., BLACKSBURG, VA.

CHARLES L. OTEY, SECRETARY, ROUTE 18, RICHMOND, VIRGINIA

March, 1959

### BOARD OF DIRECTORS MEETING

February 28, 1959  
Hotel John Marshall, Richmond, Virginia

#### Members present:

S. E. Quillen  
Wendall L. Winn  
Charles L. Otey  
Fred L. Williams, Jr.

John R. McDonald  
Walter D. Arnold  
Arthur J. Lancaster

Minutes of the Board meeting on December 13th, were approved by vote of the Board.

At the request of Mr. E. M. Quillen our representative to the Agricultural Conference Board of Virginia, the Board of Directors appointed A. J. Shoosmith to serve as alternate representative to the Conference Board.

The following applications were approved for membership in the Association and are presented to the membership at large.

R. J. Kundtz Nursery                      Active membership  
R. J. Kundtz  
Route 1, Box 421  
Princess Anne, Virginia

Arthur W. Allison                      Associate membership  
Avondale Avenue  
Richmond, Virginia

Lazy Acres Nursery                      Associate membership  
W. Herbert Taylor  
713 N. Mecklenberg Avenue  
South Hill, Virginia

The dates of August 2, 3, and 4th were set by the Board for the summer meeting of the Association and the secretary was instructed to locate a meeting place at Virginia Beach, and have the dates confirmed to the Association.

Board of Directors Meeting (con't)

The Board also selected the dates of January 24, 25, and 26, 1960, for the 29th annual convention of the Association at the Hotel John Marshall, Richmond, and instructed the secretary to have the dates confirmed to the Association by the Hotel John Marshall.

The committees for 1959 were presented by the President. Meeting adjourned at 6:30 p.m.

Charles L. Otey  
Secretary

\* \* \* \* \*

COMMITTEES FOR 1959

Legislative:

John E. Tankard, Chairman, Exmore  
J. R. Richardson, Roanoke  
Charles H. Kennedy, Nokesville  
John W. Boyd, Warwick  
Kenneth McDonald, Hampton  
David E. Laird, Richmond  
John R. McDonald, Hampton

Membership:

Wendall L. Winn, Chairman, Norfolk  
A. J. Lancaster, Jr., Portsmouth  
W. B. Higgs, Fairfax  
J. S. Campbell, Franklin  
D. C. Richardson, Richmond  
LeRoy Snow, Charlottesville  
Ray Quillen, Waynesboro

News Letter:

Prof. A. S. Beecher, Editor, Blacksburg  
S. D. Tankard, Jr., Exmore  
M. S. McKinney, Roanoke  
Charles L. Otey, Richmond  
Arthur Dugdale, Ashland  
Frederic Heutte, Norfolk  
Carl F. Flemer, Jr., Oak Grove  
A. G. Smith, Jr., Blacksburg  
Charles H. Kennedy, Nokesville

Education and Promotion:

(V.P.I. Liaison Committee)  
D. E. Laird, Chairman, Richmond  
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Robert N. Watkins, Midlothian  
J. C. Ferrara, Alexandria  
Marshall W. Myers, Richmond

WELCOME NEW MEMBER

The application for membership in the Virginia Nurserymen's Association has been approved by the Board of Directors and the membership at large for Mr. Templeton A. Elliott, Elliott's Nursery, R.F.D. 4, Charlottesville, Virginia.

\* \* \* \* \*

TREATMENT FOR LINING OUT STOCK

Nurserymen in eastern Virginia and probably in other sections would, we believe, profit by treating their soil with a menato-cide prior to lining out new stock. Liners should be produced in sterile media. The safest material would probably be nemagon, as it is quite effective and a good many ornamentals tolerate doses as high as four gallons per acre of the 50% material. It is suggested, however, that a one week waiting period per gallon per acre be followed before lining out and the two-gallon rate should be adequate. This material can also be purchased in a granular form, broadcast on the ground and worked in.

It is suggested that part of a block be treated and a part of it left as a check. In this manner, it will be easy to compare the results of treating. It is my opinion that increases in growth in most cases will be substantial and increased production will far exceed costs.

Now is the time to get the treatments made. Other chemicals such as D-D and Ethylene Dibromide are also satisfactory. Follow the directions on the label for any of these treatments.

Matheny and Freund  
Division of Plant Industry

\* \* \* \* \*

VNA INSURANCE REPORT

"Thanks for interesting us in the VNA insurance. I had an operation performed three weeks ago, and had to be hospitalized sixteen days, with special nurses, etc., which will amount to quite a sizeable sum when I get the surgeon's bill."

Name furnished upon request.

\* \* \* \* \*

PIN OAK SEEDLINGS  
Quercus Palustris

FIELD GROWN SEEDLINGS, TWO YEARS

		100	1000
2 - 18 inches . . . .	\$ 8.00	\$ 75.00	
8 - 24 inches . . . .	12.00	100.00	
2 - 3 feet . . . . .	18.00	150.00	

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Your Advertisement

WATKINS NURSERIES

Midlothian, Virginia

Let other VNA members know what you  
have to offer them.

WARNING

Red spiders are waiting for a break in the weather to hatch and begin sucking the life out of various broad-leaved evergreens, especially the Japanese hollies. Here in the Richmond area nurseries, they are reported as occurring from a zero to a heavy infestation. We are intercepting Japanese hollies from various Southern states that are infested with red spiders. In some cases, these plants are destroyed or returned to the nursery of origin. In light to medium infestations, the Virginia nurseryman is required to spray or dip the plants, depending on size, in dormant strength lime-sulphur or 2% to 3% superior oil if he wishes to keep the plants. If oil is used be sure that the spray material will dry before the temperature drops to freezing or below or damage to the plants may occur. You do not have to worry about burning if lime-sulphur is used. Trithion, one of the newer organic phosphates, is now being recommended to control all stages of mites, including the egg stage. It is said to have a long residual value and is not as toxic as parathion to humans. It can be purchased through Stauffer Chemical & California Spray Chemical Companies. Follow directions and precautions on the label.

Red spiders and eggs are usually found on the under side of the leaves so be sure to direct your spray to the lower side and spray thoroughly.

State Entomologist's office

\* \* \* \* \*

SHIPPING CAMELLIAS TO TEXAS

If you plan to make any shipments of camellias to Texas, the conditions listed below must be adhered to. Please contact your local inspector for the necessary inspections.

CONDITIONS GOVERNING MOVEMENT OF PROHIBITED PRODUCTS:

1. No balled or potted camellia plants with soil attached, cut camellia flowers, or plants with flower buds showing any trace of color can be moved from the quarantined areas into the State of Texas.
2. Bare rooted camellia plants with buds showing no trace of color will be allowed entry from infected States or area under proper certificate from a duly authorized inspector.
3. Restricted material from States that do not maintain restrictions against States or areas quarantined for camellia flower blight may ship plants into Texas provided the Commissioner of Agriculture, Capitol Station, Austin, Texas, is furnished an affidavit, properly notarized, from the grower, dealer, or nurseryman stating that he has not received any camellia plants with dirt on roots, or buds showing any trace of color, or cut camellia flowers from the designated infected States or areas.
4. Plants with soil attached may be moved from nurseries if state of origin files with the Texas Department of Agriculture a certificate stating that nursery is free from camellia flower blight.

Charlie Chapman  
Division of Plant Quarantine

\* \* \* \* \*

PLANT VIRGINIA PROGRAM IN ARLINGTON

Recently the president of a community association at Glencarlyn near Arlington requested that the Plant Virginia Association supply them with a speaker on Trees, because the community association was interested in doing tree planting on a community basis.

Mrs. Ben Loving, secretary of the Plant Virginia Association, Inc., arranged for Mr. W. B. Higgs of the Vadma Nursery Agency Company to discuss Trees at a special meeting. They were a responsive group and kept Mr. Higgs very busy after the formal session asking questions.

Mr. Loving outlined the Plant Virginia Program. All in all it was a very successful evening for Plant Virginia, and I suspect that some of the Northern Virginia Nurserymen are going to sell some trees because of this program.

Albert S. Beecher  
Editor

\* \* \* \* \*

LANDSCAPE DESIGN STUDY COURSE PLANNED FOR VIRGINIA

Virginia Polytechnic Institute, Blacksburg, Virginia, in cooperation with the Virginia Federation of Garden Clubs, is planning a series of four Landscape Study Courses. The first course is scheduled for April 6, 7, and 8 at the Old Dominion Room, Miller and Rhoads, Richmond, Virginia.

Course I will cover History of Landscape Design, Art and Appreciation, Domestic Theory, Public Theory and Planting Design. The instructors for this course are:

- Mr. H. Stuart Ortloff, Huntington, New York, Landscape Architect,  
Author and Lecturer.
- Professor Hubert B. Owens, Head of Department of Landscape  
Architecture at the Uni. of Georgia.
- Mr. Raymond Nicar, Landscape Engineer for the Virginia Department  
of Highways
- Professor Albert S. Beecher, Landscape Extension Specialist and  
teacher at V.P.I.

This Virginia school is a part of the program of Landscape Design that the National Council of State Garden Clubs is sponsoring to educate garden club members and the general public to know good landscaping practices and to help more people to become guardians and critics of outdoor beauty in the U.S.A.

Detailed information about the study course may be obtained by writing your editor.

\* \* \* \* \*

COMING EVENTS

The Fifth Annual Landscape Short Course, sponsored by the Virginia Agricultural Extension Service and the Virginia Department of Highways, will be held at Blacksburg May 5, 6, and 7, 1959.

\* \* \* \* \*

### ARBORETUMS OF THE SUPER HIGHWAYS

When I first heard that our Government was launching a multi-billion dollar road building program my first reaction and perspective of the project was that of millions of trees disappearing from the American landscape and countless tons of top soil being pushed into chasms as so much fill--since then however I have read much about the program and have found that road engineers are not so ruthless--and that many as myself who have shared the apprehension of having desolate country sides has resulted in much ground work to off set the monotony that will result from the thousands of miles of concrete roadways with thousands of acres of wall to wall carpeting of grass. To date the emphasis of road engineers has been directed to crash-barriers to offset monotony and create aesthetic beauty, with some thought to sound barriers to deaden noise when passing through urban and suburban areas--but all of this is mostly in the minds of people and as far as I know not in the specifications that govern the building of these highways--mostly because I am sure that those who have originated the idea as well as those who are entrusted with their design, do not have the know how, or realize the importance of a tree planting program, even on the fundamental principle of "Conservation."

When Mr. Eaton asked me to appear on this program, I was delighted to accept, because again, the first thing that flashed in my mind was--here I have the chance to speak to Arbor-culturists and people who have the interest of tree planting at heart--but again on second thought, I now appear before you not as an expert but as a man with an idea--and the realization that many of you individually have given this much thought--however, I must go through with it and here are a few of my idealistic conception of the highways of the future.

Most of you remember as I do, that as the result of the depression of the 30's many highways and parkways were magnificently landscaped, especially up north in the New York area, and we have in great measure men like Robert Moses to thank for an inovation that has captivated our imagination and been repeated in many of our Metropolitan areas. We realize of course that the maintenance of such landscaped parkways are terribly expensive, and that except where our modern highways become inter-changes or clover leaves, or approaches to wealthy communities can we expect to duplicate these works of art--so that when I coined the term Arboretums of the super highways I meant just that. I meant that men of your calibre could harness know how, and prescribe not only design, but types of trees that would qualify as sound barriers for the engineers as

\* \* \* \* \*

Address to Southeastern Shade Tree Conference presented by Frederic Heutte, Superintendent of Parks, Norfolk, Virginia.

well as becoming economic factors of the future. I do not believe that it is stressing our imagination too far if we were to explore the possibilities of extending highway set backs several thousand feet where economically possible utilizing this land as combination aesthetic and reforestation bands. With this thought in mind let us briefly analyze the potential involved.

Aesthetically these plantings would represent the flora of the community through which it would pass--which in itself would lend variation and off set monotony--as in one section it might be timber for box manufacture, another for pulp and still another for lumber and so on. These wide set backs could become picnic and even camping sites--but essentially they would be designed for economic purposes which would benefit primarily the individual community in which they were located--and their returns to amortize the cost of the overall project.

I am not prepared of course to give any cost factor or economical equivalents, but I am convinced that the idea is sound and should be explored--it is not unlike what the early building program of the railroads involved, based on the proposition that their road beds eventually hauled the produce of their right-away.

I do not even possess the know how, as to the manner in which this proposition can be approached, so as to be heard by those in authority--but I am sure and confident that many who belong to this organization do--if they feel that the idea is worthwhile. In fact I have a feeling that some one may already be working on such a proposition.

As a dreamer of beautiful landscapes--I can see thousands of Virginia Cedars planted to eventually become fence posts and lattice work--throughout Colonial Virginia--becoming Locust in the mountainous regions--I can see acres of Loblolly Pines and long leaf Pines in the proximity of our paper mill--all of these not to lapse as denuded forests but as premeditated crops to be constantly refurnished. True I admit it must be carefully planned, and not only as an economical factor--but I am sure that the ingenuity of man who has so freed slave labor through the innovation of the Cotton Gin--the steam shovel--electricity, yes--even the machine that now belches a combination of seed, fertilizer, straw and asphalt that lay that wall to wall carpeting I mentioned earlier, not forgetting of course the very machines for which these highways are being built. Such ingenuity and know how I am sure combined with that of those who probe into the workings of nature and her products can emerge with super highways that I am sure can become a new perspective in our American way of life, and help build a more beautiful and prosperous America.

2

There will be some of course who will cry that Federal Highways should not compete with private enterprise even at the cost of monotony and lesser returns--others who will call the idea fantastic and impractical, but most of you I am sure will attempt to view it as a challenge to plant trees, where they can do the most good--and to replace others which have been sacrificed on the alter of progress.

Let us look upon this new imaginative road building program as part of our problem and to suggest to its originators ways and means into which trees can become a big factor--I am sure the response will be good--especially if it originates from an association of men who are devoted to its cause and who have the know how to promote Trees at their best.

To-day out of the ashes of conflagration some of which were not planned by man--rises new buildings--now factories--we see healthful surroundings where once slums held sway. The devastation of War and its threats gives rise to new concepts, just because each page and phase of history reveals a new challenge--it therefore remains for man to accept them--each of us here belong to a group, who has nature as a co-partner, and it is on this principle that I believe this challenge of Arboretums of the super highways rest upon--not as a dictated policy of just planting trees for the sake of planting, as might originate from one central planning operation--rather as a coordinated effort, permeating from the varied regions, where climatic, economic and ecological factors could promote. I can think of no finer group than this who have the ability to analyze the value of these factors together with the tools of your trade which are "TREES."

# GARDEN LOVERS' SHORT COURSE



**AUGUST 3-7, 1959**

**Virginia Polytechnic Institute**  
**Blacksburg, Virginia**



VIRGINIA AGRICULTURAL EXTENSION SERVICE, V.P.I.  
BLACKSBURG, VIRGINIA

*L. B. DIETRICK, Dean of Agriculture and Director  
of Extension*

**Fifth Annual**  
**LANDSCAPE SHORT COURSE**

VIRGINIA POLYTECHNIC INSTITUTE  
BLACKSBURG, VIRGINIA

May 5, 6, 7, 1959



Sponsors

V.P.I. AGRICULTURAL EXTENSION SERVICE

VIRGINIA DEPARTMENT OF HIGHWAYS



Leppomattox  
County  
Home  
Demonstration  
Club  
Achievement  
Day  
Program  
Thursday  
November 5, 1959



# NEWPORT NEWS GARDEN CLINIC



**SPONSORS:**

V. P. I. AGRICULTURAL EXTENSION SERVICE \*, HOME  
DEMONSTRATION CLUBS, WOMENS CLUBS, AND  
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V

*Fifth*

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V

SEE INSIDE



Exhibit 14

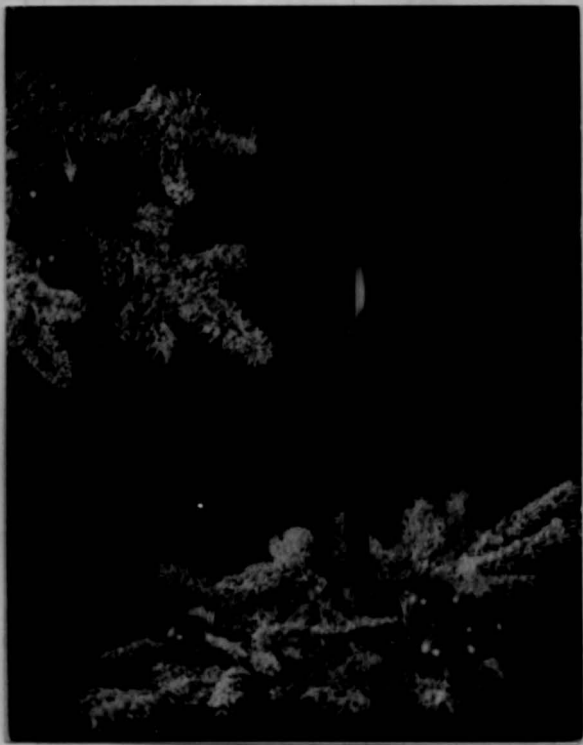


Exhibit 15

# landscape design



COURSE II

SPONSORED BY

**Virginia Federation  
of Garden Clubs**

MEMBER

National Council of  
State Garden Clubs, Inc.

IN CO-OPERATION WITH THE  
Dept. of Horticulture, V.P.I.

OLD DOMINION ROOM  
**Miller & Rhoads**  
OCTOBER 12, 13, and 14, 1959  
RICHMOND, VIRGINIA

Exhibit 16

COOPERATIVE EXTENSION WORK IN AGRICULTURE AND HOME ECONOMICS

VIRGINIA POLYTECHNIC INSTITUTE AND THE UNITED STATES  
DEPARTMENT OF AGRICULTURE COOPERATING  
STATE OF VIRGINIA

V.P.I. Agricultural  
Extension Service

March 5, 1959

Blacksburg, Virginia

Dear Garden Club Presidents:

The Department of Horticulture at Virginia Polytechnic Institute is glad of the opportunity to co-sponsor with the Virginia Federation of Garden Clubs a series of LANDSCAPE DESIGN STUDY COURSES. The first course is scheduled for April 6, 7, and 8 and will be held in Richmond.

The program will include the History of Landscape Design, Landscape Design, Planting Design, and Roadside Beautification. The lecturers will be H. Stuart Ortloff, Landscape Architect, Author and Lecturer, from Huntington, New York; Professor Hubert B. Owens, Head of the Department of Landscape Architecture at the University of Georgia; Mr. Raymond Nicar, Landscape Engineer for the Virginia Department of Highway; and Professor Albert S. Beecher, Landscape Design Specialist for the V.P.I. Extension Service.

The purpose of these study courses is to give garden club members training in Landscaping Design. It is hoped that a large army of able assessors, or critics of Landscape Design can be developed out of garden club members so that there will be more informed persons available to serve as guardians and critics of outdoor beauty.

A detailed program has been sent to all garden club presidents by the State Landscape Design Chairman Mrs. Alfred B. Schad of Richmond. At your next meeting, please bring this study course to the attention of your garden club members. I hope that it will be possible for your club to be represented at the school.

Since many garden club members are not familiar with the various bulletins and circulars that have been prepared on Landscaping by the Department of Horticulture, I am enclosing a list of available publications. Garden club members may obtain copies of this literature by individually contacting the County Extension office or by writing to the V.P.I. Extension Mailing Room.

The Department of Horticulture prepares monthly LANDSCAPE NOTES. Your Horticultural or Landscape Chairman may obtain a copy of these notes by

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Garden Club Presidents

- 2 -

March 5, 1959

indicating to your County Extension Agent or Home Demonstration Agent that you would be interested in receiving future copies. We do not maintain a mailing list for these LANDSCAPE NOTES at Blacksburg.

With best wishes,

*Albert S. Beecher*

Albert S. Beecher  
Associate Horticulturist

ASB/nc  
Copy to County Extension Agents  
Enclosure (1)

The program will include the history of landscape design, landscape design, planting design, and landscape maintenance. The lecturers will be H. Stuart Gifford, Landscape Architect, Author and Lecturer, Longwood Gardens, New York; Professor Robert H. Owen, Head of the Department of Landscape Architecture at the University of Georgia; Mr. Raymond Klear, Landscape Engineer for the Virginia Department of Highways; and Professor Albert S. Beecher, Landscape Design Specialist for the V. I. Extension Service.

The purpose of these study courses is to give garden club members training in landscaping design. It is hoped that a large array of aids, materials, or articles of landscape design can be developed out of garden club members so that there will be more informed persons available to serve as consultants and critics of outdoor beauty.

A detailed program has been sent to all garden club presidents by the State Landscape Design Chairman Mrs. Alfred B. Stadel of Richmond. At your next meeting please bring this study course to the attention of your garden club members. I hope that it will be possible for your club to be represented at the school.

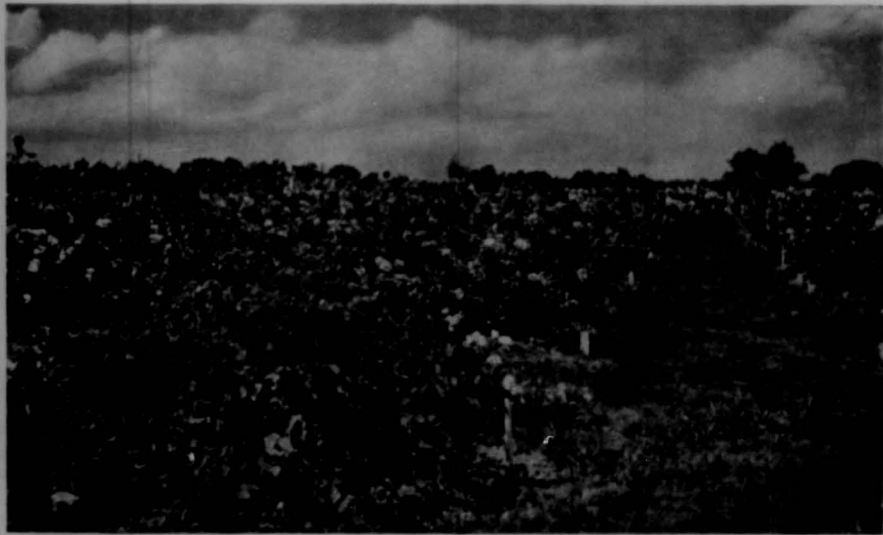
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The Department of Horticulture prepares monthly LANDSCAPE NOTES. Your Horticulturist or Landscape Chairman may obtain a copy of these notes by

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# GARDEN ROSES for VIRGINIA

A. G. SMITH, JR., Associate Horticulturist  
Virginia Polytechnic Institute



A general view of the experimental rose plots at V. P. I. as they appeared August 20, 1940. At that time records were being kept on approximately 6,000 bushes of more than 500 varieties

# GARDEN ROSES FOR VIRGINIA

A. G. SMITH, JR., Associate Horticulturist<sup>1</sup>

## Introduction

Roses have a universal appeal. The blooms attract the eye through a wide range of colors and forms. The texture of the petals appeals to our sense of touch; while the fragrance of the rose is admired throughout the world.

Every family in Virginia who owns a spot of land, sooner or later will plant roses. They may have a few bushes or perhaps hundreds. Regardless of the number, the owners will have many questions to be answered.

The following comments on roses are based on results of experiments at V. P. I. and on reports from many home gardeners in Virginia. It is hoped that the sketches and discussions will enable gardeners to solve some of their rose problems and help to make rose-growing an inspiring and pleasant hobby.

It is possible to have some nice roses around the home with very little effort. On the other hand, one may take his rose-growing so seriously that it becomes a burden mentally, physically, and economically.

Too many home gardeners try to go professional. This paper is written solely for amateurs. It is also intended to encourage a little laziness among Virginia gardeners to the end that they will give their roses fewer treatments and thus lessen the chances of injuring them with too much attention.

## Too Many Rules

Much confusion has been caused by writers who lay down definite rules for growing garden roses. Many of these rules apply to specific locations and conditions. They cause failures and disappointments when followed literally in different parts of the country.

Even in an area as limited as Virginia, there are distinct geographic belts. The soils in these areas vary; and there is a difference in humidity

and temperature. A set of rules which might fit one belt may not work at all in others.

Instead of rules, it is safer to refer to facts or principles of plant growth which have become known through the work of many investigators. Such facts would apply to all sections of Virginia. For example, consider:

Fact No. 1: Rose roots cannot grow or live unless the soil contains oxygen.

This means that any condition which prevents the normal aeration of the soil may stop the growth of the roots. If air is excluded from the soil long enough, the roses will get weaker or die.

Some of the things which may prevent soil aeration are:

- (1) Poor drainage, allowing water to stand in the soil. (Plates I, II, & III.)
- (2) Use of too much manure, peat or other water-holding materials under the plants.
- (3) Watering too frequently.
- (4) Settling and packing of soil over a period of years.
- (5) Excessive amount of mulch.

The roots of roses are quickly damaged or killed by water standing in the soil.

Even sloping ground may be poorly drained because of a tight subsoil or because of rock close to the surface. Such soils are usually first too wet and then too dry. (Plate II, A, B, C.)

Rose beds are often made by digging a trench in tight (heavy) soil. When these trenches are filled with loam and organic material, this change in the soil structure makes it possible for the trench to catch water faster than the tight soil can absorb it. If no drainage outlets are provided, the trench will fill with water every time a sufficient amount of rain or hose water gets in it. (Plate II, B. Plate III, A.) Experiments at the V. P. I. rose plots included two trenched beds 66 feet long without tile drains. These beds were on a slope where one end was

<sup>1</sup>All sketches drawn by R. A. Jester, Jr. student assistant in horticulture.

about 2 feet lower than the other. For a period of 5 years some bushes at the lower ends died every season, while those growing up-hill in the same beds rarely had to be replanted.

Fact No. 2: Almost 95 percent of all the dry matter (everything but water) found in an entire rose bush comes from the leaves. The small remainder (less than 10 percent) comes from the fertilizers, manure, and soil chemicals.  
(Plate IV, B.)

The leaves are factories of marvelous design. In order to develop these factories and keep them in operation, very small quantities of minerals are needed. The chief raw products used by these factories to make the bush grow are air and water. In the presence of sunlight these materials are changed into carbohydrates. As most gardeners know, these carbohydrates are the basic materials which form the dry matter of plants. (Plate IV, B.)

