

Kelly andrew

4-H BULLETIN 153-B



4-H HORTICULTURE INDOOR GARDENING

OCTOBER 1963

HORTICULTURE - INDOOR GARDENING

MEMBER'S BULLETIN

J. Lee Taylor*

PROJECT INFORMATION

Who can take the project?

Indoor gardening projects are suitable for club members of all ages. The many activities can be carried out in any home situation. Older members would be expected to have larger or more complex projects.

Why take this project?

There is an indoor gardening activity within the range of ability and interest of almost every 4-H club member. The project provides opportunities to make items for someone else. These activities provide a contact with nature, give practice in manual skills, and emphasize "learning by doing".

What is included in the project?

Indoor gardening covers the following activities:

Caring for house plants
Dish gardens and terrariums
Winter bloom from bulbs
Creating plaques from dried materials

Project Guide-lines.

1. In each project year members should complete one or two different activities such as forcing bulbs and caring for house plants.

Caring for house plants. Care for 12 house plants. Repot, water, fertilize, and divide the plants. Time: anytime during the year.

Dish gardens and terrariums. Make two woods, meadow or desert dish gardens, and two woods or tropical terrariums. Time: fall or spring or both.

Winter bloom from bulbs. Pot and bring into bloom at least three pots of hardy spring flowering bulbs such as daffodils, tulips, hyacinths, and minor bulbs. Time: fall and winter.

Creating plaques from dried materials. Assemble three or more plaques on backing materials at least five by seven inches in size. Use two of the suggested designs. Time: anytime during the year.

*This bulletin is based on several extension publications of the New York State College of Agriculture, a unit of the State University, at Cornell University, Ithaca, New York, prepared by E. F. Schaufler, Department of Floriculture.

2. Take pictures of completed activities to submit with report.
3. Fill out Indoor Gardening Report 253-B.

CARING FOR HOUSE PLANTS

Introduction

Do you have colorful flowering or foliage house plants? Would you like to know how to grow plants to brighten your home? From this leaflet you will learn how plants function. This will let you know how to take care of plants in your home. You will find that many house plants are fun to grow.

Plants need light, heat, air, food, and moisture. Correct plant care means proper watering, removing dead flowers and leaves, and repotting plants when they need it. You will learn a correct repotting procedure.

1. You will need to care for 12 house plants during the project, repotting, watering, fertilizing, and dividing as needed.
2. Keep track of your work in Indoor Gardening Report 253-B.
3. Take two or more pictures to turn in with your record.

Equipment for the activity - Plants need light, heat, air, food, and moisture. You will need:

1. Window sill space with storm window protection, or table space for 12 or more plants close to a window.
2. At least 12 pots (clay, plastic, or aluminum) from two and one-fourth inch to six-inch size, depending on the size of your plants.
3. Saucers or tuna fish cans to use under the pots.
4. Twelve plants from your parents, friends, greenhouse, or store.
5. A watering can. One with a long, thin spout is preferred.
6. Soil mixture for your plants. Eight quarts, or one-fourth bushel will fill approximately 15 four-inch pots.
7. Indoor Gardening Report 253-B.

Kinds of House Plants

House plants are divided into two groups. Some are grown for their flowers, and others for their interesting or abundant foliage. Generally the foliage plants are less exacting in their growth requirements than the flowering plants. Some common house plants are:

Foliage Plants

Chinese evergreen	Sansevieria
Aspidistra	(snake plant)
(Cast iron plant)	Cacti
Jade plant	Grape ivy
Rubber plant	English ivy
Peperomias	Ferns
Philodendrons	Coleus
Pothos	German ivy
	Wandering Jew

Flowering Plants

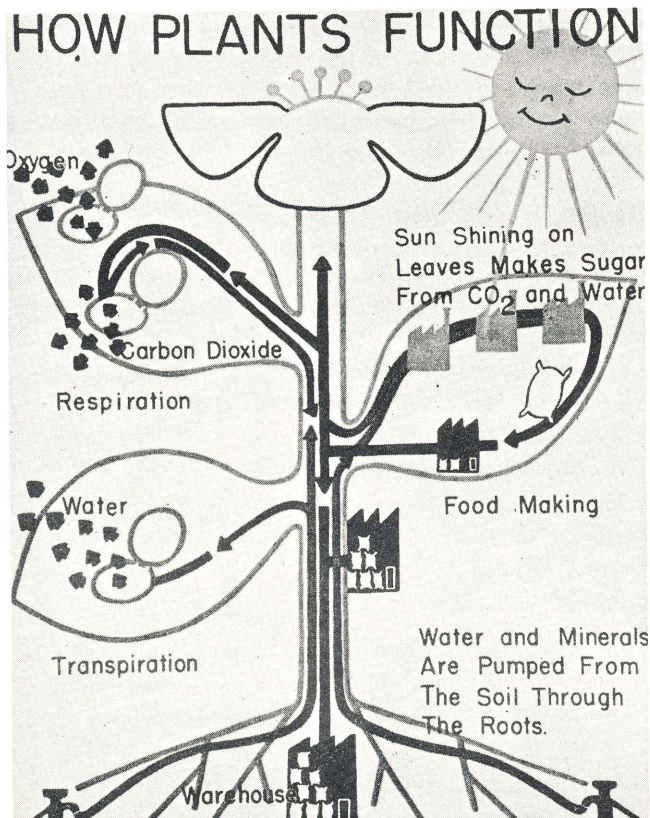
African violet	Christmas cactus
Begonias	Amaryllis
Impatiens	Geranium
Shrimp plant	Gloxinia

What Makes Plants Grow

Water

Water is constantly moving through a plant; it enters the roots, moves through the stems, and exits from the leaves as a vapor. This process is known as "transpiration". The rate of transpiration varies. It is rapid with warm, sunny, and windy conditions. It is most rapid in homes with a dry atmosphere.

Transpiration slows down when it is cool, dark, still, and humid. If roots are unable to take up enough water for transpiration, the plant wilts. Should this condition last for any length of time, the plant may die.



All plants need a combination of conditions to grow. These are water, light, food, air, and a suitable temperature.

Light

Light is the most important factor regulating the growth of plants. Some light is needed for all green plants because the actual food for a plant is made or "manufactured" by green leaves in the presence of light. Energy from sunlight, raw materials from water, soil, and air, and the green chlorophyll in the leaves work together to produce the sugars, starches, and proteins that the plants use as food. If a green plant gets no light, it dies of starvation because it cannot manufacture its own food.

