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SOUTH DAKOTA HORTICULTURIST

Volume 1

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Annual membership fee, \$1.00, fifty cents of which shall be for a year's subscription to the South Dakota Horticulturist. Application has been made to have the publication entered as second class matter at the Post Office of Pierre, South Dakota, under the Act of August 24, 1912.

SOUTH DAKOTA HORTICULTURIST

Published Monthly at Schubert Building, Pierre, S. D., by
South Dakota State Horticultural Society

President—Dr. N. E. Hansen.....Brookings, S. D.
Vice-Pres.—John Robertson.....Hot Springs, S. D.
Secretary and Editor—R. W. Vance.....Pierre, S. D.
Treasurer—H. N. Dybvig.....Colton, S. D.
Librarian—Chas. McCaffree.....Sioux Falls, S. D.

WHY DELAY PLANTING

Mrs. M. W. Sheafe, Watertown, S. D.

An old Scotch Proverb says:—"Be aye stickin' in a tree, Jock; it'll be growin' when ye're sleepin'."

A splendid tree on the lawn will sell a house to many a man; and its presence never prevents a sale, so plant the tree.

"Did you ever see a blatant house? This is the kind which, beautiful or not in itself, stands in the middle of a bare field and shouts at the passerby. There are no trees around it. The shrubs have not been ordered. It is a human-made obstruction to a clear vision of the greenward." There are many like this in South Dakota. So let us change the picture by planting trees and shrubs.

While we are planting our shrubs, and learning all we can about the right way to do it, the best location to choose, and best soil to use, we also like to know the correct names, botanical as well as common. There may be some readers of this magazine, who, like myself, have from early childhood known the mock orange as *Syringa*. We find to our dismay, that we were wrong, that "*Syringa*" is our dearly loved "*Lilac*" and our mock orange is "*Philadelphus*" but, "What's in a name? If we call a rose by any other name it would smell as sweet."

There is a new mock orange (*Philadelphus Virginal*) double white, and very fragrant, that is as hardy as our old friend (*Coronarius*) and is worth adding to our collection if space will permit. Do not allow seeds to mature on your shrubs, remove as soon as possible after through blooming.

GARDEN CLUB CONTEST

One of our enthusiastic Society members offers the following prizes to the person organizing the largest garden clubs:

First Prize—One King of England, Peony.

Second Prize—One Madame Emile Galle, Peony.

The contest ends September 1, 1929. The Peonies will be sent to the winners at the proper planting time. The person organizing the Garden Club with the largest membership will win the first prize. The one organizing the Garden Club with the second largest membership will win the second prize. These peonies are rare varieties and will be a prizable prize for the winner.

PRIZES FOR FLOWER SHOW

Several nursery companies have offered some of their choicest stock to be used for prizes at flower shows. A show will be the means of arousing a lot of interest and getting some desirable plants and shrubs. An inquiry sent to the librarian will bring the particulars.

THE CHINESE ELM

Max Pfaender, Sioux Falls, S. D.

Much has been written and said about the Chinese Elm the last few years and it has so many good points that it should be generally planted throughout the state and the northwest. It has a few faults which also should be mentioned, and in most cases these faults can be overcome if the proper methods are used.

In the spring of 1913 I planted the first thousand Chinese Elms that were ever planted in the northwest. This was at the federal experiment station at Mandan, N. D. These were small one year old trees which had been grown from hardwood cuttings at some other experiment station. The trees were planted as part of a large wind-break, and at planting time were cut down to six or ten inches from the ground. They were then allowed to grow and were never pruned. In 1919 many of these trees were six inches in diameter, and from fifteen to twenty feet tall. They did not get any irrigation but they were kept well cultivated. Many of them produced seed in the fifth and sixth years.

Another hundred trees were planted in 1918 in a square block with trees four feet apart each way. These were also small seedlings grown from seed produced from the older trees and in the summer of 1928 when I saw these trees they were 26 feet tall, and very bushy and sturdy.

Near Revillo, S. D., on a farm, several Chinese Elms were planted in the spring of 1919.

They were brought home from Mandan in a suit case. In 1927 when I first saw these trees they were from twelve to fourteen inches in diameter and some had a spread of twenty-five feet.