Sunlight is of primary importance. Roses do best in full sunlight. However, they may be grown where they get as little as 2 to 4 hours of direct sunlight a day. (Plate I, C.)

Fact No. 3: Rose roots cannot use chemical fertilizer until it becomes a part of the soil water.

How does the fertilizer enter the rose bush?

The sap in the roots is separated from the soil solution by the outer cell walls of the very small rootlets. The fertilizer materials which are dissolved in the soil solution move through the cell walls and into the roots. From here they are carried to the various parts of the plant to help promote its growth.

On the contrary, if the soil solution contains an excessive concentration of fertilizer, the roots of the plant may be "burned." In a short time the roots and entire plant may die.

Animal manures also may injure roses when used in excessive amounts or applied when they are too fresh. (Plate III, A.)

The soil for garden roses may be almost any type known in Virginia. It must hold the plant, moisture, soil air, small amount of mineral plant food, and

enough humus to provide a normal supply of soil organisms. In general, the soil should be slightly acid. Few rose gardeners are willing to stop when they have satisfied these simple requirements. Many roses in Virginia gardens suffer from over-feeding. Fertilizers cannot take the place of the carbohydrates which are manufactured in the healthy leaves.  
(Plate IV.)

The best roses ever grown at the V. P. I. Experiment Station were set without trenching and without animal manures. The sub-soil had been loosened. Two crops of soybeans and two crops of rye had been plowed into the top soil. No fertilizer was applied on the roses until the second season.

Fact No. 4: The number of blooms produced by a rose bush is proportional to the number of healthy leaves. The number of leaves required to form a rose bloom varies with varieties.  
(Plate IV, A.)

Some of the factors which may cause a reduction in the number of healthy rose leaves are:

- (1) Bushes planted too close together. (Plate VI, A, B, C.)
- (2) Severe pruning.
- (3) Variety not suited to location.
- (4) Damage from insects and diseases. (Plates VIII & IX.)
- (5) Cutting too much foliage with blooms.
- (6) Lack of sunlight. (Plate I, C.)

Fact No. 5: Rose plants from any section of the country will grow well in Virginia, provided the bushes are in good condition when planted and are of suitable varieties.

Fact No. 6: Roses may be planted bare-root whenever they are dormant and when the soil is not too wet.  
(Plate V.)

If the winter temperature varies from hot to cold, as it did in 1949-50, late spring planting might be best. However, in an average season, dormant roses planted December to March probably will show less storage injury than bushes shipped in late spring.

During the seasons 1937-1941, roses were planted every month at the V. P. I.

rose plots, including December through April. Bushes in good condition when received did equally well regardless of the month planted.

Potted roses may be set at almost any time.

Fact No. 7: Roses usually have their feeder roots near the surface and these roots are often damaged by cultivation.

Studies at V. P. I. showed that roses mulched with straw or sawdust were equal in vigor and production to those given a shallow cultivation every week to ten days. Deep cultivation caused serious injury to the roses. (Plate VII.)

If it is necessary to dig around roses to remove grass roots, do this work in late winter before growth starts.

#### Pruning

Fact No. 8: Severe pruning robs the bush of food stored in the canes. Strong bushes are weakened. Weak ones are often killed.

When hybrid teas in the V. P. I. rose plots were pruned, all large canes were cut above the first fork. Tall bushes were pruned high and those with lower, spreading habits were pruned accordingly. (Plate XII.)

Polyanthas (Floribundas) were pruned lightly. On most plants the removal of the weakest and dead canes was sufficient. (Plate XIV.)

Hybrid perpetuals vary in their habits of growth. Some may be kept 3 to 4 feet high, while more vigorous varieties would do best at heights of 6 to 10 feet.

True ramblers, such as Dorothy Perkins, may be pruned rather severely as soon as the flowers fade. The young canes produce flowers the following year. (Plate XV.)

Old canes may be left year after year on many climbers, such as Paul's Scarlet and Mary Wallace. Pruning consists of cutting out dead and weak wood and then shaping the plant to fit the allotted space. (Plate XV.)

Prune all bush roses in late winter or early spring. Put caulking compound on all cuts. (Plate VIII, A.) This material protects the canes from carpenter bees, and prevents water and di-

sease organisms from getting into the canes. It may be bought at hardware and building and supply stores.

#### Propagation

Roses for home use usually are budded on some understock or are grown from cuttings. The first are sold as budded plants (Plate V, A.), while those from cuttings are called own-root roses. (Plate XI.)

Plate X shows the several steps in "T" budding. This operation may be performed whenever the bark slips. In the mountain area of the state, this will be in June and in September.

Multiflora roses are used as understocks throughout the east, while the varieties Dr. Huey and Ragged Robin are the principle understocks used in the west.

Nurserymen are equipped to propagate strong budded bushes. These are shipped as dormant two-year plants. A "two-year old" bush has a two-year root (understock) and a one-year top. (Plate V, A.)

Cuttings are about right for rooting when the bloom fades. (Plate XI.) Place the cutting about 2½ inches deep in well-drained soil. Protect from sun. Cover with a glass jar, being careful not to damage the leaves. Water, when necessary, to prevent drying. The use of root-inducing chemicals may hasten the growth of the roots. Many gardeners put the end of the cutting in a small potato before planting. It is best to root the cuttings where the roses are to grow. Cuttings usually root best in late summer and early fall.

#### Planting

When the rose bushes are delivered, keep them in a cool place until they can be planted. Do not let the roots freeze and do not plant in muddy soil. Follow suggestions on plate V.

Set plants two and one-half feet apart. (Plate VI, D, E, F.)

If it becomes necessary to plant roses when the soil is wet, do not pack the soil.

Do not water the plants if the soil is wet.

If the soil is "on the dry side," make a "well" around the plant after setting and pour in  $\frac{1}{2}$  bucket of water. Wait for the water to disappear. Then carefully put dry soil over the wet spot. Put a mound around all newly set dormant roses. (Plate V, D.)

Make fresh, angle cuts at the top of each cane and cover immediately with caulking compound. (Plate V, D.)

#### Cutting of Blooms

When newly-planted roses set flower buds, allow all of the blooms to develop. This helps to mature both the young wood and the foliage. If the blooms are cut without leaves, no harm is done; however, the blooms may be left on the stem until they fade and then be broken off short by bending the "hips" sideways. Good stems, with leaves, may be taken from plants that are well enough established to have abundant foliage.

Roses cut 4:30 to 6:00 p. m. usually last longer than those cut in early morning.

#### Mulches

Roses may be mulched with many different organic materials. (Plate VII, B.)

New or old sawdust of mixed oak and pine gave excellent results as a mulch at the V. P. I. rose plots. An average depth of 1 to 2 inches was used. A sawdust mulch, chiefly oak, applied each year for four years did not change the pH of the soil at the rose plots.

Straw, pine needles, buckwheat hulls, ground corn cobs, peanut hulls, cotton seed hulls, and similar materials are satisfactory for mulches. In low places and in wet seasons, mulches may damage the roses by holding excess water at the roots.

#### Watering

The roses at the V. P. I. Experiment Station were never watered, except in four small plots. Although the roses were in full sunlight and had but little protection from the wind, most of them bloomed all summer.

Garden roses are often damaged by overwatering.

#### Winter Care

When more than six thousand roses were growing in the V. P. I. rose plots, none of them, except the newly planted ones, was given any winter protection. On the contrary, the mulch, used during summer, was cleaned away as soon as the leaves dropped in December. The ground was left bare until it froze. Chemical fertilizers and a clean mulch were applied from January to March.

If tender varieties are planted in the colder sections of Virginia, obviously some protection may be needed.

In general, roses in Virginia are damaged by putting a mound around them in winter, unless they have just been planted. (Plate V, D.)

#### Rodent Control

Rodents often damage roses. Moles make runs which are used by mice. When other food is scarce, mice feed on the bark and roots of some trees and shrubs.

When rose bushes at the V. P. I. plots were being taken up for root examination, many were found with mouse injury. On some, all the bark had been eaten from the base of the bush. Although a systematic plan for poisoning the mice was set up and followed at the V. P. I. rose plots from 1937 to 1941, World War II stopped all work at the plots and the mice multiplied in great numbers.

A mimeographed leaflet on rodent control is available through the Department of Horticulture at V. P. I.

#### Types and Varieties

Perhaps the best way to decide on suitable varieties of roses for your community is to examine the roses which are growing in the neighborhood now.

The following lists are intended for those who cannot get this information locally. There are hundreds of other good varieties.

#### Tea Roses

While varieties in this group are relatively tender, they are especially good for the middle and tidewater belts of Virginia. The Teas are more resistant to black spot than many other types. They should be pruned very little.

SOME DEPENDABLE VARIETIES

HYBRID TEAS

	<u>Color</u>	<u>Height</u>
Charles K. Douglas	Red	Tall
Charlotte Armstrong	Red	Medium
Crimson Glory	Crimson	Medium
Dainty Bess	Single Pink	Medium
Eclipse	Yellow	Medium
Etoile de Hollande	Red	Tall
Kaiserin Auguste Viktoria	White	Tall
Mme. Cochet-Cochet	Pink	Medium
Mme. Jules Bouche	White	Medium
Mrs. E. P. Thom	Yellow	Medium
Mrs. Pierre S. duPont	Gold	Medium
Peace	Variable	Medium
Pink Dawn	Pink	Medium
Poinsettia	Bright Red	Tall
President Herbert Hoover	Yellow-Pink	Tall
Radiance	Pink	Tall
Red Radiance	Red	Tall
Sour Theresese	Yellow	Medium

CLIMBING HYBRID TEAS

Many of the standard hybrid teas are available in the climbing form. These should not be confused with the more vigorous hardy climbers. (Plate XIII, A, B.)

Climbing hybrid teas as a rule produce tall, scrawny canes with a limited number of blooms. They are at their best when trained against a building so the blooms can be cut from a second story porch.

<u>POLYANTHA (Floribunda)</u>	<u>Color</u>	<u>Height</u>
Donald Pryor	Light Red	Medium
Fashion	Peach	Medium
Floradora	Orange-Scarlet	Medium
Red Ripples	Red	Medium
Summer Snow	White	Medium

HYBRID PERPETUALS

	<u>Color</u>	<u>Blooming Season</u>
American Beauty	Dark Pink	Spring
Frau Karl Druschki	White	Spring-Fall
Mrs. R.G. Sherman-Crawford	Pink	Spring

HARDY CLIMBERS

	<u>Color</u>	<u>Blooming Season</u>
Dr. Huey	Dark Maroon	Spring
Dr. W. VanFleet	Pale Pink	Spring
Mermaid (Less Hardy)	Single Yellow	All
Mme. Gregoire Staechelin (Spanish Beauty)	Pink	Summer
White Dawn	White	Spring

Other Types of Roses

Bugosa	- Large shrub type. Numerous varieties.
Wild Roses	- Many beautiful forms.
China	- Interesting group, including the green rose.
Scotch	- Includes the old Harrison's yellow.
Trailing	- Good for steep banks.

CHECK LIST OF ROSE TROUBLES

<u>A. Cultural Troubles</u>	<u>What To Do</u>
Poor drainage under roots. (Plate I, A.)	Study Plate II C
Bed too low	Build it higher.
Soil too tight (heavy).	Mix in compost cinders, etc.
Soil too shallow (Plate II, A.)	Break subsoil - add humus.
Soil too loose.	Add humus and mulch.
Planting or cultivating when soil is muddy.	Press soil in hand. If it crumbles, it may be worked.
Too much fresh manure in soil. (Plate III, A.)	Don't use any.
Mulching with manure in fall.	A bad practice.
Too much commercial Fertilizer (Plate III, B.)	Next time be more economical.
Too much lime.	Apply a little sulphur or ferrous sulphate
Fertilizer put on too late in summer.	Don't do it again. Let the roses stop growing before winter comes.
Damage from tree roots.	Plant roses away from trees. Black walnut fatal.
Varieties not adapted to location.	Be satisfied with the ones that will grow.
Weak novelties.	Throw them away.
Old bushes stop growing.	Try moving them to a new spot.
Planted in frost pocket.	If no other place is available, protect from morning sun.
Set too close together. (Plate VI, A, B, C)	Have fewer bushes and more space for each.
Bushes damaged or dead when planted.	Perhaps this is all you paid for.
Planted too deep.	Roses may settle after they are planted.
Overwatered. (Plate II, B.)	Save the water and expense.
Heavy rains	Provide quick drainage.
Cloudy weather.	Hope for sunlight.
Roots cut by hoe. (Plate VII, C.)	Save roots by saving labor - mulch.
Thorns cutting bark. (See Cankers)	Cut out the offending branch, or tie to prevent blowing.
Pruned too severely	Be temperate in all things.

\* \* \*

## ROSE PESTS

Spray for the control of black spot, mildew and common insects attacking roses <sup>1</sup>

### Ingredients <sup>2</sup>

### Amount to use for 1 gallon

Maneb or zineb, 64% w.p. <sup>3</sup>	2 level tablespoons
Karathane, 25% w.p.	1 level teaspoon
Malathion, 50% w.p.	2 level tablespoons
Non-fat dry milk powder <sup>4</sup>	½ - 2 teaspoons

When dusting equipment is available and preferred, use ready-prepared dust formulations of the materials suggested above.

1. A dormant spray of liquid-lime-sulphur at the dilution of 1 part of chemical to 10 parts of water, applied in January or February before the buds start to expand, will not only help kill the winter stage of black spot and mildew but will also help control rose cane blight and certain insect pests.

Note: If the roses are not fully dormant, as shown by expanding buds, dilute the lime-sulphur 1 to 40 parts of water.

2. Fungicides and insecticides are sold under various trade names, but the percentage of active ingredients must be stated on the container. Always read the label. Adjust rates if percentages are different from those given above.

3. Wettable powder.

4. Non-fat dry milk powder is used as a wetting sticking agent. Adjust the amount of the wetting agent to suit the need. Too much wetting agent will cause the spray to run off; too little will not provide satisfactory wetting.

Note: If Japanese beetle and/or rose chafer become a problem, make one application of D.D.T. spray (2 tablespoonfuls of 50% D.D.T. Wettable powder to a gallon of water) or of 5% D.D.T. ready-prepared dust.

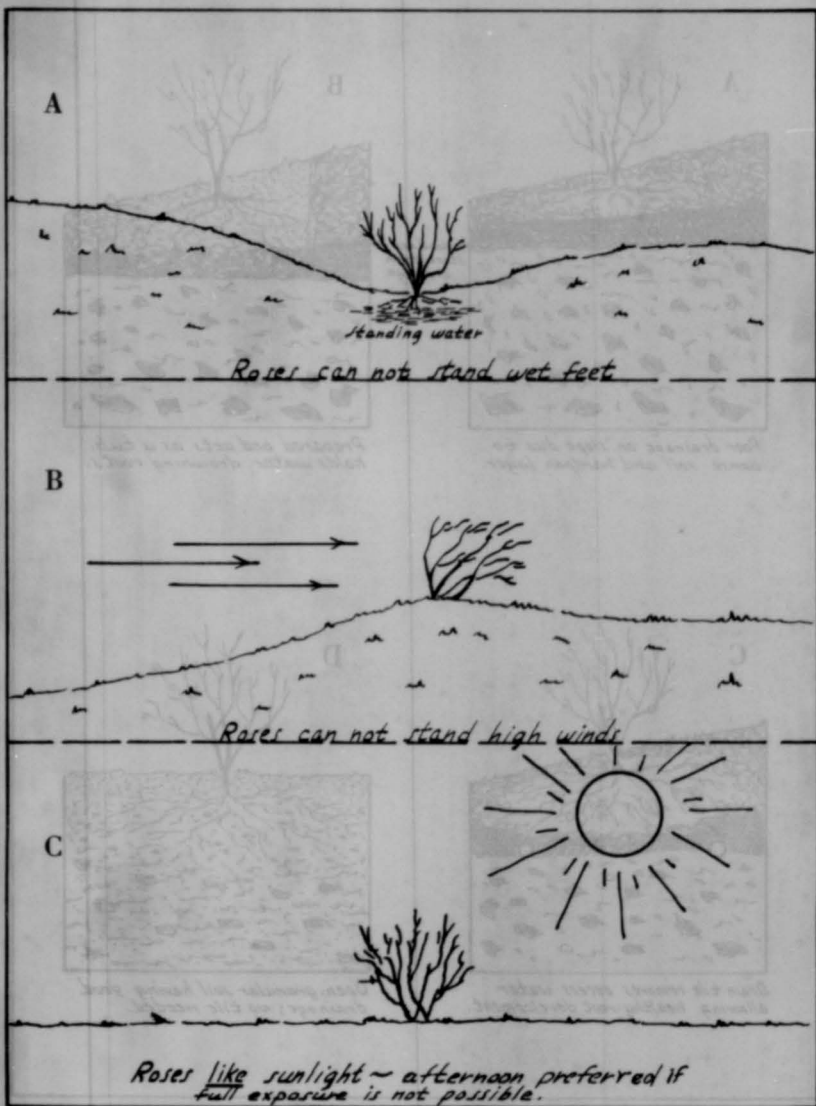
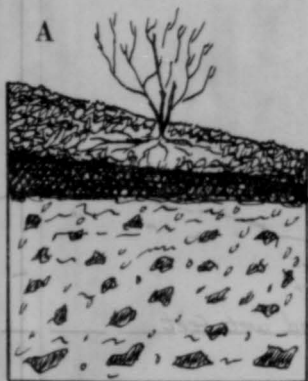
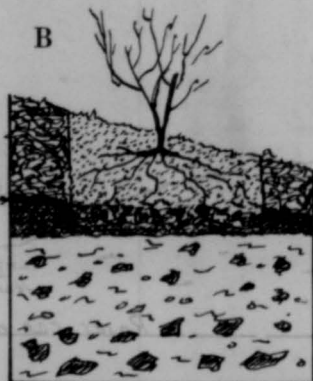


PLATE I



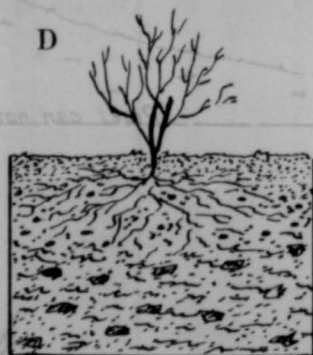
Poor drainage on slope due to dense soil and hardpan layer.



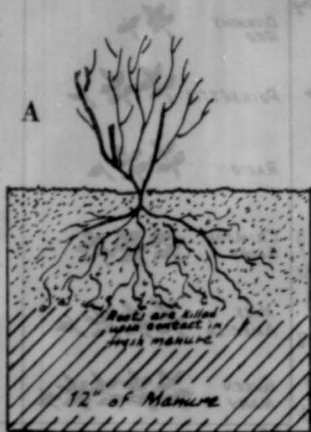
Prepared bed acts as a tub, holds water, drowning roots.



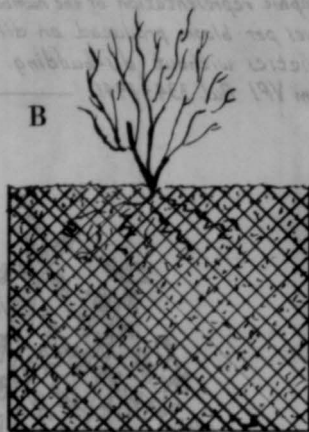
Drain tile removes excess water allowing healthy root development.



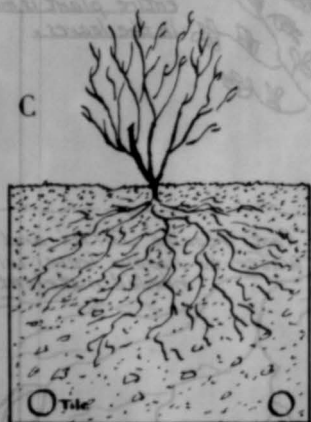
Open, granular soil having good drainage; no tile needed.



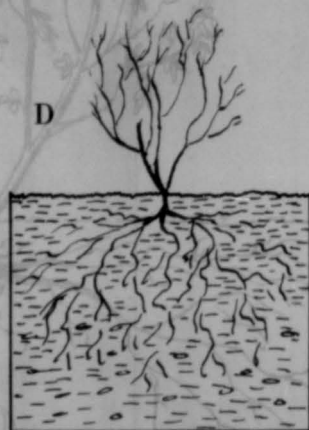
Conventional tile-type Rose bed.  
30" wide by 2" deep.



Roots are killed by contacting  
chemical fertilizers which are  
mixed into the soil.



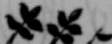



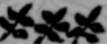

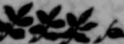

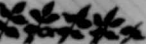



Ideal rose bed composed of blue grass  
soy, soybeans, etc. thoroughly chopped,  
and mixed into the soil.

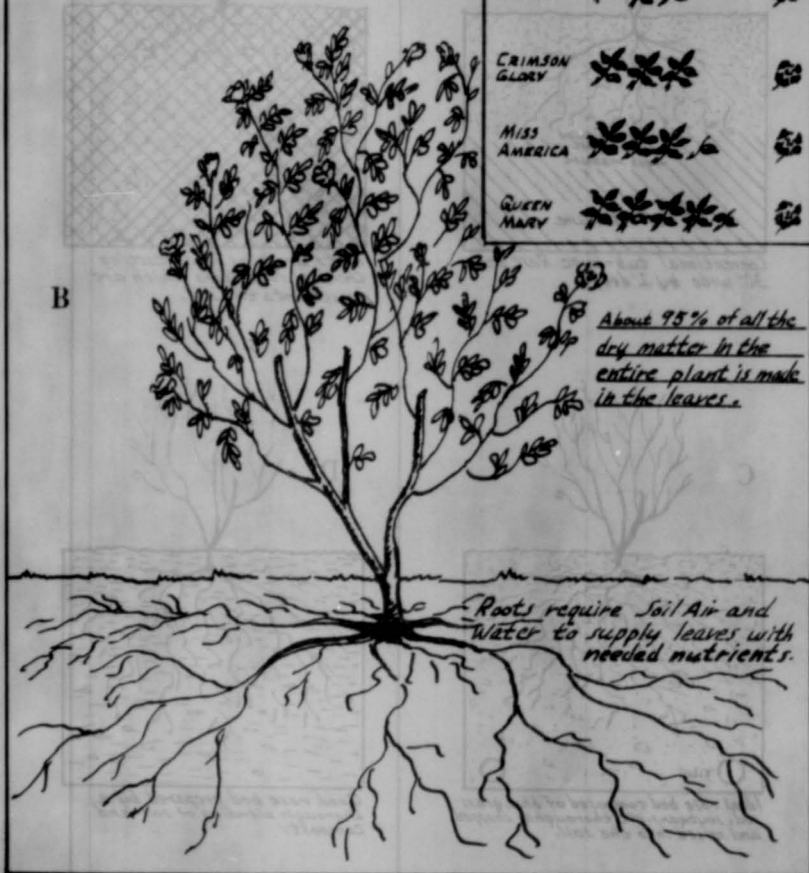


Good rose bed prepared by a  
thorough blending of soil and  
Compost.

A graphic representation of the number of healthy leaves per bloom produced on different varieties without dis-budding.  
from VPI Bul. 334-1941. →

A		Blooms
DICKSONS RED		
POINSETTIA		
RADIO		
CRIMSON GLORY		
MISS AMERICA		
QUEEN MARY		

B



About 95% of all the dry matter in the entire plant is made in the leaves.

Roots require Soil Air and Water to supply leaves with needed nutrients.

PLATE IV

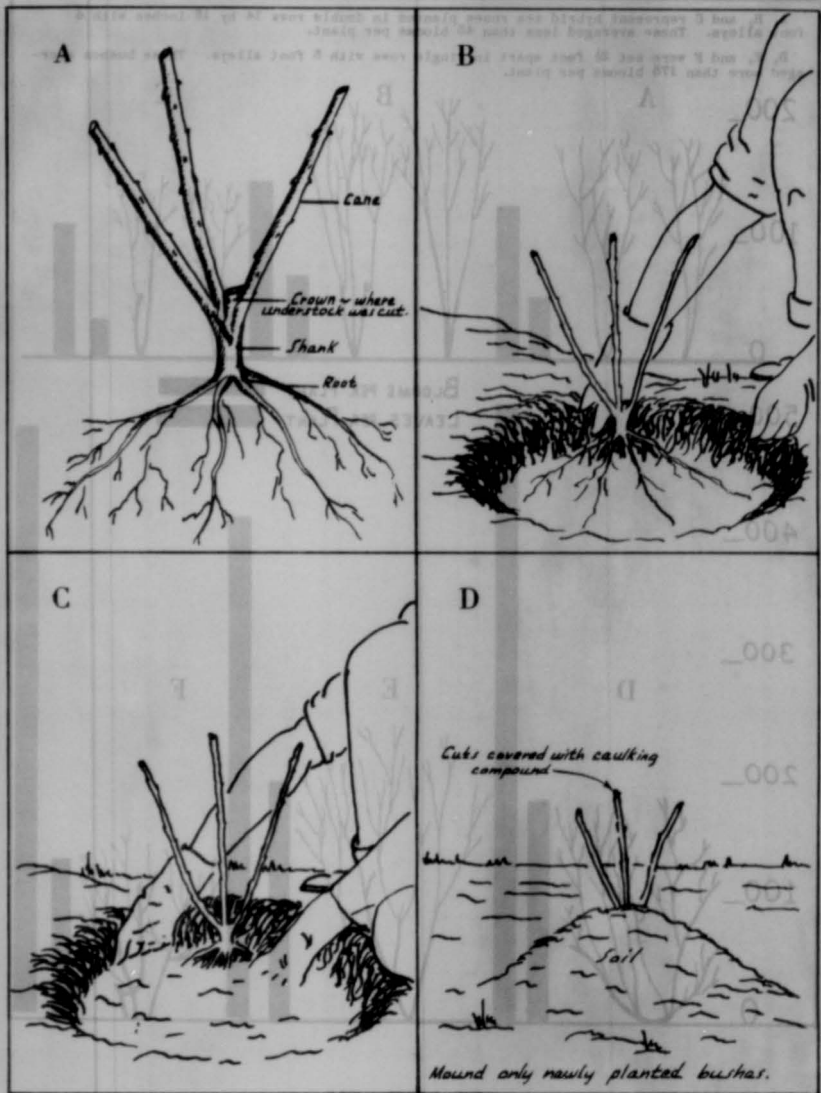


PLATE V

A, B, and C represent hybrid tea roses planted in double rows 14 by 18 inches with 4 foot alleys. These averaged less than 45 blooms per plant.

