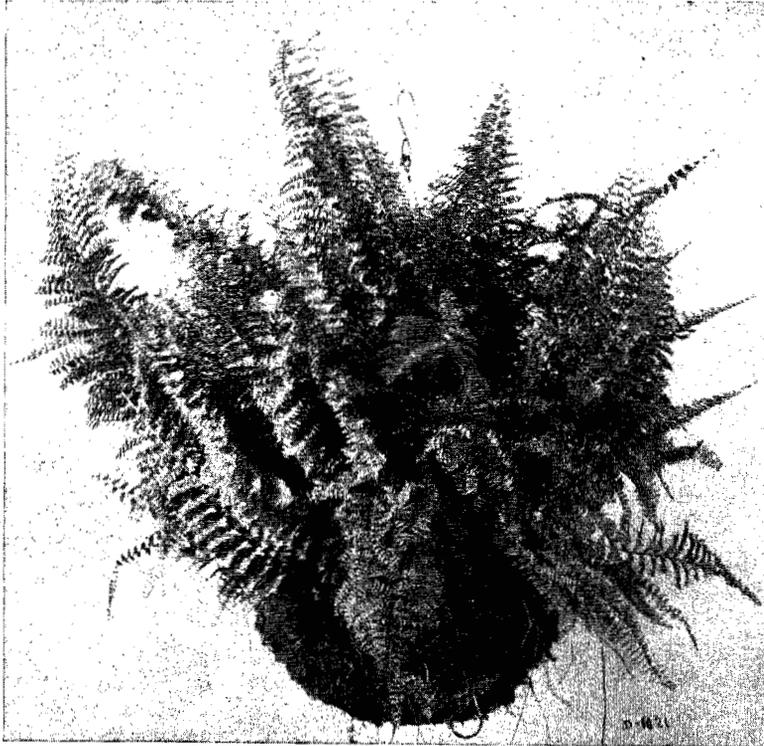


AGRICULTURAL EXPERIMENT STATION

KANSAS STATE COLLEGE OF AGRICULTURE
AND APPLIED SCIENCE

MANHATTAN, KANSAS

DEPARTMENT OF HORTICULTURE



A WELL-KEPT BOSTON FERN

HOUSE PLANTS AND THEIR CARE¹

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House plants find their way into many homes every winter. Some of the plants are gifts, grown by others and sent in remembrance of some occasion or merely for the joy of giving something beautiful. Others are plants which have made a good growth during the past summer and which those interested dislike to see exposed to winter and its ill effects on tender plants. Some of the plants are perennial house plants well adapted to that purpose and grown in pots sometimes for generations. Others are desirable garden plants which are merely tolerated in the home to furnish slips for next summer's garden planting. Whatever the source of the plants or for whatever purpose they

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are kept they can add to the appearance of the living room or the dining room of the home if they are properly cared for—and only if they are properly cared for. (Figs. 1 and 2.)

If fine-looking house plants are to beautify the home during the winter months they must be provided with the proper environment and their natural enemies be controlled. The principal environmental factors which can be controlled are light, temperature, soil and humidity. Control of insects and diseases is simple if taken in time and if the proper material is used. The following suggestions are offered for better "luck" with house plants. These suggestions being of general nature are not complete nor, since not all plants will respond alike to the same treatment, can one expect to produce such plants as the florist can and does with his very carefully-controlled conditions varying for each kind of plant, and his skill and knowledge in plant growing. However, if these suggestions are carefully followed better success than the average will result.