The tree shown in the picture was planted as a small tree about six feet high and three-fourths of an inch in diameter, and when this picture was taken, two years and two months later, the trunk was over four inches in diameter and it was about fifteen feet tall.

These facts show how fast this tree grows and that is not its only



CHINESE ELM AT SIOUX FALLS, S. D.

Four inches in diameter two years and two months after planting the three-quarter inch in diameter tree.

remarkable trait. It comes out early in the spring, a frost does not kill the leaves, and it stays green at least six weeks longer in the fall than the common elm. It produces numerous small twigs, a dense foliage, with small numerous leaves, makes a dense shade, and has a beautiful shape. They grow in spite of dry weather, cold, or wind. As a windbreak tree they have no near rival.

Some of the faults of the Chinese Elms are due to the mistreatment they have received from the ones who planted them. They do sometimes split and break during a wind or sleet storm, but this in all cases is due to having been overpruned or pruned improperly. When they are overpruned they are also subject to sun scald and canker, which ruins the tree if not attended to.

When planted as a street or lawn tree they should be cut back severely at planting time, and then not touched with shears or the knife for at least two full years. Let them sprout all along the stem as they will. In the spring of the third year some of the lower shoots may be removed say up to three feet or maybe a little more, then in another year another foot, etc. When planted for a windbreak they should not be pruned at all.

For South Dakota planting only the northern form of the Chinese Elm should be used. Some of the southern strains are not hardy.

SPRAYING FORMULAS FOR APPLES, PLUMS AND SANDCHERRIES

George Gilbertson, Brookings, S. D.

First Spray: As the leaf buds begin to show green, spray with lime sulphur solution diluted at the rate of one part to eight parts of water. This spray helps to control scale insects and apple scab. It may be omitted if scale insects are not present.

Second Spray: As blossom buds begin to show pink, spray with lime sulphur diluted at the rate of one part to 40 parts of water. This spray is important in the control of apple scab. Add one pound of arsenate of lead powder to 50 gallons of mixture for bud moths and case bearers.

Third Spray: As the last of the petals are falling, spray with lime sulphur diluted at the rate of one part to 40 parts of water but add to the spray one pound of powder lead arsenate to each 50 gallons of spray. This is the most important spray for the codling moth or the insect that is the cause of wormy apples.

Fourth Spray: Three weeks after the petals fall, repeat the third spray. This spray is important for apple scab and the codling moth.

Fifth Spray: Should the grower be troubled with the second brood of the codling moth, he should inclose several wormy apples in a jar and as soon as the codling moths are reared, the third spray should be repeated.

If powdered lead arsenate and powdered lime sulphur are to be used instead of the liquid forms, then use 2 pounds of powdered lime sulphur for each gallon of liquid lime sulphur as recommended in the above formulas and one-half as much powdered arsenate as recommended for the paste lead arsenate.

For small amounts use 1 heaping tablespoonful of the powdered lime sulphur for each gallon of water for sprays 2, 3, 4, 5 in above formulas and 4 tablespoonfuls of lime sulphur for each gallon of water for spray one. Also use 4½ tablespoonfuls of powdered lead arsenate for each gallon of water or lime sulphur spray that is to be used in sprays 2, 3, 4 and 5 in above formulas.

(Continued on Page Eight)

EXTRACTS FROM THE DIARY OF A TRAVELING MAN**W. A. Simmons, Sioux Falls, S. D.**

Monday, March 18, 1929:

Left the scene of the Big Sioux uprising after dinner. The last view, obtained at the Minnesota Avenue crossing, indicated that the Sioux was becoming less hostile and would probably return to its reservation within a week. Wonderful foresight on the part of the namer in calling it the Big Sioux. This extra name comes in handy at a time like this.

Reached Yankton and enjoyed a pow-wow with the friendly tribe of Gurneys. There should be a great awakening in horticultural interest this spring from the many fine talks that go out from their great broadcasting plant.

George seems especially interested in pears this year. Regards Beierschmidt as the most promising but is considering renaming it as it appears to be an inexcusable economic waste to put so many letters in one name.