Food

The "food" a plant uses to grow is different from the "food" it takes

in with water through the roots. Just as much of the food we eat is processed, the food a plant actually uses is changed from a raw form to a usable form within the plant. This process has the long name of "photosynthesis". We call fertilizers "plant foods", because they supply many of the nutrients or minerals that a plant needs. These are in the raw material form. The lack of light, or the lack of nutrients will cause green plants to die.

Air

Air circulation is needed by plants because they use carbon dioxide to help manufacture usable food. Air leaves carbon dioxide in the leaf as it passes through, and picks up surplus oxygen and water vapor. This extra material is carried out of the leaf, and is part of the transpiration process. If dust gathers on leaves, it may clog some of the breathing pores, and slows down the air movement through the leaves.

Temperature

Each plant has a definite temperature range in which it grows best. Many tropical plants stop growing when the temperature goes below 50°F. Yet some of our plants such as the geranium grow best when the temperature is about 50°F. African violets grow better in the home at a temperature of 70°F.

Summary

All green plants need water, light, food, air, and the right temperature for best growth. All these factors play individual parts in determining how well our house plants will grow.

The Actual Care of Plants

It is hard to give a general rule for watering house plants. The kind and size of pot, and the humidity and temperature of the air determine how much and how fast water is used by any one plant.

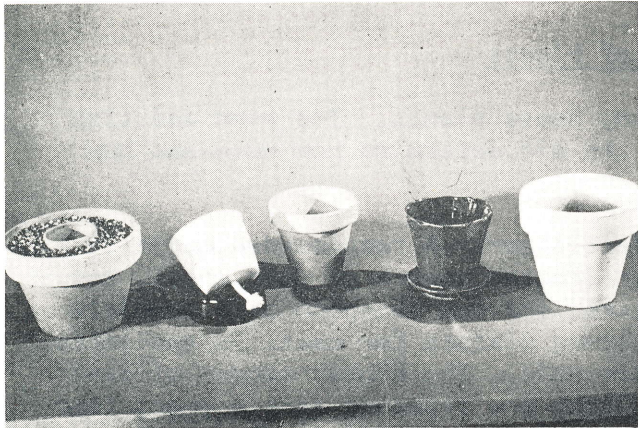
Plants are fed by a good growing media and fertilizer. A recommended media is one part garden soil, one part organic matter (rotted manure or peat moss), and one part sand. To each six-inch pot of mixture, add one teaspoon of a complete fertilizer such as 5-10-5 or 6-12-6. The potting mixture for cacti is two parts sand, one part organic matter, one part garden soil. The higher amount of sand in this mixture promotes better drainage. Plants are repotted once a year; feed them when they are repotted and again six months later. Avoid feeding during November, December, and January when plant growth is very slow because of poor light. Plants can use food only when they are growing actively.

Plants vary in the amount of light needed for good growth. The following list should give you an idea about where certain plants might be placed in the home.

<u>Poor Light</u>	<u>Bright Light</u>	<u>Sunlight</u>
(away from windows, in halls, on tables)	(window sills on the north and east, curtained west windows)	(direct sun in south and west windows)
Chinese evergreen	Cacti	Coleus
Aspidistra	Grape ivy	German ivy
Jade plant	English ivy	Wandering Jew
Rubber plant	Ferns	Begonias
Tri-leaf wonder	African violets	Impatiens
Peperomia	Gloxinia	Christmas cactus
Philodendron	Shrimp plant	Geranium
Pothos	Pepper plant	Hardy bulbs (forced)
Snake plant	Episcia	
(These plants will grow in poor light, but all grow better in bright light)		

A small clay pot with a large plant may need water twice a day. A large glazed pot, with a plant of the correct size may need water every other day. Plants should never wilt between waterings. Add enough water at one time so that all the soil in the pot will be moist. You can water from the top or bottom, but be sure that all excess water can drain off. Water is also used to wipe off the leaves. On plants with hairy leaves, such as African violets, it is best to use a small soft brush. Use room temperature water on African violets and other tropical plants.

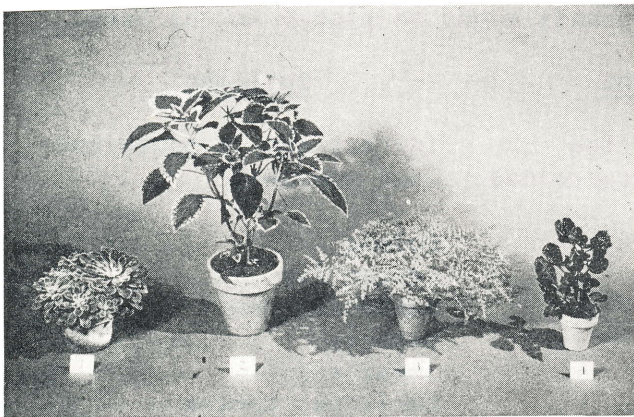
The air around plants is often drier than is healthy for the plants. Humidity can be increased by setting the plants in a large waterproof tray. An inch of gravel, nearly covered with water, on which the pots are set, provides good humidity conditions. Plants do not like cold drafts, and some react to slight gas leaks.



Suitable pots for house plants include (left to right): small pot surrounded by mica, plastic self-watering pot, clay pot, jardenier (no drainage), and glazed pot.



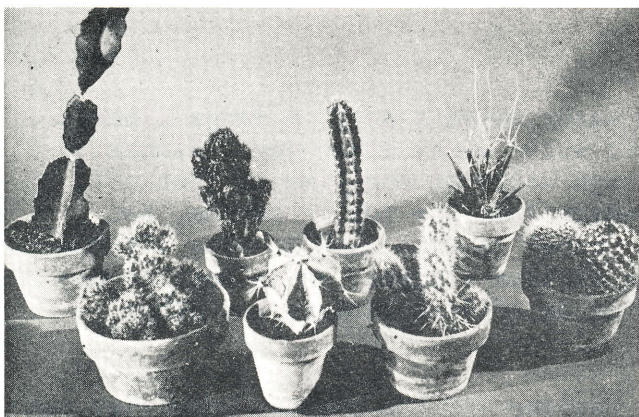
Here are some house plants that do well in poor light: 1. Cast iron plant; 2. Snake plant; 3. Rubber plant; 4. Chinese evergreen; 5. Varigated peperomia.