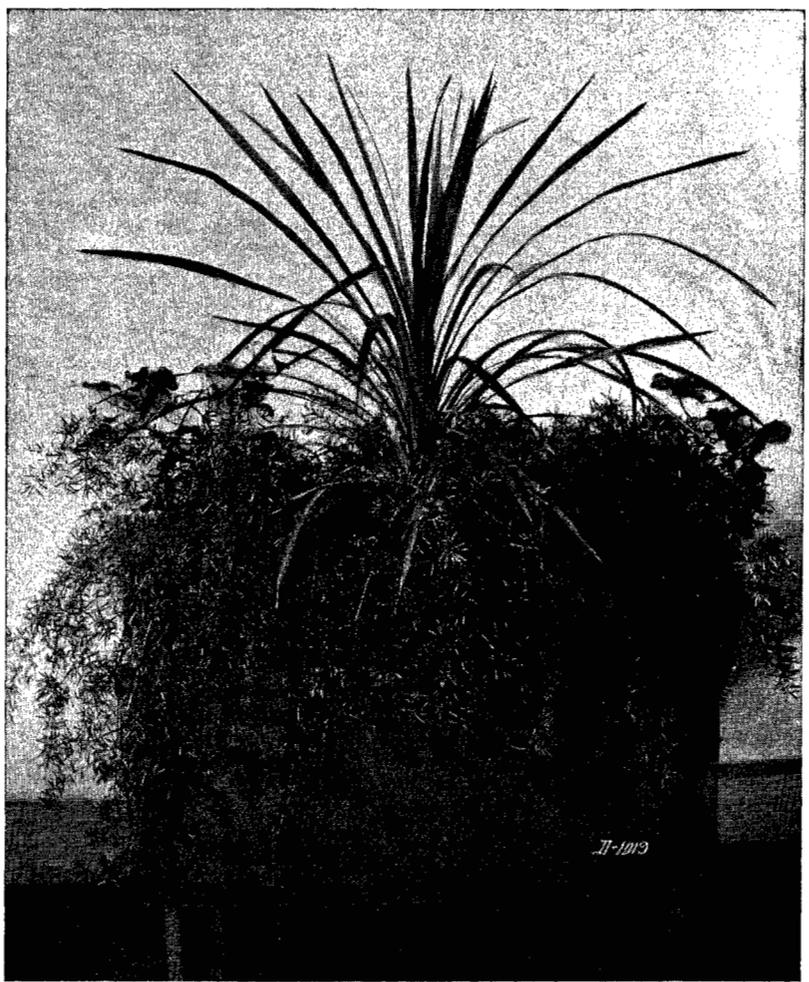


FIG. 1.—Porch box with asparagus fern and dracaena.



FIG. 2.—A group of house plants. 1. Narcissus. 2. Christmas cherry. 3. Asparagus fern. 4. Tuberous-rooted begonia. 5. Begonia.

CULTURE OF HOUSE PLANTS

TEMPERATURE

One of the main causes of failure in growing house plants is that in the average home the temperature is unfavorable to the welfare of the plants. During the day the temperature is higher than the optimum for most plants. This results, if other conditions are favorable, in a large amount of tender unhealthy growth. At night, because of the cost of heating and health requirements, the house is allowed to cool down to a point unfavorable to plant growth. The tender growth produced during the day is easily injured during the night and the plants sometimes die from no apparent cause. Extreme temperatures and rapid fluctuations in temperature are not only directly harmful to the health of the plants, but also favor the development of plant diseases and make plants good hosts to injurious insects.

Culturally, plants are divided into four general classes with regard to temperature. These are warm plants, medium-temperature plants, cool plants, and cold plants. (Table I, p. 16.) Florists group plants this way, having the temperatures at 60, 55, 50, and 45 degrees F., respectively. These are night temperatures, the day temperatures being not more than 10 degrees higher. The reason a greenhouse often seems so warm is that the humidity is high, making it seem warmer than it is.

MOISTURE

Moisture conditions also are often disregarded. The air in a steam-heated house is often as dry as that of the Sahara desert, being about 30 percent saturated. Under such conditions transpiration and evaporation are very rapid. Plants in a well-managed greenhouse live in a relative humidity of 60 to 70 percent. In air only 30 percent saturated, plants wilt slowly, but surely. This can be avoided without adding an excess of water to the pot or box in



FIG. 3.—Asparagus fern in good condition (left), and overwatered (right).

which the plant is growing, by having in the room a pan of water situated near the plants. Some successful house-plant growers have had special tables built for the plants. There is a rim around the table top and this is filled with sand or preferably small pebbles. This material is kept wet and as the moisture evaporates from it the humidity around the plants is raised to a more desirable point, benefiting not only the plants but also the members of the family using the room. Excessive watering of the soil is of little value in correcting the low humidity of the home because the plants often are not able to raise the water from the soil as fast as it is lost from the leaves in a dry room.