D, E, and F were set 26 feet apart in single rows with 6 foot alleys. These bushes averaged more than 175 blooms per plant.

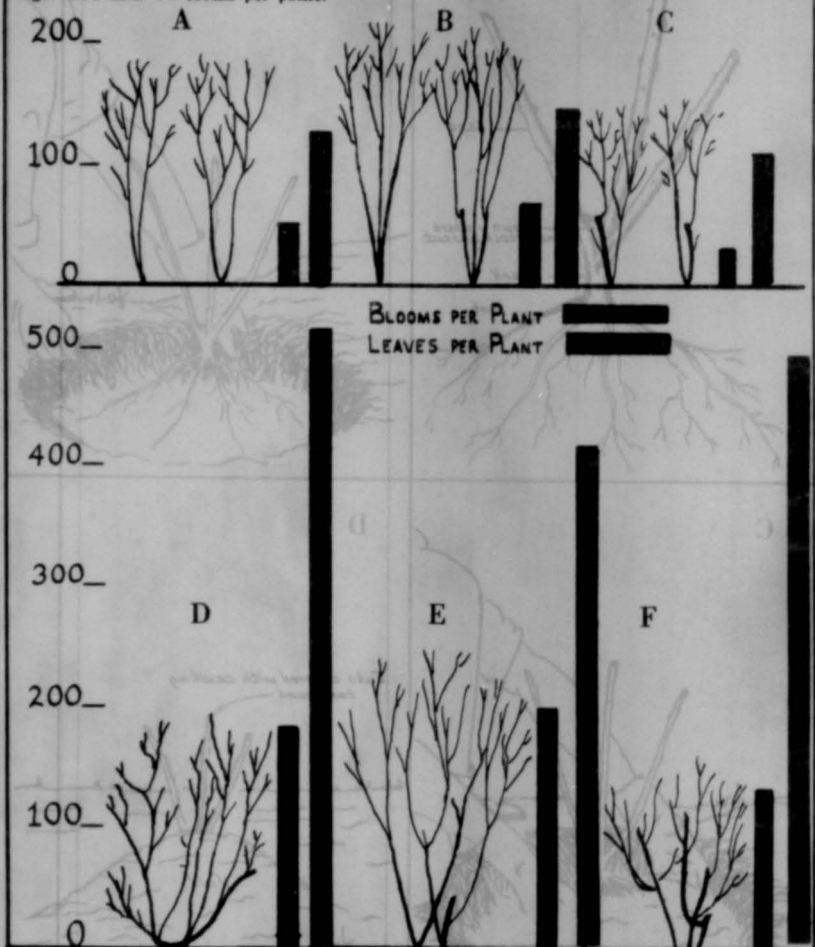


PLATE VI

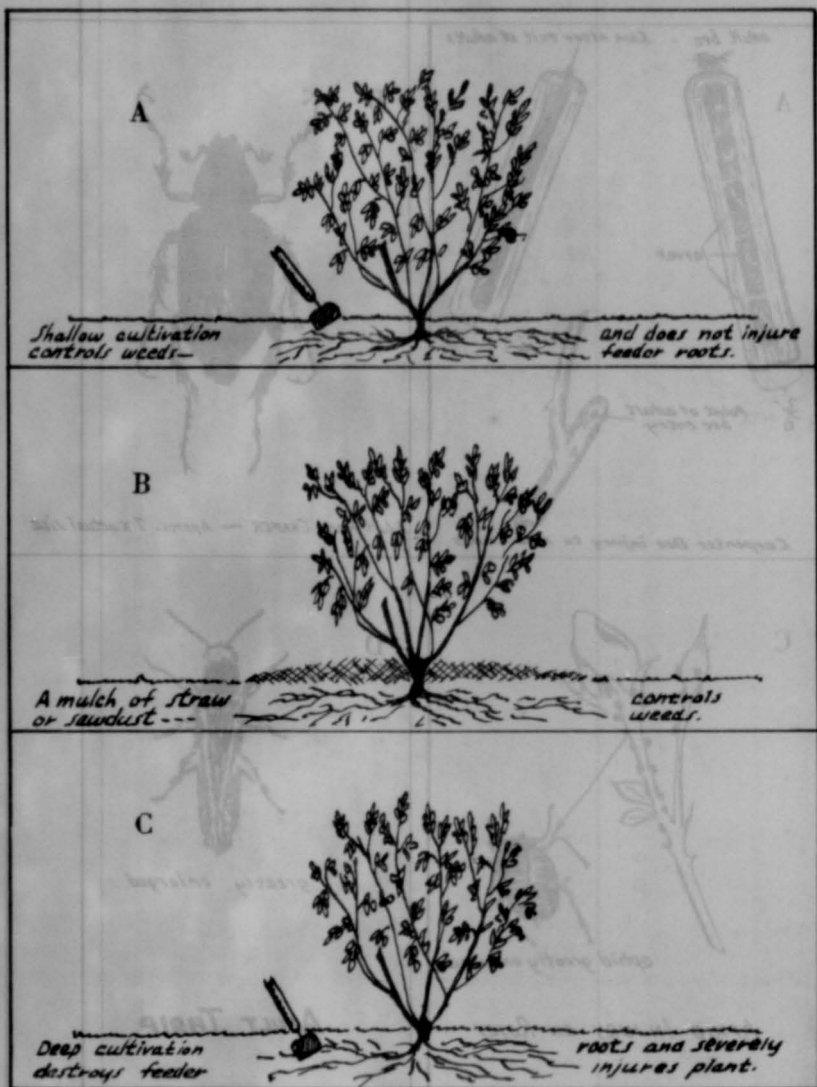
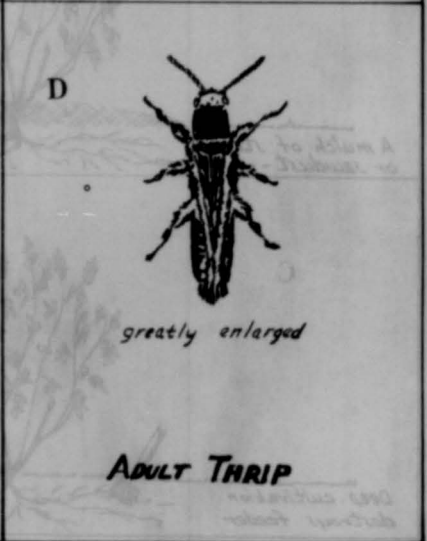
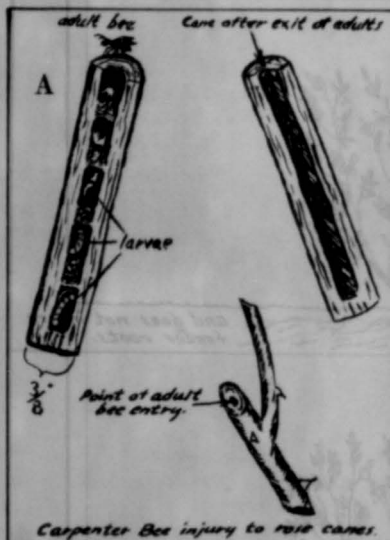


PLATE VII



A



*BROWN CANKER OF ROSES*

B



*CROWN GALL OF ROSE*

C

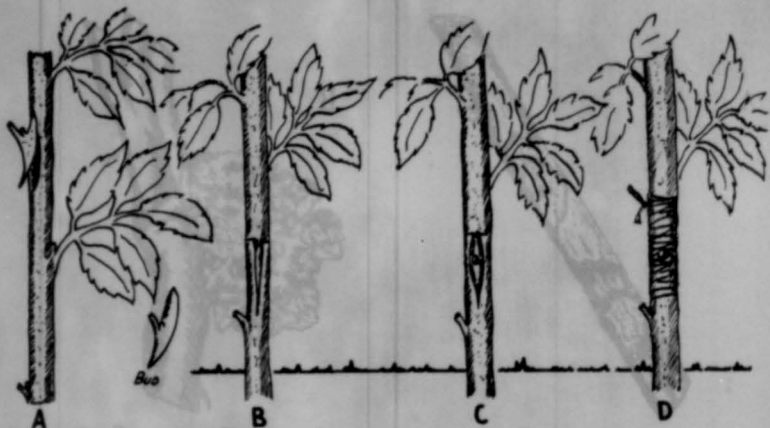


*BLACK SPOT OF ROSE*

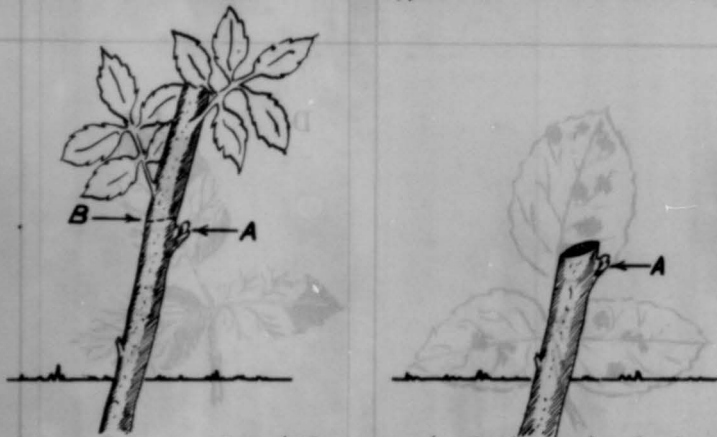
D



*SLUG INJURY ON ROSE*



*Shield budding. A, bud stick; B, bark raised on "T" shaped cut to admit bud; C, bud in place; D, bud wrapped with raffia, rubber or string.*



*A, growing bud; B, cut for removal of the understock.*

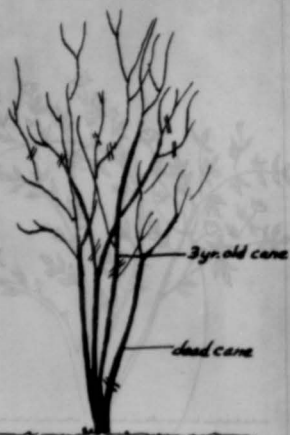
Nursery-grown roses usually are budded close to the ground on a young rose bush such as multiflora. In this case, the multiflora is called the understock. As soon as the inserted bud starts to grow, the top of the understock is cut off.



*Cutting with a Node*



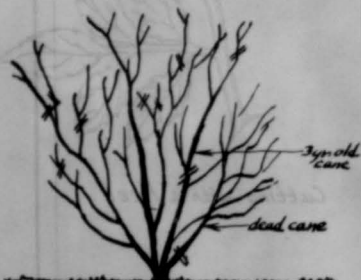
*Cutting with a Heel*



TALL HYBRID TEA BEFORE PRUNING



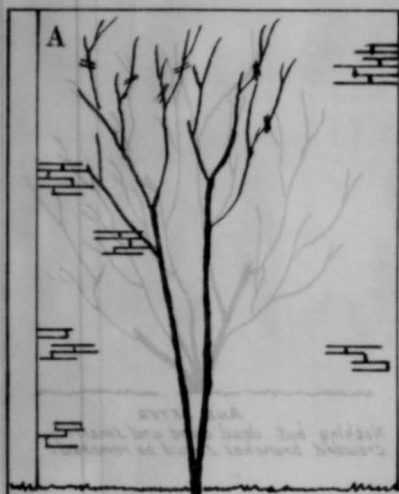
AND AFTER  
Remove only very old canes and dead wood.  
Prune in late winter.



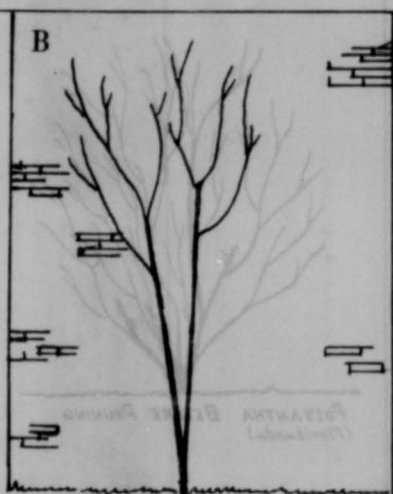
LOW HYBRID TEA BEFORE PRUNING  
(Crimson Glory)



AND AFTER  
Remove only very old canes and dead wood.  
Prune in late winter.



A  
CLIMBING HYBRID TEA BEFORE PRUNING



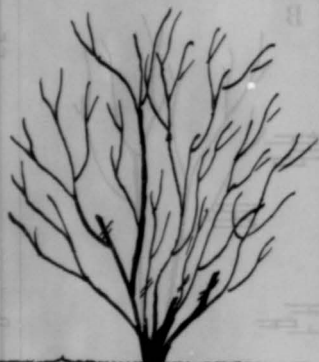
B  
AND AFTER  
Only slight pruning is practiced.



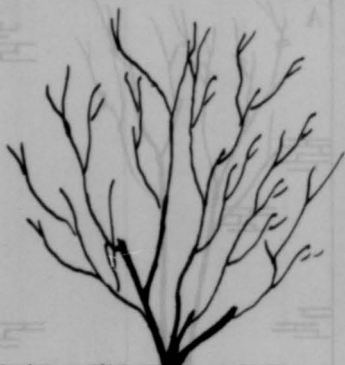
C  
HYBRID PYRAMIDAL BEFORE PRUNING  
(Frau Karl Drulichki)



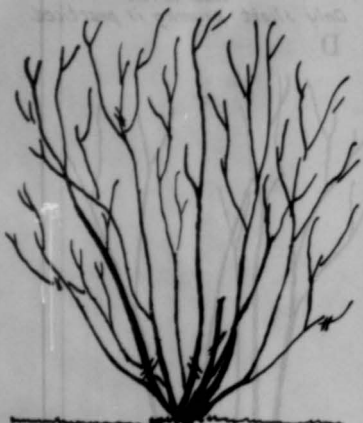
D  
AND AFTER  
Prune to remove dead or unwanted canes.



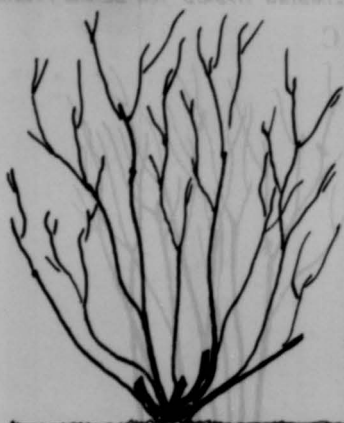
*POLYANTHA BEFORE PRUNING  
(Floribunda)*



*AND AFTER  
Nothing but dead wood and small,  
crowded branches should be removed.*

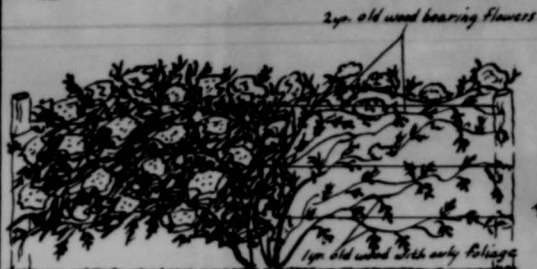


*SHRUB ROSE BEFORE PRUNING*



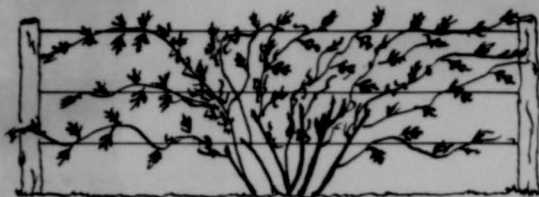
*AND AFTER  
Remove only dead wood.*

A



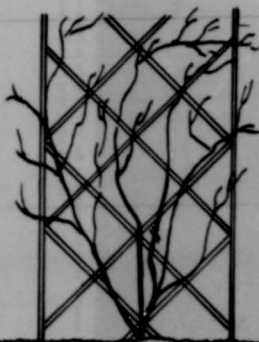
Rambler Rose Before Pruning  
(Dorothy Perkins)

B



And after  
Pruning should be done as soon as the flowers, which appear  
only on 2yr. old wood, begin to fade.

C



A Climber (Paul Scarlet) BEFORE PRUNING

D



AND AFTER  
Canes should be held from year to year unless dead.



Typical varieties as they appeared in the V. P. I. plots in late summer of 1940. The carnine variety in the foreground is Riveaux, the light pink, Miss America, which averaged 58 inches in height.

# *Design* of the *Home Grounds*



V. P. I. AGRICULTURAL EXTENSION SERVICE  
BLACKSBURG, VIRGINIA

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## CONTENTS

	Page
I. THE LANDSCAPE MAP . . . . .	3
1. Preparing the map . . . . .	4
2. Determining how the area is to be used . . . . .	6
3. Locating the areas on the map . . . . .	6
4. Development of the landscape plan . . . . .	8
5. The Planting Plan . . . . .	10
II. DEVELOPING THE LANDSCAPE PLAN . . . . .	13
1. Landscape design . . . . .	13
2. Qualifications of a well landscaped home . . . . .	13
3. Public area . . . . .	16
4. Private or living area . . . . .	17
5. Service area . . . . .	18
III. GRADING AND DRAINAGE . . . . .	20
1. Results of poor grading and drainage . . . . .	20
2. Steps in grading . . . . .	20
IV. DRIVEWAYS . . . . .	24
1. Design . . . . .	24
2. Safe and useful . . . . .	24
3. Construction . . . . .	25
V. WALKS . . . . .	30
1. Design . . . . .	30
2. Construction . . . . .	30
VI. PLANNING THE GROUNDS OF A NEW HOME . . . . .	32
1. Mistakes . . . . .	32
2. How to start . . . . .	33

# Design of the Home Grounds

ALBERT S. BEECHER  
ASSOCIATE HORTICULTURIST  
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## Part I

### The Landscape Map

Beautiful home grounds are the dreams of most people, but many people never get any further than the dream stage. Others attempt to landscape their home grounds, but are not satisfied with their efforts. Many home owners are hesitant to start improving their home grounds because they don't know where or how to start, or they are afraid that landscaping will cost too much.

#### REASON FOR FAILURE IN LANDSCAPING HOME GROUNDS

The chief reason why so many fail to fulfill their dream of attractive home grounds is that they do not make a definite landscape plan. A dress-maker has a pattern before she starts to cut out a dress; a carpenter doesn't start to build a house without blueprints; but many people attempt to landscape their homes without making a complete study or plan. Without a plan, the final results are often haphazard and unsatisfactory.

#### ADVANTAGES OF A PLAN

- (1) The adoption of a plan or program of action will allow for orderly development and the result will be unified.
- (2) If the initial cost is too high, you can develop the home grounds on a yearly budget plan. Even though the work is done piecemeal, the result will be a well-designed home yard.

#### MAKING THE LANDSCAPE PLAN

This brings us to the question, "How do I go about making a plan?" There are two ways:

- (1) Hire a landscape architect, landscape contractor, or nurseryman to prepare plans for you.
- (2) Make the plan yourself.

On the next few pages, five steps are outlined for those who want to have the fun and satisfaction of preparing their own landscape plan. The steps are:

- (1) Preparing the map
- (2) Determining how the ground area is to be used
- (3) Locating the areas on the map
- (4) Development of the landscape plan
- (5) The planting plan

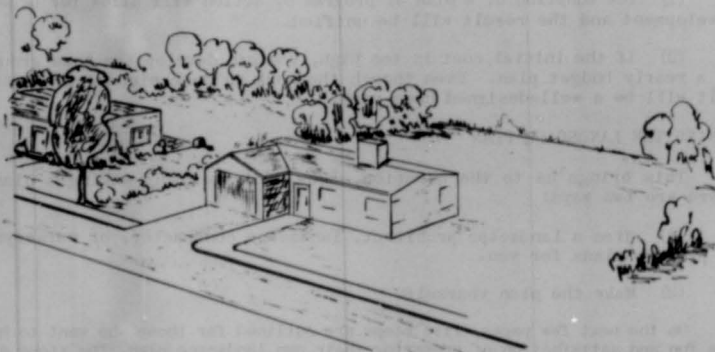
STEP 1 - PREPARING THE MAP

Prepare a map drawn to scale of the area around your home. Use cross section paper or a large sheet of cardboard or paper. If you use cross section paper, let one square equal so many feet; if you use paper or cardboard select either a common ruler or the engineer scale and draw the area around the house to scale.

Suggested scale to use:	<u>Small Property</u>	<u>Large Property</u>
Engineer Scale	1" equals 10'	1" equals 20'
Common Ruler	1" equals 8'	1" equals 16'

Your map should include the following:

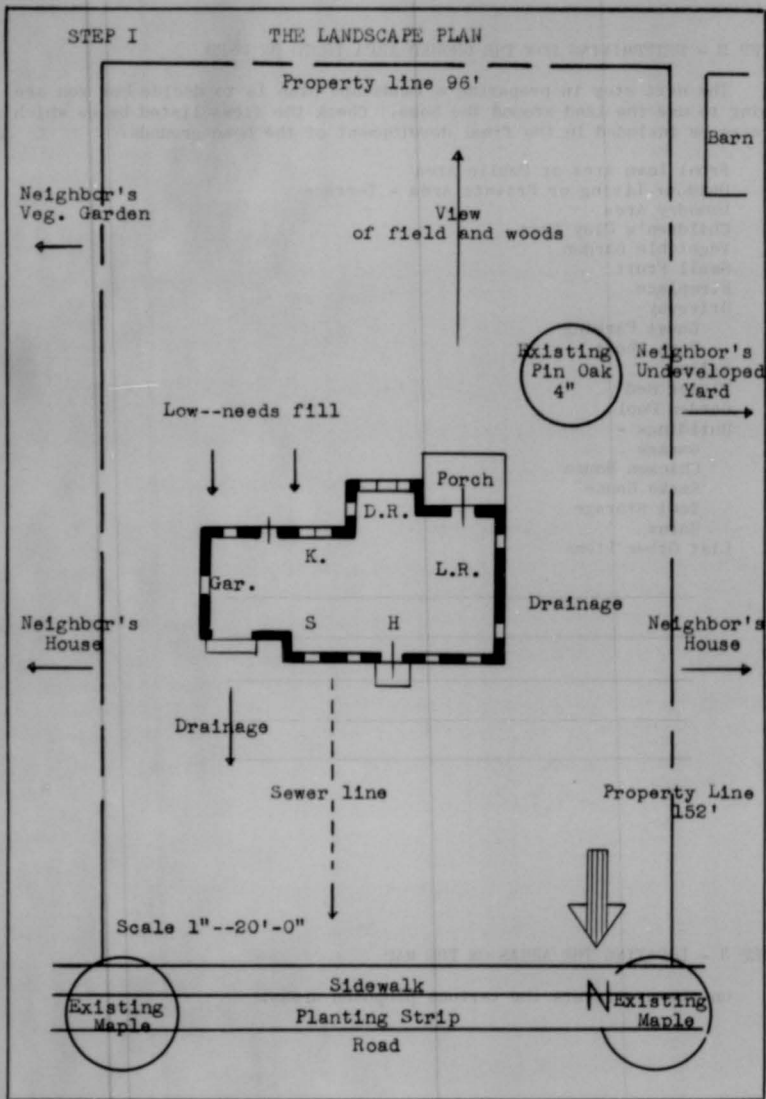
- (1) Property lines
- (2) Undesirable features of adjoining property or your own property
- (3) North point
- (4) Views--use arrows to point in direction of each good view
- (5) House, garage, other buildings
- (6) Doors, windows, porches, and location of rooms
- (7) Existing trees, rock ledges
- (8) Walks and driveways, if already constructed
- (9) Contour of the land. Use an arrow to show direction of surface water flow.
- (10) Scale used
- (11) Location of septic tank lines



Plan Your Landscaping Before You Plant

STEP I

THE LANDSCAPE PLAN



STEP 2 - DETERMINING HOW THE GROUND AREA IS TO BE USED

The next step in preparing a landscape plan is to decide how you are going to use the land around the home. Check the items listed below which are to be included in the final development of the home grounds.

- Front Lawn Area or Public Area
- Outdoor Living or Private Area - Terrace
- Laundry Area
- Children's Play Area
- Vegetable Garden
- Small Fruit
- Fireplace
- Driveway
  - Guest Parking
  - Turn About
- Walks
- Flower Bed
- Garden Pool
- Buildings -
  - Garage
  - Chicken House
  - Smoke House
  - Tool Storage
  - Barns
- List Other Items

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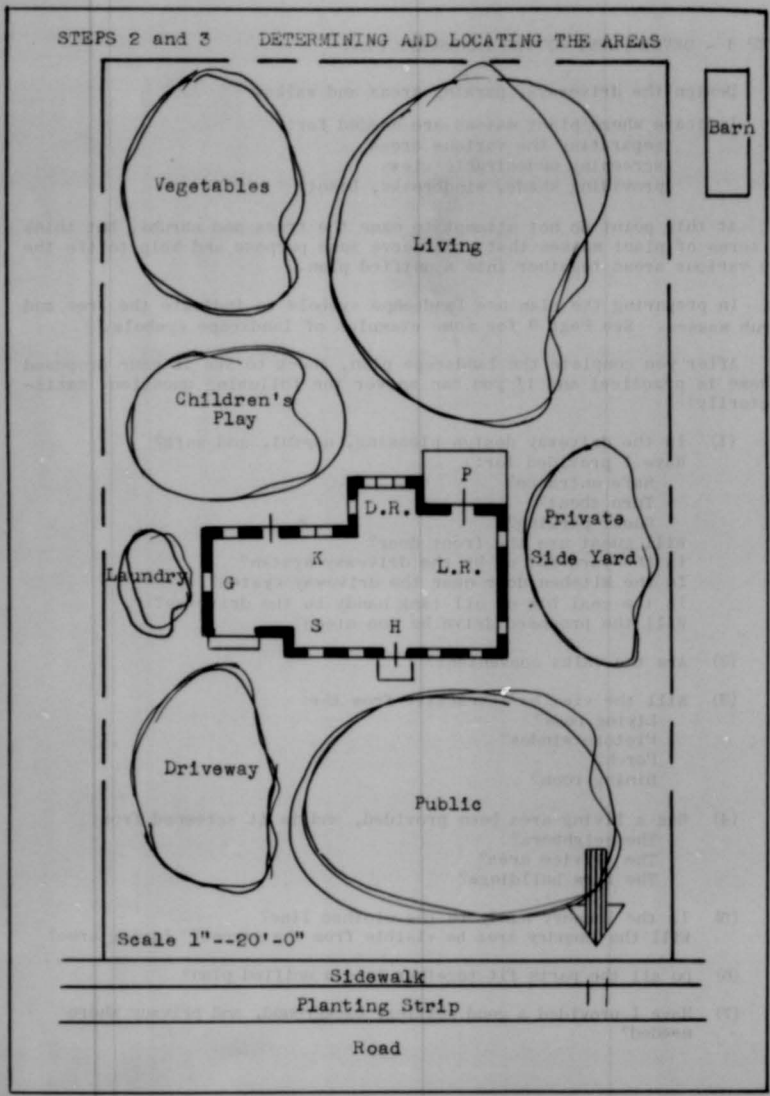
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STEP 3 - LOCATING THE AREAS ON THE MAP

On the map locate the various proposed areas.