Tuesday, March 19:

Awakened before six o'clock by a robin justly called the moron of the feathered tribe. This bird excites our sympathy by returning from its winter home several months before its spring work opens here, and we kid ourselves into believing it does it simply on account of its intense longing to entertain us with its song. This so touches us that we provide it the best of food without any effort on its part, and it justly esteems this as being far superior to having to haul out several yards of angle-worms each day from a reluctant southern soil to satisfy its hay-press like appetite. The bird enthusiasts do not raise fruit, in fact it has been my observation that the more fruit one raises the less enthusiastic one becomes about birds. The bird fans are quite free in their advice to fruit raisers to raise more fruit for the birds. Shall expect them soon to go a step farther and demand that fruit growers can a portion of their crop so as to provide a year around diet of fruit for the birds.

One bird lover admitted to me the other day that he did not entirely appreciate the early rising, proclivities of the birds, but most bird enthusiasts, I am tempted to believe, beat this by taking an after dinner nap.

About ten miles west of Yankton on highway number 50, some one has provided a little beauty spot at a round turn, road intersection. A triangular little space has been fenced off in the unused center, and a number of ponderosa pine and Black Hills spruce has been set therein, making a pretty picture at all the yearly seasons.

March 20:

Saw several of my friends, the meadow larks, today, and they hailed me with their cheerful whistle. This bird, justly called the "prince of good fellows," is to my mind the finest character we have among the bird folk. Have never heard of their causing any damage to orchard or garden. They make no attempt to place themselves on the pension roll of mankind but sturdily and independently make their own living. When bugs and worms are lacking early in the season, they make their living on weed seeds and do not congregate around settlements to take advantage of the industry of mankind. Were all birds like them, there would be no controversy between fruit growers and bird enthusiasts. They haven't much of a sustained song, their various musical calls seeming more like an attempt to talk to us. Some of their remarks are entirely intelligible as when they say, "Come here, come here," and again, "I want to speak with you," and "This is a nice day, isn't it?" Some others I have not been able to fathom, perhaps being couched in a language with which I am unfamiliar.

Crossed the fine Wheeler bridge in the afternoon, a monument to the vision of Senator Norbeck and the engineering skill of Mr. Kirkham.

These bridges have bound the two halves of South Dakota together into an enduring whole.

The Rosebud section has been treated quite cruelly by the weather bureau man of late years, and business has suffered as a result of the crop failures. Things look more promising from a moisture standpoint this spring, and we all hope their period of crop failures is definitely past. Their seasons have not been dry enough to kill out their trees, however, and many fine home orchards meet one's eye when driving through this section.

Some ten years ago a nurseryman sold the city of Gregory a quantity of young elm trees, and set them out on the parkings of all their streets. Presumably the price exacted was considered high for that time, for the citizens commonly referred to him as an old grafter. But the trees lived and flourished and give a distinctive touch to the town that nothing else could, so now they bless the careful old nursery man, and the word grafter is remembered with remorse. This proves the slogan of the well known hardware jobber that "the recollection of quality persists long after the price is forgotten."

Winner is the metropolis of the Rosebud section and has very nicely paved streets and plenty of shade trees and well kept homes. It seems as though it always rains or snows when I am there and the merchants of the town could provide effective farm relief by keeping me there, thus always insuring sufficient moisture to bring forth a crop. The soil is gumbo, and there is a common saying in the gumbo section that if one will stick to the land when it is dry, it will stick to you when it is wet. This, however, really does not do the gumbo entire justice, as I have found that in its generosity it will waive the first proviso and will stick to one when it is wet even though one may basely desert it when it is dry.

Some years ago when the Wheeler bridge was dedicated, the Sioux Falls bunch that attended were taken to Winner for a banquet in the evening. In a banquet address one of the Winner speakers said, "One of the nice things about this section is that we have no wind. Of course the wind blows through here, but we cannot prevent that." Fortunately the wind still blows through there and with the aid of the sun rapidly improves the roads.

The Northwestern railroad is to be extended thirty-four miles west of Winner this summer to the town of Wood. About eighteen miles west of Winner and distant from each other some six miles in a north and south line, lie two thriving towns, Carter and Witten. Each was quite sure that when the railroad went on west that it would go through their town. Perhaps to avoid hurting any one's feelings, and again perhaps for more sordid reasons, the railroad is to run between them, striking neither. A new town site will be located between them, the expectation being that both towns would move to it. But now the merchants of these two towns say they don't give a hoot where the railroad goes, they won't move a foot. They say they have the highways, and that these are now more important to them than the railroad. Thus is the importance of the railroad waning.