Some system should be followed in watering the soil or the plants will become too dry for a time and too wet the rest of the time. When the soil is too dry the plants not only wilt but also starve, since the food they obtain from the soil enters through the roots in liquid form. When the soil is too wet, water fills up the air spaces and the roots do not get air which, with many kinds of house plants, is as necessary as water or food. (Fig. 3.)

Some plants do best in moist soil, while others thrive in a comparatively dry soil. (Table I, p. 16.) Those in pots require more frequent watering than those in boxes, since a large amount of water is lost by evaporation through the porous clay pots. Likewise, plants in small pots require more frequent watering than those in large pots. Plants in a resting stage require less water than those growing actively. These facts must be considered if best results are to be secured.

A general rule to follow is to watch the plant (not the soil) and water when it begins to show signs of slight wilting. Add enough water to saturate the soil in the pot. This can be determined by examining the hole in the bottom of the pot which, by the way, must always be kept open. Good drainage is just as essential as plenty of water. When water seeps out of this drainage hole, enough has been added. Care must be taken that the water coming out of the drainage hole in the bottom has seeped down through the soil and not run down the sides of the pot next to the soil or through a hole in the ball of earth made by an earthworm. This often happens, resulting in death to the plants which seem well watered, but whose roots are in soil that is too dry.

A better method of watering is to put the pot or box in a pan of water so the water will come about half way up the sides. After a short time the water will be drawn up to the surface of the soil. The plant is then properly and thoroughly watered.

LIGHT

All plants require some sunlight, but they differ greatly in this requirement. (Table I, p. 16.) Such sun-loving favorites as geraniums, abutilons, and roses, if set away in a dark corner, will not do well. They will do best, especially in the winter, in a sunny south window. Plants that like subdued or diffused sunlight will do better in an east or north window than where fully exposed to strong sunlight. Palms, the aspidistra, ferns, and most of the vines come in this class.

West windows should be avoided whenever possible. The afternoon sun is usually too strong for house plants. When west windows must be used some sort of protection should be provided in order to reduce the amount of light.

SOIL

Without good soil no one can grow good plants. The idea, however, that each genus of plants must have a different soil is erroneous. Plants will adapt themselves to a wide range of soil conditions if the necessary food elements are provided in the proper amounts.

A good general soil is provided by a mixture of equal parts of leaf mold or well-rotted manure, garden loam, and clean sharp sand. The organic matter furnishes some of the nutrients in an available form and increases the water-holding capacity of the soil. The garden loam adds bulk and supplies some nutrients, but in a form not quickly available. The sand has little nutritive value, but it tends to prevent packing and caking, provides for good drainage, carrying off excess moisture, admits air for the roots, and assists beneficial bac-

terial action. Where leaf mold is not available, well-rotted barnyard manure is a very good substitute. The manure must, however, be well rotted because fresh or rapidly-decaying organic matter is harmful.

Garden loam is a broad term used to indicate a soil which contains some clay, some decayed roots, and not much readily available plant food. Pasture or lawn sod may be used as a substitute. The sod should be cut about four inches thick and turned over, the bottom should then be shaved off with a sharp spade, giving a soil with considerable humus and root fibers and some readily available plant food. There is no substitute for the sand, which should amount to about one third of the total volume of the soil mixture, but the other two constituents may vary somewhat according to the plant. Plants with fibrous roots require more manure or leaf mold than those with tap roots.

For all types of plants the soil must be freed of lumps, stones, and small sticks. This is best done by pulverizing the lumps and removing the other objects. Sifting is advisable. When soil has been prepared as recommended a handful of bone meal sprinkled over the top and mixed in well will often be of benefit to the growing plants.

PROPAGATION OF PLANTS

The propagation of plants is an art. Many people have learned to do it satisfactorily in an amateur way, but unless one has time to give seedlings very careful attention and has facilities for frequently repotting the plants, it is usually better to buy young plants. One usually can get what he wants from a florist and can know what he is getting without caring for a large number of young plants and the necessity of discarding the undesirable ones.

Plants are propagated from divisions of the entire plant or roots, from cuttings, and from seed. Of these the propagation from division is the easiest as one merely divides the large plant into a number of smaller ones, the number depending on the size of the plants one wants for starting. The difficulty experienced in this method of propagation is usually that the amateur attempts to secure too many plants from his original plants or injures the plant in the process of dividing it.