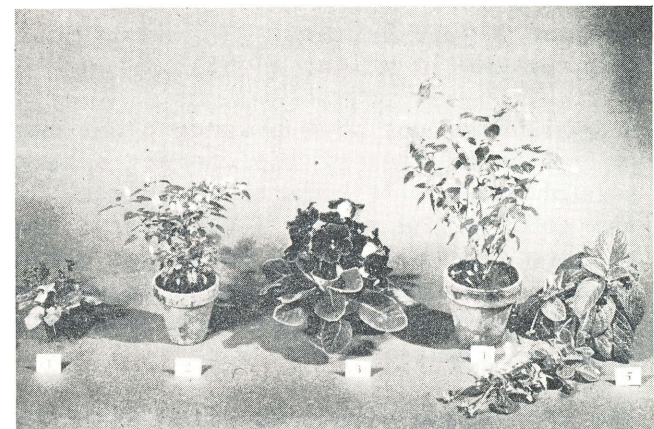
Some foliage house plants need direct sunlight to stay bushy. These are: 1. Echeveria; 2. Coleus; 3. Artillery plant; 4. Iresine.



The philodendron is a popular vine for the home. There are many variations of philodendrons. Here are four leaf forms.



Cacti do best in bright light. These interesting forms are very easy to grow.



Most tropical plants need bright light for best growth. These plants will burn in summer sun. Put them in north and east windows during the summer, or cut down light by using curtains in south and west windows. These plants are: 1. African violets 2. Pepper plant; 3. Gloxinia; 4. Shrimp plant; 5. Episcia or "flame violet."

Temperatures in most homes run too high for best plant growth. Day temperatures of 70°F to 72°F are best, with night temperatures of 60°F to 65°F. Move plants off window sills during very cold weather. Extreme changes in temperature can check plant growth, and even kill some tropical house plants.

DISH GARDENS AND TERRARIUMS

Introduction

During the summer, you see many types of plants growing outdoors. As fall comes, all but the evergreen trees and shrubs shed their leaves. Annual flowers die after being touched by frost.

There are many plants you can grow and enjoy in your home during the winter. There are flowering and foliage-type house plants, but the big attraction in your home can be a pleasing dish garden or terrarium. You can assemble a tiny garden for your home this winter. Dish gardens make wonderful gifts, too.

Activity requirements

1. Assemble at least two dish gardens and two terrariums to the satisfaction of your leader.
2. Attend a meeting on dish gardens and terrariums, or assemble them by following the instructions in this leaflet.
3. Record your finished dish gardens and terrariums in 4-H Project Record 253-B.
4. Take one picture or more of your gardens to turn in with your record sheet.

Equipment for the activity

To assemble dish gardens you will need:

1. Containers - A low metal or pottery container of any shape at least 3 inches deep and not more than 8 inches high. Brass, copper, pewter and iron containers are available in a number of styles. Pottery containers in dark or dull colors are very satisfactory.
2. Soil - A good house plant soil (1 part sand, 1 part loam, 1 part peat moss) should be used. Exception--for cactus use 2 parts sand, 1 part loam, 1 part peat moss.
3. Fertilizer - To the soil mixture add any 5-10-5 or 4-12-4 fertilizer at the rate of 1 level teaspoonful to a 6-inch pot of soil. (Pot measurements are the diameter of the top of the pot.)
4. Drainage - A layer of gravel, sand, broken pot, or granulated charcoal is needed in the bottom of the container. This should be at least 3/4-inch in depth and may be more if the dish is fairly deep.
5. Plants - Dish garden plants should be slow growing types. Plants may be selected from the wild or they may be purchased. In general, there are four different dish garden types:

Woodland Gardens

Rattlesnake plantain
Partridge berry
Rock Polypody
Wintergreen
Pippsissewa
Hepatica

Mosses
Lichens
Ferns
Small evergreens
Yew
Juniper

Pine
Hemlock
Club Mosses
Ground pine
Fungus

Desert Gardens

Cactus
Opuntia
Haworthia
Echinocactus
Kalanchoes

Echeverias
Crassulas
Aloes
Sedums
Staphyleas

Mesembryanthemums
Sempervivums
Euphorbias
Cotyledons
Agaves
Sansevierias

Tropical Gardens

Pteris fern
Bromelias
African violet
Podocarpus
Acorus
Dracaenas

Philodendrons
Ivy
Peperomias
Bird's nest fern
Sansevieria
Kalanchoe

Cliff brake fern
Zebrina
Syngonium
Scindapsus
Cissus

Field and Meadow Gardens

Hawkweed
Pussytoes
Wild strawberry

Grasses
Mosses
Lichens

Juniper seedlings
Cedar seedlings

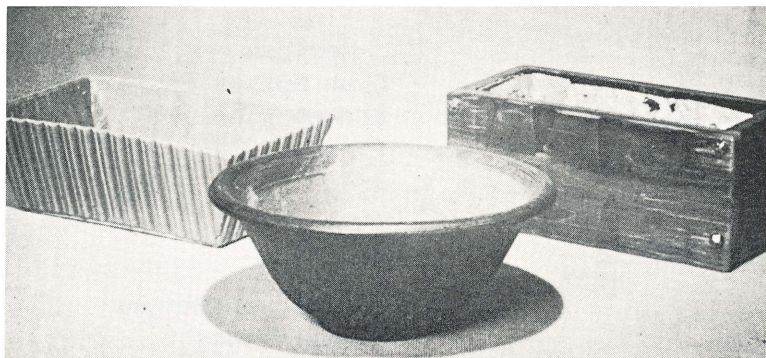
6. Room in your home where you can keep dish gardens throughout the winter.

7. 4-H Project Record 253-B.

To assemble terrariums you will need:

1. Containers - Terrariums can be assembled in glass jars, goblets, old-fashioned candy jars, aquariums, fish bowls, or elaborate glass bubbles. A clear glass container and a cover are basic requirements. Cloudy or tinted glass filters out too much light needed for growth, and cuts down on what one can see in the terrarium.
2. Soil - A mixture of 1 part sand, 1 part peat moss, and 1 part good garden soil, which is the recommended house plant mixture, is a good media for terrarium plants. You may wish to buy a small amount of prepared soil mix, because very little is needed in a terrarium.