STEPS 2 and 3 DETERMINING AND LOCATING THE AREAS



#### STEP 4 - DEVELOPMENT OF THE LANDSCAPE PLAN

Design the driveways, parking areas and walks.

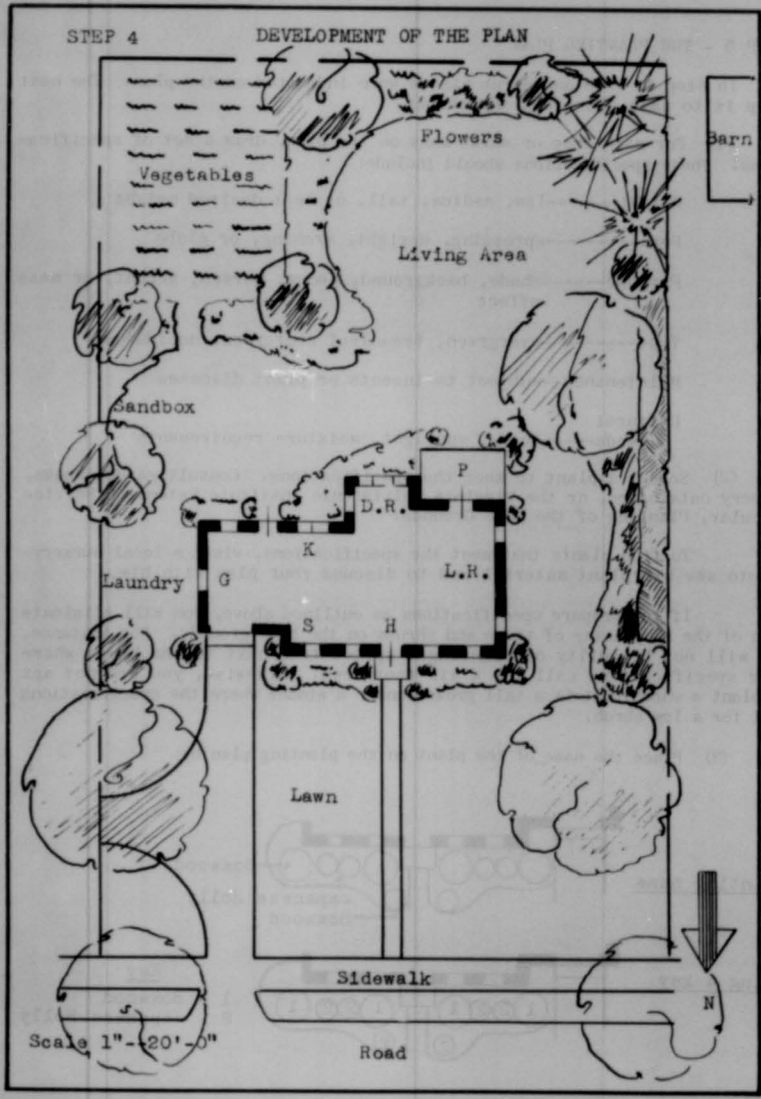
Indicate where plant masses are needed for:  
separating the various areas  
screening undesirable views  
providing shade, windbreaks, beauty

At this point do not attempt to name the trees and shrubs, but think in terms of plant masses that will serve some purpose and help to tie the the various areas together into a unified plan.

In preparing the plan use landscape symbols to indicate the tree and shrub masses. See Page 9 for some examples of landscape symbols.

After you complete the landscape plan, check to see if your proposed scheme is practical and if you can answer the following questions satisfactorily:

- (1) Is the driveway design pleasing, useful, and safe?  
Have I provided for:  
Safe entrance?  
Turn about?  
Guest parking?  
Will guest use the front door?  
Is the yard cut up by the driveway system?  
Is the kitchen door near the driveway system?  
Is the coal bin or oil tank handy to the driveway?  
Will the proposed drive be too steep?
- (2) Are the walks convenient?
- (3) Will the view be attractive from the:  
Living room?  
Picture window?  
Porch?  
Dining room?
- (4) Has a living area been provided, and is it screened from:  
The neighbors?  
The service area?  
The farm buildings?
- (5) Is the laundry handy to the clothes line?  
Will the laundry area be visible from the street? Living area?
- (6) Do all the parts fit together into a unified plan?
- (7) Have I provided a good setting, background, and privacy where needed?



## STEP 5 - THE PLANTING PLAN

In step 4, tree and shrub masses were indicated on the plan. The next step is to name the trees and shrubs.

(1) For each tree or shrub mass on the plan, draw a set of specifications. These specifications should include:

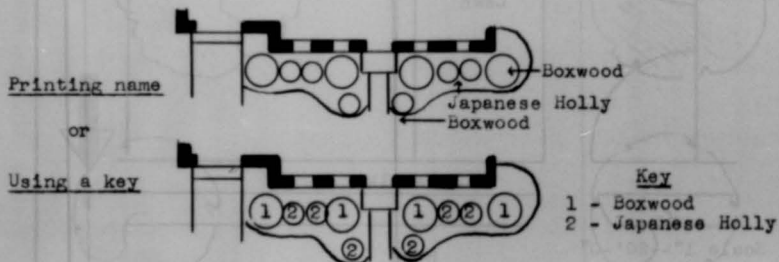
- Height-----low, medium, tall, or best desired height
- Form-----spreading, upright, arching, or globe
- Purpose-----shade, background, hedge, screen, accent, or mass effect
- Type-----evergreen, broadleaf evergreen, deciduous
- Maintenance--subject to insects or plant diseases
- Cultural needs-----shade, sunlight, moisture requirements

(2) Select a plant to meet the specifications. Consult garden books, nursery catalogues, or the Virginia Polytechnic Institute Extension Service circular, Planting of the Home Grounds.

To find plants that meet the specifications, visit a local nurseryman to see his plant material and to discuss your plan with him.

If you prepare specifications as outlined above, you will eliminate much of the misplacing of trees and shrubs on the home grounds. For instance, you will not be guilty of planting a spruce tree next to the house where your specifications call for a six-foot tree. Likewise, you are not apt to plant a shrub that is a tall grower under a window where the specifications call for a low shrub.

(3) Place the name of the plant on the planting plan by:

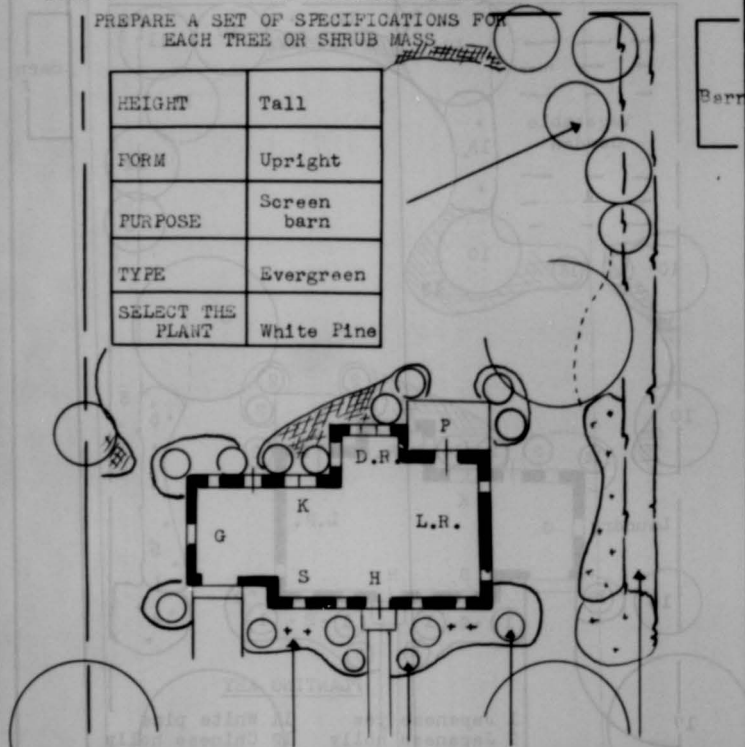


## STEP 5

## THE PLANTING PLAN

PREPARE A SET OF SPECIFICATIONS FOR EACH TREE OR SHRUB MASS.

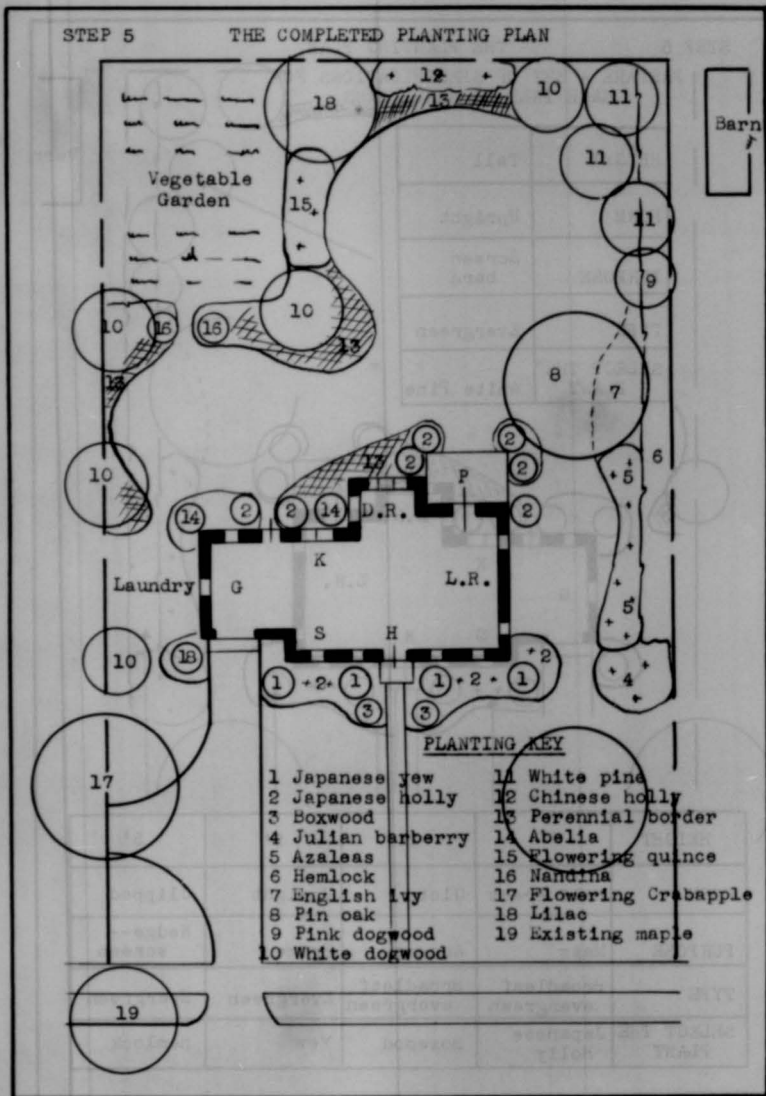
HEIGHT	Tall
FORM	Upright
PURPOSE	Screen barn
TYPE	Evergreen
SELECT THE PLANT	White Pine



HEIGHT	3'	2'	5'	5'
FORM	Half erect	Globe	Upright	Clipped
PURPOSE	Mass	Accent	Frame	Hedge-- screen
TYPE	Broadleaf evergreen	Broadleaf evergreen	Evergreen	Evergreen
SELECT THE PLANT	Japanese Holly	Boxwood	Yew	Hemlock

STEP 5

THE COMPLETED PLANTING PLAN



PLANTING KEY

- |                   |                        |
|-------------------|------------------------|
| 1 Japanese yew    | 11 White pine          |
| 2 Japanese holly  | 12 Chinese holly       |
| 3 Boxwood         | 13 Perennial border    |
| 4 Julian barberry | 14 Abelia              |
| 5 Azaleas         | 15 Flowering quince    |
| 6 Hemlock         | 16 Nandina             |
| 7 English ivy     | 17 Flowering Crabapple |
| 8 Pin oak         | 18 Lilac               |
| 9 Pink dogwood    | 19 Existing maple      |
| 10 White dogwood  |                        |

Part II

Developing the Landscape Plan

LANDSCAPE DESIGN

Before attempting to prepare the landscape plan, you should understand what landscaping is, what the qualifications of a well landscaped home are, and what principles of design you need to know and follow in developing the areas around a home.

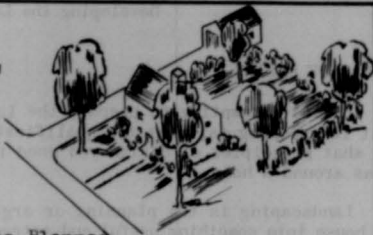
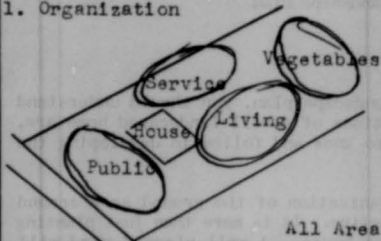
Landscaping is the planning or organization of the ground area around the house into something useful and attractive. It is more than just planting a few plants about the foundation of the house. A well planned yard will have all the parts, such as the front lawn area, living area, service area, walks and drives, work area, vegetable area, etc., arranged so that all the parts fit together into a scheme which is useful and attractive and follows the principles of landscape design.

What Are Some of the Qualifications?

- (a) A well-planned yard with the proper organization of the various areas:
  - Walks and driveways planned so they are useful
  - Adequate parking area for guest parking
- (b) Good setting:
  - The house the center of interest
  - A well developed lawn area
  - Trees to shade, frame, and to provide a background
- (c) Privacy:
  - Screening of undesirable views
  - Private outdoor living
- (d) Good relationship between the house and the grounds
- (e) Pleasing arrangement and selection of plant material
- (f) Year round interest in the yard
- (g) Good landscape construction:
  - All areas properly drained
  - Lawn areas properly graded
- (h) Good maintenance:
  - Tree and shrubs properly pruned
  - Flower and shrub borders weeded
  - Insect and plant disease control

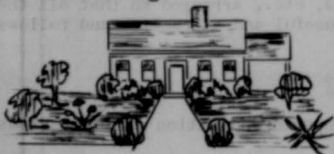
QUALIFICATIONS OF A LANDSCAPED HOME

1. Organization

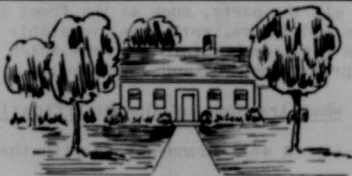


All Areas Planned

2. Good Setting



Poor--Cluttered Lawn



Good Setting

3. Privacy



No Privacy



Living Area--Private

4. Relationship Between House and Grounds



Plan The Views from Rooms of the House

34  
72

QUALIFICATIONS OF A LANDSCAPED HOME

5. Pleasing Arrangement of Plant Material



Monotonous



Variety by Varying the Height

6. Year Round Interest



Use Evergreens--Broadleaf Evergreens--Flowering and Fruiting Plants--Bulbs--Annuals--Perennials

7. Good Landscape Construction



Poor Grading



Good Grading

8. Good Maintenance



Overgrown Plant Material



Shrubs Properly Pruned

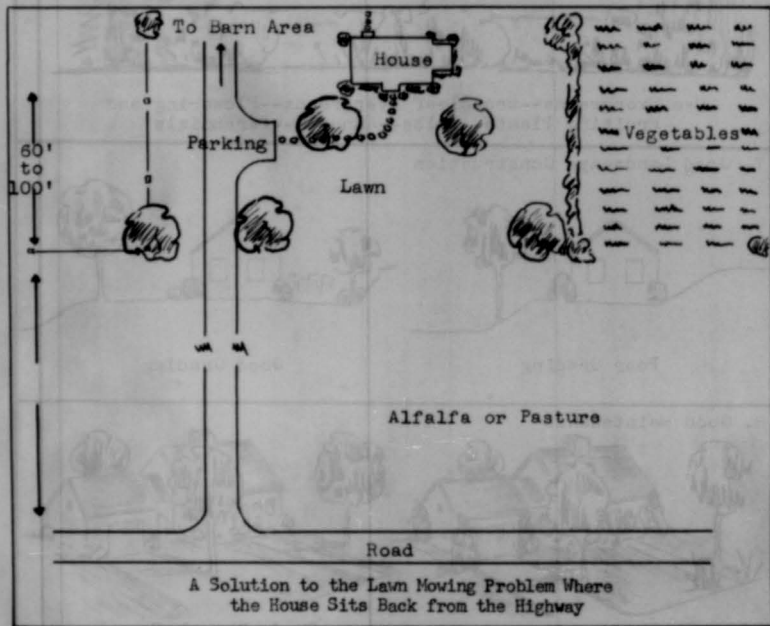
AREAS

(1) FRONT LAWN OR PUBLIC AREA

The area in front of the house is often called the public area or front lawn. It is the portion of the home grounds most often seen by the passing public. It should be developed so that it looks good at any time during the year. The best way to treat this area is to have an unbroken stretch of lawn to present the house. In addition, you need trees to enframe the house and shrubs for the base of the house to complete the picture.

If the house sits back a long way from the highway and mowing the whole area by a power or hand mower is impractical, establish a lawn near the house and maintain the area near the highway as a pasture, hay, or alfalfa field. The field and lawn areas will blend nicely together and will provide a good setting the year round for the house. Avoid the planting of row crops such as tobacco, potatoes, or corn in the area between the lawn and the highway, because they will spoil the appearance of the front area.

See plate below.



## (2) PRIVATE AREA OR THE OUTDOOR LIVING ROOM

The private area or outdoor living room has become an important part of the American home. No yard is too small to have a private sitting area where the family and guests can enjoy outdoor living without being exposed to the view of the public. Where possible there should be an easy transition from the house to the outdoor area. The ideal arrangement is to have the living room open out onto a porch or terrace which allows access to the private area.

The outdoor living room can be very simple. An open grass area that is enclosed by a wall or shrubbery will allow the home owner to sit outdoors with his guests in private. Or the owner can develop an outdoor living room that is more elaborate by introducing a series of gardens or garden features.

### HOW THIS AREA CAN BE USED

- (1) Outdoor Entertaining: It provides an outdoor sitting area where friends can be visited.
- (2) Family Relaxation: In this area the family can relax or enjoy sun bathing.
- (3) Recreation: Properly developed, it provides an area for family recreation, such as croquet and badminton. Swings, sand boxes, and other play equipment can be located in this area to provide the young folks a place to play.
- (4) Outdoor Eating: Outdoor picnics can be fun if the picnic table is located in pleasant surroundings. A fireplace where steaks or hot-dogs can be cooked adds to the fun of outdoor living. The young people especially enjoy sitting around the campfire roasting marshmallows or singing.
- (5) Aesthetic Enjoyment: Outdoor living is more enjoyable if there is a beautiful view in the distance or if shrubs, trees, and flowers are grouped to create a scene of beauty and charm.

### REQUIREMENTS OF THE OUTDOOR LIVING AREA

- (1) Privacy: The area needs to be enclosed from view of the passing public or nearby neighbors. Properly grouped shrub borders and trees will give privacy. Where the area is small, use a fence to save space. It is important to be private or screened from work areas, such as clothes line, wood piles, chicken houses, and other unsightly views, as well as from the neighbors. Without privacy, it isn't much fun to eat, sun bathe, or sit out of doors.

72

(2) Livable Touch: The addition of furniture in the outdoor living area gives a livable touch. Without the furniture, the area is not complete. A vase of flowers on the table makes the area still more inviting.

(3) Year Around Interest: The living area should be planned so that the selection of plant material is varied and there is interest during the various seasons of the year. This is especially true if the living area is visible from the rooms of the house. In the winter, select shrubs and trees with colorful bark, evergreen foliage, or colorful fruit. During the rest of the year vary the selections of flowers, shrubs, and trees so that you create interest throughout the various periods.

Pools, stone steps, paving, walls, bird feeding stands, and other architectural features will add interest to the garden. Architectural details do not change with the seasons, and they give interest and meaning to your garden throughout the year.

(4) Climate Control: The control of the weather in the living area helps to extend the length of time this area can be used. Shade trees screen the sitting area from the hot sun. Winbreaks will often cut down some of the wind in the fall and extend the length of time the area can be used. Garden pools help to give a cooling effect in the summer.

(5) Design: The living area should be of good design. All the parts of the living area should blend together to form a pleasing picture that meets the landscape principles of unity, variety, harmony, and proportion. Planning the living area on paper before you start planting will help to develop this design.

#### LOCATION OF THE LIVING AREA

There are many factors that determine the location of the living area. If possible there should be a good relationship between the living room of the house and the outdoor living room. You can then enjoy the beauty of the outdoor living area from the house.

If your house has a side porch, it is logical to develop the living area off this porch. If there is a large shade tree in the yard, you can use it as the central portion of the outdoor living area. Under the shade tree is a grand place for the setting of garden furniture.

#### (3) SERVICE AREA

The service area may include the garage court, barn area, turn-about, parking areas, laundry area, etc.

The service area should be near the kitchen door so that deliveries can be made.

34  
72

Coal or oil deliveries should be made in this area. Very often in building a house people fail to plan for coal delivery. Consequently, the coal truck has to drive over the lawn area to reach the coal window.

Screen the service area from the street and other areas. When using screening plants, keep in mind the danger of children running through hedges into the path of automobiles in the drive.

The garage court can be paved and used for a play area for such games as badminton, basketball, or shuffleboard.

#### (4) OTHER AREAS

##### CHILDREN'S PLAY AREA

The play area can be a part of the family living area or a separate area. For the very young children, a small area that is enclosed by a fence near the house is best. A swing, sandbox, or other equipment can be placed in this area. For the older children, an area for badminton, or basketball can be set aside.

##### VEGETABLE AND SMALL FRUIT AREA

When the vegetable garden is adjacent to the living area it can be separated by a flower or shrub border. Don't locate the vegetable garden too far from the house.

72

### Part III

#### Grading and Drainage

The control of water is the first important landscape problem to solve. You can solve it by proper grading and drainage. The basic principle in grading is to direct the flow of water away from the house and to grade the lawn and garden areas so that the water will not settle in any one spot or cause washouts in other spots.

#### RESULTS OF POOR GRADING AND DRAINAGE

- (1) Water in the cellar.
- (2) Low spots where water collects and the lawn turf is eventually killed. Gullies along and in drives and walks.

#### GRADING POINTS

- (1) Do not leave the lawn level but allow for a drainage slope.
- (2) In grading large areas of lawn make the ground resemble the surrounding ground.
- (3) Slope the ground away from the house. When the house is lower than the street, slope the ground away from the house by using a turf gutter or retaining wall. Place tile around the foundation wall to carry away seeping water. Water proof the foundation walls and basements floors.

#### NEW HOUSE

Make plans for grading and drainage before you start to build your house, and you will probably save money. There is a great relationship between the height of your proposed floor level and the amount of money that you will spend on grading. Adjust the floor level of your new home so there will be just enough material from the cellar hole and other cuts to make all the fill that will be required. Having dirt hauled in or carted away costs money.

#### STEPS IN GRADING

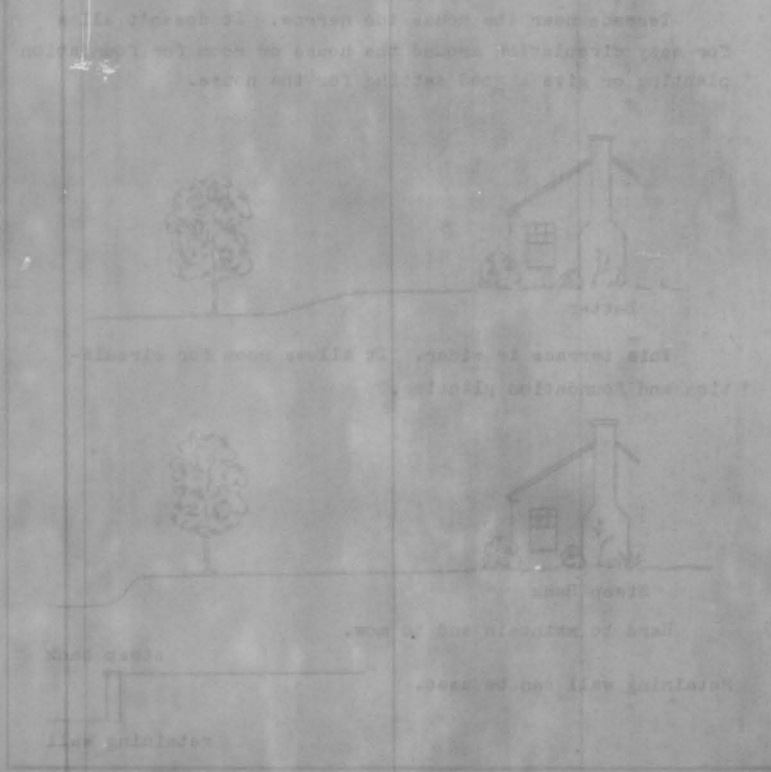
- (1) STRIP TOP SOIL from where the cellar is to be excavated and pile it away from the construction.
- (2) ROUGH GRADE - Stake out the yard very roughly showing grades. Locate drives, walks, terraces, flower beds, and the division of the various areas. Strip top soil where there is going to be a cut or fill.