The most common injury in dividing a plant is due to rough handling. Often the plant is hacked to pieces by a spade or a large knife. This breaks the root system into many small pieces, none of them connected with the other parts of the plant, and results in their becoming a complete loss. This often causes the loss of the entire plant.

To avoid injury one should carefully remove the plant from its container. Then he should remove all the soil from the roots, leaving the system intact, but bare of soil. Next he should examine the root system. In most plants he will discover that the roots are not just so many appendages to the top, but follow a more or less definite system. These roots should be separated rather than cut or hacked, though some use will have been made of the knife. In following this method one seldom has a complete failure unless he allows the roots to be exposed to the sun or to the dry air for too long a time. The drying out of the plant is the second hazard or cause of loss of plants in propagating by the division method. If the process is a slow one the roots should be dampened by soaking them in water for a few minutes every five minutes they are out of the soil.

As soon as the plant is divided the small plants secured from the division should be potted. The type of soil and the method of potting are discussed in another part of this circular.

The commonest method of increasing house plants is by the use of cuttings or slips. Failure in using this method usually is due to a mistake in selection of material, to the medium into which the slips are put, or to improper care from the time the cuttings are taken until they are potted.

It requires considerable experience to be able to select the right wood for the making of cuttings. Such wood is usually described as half-ripe wood. This means it is not so immature that it is soft and so will decay before it can root, and yet it is not so ripe or mature that it will never callus or root.

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Such wood is usually that which will snap when bent, but which is so elastic that it will not break entirely from the parent plant.

Cuttings should be about three inches long, though it is better to have them longer than shorter than three inches. The right length is usually about four nodes long. All but the top pair of leaves should be removed and half or two thirds of the stem should be set below the surface of the sand.

Coarse or sharp medium-grade sand is the best medium for rooting cuttings. With it may be mixed peat moss, about one part of the peat to two parts of sand. Other kinds of organic matter or soil usually should not be incorporated into the sand. The sand should be at least three inches deep and when the cuttings are inserted it should be soaking wet and should not be allowed to become dry while the cuttings are in it. This requires constant attention and may mean that one will have to water the cutting bench two or three times a day. Shading of the cuttings is usually not necessary in the home though there is no objection to doing it.

The time required for striking or rooting varies with the condition of the plant at the time the cuttings were taken, the moisture conditions in the sand and the air, the temperatures of the sand and the air, and some other factors as well as the kind of plant one is propagating. Few plants will root in less than a week. After that it is well to examine the base of the cuttings every two or three days for the appearance of roots. When the cuttings root they must be potted at once. Few things lessen the vitality of plants more than to allow the cuttings to remain in the sand until large sets of roots have developed.

Propagation from seed is more easily understood and with the proper equipment is very simple. However, the light, moisture, and temperature conditions in the home are usually unsatisfactory for the development of good plants from seed even if one is able to get a good stand from the seed which he has.

POTTING PLANTS

Plants which are actively growing soon use up most of the plant nutrients in the soil and fill the soil with roots. If continued growth is desired such plants must be repotted or "shifted."

A number of plants do not always reach full maturity during the summer growing months. Sometimes this is due to slow development of the plants and sometimes to late seeding. Sometimes plants are wanted for winter flowering, and it is convenient to plant seed outdoors and pot the best plants before frost. Another increasingly popular custom is the use of small potted evergreen trees as Christmas trees. Some of these are secured from the florist or nurseryman about holiday time, and others are taken from the field before freezing weather sets in. They are grown in the house until spring and carried through the summer in the ground outdoors. They are then ready for another potting in the fall. (Fig. 4.)

DIRECTIONS FOR POTTING

In potting a seedling into a 2- or 2½-inch pot, the first step is to prepare the soil as directed on page 5. Into the pot first put a small amount of coarse material for drainage. Broken pots and pieces of broken china make the best material for this purpose. It is of first importance to keep the small opening in the bottom of the pot open and free from dirt. Cover this coarse material with a small amount of potting soil. With the pot directly before him, the workman takes the seedling in the left hand and holds it in the center of the pot, and with the right hand fills the pot to the brim with soil. The seedling should be as deep in the soil as it was or deeper. The pot should then be taken in both hands, rapped on the table to settle the soil, and twirled with the first and second fingers while the soil is packed with the thumbs. The soil should be comparatively dry so that this packing will not make it cake. Newly rooted cuttings are potted in the same manner.