Deep containers such as these could be used for dish gardens. They must hold enough soil for six to eight plants.



3. Drainage - The terrarium has no drainage hole, but excess water can be seen through the bottom. You may wish to put a layer of granulated charcoal in the bottom. The layer should be no more than 1/2 inch deep. Drainage material is put in after the bottom and sides of the container are lined with sheet moss, green side out.
4. Plant Materials - Some of the more common materials are:

Tropical Plant Materials

African Violets	Philodendron
Acorus	Bromeliads
Podocarpus	Pteris
Dracaena	Selaginella
Peperomia	Ivies
Creeping Fig	Maranta
Scindapsus	Crassulas
Zebrina	Kalanchoes
Sansevieria	Echeverias
Syngonium	

Native Materials

Rattlesnake Plantain	Wild Strawberry
Partridge Berry	Ferns
Rock Polypody	Seedling Evergreens
Pippsissewa	Yew
Hepatica	Juniper
Violets	Hemlock
Club Mosses	Pines
Lichens	Wintergreen
Shelf Fungus	Wood's Mosses
Pussytoes	Hawkweed

5. Room in your home, out of direct sunlight, where you can keep terrariums throughout the winter. With proper care, terrariums will last as long as three years.
6. 4-H Project Record 253-B.

How to Assemble a Dish Garden

A dish garden is a number of interesting plants pleasingly arranged in a suitable container. The container may be round, square, oblong or any convenient shape for your selected use. Brass, copper and iron containers should be lined with aluminum foil. Pottery containers in shades of blue, green or brown can also be used.

Not all plant materials grow happily under the same conditions. Just think of a cactus plant, happy in the hot and dry southwestern states, moved into one of the boggy Florida swamps! Soon the cactus would shrink and die because it could not change into a bog plant. Plants that like the same conditions belong in one type of dish garden.

Woods Dish Gardens



A piece of gnarled stump is the background for this woods dish garden. Small plant materials keep everything in scale.

Your woods dish garden is assembled from plants you can collect along roads, hedgerows, and woods. Many of these plants grow in areas of light shade. Therefore, your woods dish garden can be used on a low table, on the mantle, or in another location that does not get full sun. Mosses of the woods are often the major materials in a woods dish garden.

Put a layer of small gravel, pearl chips, sand, or ground-up charcoal in the bottom of your container. This is drainage material. If you water too heavily, the excess water will gather in this drainage layer.

Gather a little more soil than hangs onto the roots of your plants as you carefully dig them up. The extra woods soil you gather is put on top of the drainage layer. Your plants are then planted in the woods soil where they will feel at home.

You may also use tiny appropriate figurines or other center of interest objects in your dish garden. Tiny pottery animals, elves, interesting small stones, gnarled pieces of roots, or a lichen covered rock may be your center of interest. Gaudy-colored or large figurines are generally not appropriate. Figurines of brown or shades of green are best.

Now you come to the exciting part! Arranging your center of interest and collected plants to form a pleasing, attractive dish garden.

Dish Gardens Viewed From All Sides

If your garden is to be viewed from all sides, interest can be gained by having your soil mounded higher in the center. On top of the mound, plant one of your seedling trees. The tallest tree should be about 1 1/2 times the longest dimension of your container. Let the partridge berry vine creep around the inside edge of your container. Place one or two of your tiny pottery animals halfway down the slope. Then place six to eight plants of two or three kinds on the slope. Cover all exposed soil with one type of flat-moss. Practice placing different materials for their best effect.

You may have a tiny piece of mirror as a pond, or a path of sand through your woods dish garden. Be sure your pool or walk is in scale with the figurines.



The four cacti and the container carry out a desert theme. White sand is used as a ground cover.

This dish garden of tropical plants can be viewed from all sides. The tall snake plant is exactly in the center of the garden.



Dish Gardens Viewed From One Side

If your dish garden is seen from one side only, it can be made level, or to resemble a sloping hillside. Again try various placings for your center of interest to find where it looks best.

Your woods dish garden may look more attractive if you create contrast. Use a piece of bark, a shelf fungus or a gnarled piece of wood behind some of the plants. This should be done only with gardens to be viewed from one side.

The tallest material should be about 1 1/2 times the longest dimension of your container. It may be placed in the center back of your planting, or toward one side.

Desert Dish Gardens

The best containers for desert dish gardens are light blue, reddish, or buff in color. Most desert plants have a grayish cast from spines or fuzz.

Cacti like dry places and are used to thriving in hot sun and little moisture. The soil mixture placed on top of the drainage layer for your desert garden is 2 parts sand, 1 part garden soil, and 1 part peat moss or compost. The sand lets excess moisture drain out of the soil mixture.

There are many different types and sizes of cacti for an interesting desert garden. Choose only two or three kinds in various sizes. Follow design rules for placing materials. Place the tallest toward the back.

The lowest ones look best in front. A piece of bleached wood, or an interesting stone can give you a center of interest, or an interesting cactus plant may be the best center of interest.

For a finished look, cover the soil showing after your plants are planted with a thin layer of white sand, pebbles, stone chips, or crushed flower pots. Water your desert garden no more than once a week.

Tropical Dish Gardens

House plants that like lots of water are used for tropical dish gardens. You will recognize many of the house plant names suggested for a tropical dish garden.

The soil mixture for a tropical dish garden is 1 part garden soil, 1 part sand, and 1 part peat moss. These materials should be thoroughly mixed before being placed in your container. Do not forget to put a layer of drainage material in the bottom of your container.

If your dish garden is to be seen from all sides, mound soil a little higher in the center, or use your largest plant in the center. Group smaller plants around it. If the garden is to be seen from one side only, use the tall plant toward the back and center.

Many rooted cuttings of house plants can be used in tropical gardens. Here are some common house plants suitable for tropical dish gardens.

Bromelia
African Violet
Philodendron
Podocarpus

Small-leafed Ivies
Peperomia
Snake Plant
Wandering Jew

Croton
Grape Ivy

Watch for plants with interesting leaf markings or colors. The plant with the most interesting characteristics would be good for a center of interest.