Highway No. 18 is gradually being improved and will within a few years provide another all weather route to the Black Hills. At present there are many unsurfaced sections, but in dry weather the roads are very good, and many interesting phases of Indian life are visible as one goes through the Rosebud and Pine Ridge reservations. One sees Indians as clerks in stores, as filling station attendants, as garage and auto repair men, as truckers, government clerks, merchants and hotel proprietors. In fact this is a little Indian kingdom, and one soon gets to have a great respect and liking for these friendly Americans.

GARDEN CLUBS FOR SOUTH DAKOTA

By Chas. McCaffree, Librarian State Horticultural Society

A happy home is the highest attainment in the Sunshine State.

A residence can hardly be homelike without flowers and shrubs and trees. The Almighty planted man in a garden and we moderns will profit by keeping the atmosphere and influence of the garden in our lives.

In the belief that this service for our state belongs with the State Horticultural Society the society has undertaken an active effort to promote the organization of the so-called Garden Clubs.

Frequent mention has been made of the influence both given and received by amateurs in the growing of fruits and flowers. There has been notable accomplishments in the Northwest. All know splendid examples of fruit growing in the state. We all hear the brilliant examples of service given to Horticulture, and particularly floriculture, by distinguished amateurs, including royalty both by inheritance and accomplishment, in the most enlightened and cultured nations of this world.

Relatively America is new and young. South Dakota is about the baby section of all reckoned in age. Furthermore we cannot take a ready made horticultural experience in South Dakota. We have to get our own. Those who are well informed have it or know where to get it. But with the arrival of spring and the seed catalogues most individuals, both sexes, feel the surge to grow some of God's creations for the dinner table or the parlor stand.

The most experienced fan or skilled grower gets the keenest enjoyment from discussion and comparison of methods and results. There is a new crop of prospects for the garden work coming to the towns and farms each year. The organized experience of our Horticultural Society and the counsel of those sophisticated in methods of gardening may save many from blunders and disappointments. It may perhaps keep them for very valuable work in this favorite effort.

The Garden Clubs were starting somewhat along while this century was young but in the last few years there has been a decided impetus. Clubs have been started in most of the states. A national headquarters is maintained at the appropriately named Garden City, New York. It offers a sort of nucleus or point of contact for those wishing to affiliate but active organizers are not employed. Affiliation is not necessary and may not seem desirable. Probably we South Dakotans can successfully run our own show. The horticultural journals will help.

Purpose of Clubs

This is both for inspiration and information. The contact for discussion, for visiting gardens, for study, the beckoning of a vegetable with larger waistline, or a flower with double as many petals or a new shading of color, a fruit with a haunting palate tickler or an irresistible aroma give plenty of inspiration if it may be directed to use. No appeal aside from the human family may be so inspirational. The subtle fumes of gasoline may deodorize it but will not strangle a severe case.

The garden club will act as the clearing house for information and that service may be extended widely. There may even be other exchange than data of growth and bloom. Every community has its leaders. A leader in horticultural effort conceals no dark secrets of either success or failure, but will share with the merest amateur as green as the youngest sprout of the earliest cabbage. That is human psychology entering into the unwritten law of growing gardens.

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Quantity of Spray to Use

Trees eight years old require about two gallons of spray each; trees ten years old require three gallons of spray; fifteen years old require four gallons; twenty years old require five gallons, and twenty-five years old require six gallons of spray.

Plant Lice or Aphids

If plant lice or aphids have been giving considerable trouble in past years, it is advisable to watch the trees carefully in the spring and if the lice begin to appear in considerable numbers when the buds begin to appear pink, then add black leaf 40 to the second spray at the rate of one part of the black leaf 40 to 300 parts of the spray. It should be remembered that only such lice are killed as are actually struck with the spray.

General Spraying Program for Plums and Sandcherries

First Spray: Before the blossoms open in the spring, spray with boiled lime sulphur diluted at the rate of one part to 3 parts of water. This spray helps to control fungus diseases, scale insects, gall mites and plant lice. If scale insects, gall mites and plant lice were not present the preceding year, this spray may be omitted.

Second Spray: Shortly after the petals fall, spray with boiled lime sulphur diluted at the rate of one part to 50 parts of water. This spray helps to control plum pocket and shot hole fungus. If curculio or case-bearing insects are troublesome, add 1 ¼ pounds of lead arsenate to each 50 gallons of the spray.