After the seedlings are potted they should be well watered, preferably by



FIG. 4.—Red cedar potted for winter use indoors and summer use outdoors.



FIG. 5.—A Thanksgiving picture of a chrysanthemum started from a cutting in the spring and repotted several times.

setting in a pan as previously described, placed upon a level table or bench, and protected from the direct rays of the sun. After two or three days, having been watered when necessary, they may be brought out into full light.

When plants become "potbound," that is when the roots cover the ball of earth and a few of them begin to turn brown, they should be repotted into the next larger pots. (Fig. 5.) In repotting one should have all in readiness before removing the plant from the pot. The soil should be mixed and on hand and the pots on the table. Then the plant should be carefully removed from the old pot and placed in the new one as described for seedlings. Care should be taken that the fresh soil be well packed all around the pot between the side and the ball of soil. The space is often so narrow that air pockets are formed between the ball of earth and the side of the pot. It is well to have a short piece of lath to tamp this soil and thus prevent these air pockets.

The plant container may be of wood, tin, clay, or glazed clay, as long as it be of the proper size and provides sufficient drainage. Recent experiments show the commonly used porous clay pot is not so satisfactory for plants grown in the home as is a glazed pot. Tin cans would seem to be coming back as plant containers. In every case it is necessary to have drainage openings in the bottoms of the containers. A small pot is always desirable. The smallest pot that will hold the plant roots and leave room for half an inch of soil is the best. Roots need air, and when a small mass of roots is enclosed in a large mass of soil they will not do well. They tend to grow in the direction of the air, which is toward the outside of the soil, will not use much of the nutrients from the soil in the interior, and will need repotting almost as soon as those put in smaller pots. In repotting use the same-sized or the next larger-sized pot. Only under rare conditions is it necessary or desirable to use one several times larger.

RESTING PLANTS

Under natural conditions nearly all plants rest about half the year. In parts of the world this occurs in winter. In tropical regions, where there is no winter, there usually is a continued dry spell each year during which the plants seemingly die down. They at least become partly dormant, may lose their foliage, and do not grow. This resting period naturally follows the flowering or fruiting season and the more the plant has grown and the heavier it has borne, either of flowers or of fruit, the more necessary is this natural resting spell.

The time for the rest varies, as does its length, but in all cases the plant itself, if carefully watched, will indicate when this period begins and when it is over. The first signs are general let-down in growth and vigor of the plant followed by the shedding of the leaves. Additional supplies of water and fertilizers should not be applied at this time. Only enough water to keep the plant from dying completely should be given. Additional water at this time will stand in the soil causing a harmful loggy condition to develop. Fertilizers will stimulate growth for a short time and force the plant to use up its remaining vitality, after which, having no reserve, it may die completely. Allow the plant to rest as long as it will. A weekly application of water is usually enough during the early part of this period and later twice a month may be enough.

Summer flowering plants will rest from about November to March, and unless the cellar in which they are stored is exceptionally dry, two waterings in December, two in January, and two in February will suffice. The storeroom should be dark and cool, but not freezing. The temperature, however, should be as low as is possible without letting it reach the freezing point.

After a time the plant will put out a small amount of new growth, a signal that it has ended its rest period. As soon as this takes place, but not before, it should be given more water. After growth is resumed a little fertilizer may also be given. This fertilizer may be liquid manure (1 pound of fresh barnyard manure soaked in 20 gallons of water), or sodium nitrate (1 ounce dis-

solved in 6 quarts of water), and should be applied in small doses. As the plant grows, these fertilizers may be added in larger amounts, but the manure water should never be stronger than 1 pound of strawy manure leached in 10 gallons of water, or the sodium nitrate stronger than 1 ounce in 1 gallon of water. In applying these fertilizers care should be taken not to let any of the liquid touch the leaves, as it will burn them. It will also burn roots if applied in stronger solutions than those recommended. It should be kept in mind always that fertilizers can be applied safely only to actively growing plants. At this time repotting is often helpful and may be better than fertilizing. Mixed or package fertilizers in tablet or in powdered form are quick in action and satisfactory for house plants if used as directed.