72

Grade to subgrade: Subgrade is the level required before topsoil is put on, or construction material for walks or drives is added.

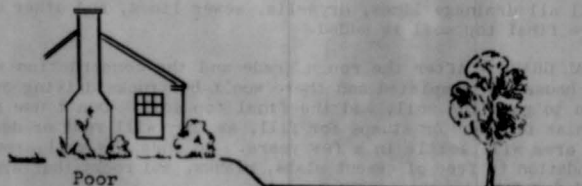
Install all drainage lines, drywells, sewer lines, and other utility lines before final top soil is added.

- (3) FINAL GRADE - After the rough grade and the construction work on the house are completed and there won't be trucks driving over the area to pack the soil, add the final top soil. Don't use rubbish such as tin cans or stumps for fill, as they will rust or decay and the area will settle in a few years. Be sure the soil around the foundation is free of cement slabs, planks, and rocks that are often used for fill by the contractor.

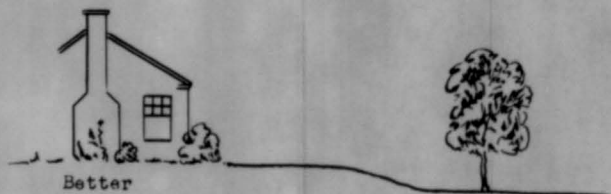


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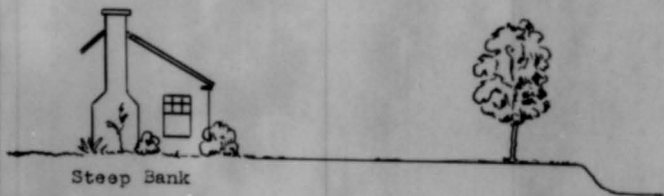
## TERRACES



Terrace near the house too narrow. It doesn't allow for easy circulation around the house or room for foundation planting or give a good setting for the house.

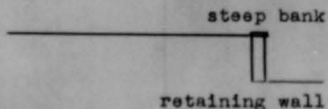


This terrace is wider. It allows room for circulation and foundation planting.



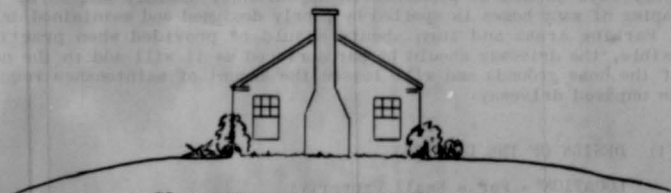
Hard to maintain and to mow.

Retaining wall can be used.

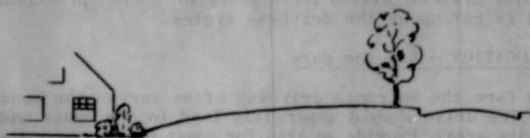


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GRADING



Slope the ground away from the house on all sides.



HOUSE LOWER THAN THE STREET

Water drains from the street to the house.  
See plate below for one solution to this problem.



When the house is lower than the street, slope the ground away from the house by using a turf gutter or retaining wall.

## Part IV

### Driveways

Driveways should be pleasing in appearance, useful, and safe. The landscaping of many homes is spoiled by poorly designed and maintained driveways. Parking areas and turn abouts should be provided when practical. If possible, the driveway should be hardsurfaced as it will add to the neatness of the home grounds and will lessen the amount of maintenance required over an unpaved driveway.

#### (1) DESIGN OF THE DRIVEWAY

##### LOCATION - For a Small Property

A direct drive on the kitchen side of the house is preferred. Locate the driveway close to the property line to avoid cutting the front lawn into two areas. Often in a small lot there is not enough space for a turn about, and the only solution is to back onto the highway.

A circular driveway system for a small lot is not practical as too much of the yard is cut up by the driveway system.

##### LOCATION - For the Farm

On the farm the entrance driveway often serves the house as well as the barns. The drive should apparently lead to the house and then to the barn or service area. Provide an area for guest parking near the front door. Otherwise, most guest are apt to use the rear door.

A direct drive is best, but sometimes where there is a steep grade, it will be necessary to use a curve in the driveway to cut down the grade. Make the curve easy and graceful. A good way to test this curve is to drive a car over the proposed driveway.

#### (2) SAFE AND USEFUL

##### TURN ABOUTS AND PARKING SPACE

In designing a driveway, check to see if the proposed driveway is practical and safe. Turn abouts should be provided whenever they are practical. It is dangerous to back onto the highways. Space for the parking of the family and guest cars is needed to prevent the main driveway system from being blocked.

##### SAFE ENTRANCE

Do not plant tall shrubbery at the entrance of a drive or allow the natural vegetation to grow so tall that it obstructs the view of the highway in either direction.

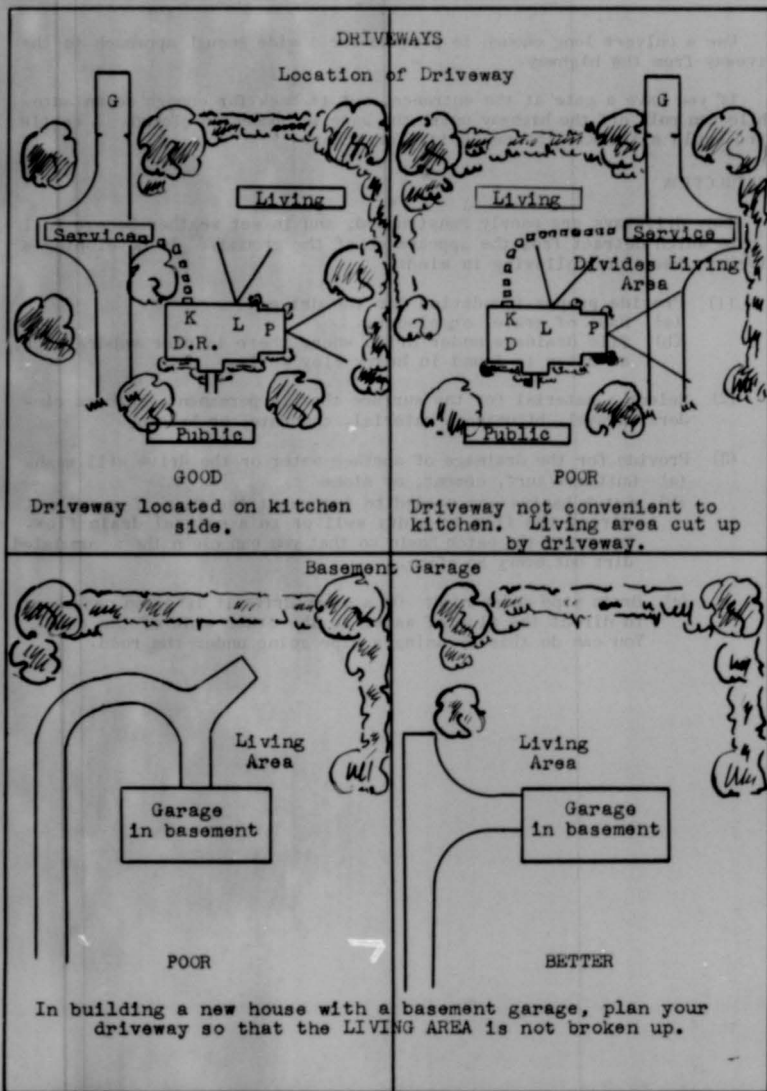
Use a culvert long enough to provide for a wide enough approach to the driveway from the highway.

If you have a gate at the entrance, set it back far enough so an automobile can pull off the highway until the gate is opened or closed. A cattle guard would eliminate the necessity for a gate.

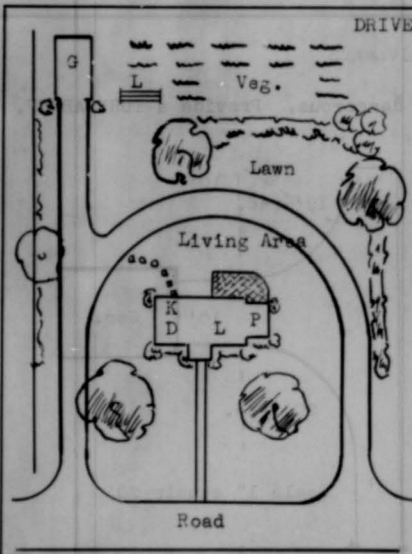
#### CONSTRUCTION

Many driveways are poorly constructed, and in wet weather become full of ruts which detract from the appearance of the grounds. In developing a driveway, keep the following in mind:

- (1) Provide proper foundation for the drive.
  - (a) Base of gravel or cinders.
  - (b) Tile drainage under drive where there is poor subdrainage, as often is found in heavy clay soils.
- (2) Select a material for the surface that is permanent, such as cinders, gravel, bituminous material, concrete, or bricks.
- (3) Provide for the drainage of surface water or the drive will wash.
  - (a) Gutters: turf, cement, or stone
  - (b) Catch basins are needed to intercept the flow of water and direct the flow to a dry well or to a natural drain flow. Construct the catch basin so that you can clean the accumulated dirt out every so often.
  - (c) Drain pipe under road: On a steep drive it is often necessary to direct the flow of water to the other side of the road. You can do this by using a pipe going under the road.



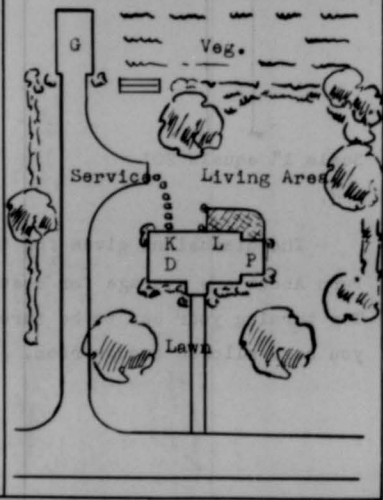
DRIVEWAYS



On a small lot, avoid the circular drive because it cuts up the yard too much. Note in the figure below that the LIVING AREA is not divided by the driveway system.

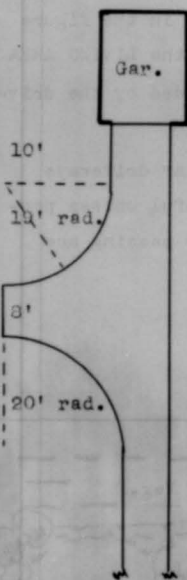
Circular driveways are not useful unless provisions for passing are provided.

A straight driveway, preferably on the kitchen side, is better for a small property than the circular system pictured above. The cost of construction and maintenance is less for a straight driveway. Note the greater opportunity for developing the LIVING AREA.

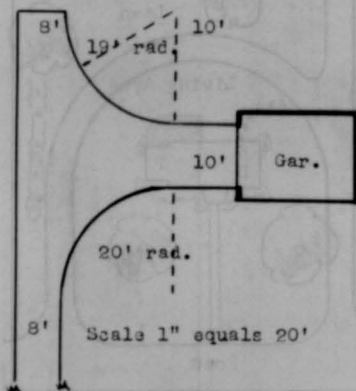


DRIVEWAYS

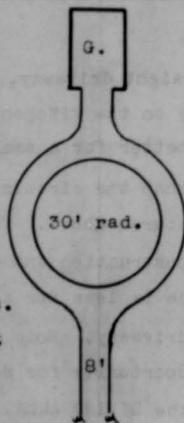
Backing out of a driveway is dangerous. Provide a TURN ABOUT.



Scale 1" equals 20'



Scale 1" equals 20'

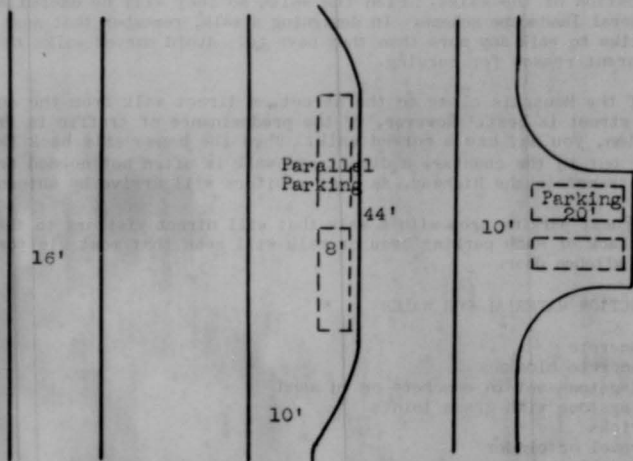


Scale 1" equals 40'

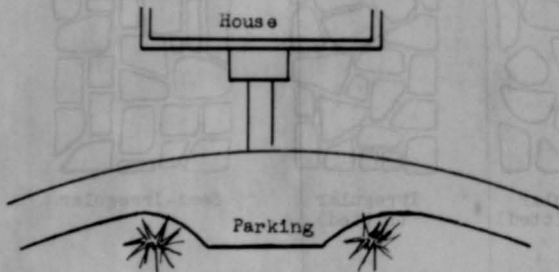
The dimensions given for the Turn About are average for most cars. Try turning your car to be sure that you have allowed enough room.

### DRIVEWAYS

In driveways of any length, there should be a place for cars to park and to pass.



Double width drive



## Part V

### Walks

In planning the home grounds, give careful consideration to the design and location of the walks. Plan the walks so they will be useful and fit the general landscape scheme. In designing a walk, remember that most people don't like to walk any more than they have to. Avoid curved walks that have no apparent reason for curving.

If the house is close to the street, a direct walk from the entrance to the street is best. However, if the predominance of traffic is from one direction, you may use a curved walk. When the house sits back from the highway out in the country, a direct sidewalk is often not needed from the main entrance to the highway, as most visitors will arrive by automobiles.

Plan a guest parking area with a walk that will direct visitors to the front door. Lack of such parking area or walk will mean that most visitors will use the kitchen door.

#### CONSTRUCTION MATERIAL FOR WALKS

- Concrete
- Concrete blocks
- Flagstone set in concrete or in sand
- Flagstone with grass joints
- Bricks
- Gravel or cinder
- Wood blocks
- Black-top construction

#### Stone Walk Patterns (Flagstone or Limestone)



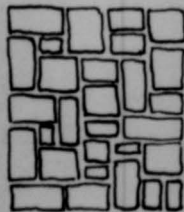
**Irregular  
(Not Fitted)**



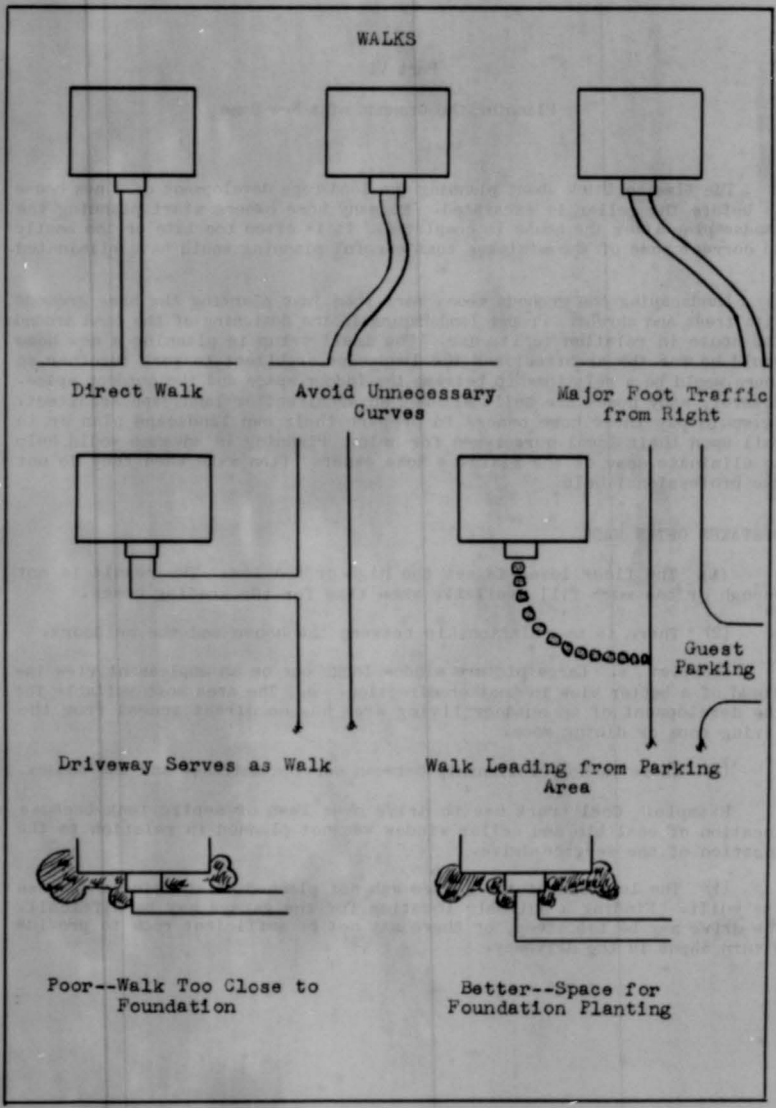
**Irregular  
(Fitted)**



**Semi-Irregular**



**Random  
Rectangular**



Part VI

Planning the Grounds of a New Home

The time to think about planning the landscape development of a new house is before the cellar is excavated. So many home owners start planning the landscaping after the house is completed. It is often too late or too costly to correct some of the mistakes that careful planning would have eliminated.

Landscaping the grounds means more than just planting the home grounds with trees and shrubs. Proper landscaping is the designing of the land around the house in relation to its use. The ideal setup in planning a new home would be for the architect and the landscape architect to work together so there would be a relationship between the indoor space and the outdoor space. However, many homes are built without an architect or landscape architect. It would pay these home owners to prepare their own landscape plan or to call upon their local nurserymen for help. Planning in advance would help to eliminate some of the mistakes home owners often make when they do not use professional help.

MISTAKES OFTEN MADE

(1) The floor level is set too high or too low. The result is not enough or too much fill available when time for the grading comes.

(2) There is no relationship between the house and the outdoors.

Example: a. Large picture window looks out on an unpleasant view instead of a better view in another direction. b. The area most suitable for the development of an outdoor living area has no direct access from the living room or dining room.

(3) There is no relationship between service entrance and the house.

Example: Coal truck has to drive over lawn or septic tank because location of coal bin and cellar window was not planned in relation to the location of the service drive.

(4) The location of the garage was not planned at the time the house was built. Finding a suitable location for the garage may be difficult. The drive may be too steep, or there may not be sufficient room to provide a turn about in the driveway.

## HOW TO START

### (1) SELECTION OF THE HOUSE PLAN AND STYLE

First, select a house plan that fits the family needs. Then, study the house plan in relation to the lot. The best method is to hire an architect to design a house that fits your needs and the topography of your lot. However, many people prefer to select a ready-made plan from a catalogue. This method often has its disadvantages because the arrangement of the rooms or the style of the house may not fit the property.

### (2) LOCATION OF THE HOUSE ON THE SITE

After you select the house plan, the next step is to locate the house on the site. Prepare a map of the site (How to make the map is explained in Part I) and cut out a piece of cardboard at the same scale as the measured map to represent the house. Mark the location of the rooms, doors, and windows on the cardboard. Then move the cardboard plan of the house around on the map until you find a suitable location for the house. Check to see whether this location will allow space for the various areas needed in the development of the grounds, such as public area, living area, service area, vegetable area, etc. Develop a landscape plan. After the landscape plan is completed, check your plan to see if your proposed scheme is practical and whether or not you can answer the following questions satisfactorily:

- (a) Is the driveway design pleasing, useful, and safe?  
Have I provided for:
  - Safe entrance?
  - Turn about?
  - Guest parking?
    - Will guest use the front door?
  - Is the yard cut up by the driveway system?
  - Is the kitchen door near the driveway system?
  - Is the coal bin or oil tank handy to the driveway?
  - Will the proposed drive be too steep?
- (b) Are the walks convenient?
- (c) Will the view be attractive from the:
  - Living room?
  - Picture window?
  - Porch?
  - Dining room?
- (d) Has a living area been provided, and is it screened from:
  - The neighbors?
  - The service area?
  - The farm buildings?
- (e) Is the laundry handy to the clothes line?  
Will the laundry area be visible from the street? Living area?

- 72
- (f) Do all the parts fit together into a unified plan?
  - (g) Have I provided a good setting, background, and privacy where I needed them?
  - (h) Is the house set back far enough in case the highway or town decides to widen the road?
  - (i) Will the proposed location of the septic tank and drain fields interfere with the planting of needed shade trees?
- 34 -



# LILIES FOR VIRGINIA GARDENS

A. G. SMITH, JR., Associate Horticulturist  
Virginia Polytechnic Institute



# Lilies for Virginia Gardens

A. G. Smith, Jr., Associate Horticulturist

## INTRODUCTION

This bulletin is addressed to the average gardener who may find time and space for a few lilies. It is hoped that such a gardener will select species or varieties suited to the conditions of his garden as well as to his taste.

Some lilies thrive with little or no care, while others are more difficult to manage. Still others require almost constant nursing. The hard-to-grow kinds might be left to those who specialize in lilies.

No attempt has been made to cover the whole subject of lily culture. Those who desire more detailed information may refer to a list of publications which will be sent upon request. These have been used as references in the preparation of this bulletin.

The beauty and grace of the lily should give this flower a distinctive place in the garden; yet, with all its loveliness it has had a career of many ups and downs. From time to time, the discovery and introduction of new species greatly stimulated the planting of lilies; but as the demand increased, bulbs of poor quality or those which were diseased flooded the market. Failure always followed the use of diseased bulbs and each failure led to a loss of interest in lilies.

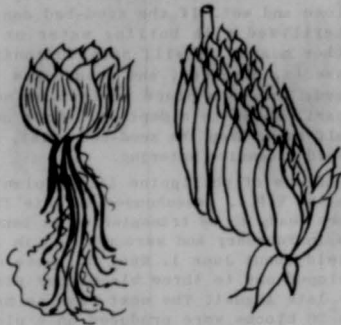
## STRUCTURE

All lilies produce true bulbs, but unlike daffodil bulbs they are not held tightly together by thin outer scales. When a lily bulb dries, the scales become flabby and loose.

The scales are modified leaves which store food for new growth. The solid base of the bulb is itself a very short stem upon which scales and buds develop, while the roots are formed at the bottom.

All lily bulbs flower once and perish. With most species a new bulb grows from the one which bloomed. Other species, called rhizomatous, have a branching, perennial rootstock on which new bulbs are formed. In the stoloniferous species, one or more bulbs develop at the end of the underground stems. However, with all of these the bottom roots are produced from the base in the same manner. These roots anchor and feed the plant. They should be protected as much as possible from drying or injury when the bulbs are transplanted. The bulb is dependent on the bottom roots to keep it growing from year to year.

Another type of root system is developed by many species. These secondary (annual) roots appear above the bulb on the new stem. They die when the top growth dies. The stem roots feed the stem and flowers while the basal roots nourish the new bulb.



LEFT

*L. henryi*, showing scales and basal roots. (Adapted from Laccobee and Woodcock)

RIGHT

*L. humboldtii*, a form intermediate between the round and rhizomatous types.

Lilies vary in the arrangement of foliage. All flowers have six petal-like sections. The flowers may be trumpet, bell, or cup shaped. They may be drooping, horizontal, or erect.

REPRODUCTION

Under favorable conditions nearly all lilies set seed. Propagation from seed offers the best method of preventing the mosaic disease. If possible, sow the seed as soon as they are ripe. If they cannot be planted then, they may be kept until spring. They may be started in a greenhouse, a cold-frame, or, with less chance of success, in an outside seed-bed.

Drainage is of first importance throughout the life of the lily. Before the seed are planted, see that the flat or box or bed is provided with ample coarse material underneath to prevent standing water at the roots.

Fine peat or leaf mold should be mixed with the soil. Proportions will vary. The important point is to make a mixture which cannot bake or stay too close and wet. If the seed-bed can be sterilized with boiling water or by other means, it will help to control insects, diseases, and weeds. Sow the seed, one to a place an inch or more apart. Cover to a depth of about one-half inch. Keep the seed-bed moist, but avoid excessive watering.

Seeds of philippine lilies planted in the V.P.I. greenhouses in late fall were ready to be transplanted to benches in February and were planted in the field about June 1. Many of these developed one to three blooms per plant by late August. The next year as many as 26 blooms were produced on a plant.

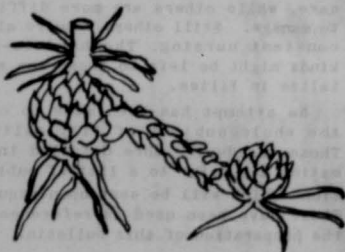
Most lily seed germinate quickly, the young leaves appearing above ground. In the case of a few, a tiny bulb is formed below the surface and growth appears above ground the next season.

The following are among those which start into growth the first season and develop rather fast afterward:

- |             |                  |
|-------------|------------------|
| L. anabile  | L. philippinense |
| L. cernuum  | L. pumilum       |
| L. concolor | L. regale        |
| L. davidii  | L. sargentiae    |
| L. henryi   | L. tigrinum      |

The following form a small bulb underground after germination and develop growth above the ground the second season:

- |                |                   |
|----------------|-------------------|
| L. auratum     | L. japonicum      |
| L. canadense   | L. martagon       |
| L. carniolicum | L. philadelphicum |
| L. cordatum    | L. rubellum       |
| L. giganteum   | L. speciosum      |
| L. hamsonii    | L. superbum       |



L. superbum - rhizomatous. (Adapted from Elwes and Slate)

PROPAGATION BY OTHER MEANS

Bulbils are small bulbs which form on the stem above ground on tiger lilies and a few others. These may be planted in the border or in a seed row as soon as they mature.

Lilies are propagated also from the individual scales. If only a few scales are to be taken, it is best to do this just after the plant has finished blooming, without lifting the bulb. If the entire bulb is to be divided, then it might pay to wait until the leaves and stem die.

Plant the scales one to two inches deep with the base down. Wet soil may rot them. Protect from heavy rain.

Lilies are also multiplied by natural division of the bulbs, which may be divided without cutting.