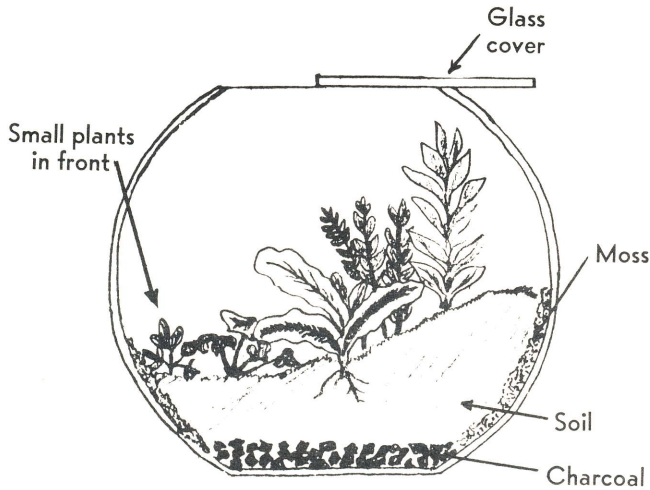
Terrariums

Terrariums are actually enclosed dish gardens. Clear glass jars, aquariums, fish bowls, goblets, and old-fashioned candy jars that can be closed or covered with a clear material make good containers. Glass containers with small openings are hard to plant.

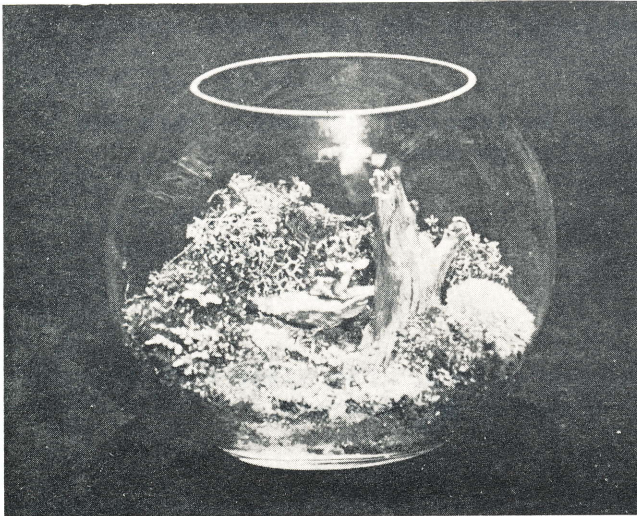
Line the sides of your container, up to the soil line, with sheet moss, green side against the glass.

For drainage, use ground-up charcoal, small pebbles, coarse sand, or pieces of broken pots. This will provide internal drainage. Place the drainage material on the flat bottom portion of your container 1/2 to 1 inch deep.

Your soil mixture (1 part soil, 1 part sand, and 1 part peat moss) goes on top of the charcoal. You may need only a handful or two of your soil mixture. The mixture is used only to support the plants.



This diagram shows how a terrarium is put together.



A small piece of stump, a deer figurine, rock and woods mosses are used in this hillside terrarium.



A gallon paste jar resting on its side is used for this hillside terrarium. All materials are in scale.

Here are native and tropical plants that grow very well in a terrarium.

Native

Partridge berry
Pippsissewa
Hepatica
Violets
Mosses
Shelf Fungus
Hawkweed
Wild Strawberry
Seedling Evergreens
Wintergreen

Tropical or Greenhouse

Ferns in variety
Dracaena
Fittonia
Philodendron
Strawberry Begonia
Small-leafed Begonias
Creeping Fig
Chinese Evergreen

Do not mix native and tropical materials because they have different cultural requirements. Woods moss can be used as a ground cover in a tropical terrarium. Otherwise, make a terrarium of either native or tropical materials. You can use slips as plants.

Do not crowd your plants. Open spots where soil shows after plants are in can be covered with pieces of moss.

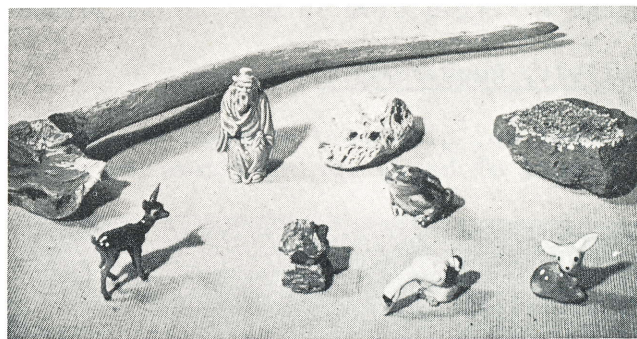
A small figurine, a lichen-covered rock, an interesting piece of bark or root may be a center of interest. A few plants, pleasingly arranged, are much more satisfactory than a jumbled mass of crowded plants.

Do not let water stand in the bottom of your terrarium. If it does, remove the cover and let it evaporate. Your terrarium may need only one or two teaspoons of water a month. Place your terrarium in a light place and enjoy it throughout the winter.

Plan to collect plant material for woods dish gardens and terrariums before heavy snowfall comes in your area. Usually September and October are good months for this activity.



Clear glass containers are suitable for terrariums. They must be large enough for you to reach inside them to place materials.



Small figurines, interesting rocks, and pieces of wood can be used for a center of interest or background in dish gardens or terrariums.

WINTER BLOOM FROM BULBS

Introduction

Have you noticed potted daffodils, tulips, and hyacinths in bloom indoors in February and March? Have you wondered if you could have these in your home? It takes a little time in October to prepare these bulbs for forcing.

Activity Requirements

1. Pot up, give cold storage treatment to and bring into bloom at least three pots of hardy spring-flowering bulbs. Use daffodils, tulips, hyacinths, or minor bulbs.



Forced tulips peer out a window at a wintry scene. All major hardy spring-flowering bulbs can be brought into bloom indoors in February and March.

2. List in the Indoor Garden Report the name, number, dates of potting, date forcing began, and dates of flowering for the bulbs you grow.
3. Take two or more pictures of your bulbs at different stages and include them in your record.

Equipment for the Activity

Hardy bulbs need large flower or bulb pots as containers. A good soil mixture is the best growing media. A cool storage area must be provided for the bulbs for at least two months. Sunlit window sills are the best location for the forcing period.

You will need:

1. Clay pans or pots.
2. 18 or more hardy spring-flowering bulbs.
3. Drainage material.
4. Soil mixture for potting media.
5. Cold storage space at 40°F to 50°F for two months.
6. Bright lighted forcing space (sunlit window sills).
7. Indoor Garden Report 253-B.