CARE OF FROZEN PLANTS

Plants left out too late in the fall or put out too early in the spring may be nipped by frost. At first glance one may conclude that since the plant looks healthy, the color being good and the foliage stiff and in place, the frost has not affected it. Later in the day when the temperature begins to rise the leaves become limp and dark-colored. It is then too late to apply a remedy, as the plant must not be allowed to thaw out before restorative treatment is given. If plants have been subjected to freezing, even though slight, they should immediately be put where the temperature is only a few degrees above freezing and cold water applied to the foliage in large quantities. A cold, dark room is a good place for them. In this way the frost will often be "drawn out" without breaking down any of the tissues. It may be about a week before they can be brought into normal house temperatures.

When the plant is back in the living room, look it over carefully and remove any branches or leaves that have not fully recovered. This may result in an unsymmetrical plant, but such is better than one with dead parts for these are sure to become diseased and then infect the healthy parts causing the whole plant to die, not from frost or its direct effects, but from disease which thereby gets started. Later pruning and new growth will allow the healthy plants to regain their symmetry. It may become necessary in pruning to remove the entire top of the plant, but even then it may come through if the roots are not affected and some buds are left at the crown,

DISEASES AND INSECTS

All plants are subject to disease. Not all sickly plants, however, have been attacked by disease-causing organisms. Usually the fault lies in overwatering, poor drainage, or in failure to observe some of the foregoing directions. If a plant is not doing well and the trouble cannot be traced to any of these defects or to insects, many of which are minute and require close observation to detect, the plant has some infectious disease.

DISEASE CONTROL

The first thing to do in case of disease is to remove all the diseased or dead tissue to prevent such parts from infecting the healthy. Often this in itself is sufficient, but to prevent the development of disease spores which may contaminate the healthy tissue, a thorough spraying with a fungicide may be beneficial. Bordeaux mixture is the best and cheapest fungicide. Bordeaux mixture may be made at home, but for the quantities used on house plants it is usually cheaper and often better to buy the prepared Bordeaux mixture. To this one merely adds water as directed on the package. It is a good fungicide for the home gardener.

If Bordeaux mixture is applied to the plants when they are wet or if it is not properly prepared, it may burn the foliage. In any case it will for a time discolor the foliage.

The next best fungicide is potassium sulphide (liver of sulphur). One ounce dissolved in three gallons of water will control most diseases of the

mildew type and will not burn or discolor the foliage. Any fungicide to be effective must cover both sides of the leaves and the stems.

Another fungicide that is sometimes used is ammonical copper carbonate—1 ounce in a gallon of water. This is often difficult to obtain, but it is a very efficient fungicide. It is quite unstable and consequently should not be purchased in large quantities. It, like the liver of sulphur, will not burn or stain the foliage.

INSECT CONTROL

Insect attacks are very common on house plants. In the living room or in sunny dry spots, or when the foliage is not washed regularly, the so-called red spider is practically sure to get a start. It is not a true spider but a mite which can be detected by the yellow spots which it causes on the leaves. It can be controlled by spraying the plants with cold water under pressure and prevented by the regular sprinkling of the foliage recommended earlier to maintain a high humidity.

Scale insects of many kinds attack almost all house plants, especially palms and foliage plants. They can be controlled by first washing the plants in cold water and then applying a thick lather of soap and water over the entire plant. After this lather has been on the plant fifteen to twenty minutes, it should be washed off with luke-warm water. The plants should then be rinsed two or three times to remove all the soap. Any scales which remain may be easily rubbed off with a toothbrush, a rag, or even the fingers. The same treatment will rid a plant of mealy bugs. While going through this operation have the pot tilted so that as little soapy water as possible will run down into the soil.

Aphids are sucking insects which appear in clusters. They are known as green fly and plant lice and can be controlled with a contact spray. Kerosene emulsion or a soap emulsion is effective and cheap, but difficult to make properly, and if not properly made either is useless. Nicotine sulphate, which may be secured from most drugstores, if applied as directed on the container will control aphids and can often be used to combat mealy bugs.