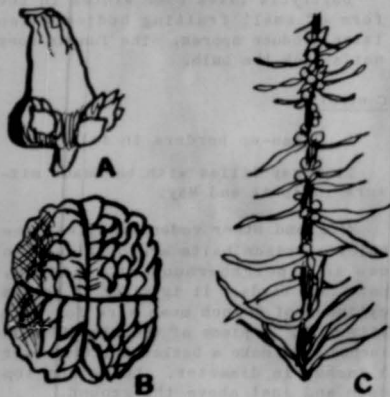
## WHERE TO PLANT

Lilies like a little shade, but too much will cause excessive height. It is not necessary to plant lilies in masses. Even one lily, with a suitable background, will present a beautiful picture. When shrubs are used for background, ample space should be left for good air drainage.

In the words of Macfie, an English author, "A great deal has been written about soils in which lilies will grow; and it must be admitted that a great deal of it can be dismissed as exaggerated nonsense."

The most important points to be considered are soil drainage (not surface run off) and a soil in good mechanical condition. The soil around the roots must drain quickly after snow, rain, or heavy watering. It is claimed by some that the easiest place to make lilies grow is on a ditch bank. The term "swamp lily" is misleading. Although this fine lily requires more moisture than others, it will die in standing water.

Humus (decayed organic matter) is essential if the soil is to release the surplus water, yet hold enough moisture for normal growth.



REPRODUCTION: A. Bulbets on scale. B. Division of bulb. C. Bulbets on stem. (Adapted from Griffiths and Slate)

Cross-section of capsule or seed-case. (Adapted from Aubriet and Woodcock)



## HOW TO PLANT

Plant with the idea of leaving the lilies in the same place for many years. Such a plan calls for the use of some long-lasting plant food. A little bonemeal and potash may be thoroughly worked into the soil before planting. Superphosphate may be used instead of bonemeal. These fertilizers will be needed deep down where the basal roots grow. Let the soil settle before planting.

Avoid the use of excessive nitrogen. It is safer not to use any chemical nitrogen directly around lilies. Let the nitrogen be supplied through old, thoroughly rotted compost or manure. These materials are especially needed for the upper soil where the stem roots grow.

It is a mistake to attempt soil preparation by digging deep holes. Remember that these will fill with water. Provide some outlet for the water which might stand at the roots.

Many writers claim that in general the European lilies tolerate lime. This may be accepted as true *provided the soil is very rich in humus where lime is used*. As a matter of fact, if enough old compost is used, the pH of the soil may be forgotten. A pH of 6.0 to 6.5 is thought to be about right.

About 1937, Madonna lilies were injured or killed throughout Virginia by applications of lime. This treatment had been recommended in an article published by a widely read newspaper.

The old practice of placing clean sand under and around the bulb is a good one as a means of reducing bulb rots.

No fixed rule can be given for the depth of planting. Lilies may go deeper in sandy soil than in clay loam. The table on page 5 suggests depths for sixteen different species and varieties.

#### WHAT TO PLANT

Most authorities agree that the lilies listed in the table on page 5 are relatively easy to grow, so it is suggested that the beginner start with some of these.

Imported bulbs without basal roots are not as good as home-grown ones with roots, if both are sound and free from disease. It may take two years for a rootless bulb to develop new basal roots and bloom. Mosaic disease cannot be detected in the bulb.

A good lily bulb has been described as one which is true to name, sound, plump, free from diseases and insects, and with live roots.

Great progress has been made in recent years in the development of new hybrid lilies. Aided by the outstanding work at several research institutions, commercial bulb farms on the west coast and in other sections have started their own breeding programs for the development of vigorous hybrids.

The amateur may derive more pleasure from his garden lilies if he does not take too seriously the matter of correct names of the hybrids. Agreement on some is never reached even among professionals.

Consult local dealers when you are ready to buy bulbs. Look for advertisements of lily growers in magazines. Deal with firms of known reliability.

#### WHEN TO PLANT

The time of planting bulbs will vary with the source of supply. Madonna lilies should be planted in August or early September; others as soon as the foliage matures or as soon as shipped bulbs come.

It is a good rule never to move or disturb a lily if it is doing well.

#### DISEASES AND PESTS

The prevention of diseases is important in the cultivation of lilies. Mosaic is the most important disease. It is because of mosaic, more than anything else, that lilies have been classified as difficult to grow.

Since mosaic is not usually transmitted through the seed, the simplest method of avoiding it is to raise the lilies from seed whenever this is possible.

**MOSAIC** is caused by a virus in the plants. It does not live in the soil or in dead plant tissue. Symptoms of the disease are:

1. Leaves show a mottling of light and dark green.
2. Growth is checked and the leaves die from the ground upward.
3. The flower stems have crooked necks.

#### Control:

Mosaic cannot be checked by any spray or treatment. Grow lilies from seed or get clean bulbs.

**BOTRYTIS** blight is a fungus which may damage or kill the foliage of lilies and that of other bulbs. It may be identified by:

1. Small, round or irregular orange-red spots.
2. In severe cases the spots run together and kill the leaves.

Botrytis lives over winter in the form of small fruiting bodies which later produce spores. The fungus does not attack the bulb.

#### Control:

1. Clean-up borders in fall.
2. Spray lilies with bordeaux mixture in April and May.

**MICE** and other rodents may eat the bulbs. Poison baits are difficult to use in a neighborhood of children, pets, and birds. It is safer to make a cylinder of  $\frac{1}{2}$ -inch mesh wire for each lily bulb. A piece of the wire 12 x 18 inches will make a basket a little over 5 inches in diameter. Leave the top open and just above the ground.

Rodent damage may be reduced to some extent by encasing each bulb in sharp gravel of sandstone or granite. Plant as deeply as the conditions permit.

## RECOMMENDED FOR BEGINNERS

SPECIES OR VARIETY	COMMON NAME	CHIEF COLOR	TYPE OF ROOTS	DEPTH-INCHES	SEASON OF BLOOM	HEIGHT- FEET
<i>L. amabile</i>	Korean L.	Red-orange	Stem	6	June-July	1.5-3
<i>L. backhouse</i> hybrids	Marhanson L.	Cream-Pink Variable	Stem	6-8	June-July	5-6
<i>L. bulbiferum</i> varieties	Red-orange L.	Variable	Stem	4-6	July	1.5-5
<i>L. candidum</i>	Madonna L.	White	Basal	2-3	June-July	2.5-4
<i>L. davidii</i>	David Lily	Orange	Stem	6-8	July-August	3-4
<i>L. elegans</i> varieties	Thunberg Lily	Red-Orange Variable	Stem	5	June-July	1-2
<i>L. formosanum</i> varieties	Formosa Lily	White	Stem	6-8	July-September	2-4
<i>L. hansonii</i>	Hanson Lily	Orange-yellow	Stem	6-8	June	4-5
<i>L. henryi</i>	Henry Lily	Orange	Stem	8-10	August	5-8
<i>L. marhan</i> hybrid		Orange	Stem	8	June-July	4-7
<i>L. philippinense</i>	Philippine Lily	White	Stem	4-6	July-August	2-4
<i>L. pumilum</i>	Coral Lily	Scarlet	Stem	5	June	1.5-3
<i>L. regale</i>	Regal Lily	Rose-purple	Stem	8-9	July	4-6
<i>L. superbum</i>	American Turkscap Lily (Swamp Lily)	Orange	Basal	4-6	July-August	4-8
<i>L. tigrinum</i>	Tiger Lily	Orange-red	Stem	7-9	July-September	3-4
<i>L. umbellatum</i> varieties	Umbel Lily	Red-Yellow Variable	Stem	4-6	June-July	2-2.5

RECORD OF THE ORGANIZATION

NAME	ADDRESS	PHONE	DATE	BY	INITIALS	REMARKS
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# Ornamental Fruit for the Home Grounds

by  
Albert S. Beecher

Associate Horticulturist

## Ornamental Value of Fruit

The grounds of many homes in the late fall or winter are often drab and uninteresting because plants with showy fruits or evergreen foliage have not been used in the landscape development. There are available shrubs, vines, and trees with colorful fruit. A partial list of plants with showy fruit is given elsewhere in this circular.

Plants with attractive fruit are especially welcome in the fall or winter because in most areas of Virginia there are very few flowering plants available to give color. The color of the fruit will vary. White, red, orange, blue and purple are the colors commonly found. The length of time the fruit will remain effective varies. For details as to the persistency of certain fruits, consult the list in this circular.

Some of the plants with colorful fruit have evergreen foliage. Their colorful fruit against the green background is very effective.

Circular 796

February 1959

V. P. I. AGRICULTURAL EXTENSION SERVICE  
BLACKSBURG, VA.



Home owners often wonder why certain shrubs fail to have a good crop of fruit. The reasons for fruit failure are:

1. Rainy weather during the pollination season will prevent the proper fertilization of plants, and consequently a poor crop of fruit will set.
2. Dry weather will cause the fruit to prematurely drop. Mulching the plants well during the spring and summer will help to conserve soil moisture.
3. Shrubs or trees growing in poor soil will often produce a poor crop of berries.
4. Improper pruning reduces the potential amount of fruit.
5. Excessive feeding of trees and shrubs will cause too much vegetative growth.
6. Some plants are dioecious, meaning the male and female flower parts are found on separate plants. Only the female plants will have fruit.

To have berries on plants of this type it is necessary to have male and female plants within a reasonable distance of each other. A few of the more common ornamental shrubs which are dioecious are:

Aucuba	Japanese Taxus
Bittersweet	Ginkgo
American Holly	Bayberry

7. "Alternate bearing" is another factor to consider. Some plants will produce a heavy fruit production one year and the following year will have very little.

## Plants with Attractive Fruit

### SHRUBS:

<u>Common Name</u>	<u>Scientific Name</u>	<u>Color of Fruit</u>	<u>Season</u>	<u>Height</u>
Nandina	Nandina domestica	Red & White	Fall-Winter	6 feet
Chinese Holly	Ilex cornuta	Red	Fall-Winter	10 "
Japanese Barberry	Berberis thunbergi	Red	Fall-Winter	5 "
Cotoneaster	Cotoneaster species	Red	Fall	1 - 15 "
Winged Spindle Tree	Euonymus alatus	Scarlet	Fall	7 "
Bush Honeysuckle	Lonicera species	Red	Summer-Fall	8 - 15 "
Pyracantha or Firethorn	Pyracantha atalantioides	Scarlet or bright crimson	Fall-Winter	18 "
" " "	Pyracantha coccinea lalandi	Orange	Fall-Winter	6 - 20 "
Linden Viburnum	Viburnum dilatatum	Red	Fall	10 "
European Cranberry-bush	Viburnum opulus	Red	Fall-Winter	10 "
Oregon Holly-grape	Mahonia aquifolium	Bluish-black	Summer	6 "

Common Name	Scientific Name	Color of Fruit	Season	Height
Evergreen privet	<i>Ligustrum lucidum</i>	Blue-black	Fall-Winter	10 feet
Winterberry, Black Alder	<i>Ilex verticillata</i>	Red	Fall-Winter	7 "
Japanese Beauty-berry	<i>Callicarpa japonica</i>	Purple	Fall	6 "
Red Chokeberry	<i>Aronia arbutifolia</i>	Red	Fall	8 "
Japanese Aucuba	<i>Aucuba japonica</i>	Red	Winter	7 - 10 "
Cherry Elaeagnus	<i>Elaeagnus multiflora</i>	Red	Mid-summer	9 "
Rose	<i>Rosa species</i>	Red	Fall	6 "
Snowberry	<i>Symphoricarpos albus</i>	White	Fall	3 "
Smooth Sumac	<i>Rhus glabra</i>	Scarlet	Fall-Winter	15 - 20 "
Staghorn	<i>Rhus typhina</i>	Crimson	Fall-Winter	15 "

#### TREES:

Amur Maple	<i>Acer ginnala</i>	Red	Summer	20 "
Flowering Dogwood	<i>Cornus florida</i>	Red	Fall	25 "
English Holly	<i>Ilex aquifolium</i>	Red	Fall - Winter	50 "
Dahoon	<i>Ilex cassine</i>	Red	Fall - Winter	36 "
American Holly	<i>Ilex opaca</i>	Red	Fall - Winter	45 "
Yaupon	<i>Ilex vomitoria</i>	Red	Fall-Winter	24 "
Sweet Gum	<i>Liquidambar styraciflua</i>	Brown	Fall	100 "
Southern Magnolia	<i>Magnolia grandiflora</i>	Red	Fall	80 "
Crab Apple	<i>Malus species</i>	Red to Yellow	Fall	20-40 "
Chinaberry	<i>Melia azedarach</i>	Yellow	Fall-Winter	40 "
Sourwood or Sorrel Tree	<i>Oxydendrum arboreum</i>	Grayish	Fall-Winter	75 "
Chinese Photinia	<i>Photinia serrulata</i>	Red	Fall-Winter	25 "
Royal Paulownia	<i>Paulownia tomentosa</i>	Dark Brown	Fall	45 "
Mountain Ash	<i>Sorbus species</i>	Red	Fall	30 "
Red Cedar	<i>Juniperus virginiana</i>	Bluish	Fall-Winter	75 "
Evergreens with cones	<i>Pinus, Tsuga, Picea, Cedrus species.</i>	Brown	Fall-Winter	75-100 "
Hawthorn	<i>Crataegus</i>	Red	Mostly fall	15 - 30 "

#### VINES:

American Bittersweet	<i>Celastrus</i>	Yellow-Red	Fall-Winter	30 "
Porcelain Ampelopsis	<i>Ampelopsis brevipedunculata</i>	Lilac-Blue	Fall	25 "
Wintercreeper	<i>Euonymus fortunei vegeta</i>	Orange	Fall	30 "

**PUBLICATIONS AVAILABLE IN ORNAMENTAL HORTICULTURE**

Design of the Home Grounds	Bulletin 217
Lawns for Virginia	Bulletin 243
Garden Roses for Virginia	Bulletin 189
Lilies for Virginia Gardens	Bulletin 236
Landscaping Church Grounds	Bulletin 220
Boxwood in Virginia	Circular 503
Peony Culture in Virginia	Circular 577
Landscaping Slopes	Circular 622
An Attractive Mail Box	Circular 770
Making a Fruit and Seed Collection	Circular 775
Pressing Leaves and Flowers	Circular 795
Making a Landscape Model	Circular 798

To get any of the publications listed herein, see your County Agricultural Agent or your County Home Demonstration Agent. They have offices at the county seat, usually in the courthouse or county office building. Or you may write to . . .

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# Attractive Driveway Entrances





# Attractive Driveway Entrances

Albert S. Beecher, Associate Horticulturist

An attractive driveway entrance to the farm or country home helps to make a good impression on the visitor or passer-by. The entrance can be emphasized by using plant material, architectural features or combinations of both. The entrance to the home should conform to the general character of the place. A pretentious entrance would be inappropriate for a small place. If the home is a large one and sets back from the highway, the entrance may be more elaborate. If the house is close to the road, it is best not to emphasize the entrance too much. A simple entrance that is well kept is better than an elaborate entrance that is in an unkept condition.

## Make a Safe Entrance

The first consideration in preparing plans for the beautification of an entrance is safety. Keep the following in mind:

1. Locate trees or shrubs at the drive entrance back far enough from the highway so that at maturity they will not obstruct the view in any direction, or select plants that may be controlled by pruning.

2. Design the driveway so that the approach to the main highway will be perpendicular.
3. Construct the drive so there is ample room to turn onto the highway. Make sure the culvert is long enough to provide for a wide approach to the highway.
4. Recess the entrance features, such as gates and fences, so there is room for the automobile driver to stop and look in both directions before preceeding onto the highway.
5. As a safety precaution, plan the drive so there will be a level section of the drive for about 20 feet before entering the highway.

## Emphasizing the Entrance with Plant Material

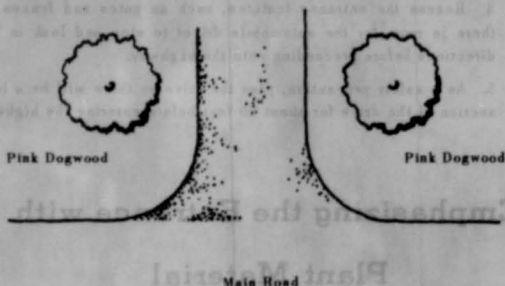
Plant material may be used to highlight the entrance drive from the highway. Several of the ways plant material may be used are listed below. However, an overall plan of the front yard area should be developed before details of the entrance planting are worked out. What is done at the entrance will often depend upon the over-all design planned for the front yard area. For more complete details in planning the home grounds, consult V.P.I. Extension Bulletin No. 217, Design of the Home Grounds.

### Some General Considerations

1. Broadleaf or evergreen plants are effective throughout the year for entrance plantings.
2. Many deciduous plants lack winter interest and should be avoided as an entrance specimen planting. Some of the deciduous plants with interesting bark or structural lines are exceptions because they have charm in the winter. Examples of this type of material are the crepe myrtle, dogwood and birch.

## How Plant Material May Be Used

1. Single tree or shrub on each side of the entrance.



A pink dogwood planted on each side of the entrance. The trees are set back far enough not to block the view as motorist leaves the driveway to enter the highway.

## Suggested Plants to Use

### Specimen tree.

Dogwood - *Cornus florida*  
Crab Apple - *Malus species*  
Star Magnolia - *Magnolia stellata*  
Redbud - *Cercis canadensis*  
Large Boxwood - *Buxus sempervirens*  
American Holly - *Ilex opaca*  
Japanese Maple - *Acer palmatum*  
Weeping Higan Cherry - *Prunus subhirtella pendula*

### Specimen shrub.

Crepe myrtle - *Lagerstromia indica*  
Spreading taxus - *Taxus cuspidata*  
Spreading Juniper  
Juniperus chinensis *plutzeriana*  
Boxwood - *Buxus sempervirens*  
Pyracantha - *Pyracantha graberii*  
Chinese Holly - *Ilex cornuta*  
Japanese Holly - *Ilex crenata convexa*  
Julian Barberry - *Berberis julianae*

## How Plant Material May Be Used

### 2. Group Shrubs or Trees in Masses.

Plants may be grouped in various combinations to emphasize the entrance approach. Very often plants are grouped in threes or fives.



Boxwood grouped in threes at the driveway entrance.

#### Suggested Plants to Group at the Entrance

##### Shrubs

Spreading taxus - *Taxus cuspidata*

Pfitzer juniper - *Juniperus chinensis pfitzeriana*

Japanese holly - *Ilex crenata* species

Mugho pine - *Pinus mugo mughus*

Mt. Laurel - *Kalmia latifolia* (partial shade)

Red-Leaved barberry - *Berberis thunbergii atropurpurea*

##### Small Trees

Flowering Dogwood - *Cornus florida* (pink or white)

Redbud - *Cercis canadensis*

Flowering crab apples - *Malus* varieties

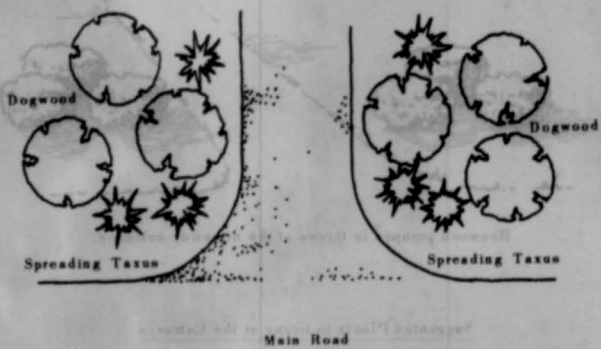
Crepe myrtle - *Lagerstroemia indica* (train as a small tree)

Mimosa - *Albizia julibrissin*

# How Plant Material May Be Used

## 3. Shrubs and Trees in Combination.

An effective way to use plant material at the entrance is to combine shrubs and trees in the same grouping. The diagram below shows how dogwoods and the spreading taxus are used in combination. The dogwoods are used as accent plants and the taxus provide a low interesting mass of green cover.



Dogwoods grouped at the entrance with an under planting of the low spreading Japanese Yew. One dogwood could have been used here in place of the grouping of three.

## Material Suitable for Massing under Small Trees

- \*Rhododendrons - Rhododendron species
- \*Azaleas - Rhododendron species
- \*Mt. Laurel - Kalmia latifolia
- \*Pachistima - Pachistima canbyi
- Japanese yew - Taxus cuspidata
- Andorra juniper - Juniperus horizontalis plumosa
- Pfitzer juniper - Juniperus chinensis pfitzeriana
- Cotoneaster - Cotoneaster horizontalis
- Barberry - Berberis tricanthophora
- Small leaf holly - Ilex crenata microphylla

\*Require acid soil and best not in full sun.

## How Plant Material May Be Used

### 4. Ground Cover Plants.

Ground cover plants planted in masses at the entrance will help to define the entrance. A single plant or groups of plants may be used in combination with ground covers.



An underplanting of ground cover under the tree at the entrance.

### A Few Ground Cover Plants

Moss Pink - *Phlox subulata*  
Small leaf cotoneaster - *Cotoneaster microphylla*  
Lily-of-the-valley - *Convallaria majalis*  
Andorra juniper - *Juniperus horizontalis*  
Rose daphne - *Daphne cneorum*  
Heather - *Calluna vulgaris*  
English ivy - *Hedera helix*  
Periwinkle - *Vinca minor*  
Purple leaf winter creeper - *Euonymus fortunei coloratus*  
Helleri Holly - *Ilex crenata helleri*

### 5. Perennials, Annuals or Bulbs at the Entrance.

Mass plantings of perennials, annuals or bulbs may be very colorful at the entrance. Plan the flowers so there will be a succession of bloom, and if possible include some background material of evergreens or broadleaf evergreens to carry the interest in the winter.

## Emphasizing the Entrance with an Architectural Feature

Architectural features are commonly used to set off the driveway entrance. In most cases these architectural features are used in combination with plant material.

### Types of Architectural Features Often Used:

1. Stone or brick pillars.
2. Walls and pillars with set back.
3. Gate or cattle guard.
4. Fence
5. Sign



The architectural features selected need to be appropriate for the general surroundings and should fit well into the overall landscape plan. An elaborate entrance would not be in keeping with a modest development. The style and character of the house will often suggest the type of entrance feature needed. For instance, if the home is built of native stone, the pillars could then very appropriately be built of the same material.

## Landscape Treatment of Architectural Features

### 1. Stone or Brick Pillars

The pillars often need to be softened by plant material and blended into the over-all landscape picture. This can be done by training vines on the pillar.

#### Suitable vines:

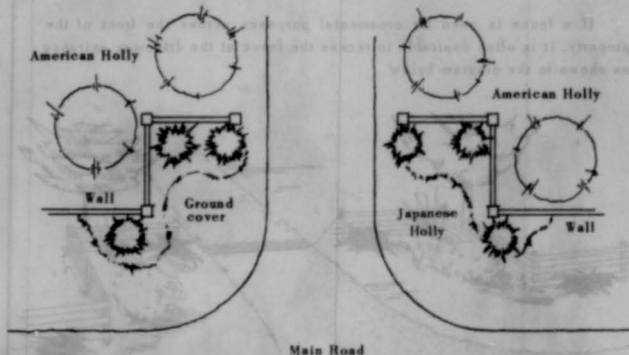
*Hedera helix* - English ivy

*Euonymus fortunei* vegeta -  
Evergreen bitterweet

*Parthenocissus tricuspidata* -  
Boston ivy

## Landscape Treatment of Architectural Features

### 2. Walls and Pillars with Set-Back.



Note in the plan above that the plant material is used in combination with the pillars and wall. The taller material, the American Hollies, are planted behind the wall and the lower material, the Japanese Hollies, are grouped in front of the wall. If low plants are used in front of the wall, the material will not hide the wall.

### 3. Gate or Cattle Guard

Gates are sometimes used as an ornamental feature at the entrance. Generally gates are left open. Plant material is often needed in connection with the gate post to soften the vertical lines.

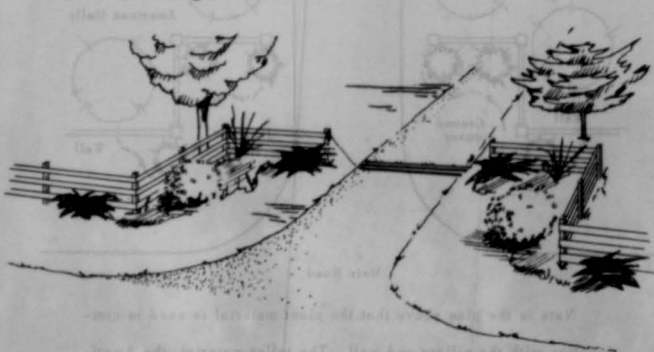
If the land area in front of the farm home is used for grazing, a cattle guard needs to be installed at the driveway entrance.

Plant material at the entrance often helps to make the cattle guard entrance attractive. This is illustrated on the next page.

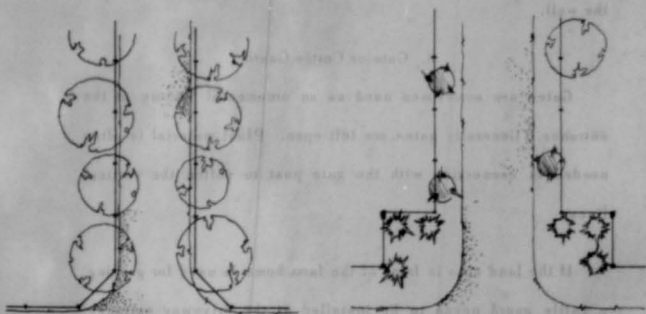
## Landscape Treatment of Architectural Features

### 4. Fences.

If a fence is used for ornamental purposes across the front of the property, it is often desirable to recess the fence at the driveway entrance as shown in the diagram below.



Sometimes it is desirable to line the approach drive with a fence. For the best landscape effects do not locate the fence on the edge of the drive, but set it back far enough to provide space for a grass strip on each side of the drive. This will provide for a more spacious approach and will allow planting space for an occasional tree or shrub.



Fence set too close to driveway. It gives the impression of traveling down a narrow alley.

Fence set back at least 6' from edge of driveway. A lawn strip is maintained between driveway and fence.