Third Spray: In about two weeks repeat the second spray. This spray helps to control brown rot, pocket, scab, shot hole fungus and curculio.

Fourth Spray: If the weather remains rainy and warm, repeat the third spray two to four weeks after the third spray was applied. This spray helps to control the fungus diseases enumerated above and in addition will take care of the leaf feeding insects.

Boiled lime sulphur solution may be bought from the local drug store, but if considerable quantities are to be used, it is well to buy this through a Fruit Growers' Association or directly from the manufacturer living close at hand. Dilute the lime sulphur as directed before using same. If plant lice make their appearance, black leaf 40 should be added to the lime sulphur spray at the rate of one-half pint to 50 gallons of spray.

Lead arsenate may be purchased as was recommended for the lime sulphur. It may be bought either in the paste or powder form. The directions for the use of this poison as given on this sheet calls for the powder form of the lead arsenate. If the paste form is used, twice the amount recommended should be added to the amount of spray given in the directions. The reason for this is because one-half of the weight of the paste lead arsenate consists of water.

CONTEST FOR BEE CLUB MEMBERS

The Editor will give the following prizes to Bee Club members:

First Prize—One complete ten frame standard hive.

Second Prize—One two-pound package of bees.

The contest closes October 1, 1929. The first prize will be given to the member sending in the best essay on Bee Club work. Choose your own subject. The thought contained in the essay will be given more weight than the composition. The second prize will be given to the member securing the largest number of pounds of honey from one colony.

Will the losers get stung? Let us hope not.

POTATOES AND POTATO GROWING

Clifford J. Franzke, Brookings, S. D.

Few crops are of more general interest than is the potato. A great majority of all the farmers of the state plant potatoes. A very large number of citizens of towns and villages plant potatoes in their gardens. Practically all residents in South Dakota plant enough potatoes for their own use and some make this one of their chief crops. The value of the crop produced for sale may be closely approximated, but it is impossible to secure any close estimate of the value of those produced in the gardens of the state.

The success of potatoes as a garden crop will depend largely on the growers' ability to rotate his garden crops so that potatoes will not be



Certified Seed Produced These Potatoes

grown oftener than once in three or four years in the same soil; also to his ability to provide the soil with the needed fertilizers in the form of humus material. Under field conditions, the potato crop fits well into a rational system of rotation and has the advantage of leaving the land in the best possible condition for crops to follow. The problem of rotation is more difficult in garden work than under field culture, due to limited area of the garden plots, but where well rotted stable manure or other manures may be obtained, the problem of rotation is more easily solved.

The use of good seed is necessary if large yields are to be had. We are more or less careful in breeding livestock, but when it comes to potatoes, most small growers, and those who go into it on a large scale, still plant what they have left over from the previous crop. Good seed potatoes are as important to the small grower as good breeding stock is for the stockman. The deterioration of a standard variety when grown continuously for a period of years in a given locality, is largely due to careless seed selection, or to no selection at all. Under normal soil and climatic conditions and with proper cultural practices and seed selection, there should be no deterioration, but rather an improvement both in quality and in yield.

Many growers as stated before, plant what they have left over from the previous crop known as culls. The culls represent the poorest and most worthless part of the potato crop. A large percentage of small tubers come from weak and diseased hills. In outward appearance they are

smooth and more or less true to type and for this reason saved for seed. The grower can easily convince himself of the value of culled seed by taking a small quantity and exposing them to sunlight so they will sprout. The sprouts will invariably be long, slender, showing low vitality and the presence of disease, while good seed will have strong healthy looking sprouts, free from disease. An eight year average at Brookings, South Dakota, variety Early Ohio, where culls were used they yielded 40.8 bushels per acre, and where good seed was used 73.2 bushels per acre, or 44.2 per cent higher yield per acre for good seed than the culls. At least any grower can't afford to plant culled seed, because they may be the result of small tubers from weakened plants by disease, or other factors, when planted in turn produce weakened plants which are low yielders. Where the cull seeds are produced from large seed each year, that is the smaller tubers selected from normal, high yielding plants, in this instance the use of small cull seed is probably profitable. The practice of planting culls or small seed undoubtedly grew out of the more or less fancied necessity of planting whole seed. While it is true that in some sections of the United States, probably in the south, where the early crop is planted in midwinter in cold ground where cut seed is likely to rot, and also under certain cultural practices and soil conditions, but for the main crop in the north, planted at a favorable time, cut seed from large tubers is to be preferred.