Crocus is easy to force. Keep pots in a cool room for long lasting flowers.

Hardy Spring-Flowering Bulbs

The hardy spring-flowering bulbs are: Crocuses, grape hyacinths, daffodils, hyacinths, tulips (early, Triumph, Mendel), snowdrops.

These bulbs should be potted up by late October. Success with tulips lessens if they are potted after November 1. Recommended varieties for forcing are:

Daffodils:

Carlton, yellow
Cheerfulness, white
Golden Harvest, yellow
King Alfred, yellow
Thalia, white
Twink, primrose & orange

Hyacinths:

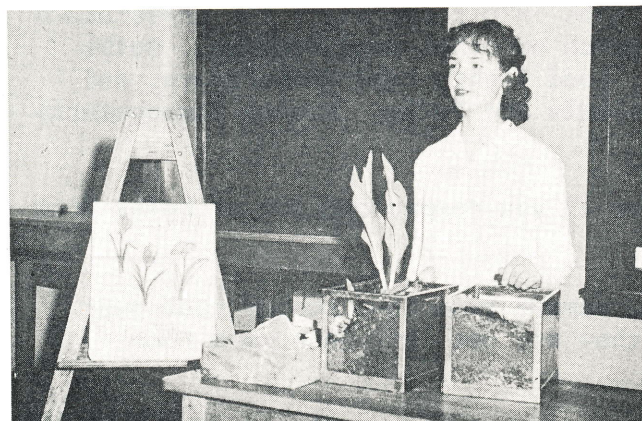
Bismarck, lt. blue
City of Haarlem, lt. yellow
Edelweiss, white
La Victoire, rose
Pink Pearl, pink

Tulips:

Bartigon, red
Prince of Austria, orange-red
White Sail, white
Ursa Minor, yellow
Edith Eddy) varigated pink
Denbola) and white
Prunus, red
All Bright, red



Daffodils are the easiest hardy bulbs to force. This demonstrator shows how successful her indoor gardening project has been.



This demonstrator shows how she potted tulips for forcing. The terrariums allow the audience to see how deep the bulbs were planted.

What To Do?

Select containers for the bulbs you have chosen to force. The following list gives the approximate number of bulbs that will fit into various sizes of pots. The inside diameter at the top of the pan or pot gives its size.

<u>Kind</u>	<u>No. of Bulbs</u>	<u>Pot Size</u>
Tulip	3	5"
	5	6"
Hyacinth	2 to 3	5 to 6"
Daffodil	3 to 4	7 to 8"
Minor bulbs	6 to 7	4"

Potting Bulbs

Mix your own potting mixture using two parts garden soil, one part sand, and one part organic matter (not manure). Add no fertilizer.

1. Put a small amount of drainage matter (broken pottery, small stones) over the drainage hole of the bulb pots.

2. Put enough potting mixture into pots to allow bulbs to rest as follows:

Tulips - bulb tops just above the soil line. Put flat side of bulb toward pot side.

Daffodils - bulb tops even with top of pots. Because of size of bulbs, pots are better than pans.

Hyacinths - bulb tops show just above soil line.

Crocus, grape hyacinths, and other minor bulbs - about one inch below the soil line. The soil line is one-half inch below the top rim of the pot or pan.

3. Add soil around and/or over the bulbs, and press the soil until it is one-half inch below the pot rim.
4. Water the soil until water begins to seep out the drainage hole.

Providing cold storage

Hardy spring-flowering bulbs need a period of two months at 40°F to 50°F to break dormancy and start root growth. Tulips force better if given 10 weeks to 12 weeks of cold storage.

You can store bulbs in a dark, cool cellar if they are kept moist. Bulbs may also be buried outdoors in a trench. Dig an outdoor trench at least 12 inches deep. Set the potted bulbs in the bottom of the trench. Cover with 3 to 4 inches of sand, then add 8 to 12 inches of sawdust or other mulching material, preferably not straw. At the time of forcing, lift the mulch cover gently to avoid breaking off the shoots of the bulbs.

Success with forcing hardy bulbs depends on their developing a large amount of root growth during the cold storage period. Pots should not be forced until a good mat of roots has formed.

Forcing the Bulbs

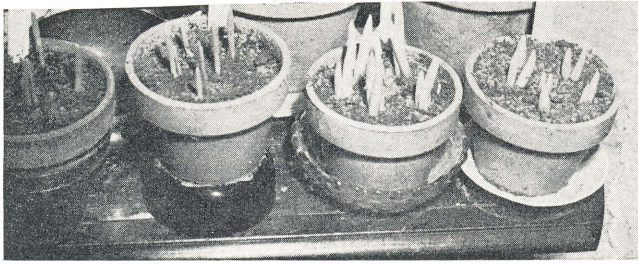
After the cold storage period, bring potted bulbs into rooms where the temperature is 60°F to 65°F. Bulbs force best in a sun porch or other cool windows. Bulbs need high light intensity for stocky growth. Good light, cool temperature, and regular watering enables flowers to develop slowly and fully. Higher temperatures produce long, weak stems.

You can have blooms over a long period of time if you remove one pot of bulbs from cold storage every two weeks.

If you keep forced bulbs in your living room, remove them to a cooler room over night. The blooms will last much longer if they are not left in a warm room continually.

General Information

All major hardy spring-flowering bulbs can be brought into bloom indoors in February and March.



These bulbs have gone through the cold storage period and are ready for forcing.

Crocus is easy to force. Keep pots in a cool room for long lasting flowers.

Grape hyacinths are a blue flowering bulb. Use 10 to 12 bulbs in a 6-inch pot for abundant color during February.

Hyacinths provide fragrance as well as indoor color. The large bulbs are easily and quickly prepared for forcing.

Potting hardy bulbs is an excellent demonstration topic.

Daffodils are the easiest hardy bulbs to force.

Hyacinths and daffodils forced in a cool room will produce stocky firm flowers. High temperatures will cause buds to blast and leaves to fall over.

Treatment after Forcing

Bulbs used for forcing cannot be forced again immediately. Keep bulbs moist after blooming, and plant them outdoors as soon as the ground permits. After two growing seasons outdoors, they will bloom again.