Worms in the soil do considerable damage to plants. They can be gotten rid of quickly by pouring a saturated solution of lime water on the soil. One application is usually sufficient.

WINDOW BOXES

Window boxes are becoming popular. The care of the plants in these boxes is not different from that of potted plants. Difficulties most often encountered are due to improper soil moisture and low temperatures.

In the case of the window box there is usually a large mass of soil compared to the amount in the pot. Such an amount of soil requires a large amount of moisture. When the box is first put into place one should assure himself that it is well watered throughout. Often the top soil has been wet down, but that on the sides, where evaporation takes place, is dry. Often, too, the top and sides are moist but the center has never been really soaked and at all times is dry. One should take cores of soil out of the box at intervals to determine if the soil is evenly and thoroughly watered. Watering by placing the box (fig. 1) in a tub of water is a very desirable method of wetting the entire mass of soil. Using this method once every four to six weeks is usually enough if surface watering is practiced in the intervals.

Plants in window boxes suffer from low temperatures in the winter even in well-heated rooms. Being close to the window the air cooled by contact with glass is usually much colder than the room temperature and may be below the optimum temperature for plant growth. Observation of a thermometer hung between the plants and the window will quickly inform one if this is the difficulty.

Near the window there is often a draught. The cool air leaking through casing and loose windows strikes the plants, chilling them even when room temperatures are satisfactory. These conditions are more likely to occur at night and are easily corrected by placing a cardboard between the window and the plants or by moving the box a few feet away from the windows at night.

WINDOW-BOX PLANTS

I. PLANTS SUITABLE FOR OUTSIDE WINDOW BOXES

- A. Winter.
- a. Center plants.
 - Box (*Buxus sempervirens*).
 - Dwarf forms of Thuja or Retinospora.
 - Irish juniper (*Juniperus communis* var. *Hibernica*).
 - Hemlock (*Tsuga canadensis*).
 - b. Vines.
 - English Ivy (*Hedera helix*).
 - Trailing Euonymus (*Euonymus radicans*).
- B. Summer.
- a. Tall-growing upright plants.
 - 1. Flowering:
 - Geraniums.
 - Petunias.
 - Begonias.
 - Stevia.
 - Lantanas.
 - Salvias.
 - 2. Foliage.
 - Palms.
 - Ferns.
 - Aspidistra.
 - Dracena (*Cordyline australis*).
 - Coleus.
 - Crotons.
 - b. Low-growing plants.
 - 1. Flowering.
 - Pansies.
 - Forget-me-nots.
 - Primula malacoides*.
 - 2. Foliage.
 - Peperomia.
 - Rex begonias.
 - Alternanthera (*Telanthera*).
 - Ferns, various varieties.
 - Mme. Salleroi geraniums.
 - c. Short, drooping or half erect (for edging the boxes).
 - Lobelia erinus*.
 - Alyssum maritimum* var. Tom Thumb.
 - Verbenas.
 - Ivy geraniums.
 - Variegated grass (*Oplismenus purmannii*).
 - d. Long, drooping vines (for hanging over sides).
 - English ivy.
 - Trailing euonymus (*Euonymus radicans*).
 - Trailing vinca (*Vinca major*).
 - German ivy (*Senecio scandens*).
 - Asparagus sprengeri*.
 - Wandering Jew (*Tradescantia fluminensis*).

II. PLANTS SUITABLE FOR INSIDE WINDOW BOXES

- a. Tall-growing, upright plants.
 - 1. Flowering.
 - Geraniums.
 - Begonias.
 - Impatiens.
 - Swainsona.
 - Marguerites.
 - Schizanthus.
 - 2. Foliage.
 - Palms.
 - Ferns.
 - Aspidistra.
 - Cordyline indivisa*.
 - Rubber plants.
 - Crotons.
 - Coleus.
- b. Low-growing Plants.
 - 1. Flowering.
 - Primulas, all species.
 - Freesias.
 - All bulbs, such as narcissi, hyacinths, tulips, and the like.
 - 2. Foliage.
 - Alternanthera (*Telanthera*).
 - Ferns, various varieties.
 - Mme. Salleroi geraniums.
- c. Short, drooping or half erect.
 - Lobelia erinus*.
 - Sweet alyssum.
 - Fuschia procumbens*.
 - Variegated grass (*Oplismenus burmannii*).
- d. Long, drooping vines.
 - Trailing vinca (*Vinca major*).
 - German ivy (*Senecio scandens*).
 - Asparagus sprengeri*.
 - Wandering Jew (*Tradescantia fluminensis*).
- e. Climbing vines for inside windows.
 - English ivy (*Hedera helix*).
 - German ivy (*Senecio scandens*).
 - Asparagus plumosus*.