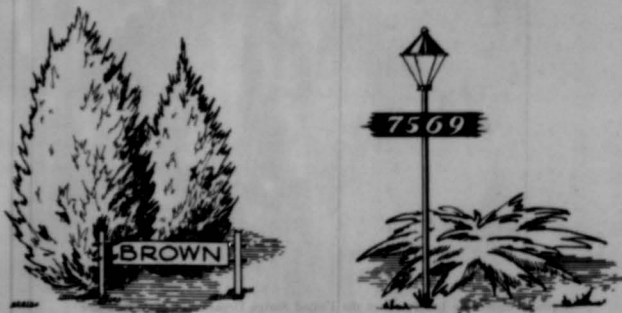
## Landscape Treatment of Architectural Features

### 5. Signs

A name sign at the entrance adds interest. Examples of signs that might be used are shown below. Plant material behind or at the base of the sign post often gives a finished appearance to the sign. On page 5 is a list of some plants suitable to use at the base.



Typical Signs for the Entrance



Plant Material Used in Combination with a Name Sign and a Lamp

# Landscaping Treatment of Architectural Features

By  
L. B. DIETRICK

This paper is a reprint of the original published in the Journal of the Virginia Polytechnic Institute, Blacksburg, Virginia, in the August, 1914 issue. It is reproduced here for the benefit of those who are interested in the subject. The page 2 is a list of some plants suitable for use in the



Virginia Polytechnic Institute and the United States Department of Agriculture  
Cooperating: Extension Service, L. B. Dietrick, Director, Blacksburg, Virginia

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# Pruning Ornamental Plants

Compiled by A. G. Smith, Jr., Associate Horticulturist, V.P.I.

## I. REASONS FOR PRUNING

### For your sake

#### A. As to use and appearance.

1. To train plants as they grow:
2. To keep plants at desired size
3. To develop certain formal or informal effects
4. To provide walking space under or around the plants
5. To remove traffic hazards where plants obscure the view
6. To develop best growth for flowers or fruit
7. To remove dangerous limbs
8. To make room for overhead wires

### For the plant's sake

#### B. As it affects the welfare of the plant:

1. To balance top and roots at time of transplanting
2. To admit air and light into the plant for new growth
3. To prevent plants from crowding in foundation plantings, etc.
4. To remove surplus suckers at the ground
5. To remove injured parts
6. To prevent injury from ice storms

## II. TIME TO PRUNE

### Late winter

#### A. Shrubs may be pruned to fit their flowering habits.

1. Those which bloom (fruit) on new growth should be pruned in late winter or early spring. Some in this group are:

Abelia  
 Buddleia (Butterfly Bush)  
 Callicarpa  
 Caryopteris (Blue Spiraea)  
 Lagerstroemia (Crape myrtle)  
 Lespedeza  
 Lonicera (Bush honeysuckle)  
 Rosa (Bush roses)  
 Clethra  
 Hibiscus (Althea)  
 Hydrangea (Large White)  
 Hypericum (St. John's Wort)  
 Kerria  
 Spiraea (Colors other than white)  
 Vitex (Chaste tree)  
 Tamarix (Late flowering)

Circular 834

August 1959

V. P. I. Agricultural Extension Service  
 Blacksburg, Va.

## Late Spring

2. Shrubs which bear flowers on last year's wood should be pruned as soon as possible after blooming.

### Examples:

Azalea  
Cercis (Red Bud)  
Chaenomeles (Japanese quince)  
Chionanthus (White Fringe Tree)  
Deutzia  
Exochorda (Pearl bush)  
Forsythia (Goldenbell)  
Magnolia (Those which are not evergreen)  
Philadelphus (Mock orange)  
Rosa (Rambler roses)  
Spirea (Early whites)  
Syringa (Lilac)  
Tamarix (Early blooming)

## Save Labor

- B. Some shrubs and small trees need not be pruned every year.

### Examples:

Deutzia gracilis  
Euonymus alata  
Weigela

## Anytime

- C. In the case of most plants, which are not wanted especially for flowers or fruit, light pruning may be done whenever it is most convenient. This applies to such plants as arborvitae, boxwood, chamaecyparis, elaeagnus pungens, hemlock, holly of many types, juniper, osmanthus, photinia, privet, pyrachatha, yew and others.

## Dwarfing

- D. Summer pruning has a definite place in the training of ornamental plants.

## From leaves to roots

One important fact must be kept in mind whenever much pruning is done in summer. This fact is that the roots are dependent upon the leaves for food. Much of this food goes to the roots, and to other storage areas in the plant, after early July.

If leaves are cut off about this time, some of the roots will be weakened or killed. The following spring less top growth would be made because of the reduced food in storage. Knowledge of this fact offers a useful means of preventing excessive growth in plants. For example, a dogwood tree may be held at a given size and shape for an indefinite period by carefully cutting out most of the young shoots every year about July 1. In like manner evergreen barberry, such as julianae, pfizer juniper, osmanthus and abelia may be controlled as to size by removing some foliage about July 1.

This phase of training plants does not apply to the cutting-back of old, neglected plants, or to the training which is done from time to time when it is most convenient for one to do it. Summer pruning should be used as an added means of making plants fill the need for which they were planted.

## Neglected

- E. Early spring is perhaps the best time to prune old, neglected shrubs and small trees. When heavy cutting is done at that time, new growth may soon cover the bare areas.

It often pays to discard such plants and plant a better selection.

### III. HOW TO PRUNE

## Train to suit both plant and owner

- A. No fixed rules can be given. Plants which have been neglected for years may have to be cut back heavily or else be replaced.

Plants should be trained as they grow.

Train them to meet a definite need (use).

## Poor Management

Evergreen shrubs are difficult to manage when they are kept clipped. Such treatment leaves only a thin layer of foliage; yet this is enough to prevent growth inside the plant. Use hand pruners to remove weak branches and in this way let some air and light into the plant.

## Spiraeas

In general, start by cutting one or more old canes at the ground with spiraeas and plants of similar growth habits. Then thin the middle and upper areas.

## Boxwood

Start thinning boxwood at the top and stop about halfway to the ground. (See V.P.I. Extension Circular 503)

## Juniper

Begin to prune pfitzer juniper by removing the top growth. Cut small shoots or entire branches, but always leave extending "points." Otherwise it will resemble a wash tub.

## Pyracanthas

Pyracanthas may not bear berries if new wood is cut. Remove a part of the old wood the year after it bears fruit.

## Pinching

Pinching is the removal of a terminal bud. The growing points on ornamental plants may be checked by pinching the tender tips.

## Hedges

Train evergreen hedges with a narrow, rounded top and a broad base.

#### IV. INJURIES FROM PRUNING

##### Often happens

1. Upsetting the balance between nitrogen (from the roots) and sugar and starch (from the leaves) by heavy dormant pruning. Rapid growth means few flowers and little fruit.

##### Do the reverse

2. Removing all the low branches from young shade trees when planted, but none from the top. This may result in sunscald or winter injury to the trunk and may prevent the development of a strong tree of good shape.

##### Bad

3. Pruning tops of shrubs without thinning. Result: Greater crowding of branches.

##### Worse

4. Cutting large limbs from sugar maples, oaks and other hardwood trees. It is very difficult to make the wounds heal.

##### Overfeeding

5. Pruning to offset heavy growth caused by unnecessary use of fertilizer, manure and water.

##### Avoid

5. Cutting evergreen hedges to vertical sides and level top.

#### V. PRUNING TOOLS

##### Clean and Sharp

Young plants may be trained by using a pocket knife or small hand shears.

Large branches may be cut with lopping shears or with saws.

Keep the tools clean and sharp.

#### VI. PROTECTING WOUNDS

##### Wounds

1. Avoid pruning trees such as maples and elms in spring when bleeding is worst. Prune as soon as possible after leaves fall.
2. Cut limbs close enough to permit healing.
3. Paint the wound with tree asphalt. Never use creosote. Repeat as needed.
4. Call a reliable tree man for all special problems.
5. Cover cuts on rose canes with caulking compound.

##### Start right

Much worry about pruning might be avoided if plants were more carefully selected in the beginning. Some plants are giants by nature. It takes a lot of care to make them stay in a small space.

Exhibit 23

# BOXWOOD

in

Virginia

by A. G. SMITH, JR.  
*Associate Horticulturist*



# BOXWOOD IN VIRGINIA

## VALUABLE and TOUGH

Boxwood in its various forms is a valuable ornamental plant in Virginia. Many specimens known to be more than 100 years old are growing in the state.

Contrary to general belief, boxwood is a vigorous plant. In good soil it requires but little care. Its development varies with the species or variety and with the conditions under which it is growing.

## DISEASES NOT IMPORTANT

No diseases of importance affect boxwood in Virginia; however, numerous fungi may be found on leaves and stems after these parts have been weakened or killed by other causes. In a Blacksburg yard there is a hedge of tree boxwood, and a number of good dwarf plants, all of which were grown from twigs thought to be diseased. These twigs, from various sections of Virginia, were sent to V. P. I. for help in identifying and controlling the diseases.

## TROUBLES

A study of many thousands of boxwood plants in Virginia shows that, with rare exception, all the boxwood troubles in the state are caused by one or more of the following:

### ROOTS

#### I. Damage to the roots by:

1. Digging in the root area by man or animals.
2. Planting too deeply or settling later.
3. Applying excessive amounts of fertilizer or manure.
4. Making a cone of soil or mulch around the plant.
5. Setting plants in holes in tight soil with no drainage provided from bottom or side.
6. Soil washing away from roots, thus exposing them to the elements.
7. Mulching too heavily.
8. Too much peat or manure in fill-in soil.
9. Moles and other rodents making burrows among the roots.
10. Heavy soil which does not allow water to move away from roots. Poor preparation.
11. Excessive watering.
12. Matting of ivy in and under plant.

### LEAVES

#### II. Damage to leaves and branches by:

1. Leaf miners.
2. Accumulation of soot and dust on foliage; effect of smoke and gases.
3. Crowding by other plants or buildings.
4. Chemical sprays.
5. Dead leaves accumulating in dwarf plants.
6. Clipping alone to maintain formal effects instead of cutting out weak top branches to admit light and air.
7. Winter-killing.
8. Sunscald and browning on weak plants.
9. Injury from sleet or snow, bending or breaking the branches.

(Frost killing tender tips does more good than harm.)

**WHOLE  
PLANT**

**III. Damage to entire plant by:**

1. Total lack of water.
2. Too much shade.
3. Wet feet.
4. Salt from coastal storms or from well water.

**MAN-MADE**

Most boxwood troubles are man-made. In a fairly good environment this grand old plant can take care of itself, so long as it is not attacked by leaf miners.

**BAD FOR  
ROOTS**

Many yards have been filled with soil from basements. The grading is often done when the soil is muddy. The soil bakes in dry weather and stays wet and soggy in wet seasons. Boxwood is not apt to thrive under these conditions or in a pipe-clay soil, unless care is taken to prepare ample space for the plant and provide drainage from the side or bottom of the hole.

**WET FEET**

Boxwood cannot stand wet feet.

**SUN  
and  
SHADE**

Boxwood will tolerate shade but will make a stronger growth where it has sunlight, for at least a part of the day. Morning sun in winter may cause damage by rapid thawing of the leaves and branches. Winter sun may also turn exposed leaves reddish brown or yellow on plants which have been checked in growth. This condition is not caused by a disease.

**FEEDING**

It is not necessary to fertilize boxwood every year. Its requirements vary widely depending on the type of boxwood used, the soil, and growing conditions. Over-feeding may injure the plants or lead to excessive pruning to keep the plants within bounds. It may also keep the boxwood tender until winter when a sudden drop in temperature could cause serious winter killing (See Wilt page 5). Then, too, fertilizers can kill the plants when too much is used.

A very light application of poultry manure and bonemeal may be scattered over the root area in February or March, if the condition of the plant indicates that plant food is really needed. Where the above materials are not available, a fertilizer such as 6-8-2 or 10-6-4 might be used at the rate of  $\frac{1}{4}$  cupful on a square yard of root area.

Applications of fertilizer cannot correct a bad physical condition in the soil.

**SKIP IT  
pH and LIME**

Often it is best not to fertilize the boxwood at all.

Boxwood grows well in many different soils with varying pH levels. When sufficient humus is present and the soil is in good mechanical condition, boxwood will thrive at a pH range of 5.5 to 7.4. Small applications of ground limestone may be used on the more acid soils, once in 3 or 4 years.

**PRUNING**

The pruning of boxwood may be an important operation for the following reasons:

1. To keep the plants at the desired size.
2. To improve the appearance and condition of a plant which is thin at the top.
3. To develop a strong framework against damage from snow and wind.

- THINNING** Start by removing weak and crowded branches from the top center of the plant. Where necessary shorten the larger branches. Continue this thinning over the entire upper half of the plant. Very heavy cutting should be done in the spring. Ordinary pruning may be done whenever it is most convenient.
- CLIPPING** If clipping must be done to get a formal effect, thin as suggested above to encourage growth on the inside branches. When boxwood is growing where its size and form do not matter, it may go indefinitely without pruning. There are many fine specimens in Virginia which have never been pruned.
- TRANS-PLANTING** Boxwood may be moved at any time of the year, but it is best not to transplant it when it is making tender growth. It is sometimes best to shade large boxwood after it is transplanted. Strips placed well above the foliage will protect the plants from direct sun and snow.
- SHADING**
- PREPARE** Prepare the place for the new plant with care. Provide ample drainage at the roots. In very low places set the plant slightly above the level of the ground. Otherwise plant as near the original depth as possible.
- SAME DEPTH**
- WARNING** Never put manure, compost, or other organic material under the boxwood. If used, the plant will settle as the organic matter rots; finally it will be too deep for normal growth.
- FILL-IN** Set the plant on firm ground. Then fill in around the side and tamp gently. Fill the last six inches with good garden soil or with a mixture such as the following:
- SOIL MIXTURE**
- $\frac{3}{4}$  part old rotted manure or compost
  - $\frac{1}{2}$  part loamy top soil
  - $\frac{3}{4}$  part coarse sand and peat
  - $\frac{3}{4}$  cup of garden fertilizer such as 10-6-4 to each bushel.
- MIX** Turn these materials over until they are uniformly mixed.
- WATER THE PLANT, NOT THE HOLE** Water by letting the hose run very slowly at the base of the boxwood itself — not in the hole around it. Do not over-water.
- SYRINGE** Tap-water syringes, two or three times a week in warm weather, will take care of later needs for water.
- LEVEL** Leave the ground level over the root system and beyond.
- MULCH** A mulch of peat, sawdust, or peanut hulls, not more than one inch deep, helps to save moisture and control soil temperature.
- SYMPTOMS** Some symptoms of weakness in boxwood are:
1. Reddish foliage in winter.
  2. A heavy crop of flowers and/or seed.
  3. Dull appearance of leaves on part or all of the plant.
  4. Dead twigs.
  5. Thin growth.
  6. Puckered spots or blisters on the under side of leaves.
- LEAF MIN-ERS** If caused by leaf miners, the tiny lemon colored grubs will be found in the blisters. If no leaf miners are present, the cause of the trouble will be

- found, in practically all cases, at the ground under and near the plants. (See page 1 for list of causes.)
- WAIT** Don't worry about diseases. Locate the cause of the trouble and correct it if it is not too late. Then wait patiently until the boxwood has time to recover.
- EFFECTS of INJURY** Boxwood may not show the effects of injury until six months or longer after the injury occurs. It may take much longer for large branches to die after the roots are cut. A spell of bad weather such as drought or blizzard usually shortens this period.
- BOXWOOD COMPETES** Boxwood can compete successfully with wiregrass and other grasses and weeds, if these plants are mowed. Any attempt to dig these grasses out will injure the boxwood roots. Only a part of a boxwood plant may be weakened or killed when a part of its root system is damaged. Injury of this nature may be seen in almost any cultivated flower border which is edged with dwarf boxwood.
- ROOTS — BRANCHES**
- SERIOUS PEST** The leaf miner is the only serious pest of boxwood. This insect is found on many types of tree boxwood, while the full dwarf forms appear to be immune.
- KILL THEM** Leaf miners may be killed by spraying all the leaves, inside and outside the plant, about one week before the miners emerge as tiny, adult flies. Use one ounce of 50% wettable DDT powder in 3 gallons of water. Repeat the treatment after 2 weeks, and again later if flies are seen.
- Malathion might be used as directed by the manufacturer instead of DDT. However, this material would have to be applied more frequently than DDT.
- DDT MAY LEAD TO MITES** DDT kills the insects which normally eat mites (red spiders) but does not harm the mites. It is best, therefore, to take special steps to control mites on boxwood, after the last application of DDT has had the desired effect on the leaf miners.
- USE TAP WATER** Mites may be controlled by syringing the boxwood with tap-water several times during spring and summer. Apply the water with the hose nozzle in late afternoon. Wash the leaves on the inside and outside of the plant. Let the foliage stay wet overnight. Mites cannot multiply under such conditions.
- WASHING** The washing will remove soot and dust and will not only improve the appearance of the boxwood but will also let the leaves breathe more normally.
- In severe cases, where tap water cannot be used, the mites could be killed with a miticide such as aramite, if used as directed by the manufacturer.
- RATHER HARMLESS** Psyllids are whitish sucking insects which feed on the tender growth and cause the leaves to curl. They disfigure the plant but cause no real injury. They may be killed by spraying or dusting the plants with nicotine or malathion about May 25 in eastern Virginia and around June 8 in western Virginia. Use the materials as directed on container.
- NEMATODES** Nematodes are found on or about the roots of boxwood, especially in sandy soil and in soils low in humus. In well-drained

- soil, containing a reasonable amount of humus, the nematodes will cause no serious injury to boxwood.
- THEY RECOVER The author has dug dwarf boxwood with yellowish foliage from sites reported to be infested with nematodes, and planted them, nematodes and all, in good soil. After 3 to 8 months, depending on the size of the plant and season, these plants developed normal color and have made good specimens.
- WILT NOT BAD Wilt or blue stem may follow winter injury on the tender terminal twigs. The injured or girdled part of the stem usually occurs about 6 to 8 inches from the tip on tree boxwood, and about 3 to 5 inches on dwarf types.
- HISTORY For the sake of appearances, these twigs with reddish, yellow or dead leaves may be removed. If left on the plant no harm whatever would result.
- HISTORY Boxwood is native to East Asia, North Africa, and Southern Europe, and also occurs to a lesser extent in West India and in Central America. There is no American boxwood and none native to England which are used as ornamental plants.
- MANY VARIATIONS *Buxus sempervirens* is the common tree box, while *Buxus sempervirens* var. *sufructicosa* is the one commonly referred to as Dwarf Boxwood or English Boxwood.
- SEEDLINGS Among the thirty-odd other known species of *Buxus* are *japonica*, *microphylla*, *balearica*, *fortunei*, *harlandii*, and *scallachiana*.
- RESISTANCE TO COLD Variations in boxwood are without number. In Virginia there are many thousands of different strains or varieties of boxwood. It is probable that each of these came from an individual seed at some time in the past.
- PROPAGATION The author has grown more than 5,000 boxwood from seed at the Agricultural Experiment Station at Blacksburg. No two of them were exactly alike. Some were vigorous and upright, some were dwarf in habit, while most of them were "intermediates." Approximately 800 of these seedlings are now growing in the V. P. I. Arboretum.
- RESISTANCE TO COLD Following the severe winter of 1935, a block containing about 1,200 three-foot tree boxwood was examined in a Virginia nursery. Half of the plants had been propagated from cuttings taken from a plant purchased in one community. The rest were propagated from a different plant growing about 35 miles from the first community. The severe weather killed all the plants from one community while those from the other were green. Although the two parent plants looked alike, they varied in their resistance to cold.
- PROPAGATION Boxwood may readily be propagated from cuttings. These will root at almost any time of the year. For outdoor rooting, place the cuttings in sand or in sandy soil from July 15 to September 15. Protect from direct sunshine and from wind. Keep the bed moist. If cutting wood is abundant, make cuttings 6 inches long for dwarf box and 8 to 10 inches for tree types. Small cuttings may be put in a greenhouse or in cold frames as late as December.

### SAFETY HINTS FOR HOME GARDENERS

Don't leave tools lying around. Be especially careful to keep rakes so that the teeth can't be stepped on.

Keep tools sharp. A sharp tool is safer than a dull one.

Keep insecticides out of reach of children and other pets.

Don't inhale poisonous sprays and dusts.

Don't attempt any adjustment of power equipment while it is running.

Don't use rickety ladders. Place sturdy ladders on firm footing.

Don't burn trash near buildings nor when strong breezes are stirring. And why burn leaves? They make good compost.

Use leg muscles for lifting heavy loads, not back muscles.

Take frequent rest periods during a long, hot day of gardening. Guard against over-exposure to sun.

Practice "good-housekeeping" in the garden and yard. Broken glass, nails, etc., can cause painful injuries.



Virginia Polytechnic Institute and the United States Department of Agriculture Cooperating: Extension Service, L. B. Dietrick, Director, Blacksburg, Va.

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# PEONY CULTURE IN VIRGINIA

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## PEONY CULTURE IN VIRGINIA

By: A. G. Smith, Jr.\*  
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### Why Plant Them?

The peony is the favorite flower of many people. It is easy to grow; and when established, a plant may bloom for many years without re-planting. A good rule is never to move a peony as long as it is doing well.

Peonies have varied uses in the garden. They are especially useful in large gardens for certain landscape effects, where they may be planted in masses or along lanes.

Commercial plantings of peonies are made for the sale of cut flowers or for roots and plants.

Peonies may be divided into two general types: the herbaceous or common garden peonies (Figure 1), and "tree" or shrubby peonies (Figures 3 - 4). Herbaceous peonies, like many perennials, die back to the ground each year, while "tree" peonies develop woody stems and grow into small shrubs.

### HERBACEOUS VARIETIES FOR BEGINNERS:

Kelway's Glorious	White	Double	Early
Mons. Jules Elie	Pink	Double	Early
Sea Shell	Pink	Single	Mid-season
Karl Rosenfield	Red	Double	Mid-season
Shaylor's Sunburst	Blush	Japanese	Mid-season

### When to Plant

September and October are the ideal months for planting herbaceous peonies in Virginia, although plantings made in August or in November may succeed. Spring planting in Virginia is not recommended. "Tree" peonies will do best when planted in October and November.

### What to Plant

It is difficult to be helpful on this point. Individual tastes vary widely and the number of varieties is almost endless.

The national ratings given peony varieties by growers and amateurs will be of little help to Virginia gardeners. This might be said also of the list of "best varieties" reported on a nation-wide basis. Varieties which do well in one section may not be so popular in other areas.

George W. Peyton of Rapidan, Virginia, who is secretary and past-president of the American Peony Society, recommends the following for Virginia gardeners:

\*The writer is indebted to Mrs. Joan P. Young for drawings used in this bulletin.

HERBACEOUS VARIETIES FOR GENERAL GARDEN USE:

Elsa Sass	White to Pink	Double	Mid-season
Florence Nicholls	Blush	Double	Midseason
Therese	Light Pink	Double	Early
Philippe Rivoire	Dark Red	Double	Late
Minnie Shaylor	Blush	Semi-Double	Mid-season
Le Jour	White	Single	Early
Imperial Red	Light Red	Single	Early
Ama-no-sode	Pink	Japanese	Mid-season
Isani Gidul	White	Japanese	Mid-season
Sword Dance	Red	Japanese	Mid-season

HERBACEOUS VARIETIES FOR COMMERCIAL CROPS:

Baroness Schroeder	White	Double	Mid-season
Mons. Jules Elie	Pink	Double	Early
Felix Crousse	Red	Double	Mid-season
Richard Carvel	Red	Double	Mid-season
Mme. de Verneville	White	Double	Early
Festiva Maxima	White	Double	Early

The roots of herbaceous peonies offered for sale vary in age, size, and market price (Figures 5 - 8). A small division with 1 to 3 "eyes" and good roots at the time of planting usually gives better results than a very large crown with many eyes. One-year divisions are somewhat cheaper than older ones and should produce some good flowers in two to three years.

VARIETIES OF "TREE" PEONIES

Gessekal	White	Double	Early
Tama-fuyo	Blush	Double	Early
Hana-kisoi	Cherry	Double	Early
Alice Harding	Yellow	Double	Early
Uba-tama	Dark Maroon	Double	Early

European varieties of "tree" peonies are not recommended for use in Virginia. Those which are commonly called Japanese but which came originally from China and Tibet, are better adapted to our climate and have proved to be hardy in the mountains of southwest Virginia.

Plants of "tree" peonies are more expensive than roots of the herbaceous type. "Tree" peonies may be bought 2 to 3 years after they are grafted, but older plants would be best if quicker results are desired. Plants from seed are sold when they are 5 to 8 years old.

### Where to Plant

Herbaceous peonies need sunlight while "tree" peonies do best in some shade. To quote a grower of long experience, "Tree peonies are forest plants, while herbaceous peonies belong on the prairie."

Herbaceous peonies may live under trees, close against walls or crowded between other plants, but under these conditions they cannot produce good flowers. In fact they may not bloom at all.

"Tree" peonies, unlike the herbaceous type, cannot thrive in full sun where the temperature of the soil usually gets too high. If protected from the hot afternoon sun the flowers will last longer and the soil about the roots will be cooler.

Peonies cannot thrive if water stands around the roots. This condition often occurs when the roots are put in a hole in heavy soil with no side drainage to let the water out in rainy seasons.

The term drainage, as used in connection with root growth, refers to the movement of water downward through the soil and not to the water which runs off the surface.

Few home owners have any choice about avoiding frost pockets. If the

garden area is low with little air drainage, the chance of frost injury in spring is much greater than it would be in a location where opposite conditions prevail.

If morning sunshine strikes the peonies when frost is on the buds and leaves, the injury caused by rapid thawing may be severe. Such injury might be reduced by thawing the frost with cold water before sunrise or by planting the peonies where the early morning sun cannot reach them.

### How to Plant

In a good, deep garden soil very little preparation is needed before planting peonies. If, however, they are to be planted in poor soil or where the area has been graded with a bulldozer, careful preparation should be made a month or more before the planting date. When planted in freshly dug soil the roots may settle too deep for best results.

Prepare a continuous bed 2 feet wide and 12 to 18 inches deep for a row of peonies. For individual plants, dig to the same depth (Figure 9) and make the holes 1-1/2 to 2 feet in diameter. Replace heavy clays with good garden soil. Old rotted manure or compost may be used in the bottom of holes or beds if these materials are mixed with the soil and packed moderately to prevent settling. The roots should not come in direct contact with manure in any form.