Treatment of Tender Bulbs

Tender bulbs do not require cold storage treatment.

Paper-white narcissus is good for only one blooming period. Grow them in any medium (sand, gravel, pebbles, or soil) that will hold the bulbs upright. Place them in bowls or low pots, and set them immediately in a well lighted location at 60°F. Temperatures of 75°F or higher are undesirable for they encourage weak growth and loss of flower.

Amaryllis is potted in the wintertime. Put one bulb in a pot, allowing an inch of space around the bulb. Leave the upper half of the bulb showing above the soil line. Give these plants good light, a good supply of water, and temperatures above 60°F. They will flower within six to eight weeks. Once they have flowered, keep watering the plants. Amaryllis does better if the foliage is left on the plant and the plant kept growing the year around.

CREATING PLAQUES FROM DRIED MATERIALS

Introduction

Many easily obtainable dry materials can be glued to an inexpensive backing to form a decorative plaque. Use such plaques as part of your room decorations, or as figts.

The following information will enable you to assemble pleasing plaques at little cost. Plaques formed in a shadow box are especially attractive. All the materials needed can be found in or around your home. Dried materials can come from left-over seed, gardens, roadsides, and fields. Always be on the lookout for usable dry materials.

Activity Requirements

1. Assemble three or more plaques on a background at least 5 inches by 7 inches. Use more than one design.
2. Record your work in Indoor Garden Report 253-B.
3. Exhibit your plaques at your county fair and State Show.
4. Turn in 2 pictures of your plaques with your report.

Equipment for the Activity

To assemble plaques of dried materials satisfactorily you will need:

Backing or Background

Picture frames (with wooden backing)
Squares, rectangles and circles of plywood (five inches by seven inches and larger)
Old wooden trays
Wooden or plastic salad bowls
Wood shingles
Masonite

Wood and metal are suitable for backgrounds. Backing materials may be left natural or may be painted before a design is glued to them. Shadow-box effects can be made with old fashioned shadow-boxes, painted cigar boxes, tin pie plates or cake tins.

After sanding backing materials smooth, use shellac or lacquer to preserve natural backgrounds. If you are using a frame with backing, use one of a number of good color combinations to paint the frame and background. Metal backgrounds are usually painted. Good background color combinations are: two tones of brown, gold and black, brown and yellow, gold and light green, brown and gold.

Cement - A quick drying model airplane cement is best for dried materials. Household cement or glue is also good, but is slower to dry.

Dry materials - You have an endless choice of substantial dried materials for plaques. Avoid feathery grasses or shedding seed stalks. Below are lists of good dry materials.

<u>Seeds</u>	<u>Seed Pods</u>	<u>Dried Flowers</u>
Cucumber	Spruce	Strawflowers
Melon	Iris	Globe amaranth
Squash	Tulip	Blue Salvia
Corn	Narcissus	Tansy
Beans	Poppy	
Peas	Lily	<u>Dried Foliage</u>
Bayberry	Peony	Magnolia
Wheat	Day lily	Oak
Oats	Gladiolus	Beech
Barley	Locust	Mullein
	Wisteria	
<u>Nuts</u>	Catalpa	<u>Dried Branches</u>
Acorns	Milkweed	Larch
Horse chestnuts	Teasel	Scotch broom
Hazel nut	Witch-hazel	Dogwood
Walnut	Okra	Witch-hazel
Hickory nut	Lilac	Oak branches with
Pecan	Maple	acorns
Black walnut	Ash	
Brazil nut	Swamp alder	<u>Cones</u>
Beechnut	Ostrich fern fronds	Spruce
	Leucothoe	Fir
	Trumpet vine	Pine
	Sensitive fern fronds	Hemlock
		Larch
		Juniper
		Arborvitae

Types of materials - Dried materials are divided into groups according to form or habit of growth. Long spike-like materials, such as cattails and branches, are used for height and width. Round shapes, such as pine cones, are used toward the center of the arrangement. Small circular forms, such as acorns, may be arranged in a line to give a spiky effect. Small spiky forms, such as long melon seeds, may be placed to create circles.

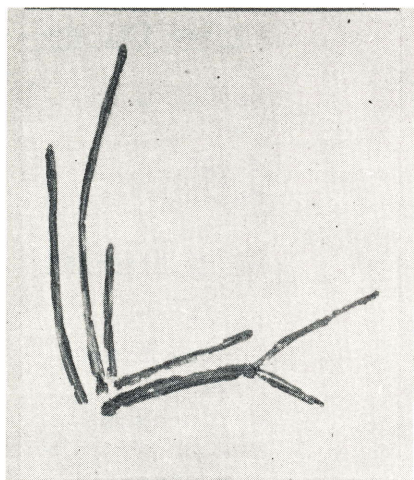
Designs - You can create endless designs from dry materials. The last sheet of this leaflet gives you some ideas. From these you may wish to choose your first design. Using your dry materials, you may work out your design directly on the background.

Brushes - If your frame and backing are to be painted, you will need narrow paint brushes, one-half to one-inch wide.

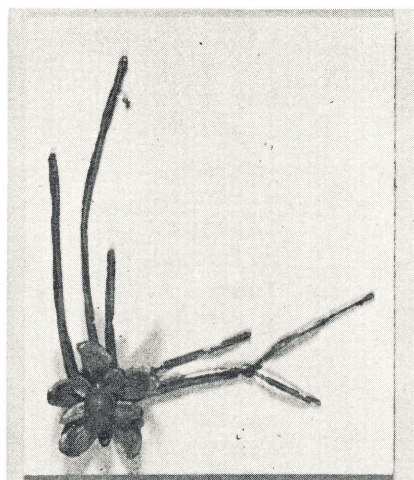
Sandpaper, Steel Wool - Sandpaper is used to put a smooth surface on wood backing. Fine steel wool is used on cake tins if they are to be painted and used for a shadow box effect.

How to Make Dried Plaques

Select a design that will allow you to use the materials on hand and is suited to the background shape you have chosen. A rectangular background is suited to any design.