SOME HINTS ON GROWING HOUSE PLANTS

The growing of house plants requires care, time, and careful observation. Good plants cannot be obtained by careless methods, and nothing is less attractive in a house or on a porch than sickly-looking plants. If one has no time for plants it will usually be better to leave them alone entirely.

If one's plants are not doing well, the following hints may be helpful in suggesting means of improvement:

1. The soil must be good and well drained.
2. Plants must be watered properly, but watering can be overdone as well as underdone.
3. The night temperature of the room should not be more than 10 degrees lower than the day temperature.
4. Sun-loving plants should be kept in a sunny location, and shade-loving plants should be kept away from the sun.
5. Fertilizers may do more harm than good.
6. Insects and diseases attack all plants in cultivation, and must be controlled.
7. A supply of potting soil should be kept on hand ready for use.
8. Flowers should be cut off as soon as they fade. Seed must not be allowed to develop on the plants.
9. Dead and dying branches and leaves should be picked off and destroyed.
10. Pots should be used and boxes avoided.
11. Each plant should have plenty of room.
12. Plants should not be kept in rooms that from time to time smell of coal or illuminating gas. The air in the plant room should be kept moist.
13. Only plants adapted to the conditions available should be grown, and only good specimens of the plants to be grown should be secured.
14. A spray pump is best for spraying plants. However, the plant may sometimes be immersed in a vessel containing the spray material.

TABLE I.—SOME EASILY-GROWN HOUSE PLANTS

KIND OF PLANT.	Humidity.	Temperature.	Light.
Abutilon	High	Medium to warm	Much.
African violet	High	Cold to cool	Much.
Ageratum	Medium	Medium to warm	Much.
Amaryllis	Medium	Cool to medium	Medium.
Araucaria	Medium	Medium	Much.
Asparagus fern	High	Cool	Little.
Aspidistra	Low	Cold to high	Little.
Azalea	High	High	Medium.
Begonia	Medium	Cool	Medium.
Bulbs	Medium	Cool	Little.
Calceolaria	High	Cool to medium	Medium.
Calla lily	Medium	Medium to warm	Much.
Candytuft	Medium	Cool to medium	Much.
Chrysanthemum	High	Cool	Much.
Cineraria	High	Cool to medium	Medium.
Citrus	Medium	High	Medium.
Coleus	High	High	Much.
Cyclamen	Medium	Cool	Much.
Dracena	Low	Cold to warm	Little.
Fig	Low	Warm	Little.
Fuchsia	High	Cool	Medium.
Geranium	Medium	Warm	Much.
Heliotrope	Low	Warm	Much.
Ivy			Little.
Jerusalem cherry	Medium	Medium	Medium.
Lantana	Low	Warm	Much.
Lily	High	Warm	Much.
Lobelia	Low	Cool	Much.
Lycopodium	High	Warm	Little.
Mosses	High	Cool	Little.
Oleander	Low	Medium	Little.
Oxalis	Low	Cold	Medium.
Palm	Low	Warm	Little.
Pandanus	Low	Warm	Little.
Pansy	Medium	Cool	Little.
Petunia	Medium	Warm	Medium.
Plumbago	Low	Medium to warm	Medium.
Primrose	Medium	Cool	Medium.
Pyrethrum	Low	Warm	Little.
Roses	High	Warm	Much.
Salvia	Low	Medium to warm	Much.
Savitzii	Low	Medium to warm	Much.
Screw pine	Low	Cool to medium	Little.
Swanisia	Medium	Cool to medium	Much.
Vines	Low	Cold to warm	Little.
Wandering Jew	Low	Cold to warm	Little.