In acid soils, such as those with a pH of 5.5 or lower, some form of lime should be worked into the soil before planting. One-half cup of ground limestone or one-fourth cup of white lime might be used for each plant. A pH of 6.0 would be ideal.

Peonies may be helped by applying small amounts of fertilizers. Mixtures high in nitrogen often damage the plant and flowers. Bonemeal, rock phosphate, or superphosphate

may be worked into the soil using one cupful per plant. It is possible that potash would be beneficial, especially in eastern Virginia. A standard fertilizer mixture, containing no nitrogen, 14% phosphorus, and 14% potash is sold in Virginia as 0-14-14. This mixture alone might be worked into the soil a month before planting at the rate of one-half cup per plant. Applications of this fertilizer may be used in April at the same rate around established plants, provided none is placed close to the plant. In good soil, very little fertilizer will be needed for garden peonies. Some growers recommend repeated applications of fertilizer to be made in spring and summer. Such practices might cause serious injury in Virginia.

The use of fertilizer cannot correct a bad physical condition in the soil. The soil should contain enough humus (decayed organic matter) to prevent heavy soils from packing and light sandy soils from rapid drying.

Set the plants 4 feet apart for both herbaceous and "tree" peonies. In limited areas herbaceous peonies might be planted a little closer.

Place the roots of herbaceous peonies with the eyes up and with the tip of the eyes 1 inch below the surface level (Figure 9). Firm the soil around the roots with your hands. Water. If the water washes the soil away from the eyes, cover with soil to 1 inch depth. Mulch lightly with compost, peat, sawdust, or peanut hulls.

Put stakes or markers by the plants to prevent walking on them, and label. It is always best to make a chart of the planting so the varieties can be identified in later years.

### **Culture**

Peony plants may not grow much the first summer from a new division. It would be normal if only one or a few stems are developed. There

may be no blooms. Give them time. The stems will increase in number the second year and these will be taller than they were the first year. Be careful not to rob the plant of foliage when the blooms are cut.

Practically all of the dry matter in the peony plant is made in the leaves with the aid of sunlight. Peony plants may be damaged if too many leaves are cut with the flowers. When the plant has only a few leaves, the blooms should be cut with short stems, thus leaving all the foliage on the plant.

Even established plants might be improved by removing some of the buds when they first develop and by cutting the flower stems short enough to save two leaves on the plant below each cut.

Cultivation often causes injury to peony roots. Since this cannot be prevented by deep planting, it is necessary to work the plants with care. In commercial plantings it is almost impossible to plow peonies without cutting or breaking the roots. Gardeners may cultivate herbaceous peonies to a depth of 1 to 2 inches; or their plants may be mulched with 1 inch of sawdust or other material. A deep mulch will damage herbaceous peonies.

Since "tree" peonies develop a strong system of feeder roots near the surface, it is very important that they be mulched to keep the soil as cool as possible in hot weather.

Some watering in dry seasons may be necessary. A good watering twice a month is beneficial, in dry weather, even after the plants have bloomed. Be careful not to drown them.

### **Supports**

Double flowers are apt to hang to the ground if the growth is heavy. The use of nitrogenous fertilizers

increases the loss through weak stems and large flowers.

It is possible to support the flowers by using stakes and string or with a wire frame (Figure 2).

### Disbudding

Disbudding is practiced to get a large flower on one stem. Disbudding is done when the buds are very small. First decide which bud is to be left. This may be the terminal (center) bud or one of the others. Then carefully break and rub out all the rest. This operation cannot be carried out successfully after the buds get large.

### Propagation

Herbaceous peonies are propagated by dividing the roots or by growing them from seed. They will come true to variety when grown from roots, while only the species will come true from seed. Growing them from seed is a tedious method and should be used only for the development of new varieties or for increasing the species.

The roots must be dug with care to prevent breaking. When the divisions are made it is best to cut away all of the old crown and save only the sound roots with one or more eyes (buds). See Figures 5 - 8.

"Tree" peonies are propagated chiefly by grafting and from seed. A piece of root from a herbaceous peony about 3/4 to 1 inch in diameter and 4 to 5 inches long is used for the understock. A scion 2 to 3 inches long and bearing 1 to 3 buds is grafted as shown in Figure 10. This is a form of the cleft graft with the cut in the understock being made from the side downward and toward the center. Such grafts are made from October 1 to December 1.

A dressing of hand wax or caulking compound may be spread over the cut surfaces although some growers do not use any dressing.

The lower end of the understock is wrapped in a moist cloth and put in a plastic bag. Moist peat may be used instead of the cloth. The plastic bag is tied to keep the moisture in.

The grafts are held at a temperature of 70°F. until about February 15, when the understock and scion will be united. When this stage is reached the graft is ready to be planted in a cold frame or outdoors.

A unique method developed by H. F. Stokes, of Roanoke, Virginia, when putting the graft outdoors, is shown in Figure 11. A large tin can, such as a number 10 size, is prepared by cutting out both bottom and top. This cylinder is then placed over the newly planted graft so the lower edge of the can is deep enough to be below the buds on the scion. Granulated charcoal is then put in the can until it is even with the ground level. This completes the planting operation. Roots develop on the scion, and give rise to the vigorous, fibrous root system.

The can should not be removed until the new plant shows above the charcoal. It is best to mark the position of all young "tree" peonies to prevent injury from walking or digging.

A leaflet on growing "tree" peonies from seed will be sent upon request.

### Diseases

Botrytis is the name of the fungus which attacks the leaves, flowers, and crowns of peonies. In severe cases the young shoots are killed. The spots on the leaves and stems usually appear later. These are large and irregular with concentric rings.

This disease is often confused with the injury caused by weather in early spring. However, the disease usually appears after a spring freeze.

Botrytis cannot be checked after it has grown into the plant tissue, but it can be prevented in many cases. The materials most widely used to combat botrytis are sprays of Bordeaux, Semasan or ferbam.

Where the disease has been bad the following steps might be taken:

1. Clean the dead tops away.
2. Spray the clump.
3. Apply a second spray about the time growth starts in the spring.
4. If necessary, spray when the flower buds begin to develop.

There are many fine peonies growing in Virginia which have never been sprayed.

### Insects

Thrips may damage the blooms. DDT is recommended for the partial control of this pest. Thrips occur in great numbers on grass, shrubs, and trees. The extent of the thrip injury may be lessened by spraying the plants with tap water after sunset and before the flowers open.

Ants feed on the sweetish, sticky substance which is exuded from the peony buds. While they do not damage the peonies directly, they may carry disease spores on their feet. Ask for a bulletin on ant control.

### Nematodes

Nematodes damage peonies, especially in the sandy soils of eastern

Virginia. Do not set nematode infested plants. Infested plants may be recognized by the small knots or swollen areas on the roots. Liberal use of decayed organic matter and heavier soils will reduce the injury from nematodes.

## Exhibiting and Judging

Gardeners will find peonies interesting subjects for flower shows. In order to exhibit them to the best advantage it will be necessary to study the classification of peonies and learn how to fit varieties into a flower show schedule.

An outline of a flower show schedule including a suggested score card for judges will be sent upon request by the V.P.I. Extension Service, Blacksburg, Virginia.

## Botany

Peonies belong to the genus *Paeonia* in the family Ranunculaceae and is called peony after the mythical physician Paeon.

*Paeonia* is divided into three sections:

- I *Suffruticosa* (Moutan or "Tree" peony) Native to China and Tibet.
- II *Onaepia*, low, fleshy peonies native to California and Washington.
- III *Paeon*, including all herbaceous peonies native to Europe, Asia and Africa.



**Figure 1.** Herbaceous peony. An established plant with double flowers.



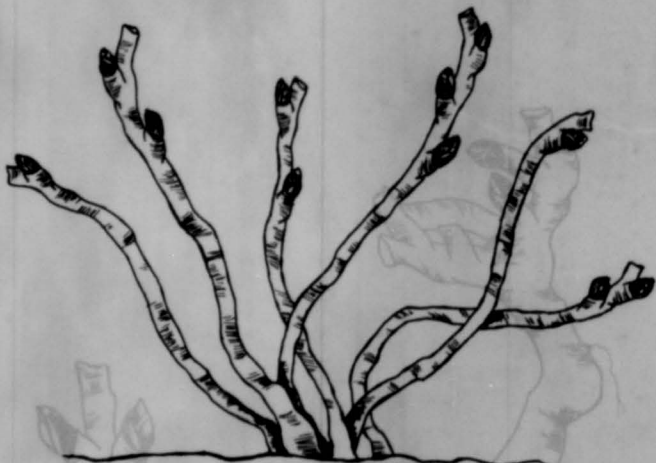
**Figure 2.** Wire support for herbaceous peony. Double flowers may bend to the ground when wet. Single and Japanese types may not need supports.



**Figure 3.** "Tree" peony. This established plant is about 2-1/2 feet tall and 3 feet wide. "Tree" peonies may reach a height of 5 feet.



**Figure 4.** This flower of a seedling "tree" peony was nine inches in diameter.



**Figure 5.** "Tree" peony in winter showing numerous buds. In the fall the new growth dies back to the fourth leaf below each flower. If no bloom forms, the new growth does not die but forms a flower bud for the next year.



**Figure 6.** Herbaceous peony root with one "eye".



Figure 7. Herbaceous peony root  
with two "eyes".

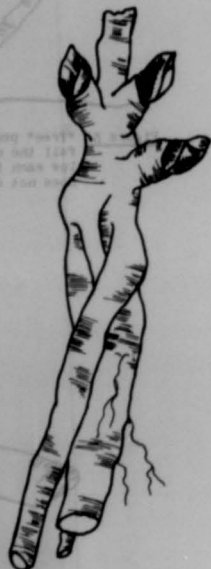
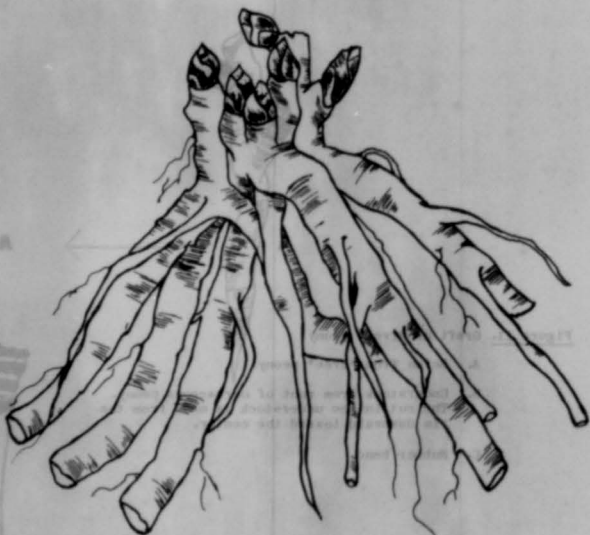
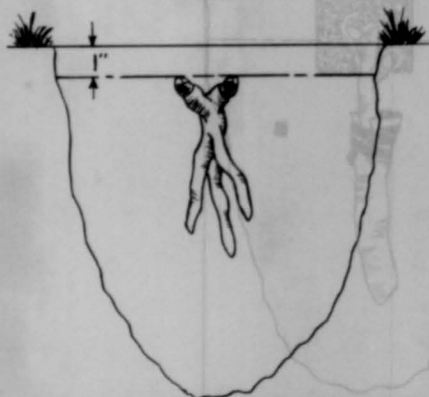


Figure 8. Herbaceous peony root  
with three "eyes".



**Figure 9.** Herbaceous peony root with numerous "eyes" (buds). In most cases only 3 or 4 of these buds would grow the first year.



**Figure 10.** Planting diagram for herbaceous peony. Prepare hole by digging 12 to 18 inches deep. Be sure that the soil has settled before planting. If not, pack to prevent root from getting too deep.

Figure 11. Graft of "tree" peony.

- A. Scion from "tree" peony.
- B. Understock from root of herbaceous peony. The cut in the understock is made from the rim downward toward the center.
- C. Rubber band.

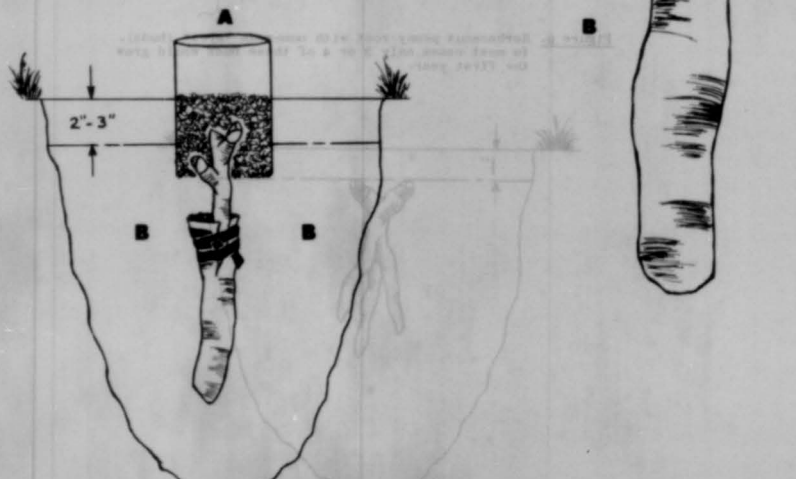


Figure 12. Planting diagram for graft of "tree" peony.

A. Cylinder from No. 10 can filled with charcoal to ground level.

B. Soil filled around graft and around base of can. This method was developed by H. F. Stoke of Rosnoke, Va.



# Transplanting Dogwood

A. G. Smith, Jr., Associate Horticulturist, V.P.I.

There are many different types of dogwood. The common white and its pink sport are used in Virginia more than any other form.

White dogwood is grown from seed and may be bought from nurserymen.

Pink dogwood is budded on the roots of white dogwood. It is not uncommon to find specimens in the woods with pale pink flowers, but these hardly compare with the best pink varieties found in nurseries. Nursery-grown plants, which have been transplanted once or have been root-pruned, have a much better root system than the wild plants.

When good nursery-grown plants can be obtained, it is cheaper to buy them than to collect them from the woods.

Use small trees, especially when dogwood is being planted in large numbers. Young trees, three to four feet high, have a much better chance to grow into healthy trees than those which are much larger when planted.

Transplanting dogwood involves three steps: (1) digging; (2) moving; (3) setting. The plants should be dug so as to save as much of the root system as possible.

The roots should be wet immediately and wrapped to prevent drying. Be sure the roots do not get dry at anytime when the plants are being moved or handled.

Dogwood likes shade. It can be made to grow in full sun. Do not plant when the soil is muddy. Dig a hole deeper and larger than the root system. Fill the hole nearly to level of the ground. Set plant, with roots properly spread, just deep enough to cover roots about one inch. Firm soil. Pour one-half to one bucket of water slowly around the plant. Let it soak into soil. Mulch with one to two inches of sawdust, leafmold or peat.

A dogwood has little chance to live if it is planted too deep. Do not use any commercial fertilizer at planting time. As soon as the tree is planted, cut off at least 1/3 of the top.

Dogwood may be transplanted in fall or winter. March is an ideal time to plant them. Common troubles result from:

- Planting too deep
- Allowing roots to dry
- Trees too large
- Failure to cut top
- Lack of mulch
- Lack of water

Leaflet 95 August, 1959

V. P. I. Agricultural Extension Service  
Blacksburg, Va.



## Landscape Notes

Prepared by Extension Horticulturists A. S. Beecher and A. G. Smith, Jr.

October, 1959

### Leaves

For several weeks now leaves will be falling from the trees. Don't burn the leaves. Save them. Put them on the compost pile. The leaves will decay faster by adding a light covering of manure or fertilizer high in nitrogen to each layer of leaves.

Don't let the leaves remain too long on the ground because they will smother the grass. This is especially important where leaves fall on an area that has been seeded recently.

### Gourds

Pick them before the first frost as they will be injured by a frost. If possible, don't pick them before they are thoroughly matured. The gourd should be dry and the stem withered. Store the fruit inside a warm, dry place. In cutting the gourd off the vine, leave about two inches of the stem.

### Plants for the House

Some of the annuals such as asters, begonias, petunias, etc., can be used as house plants this fall. They will bloom a long time inside and will add color. Select some of the small plants that are in a healthy condition and put them in pots. Give them time to become established in the pots before you move them into the house. It is a good plan to cut the annuals back.

### Roses for Next Season

Are you planning to order some roses for next year? Look around your neighborhood in some of the yards where roses are being grown. Check with the owners to see what varieties have been doing well. Chances are these varieties will do well for you next year. Now is the time to prepare the bed where you are going to plant any new roses that you order. For information on rose culture, obtain Bulletin 189, Garden Roses for Virginia, through the office of your County Extension Agent.

### An Attractive Vegetable Garden Area This Winter

If your vegetable garden area is visible from the back of the house or the street, make it attractive this winter by planting it with winter rye or some other green cover crop. The cover crop will be green all winter and will improve the appearance of the yard. Organic matter will be added to the soil when the cover crop is turned under in the spring.

### Early Frost

Be prepared. Sometimes an early frost kills many of the perennials and annuals and then there may be several weeks before another frost. Have some cloths, old newspapers, burlap bags, or other material handy so you can be ready to protect some of your flowers from the first frost. The extra work may give you several weeks of additional color in your garden.

### Plan Before You Plant

October is a good time for planting or transplanting. But before you do any planting or transplanting, take time to look over your home grounds and see what you can do to improve your landscaping. Look back over the past growing season and note where your landscaping has fallen below expectations. After making such a survey you can make some plans for improving the appearance of the home grounds.

In making your survey, the following questions may help you to analyze your planting or transplanting needs:

1. Is my house the center of interest or is the front lawn so cluttered up with shrubs that the house is no longer in view?
2. Does the house need to be tied down by some plantings because too much cellar foundation is showing?
3. Would additional shade trees be beneficial?
4. Do I have any shrubs with colorful fruit, such as pyracantha, nandina, holly, flowering crab apple, dogwood to provide fall and winter interest?
5. Is my backyard private and is there a shaded place in the yard where I can entertain friends?
6. Are some of my shrubs poorly located? For instance, under your windows do you have some vigorous growing shrubs that require constant pruning to keep them from blocking the windows?
7. Do I spend most of my Saturday afternoons trimming hedges?
8. Are some of the shrubs crowding each other?

If you will take time to ask yourself questions like those above, it will help you to decide what new planting or transplanting you need to do this fall to correct some of the faults or failing you have noted in your landscaping. The time spent in planning will be well worth the effort because next year you will get greater satisfaction from your yard because of its improved beauty and usefulness.

### Getting Acquainted

Some trees that are colorful for their fruit:

Dogwood	Cornus florida
American Holly	Ilex opaca
English Holly	Ilex aquifolium
Flowering Crab Apple	Malus species
Mountain Ash	Sorbus species
Royal Paulownia	Paulownia tomentosa

### Safe Driveway Entrances

Do you have a safe driveway entrance on to the highway, or has the plant material grown so much this summer that you no longer have a good view in both directions? If so, get out your axe or pruning shears. For information on how to landscape your entrance, obtain a copy of V. P. I. Circular 824, Attractive Driveway Entrances, which is available through your County Extension Office.

### Bulbs for Spring Color

Plant now - For early spring color in your yard, be sure to plant some of the spring bulbs now. It has been found that early planted bulbs develop a more extensive root system before cold weather begins than bulbs that are planted in November and December.

What bulbs to plant - Some of the better known bulbs for spring color are:

Daffodils	Tulips	Hyacinths
Bulbous Iris	Crocus	Scillas
Grape Hyacinths	Snowdrops	Chionodoxas

For detailed information about varieties, consult the fall bulb catalogs of the many nurseries and bulb dealers that sell bulbs. These catalogs will often give information as to what varieties bloom early or late. By careful selection, it is possible to have a long extended period in the spring of blooms from bulbs.

### Where to Plant Bulbs

The flower border - Bulbs fit well into the flower border along with the annuals and perennials. The low-flowering bulbs may be planted to the front of the flower border and the taller ones may be grouped further back in the border. After the bulbs are through blooming and begin to die, annuals can be planted between the bulbs, and it will be possible to have continued succession of color.

Foundation planting - Hyacinths and Crocuses may be effectively used in front of the broad leaved evergreens that are often used in the foundation plantings around the house.

Around the terrace - Many terraces have narrow planting strips where it would be appropriate to mass bulbs. Planting boxes, which are a part of the terrace, may also be used for bulbs.

Shrub border - Bulbs make a good edging in front of a shrub border. For best results, plant the bulbs in masses and group the same color together. The shrubs will serve as a background for the bulbs.

At the driveway entrance - A mass planting of bulbs at the drive entrance will add an interesting note of color early in the spring. Bulbs grouped around the base of architectural features, such as pillars at the entrance, will also be effective.

Wooded area - Some yards have a portion of their grounds chiefly in trees, and in these areas, daffodils may be planted under the trees. In time these bulbs will become naturalized.

Depth of Planting for Bulbs

Following the directions furnished by the bulb dealer or remember that in general bulbs should be covered with soil to a depth of about three times the thickness of the bulb.

Soil Requirements for Bulbs

Bulbs do well in good garden soil provided there is good drainage. If the soil is poor, take steps to improve the soil. Commercial fertilizer mixtures, such as 5-10-5, worked into the soil before planting at the rate of about 4 pounds per 100 square feet will usually prove beneficial. The addition of organic matter to poor soil is also important. However, this organic matter, if it is in the form of manure, should be supplied many months before the bulbs are actually planted. At the time bulbs are planted, avoid the use of animal manure, because they may have a tendency to increase the rotting of certain bulbs.

Buy Good Bulbs

It pays to buy top quality bulbs. Watch out for bulbs offered at bargain prices, because often these bulbs will not be top quality bulbs and will sometimes produce only tiny flowers.

Lily Bulletin

Lilies for Virginia Gardens is the title of V.P.I. Bulletin 236. Ask your County Agent for a copy or write to V.P.I.

Dahlias

After frost has killed the dahlias, cut the tops off at a point about three inches above the ground. Dig the dahlia carefully so the tubers won't be injured by the spading fork. Label each clump so all varieties will be correctly identified next year. Before putting the clumps in storage let them dry and remove excess soil. Inspect the tubers closely and discard any that are injured or not healthy. Dust all cut surfaces with ground sulfur or fermate.

Proper storage is important. A basement where the temperature is around 40° is ideal, but many cellars with furnace heat are warmer and drier. One solution to the problem of a dry, warm cellar is to make a small storage room by partitioning off an area of the cellar. Locate the area by a window so the temperature can be kept low. The room also will be a good storage place for apples and vegetables.

If you don't have a cool storage place, cover the dahlia roots to prevent them from drying out. Sand, peat moss, coal ashes, or sawdust can be used. Put the roots in boxes, baskets, or barrels.

Agricultural Extension Service, V.P.I., Blacksburg, Virginia,  
An Educational Service of the Virginia Polytechnic Institute in cooperation  
with the U. S. Department of Agriculture and County Governments



## Landscape Notes

Prepared by Extension Horticulturists A. S. Beecher and A. G. Smith, Jr.

### HUMUS FOR THE GARDEN SOIL

#### What is Humus?

Humus is partly rotted organic matter in the soil. It is usually dark in color.

#### How is Humus Formed?

The remains of plants and animals must undergo many changes before plants can feed on them. These changes are brought about by soil organisms - bacteria, fungi, etc.

#### How Does Humus Aid Plants?

1. Humus helps the soil to hold more water.
2. It reduces the loss of soluble plant food.
3. It improves the mechanical condition of soils. Heavy soils become less sticky, while in sandy soils the particles are bound together.
4. It provides the best conditions for the greatest increase in desirable soil organisms.
5. It makes available to plants certain essential minerals such as potassium and phosphorus.
6. It affects the temperature of the soil by aiding in the absorption of heat.
7. It provides better soil aeration and thus helps root growth.
8. It makes the land easier to work.

#### Where May Humus Be Obtained?

There are three principal sources:

1. Animal manures supply humus only after they are decomposed to a proper stage. No two lots of manure will produce the same results because of (a) the kind of animal producing it, (b) the difference in animal feeds, (c) the variation in types of bedding used, and (d) the method of handling the manure.

Fresh manures have limitations as a desirable source of all the humus needed by the soil because of (a) its scarcity, (b) its cost, and (c) the danger of excessive amounts of nitrogen compounds. However, the nitrogen may be balanced by applying phosphorus and potash in the form of 0-14-7 fertilizer.

2. Grasses, legumes and other plants may be turned into the soil while they are green as a means of increasing the humus content of the soil. In this green state these plants are composed chiefly of water. However, their tissues do contain a small percentage of organic material which will later become humus.

3. Composts provide an excellent means of supplying humus to the garden soil. Possible materials for the compost are: leaves, grasses, weeds, garden plants, scraps of vegetable matter, sawdust, sod, loam soil, and animal manures.

#### How Are Composts Made?

Composts may be made in many different ways from various materials. It is not necessary to follow a definite formula. As the materials become available, put them in layers on the ground, keeping the top somewhat concave.

Since the materials in the compost are of little value to the gardener until after they have rotted, special pains should be taken to hasten the decomposition. The rotting is brought about by the work of certain organisms which must have nitrogen, moisture, and air.

To supply nitrogen and at the same time increase the plant food value of the compost, spread about 1 pint of garden fertilizer (5-10-5) over each 6-inch layer where the compost is 10 feet long and 5 feet wide. Also scatter a handful of lime over each layer, unless the compost is to be used for such acid-soil plants as azaleas.

If the nitrogen is supplied in the form of manure, nitrate of soda, calcium cyanamid or sulphate of ammonia, the phosphorus and potash could be added as commercial fertilizer (0-14-7) at the rate suggested above.

The quality of the compost material is improved by turning and mixing it with a plow or with hand implements.

Partly rotted sawdust, from pine or hardwoods, will make an excellent compost either alone or mixed with other materials. Sawdust will rot quicker if it is spread in thin layers with manure, fertilizers, and hay or straw. There is no experimental evidence to show that sawdust will cause soil to become acid.

Composts may be made at any time of the year, but the process of decay will be stopped or retarded by low temperatures. Keep the top of the compost level or concave so it will catch water. The compost should be thoroughly rotted before it is applied to the garden.

**WHEN YOU BURN LEAVES, THE HUMUS GOES UP IN SMOKE!**

Agricultural Extension Service, V. P. I., Blacksburg, Virginia,  
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9/10/59