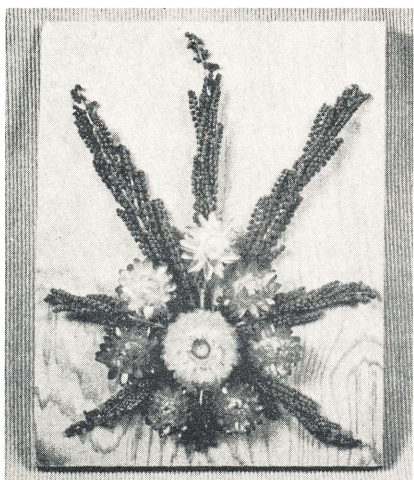
The lines for an L-shaped design are placed first. These are twigs of winged euonymus.



The focal point is added. Here it is an acorn with hickory nut shucks.



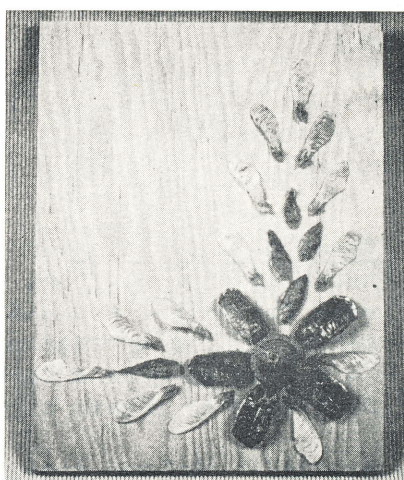
A frame and a smaller design in the upper right corner are added to complete the plaque.



This plaque follows the fan design. It is made from just two materials — strawflowers and sterile fern. A plaque does not need a large number of materials to look good.



Bittersweet vine makes the lines, a hemlock cone and seed corn form the center of interest. Single lilac seed pods fill in around the vine. The round capsules are a weed seed pod.



The line of this L is made of maple seeds. Scales from a pine cone and an acorn form the center of interest. Bits of bark form the transition from maple seed to pine cone scales.

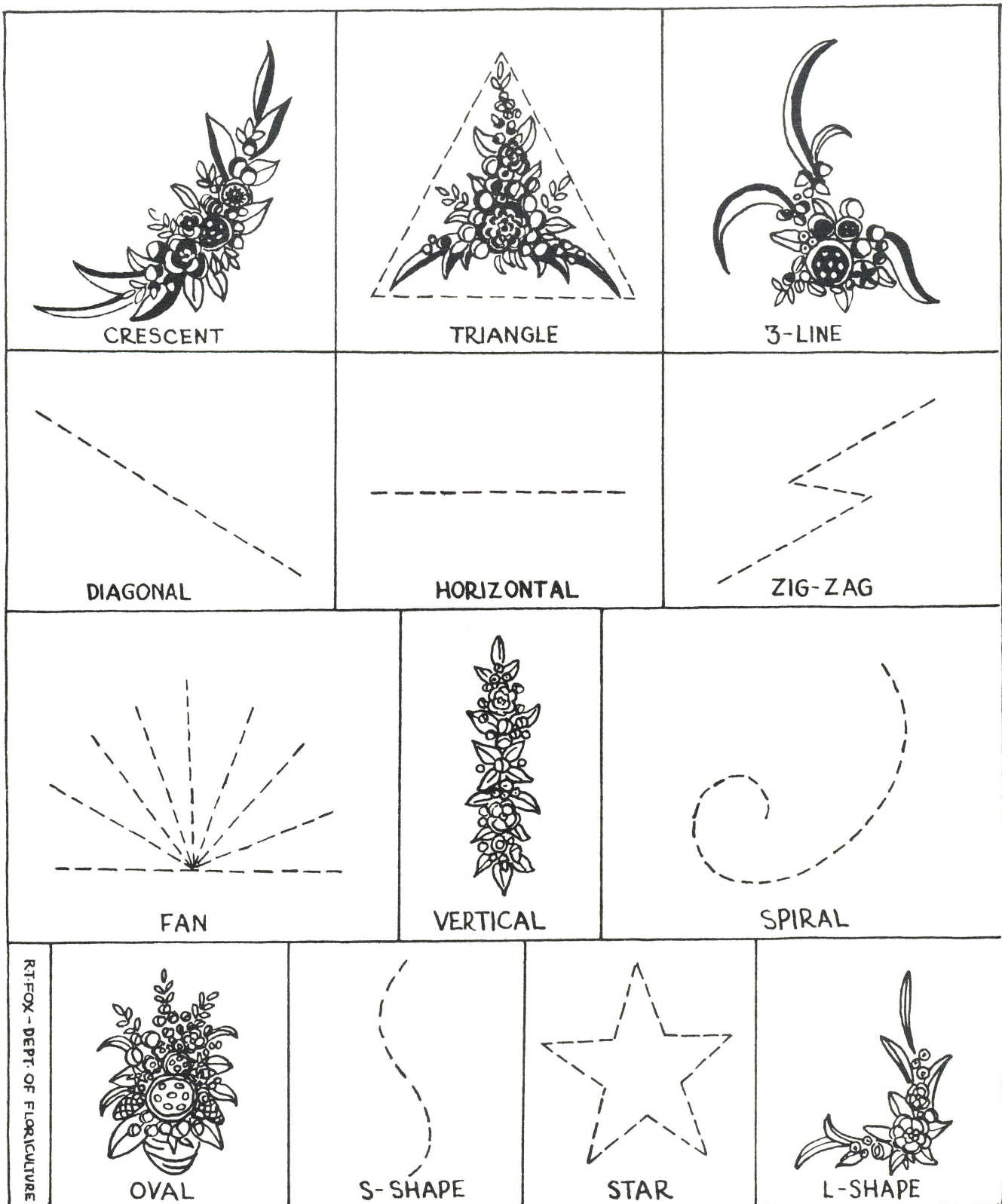
After you have chosen a design, rough out your selection in full size. Lay long materials, or materials to be laid in lines, on your background. Work from top to bottom. The largest materials and strongest colors are low and toward the center. The greatest mass, which is either one large or several closely grouped small pieces, is at the center of attention or focal point.

After your materials are satisfactorily placed and checked, you are ready to glue them into place on your background.

After the glue is dry, you may wish to shellac the entire plaque. A slightly shiny finish can be obtained by spraying the finished plaque with clear plastic spray. This is available in pressurized cans.

Demonstrations

Creating dried plaques is an excellent activity for members to demonstrate. The finished plaque should be displayed, and duplicate materials used for a step-by-step demonstration of how the plaque was assembled.



Some basic designs for dried plaques