The question of the size of the seed piece is one that has engaged the attention of growers and scientists for over a century and is still not fully answered. In general experimental data indicates rather clearly that within reasonable limits the larger the size of the seed piece used, the greater will be the total yield per acre. An eight year average at Brookings, South Dakota, variety Early Ohio, for size of seed piece shows for the large 146.4 bushels per acre; for the medium 120.0 bushels per acre; for the small 73.2 bushels per acre. A large amount of food in a large seed piece probably means a more vigorous shoot, which will grow faster, resist disease more successfully, mature somewhat earlier and ultimately produce higher yields. It is therefore, desirable to use a liberal size seed piece, one weighing from one and one-fourth to two ounces. The tubers being cut so as to make blocky seed pieces are handled better in the planter, and are less likely to dry out or decay in the ground if weather conditions are unfavorable. Also when the same size seed piece containing one, two, three and four eyes respectively are used, the total yields increase but the yield of marketable potatoes decrease, therefore, very little is gained by cutting seed pieces to contain maximum number of eyes.

As a rule seed potatoes are cut about as required for planting, but often where large acreages are to be planted and labor is scarce, it is found more economical as well as more convenient to cut the seed pieces in advance of the planting season. When this practice is followed care must be taken in handling the freshly cut seed in order to avoid injuring from overheating until they are thoroughly cured; that is until the cut surface becomes dry. Also it is a good practice to sprinkle the freshly cut surface of the seed piece with flour of sulphur, sand plaster or slacked lime. This tends to dry the cut surface and will lessen the injury from heating if the weather turns warm and the seed is not planted immediately. There are many other factors which influence potato yields, but space will not permit such factors as diseases, insect pests, climatic conditions, environment, cultural methods, seed treatment, and etc. But in all if one desires to get the best returns, use good disease free seed and cultural practice.

SEEDAGE AND TRANSPLANTING

Growing of Vegetable and Flower Plants in Greenhouses and Homes for Outdoor Planting

W. B. Wood, Brookings, S. D.

Advantages: Several distinct advantages are gained by growing flower and vegetable plants in greenhouses, hotbeds, cold frames or homes, over field seedage. By transplanting, a more compact and branched root system is secured. We gain the advantage of increased earliness together with an increased length of season whether it is flowers or vegetables. Greater yields in the case of vegetables will be secured.

Soils: The most desirable soil for indoor seedage is a sandy loam soil moderately supplied with humus, preferably in the form of leaf-mold or composted sod. Some greenhouse men prefer to mix their soil using garden-loam, sand and humus; others use ordinary soil which has been used for other purposes such as carnation or chrysanthemum beds. We must remember that the small seedlings are going to remain in the seed-bed soil for only a short time during which they secure most of their food from their seeds so that a great deal of fertility in seedbed soil is not necessary and in fact is considered detrimental since it has a tendency to force the seedlings too rapidly.

Flats: Shallow boxes, usually referred to in the florist trade as flats, are generally used for indoor seedage. They are made of a size which is convenient to handle and which can be set into the hotbed frames or greenhouse benches with as little waste space as possible. We use flats which are three and one-half inches in depth, fourteen inches in width, and twenty-two inches in length. The most durable flats are made of cypress or redwood. The bottom boards should not be fitted too closely together but rather so that narrow cracks will be left between them to insure drainage.

Pots: The earthen florist pot which is used extensively for geraniums and other greenhouse plants may be used for transplanting tomatoes and other vegetable and flower plants, but are not as economical of space as the paper pot. Paper pots may be purchased either round or square. The square pot is more economical of bench or flat space. The paper pots are used only once for when the plant is transplanted into the field, it is not removed from them. The earthen pots may be used time after time. Various size pots may be secured. Sizes for transplanting of vegetable and flower pots range from two to four inches in diameter.

Drainage: Adequate drainage is absolutely necessary for successful results in indoor seedage and transplanting. It is secured in flats by placing coarse soil or gravel in the bottom of the flat. With pots, a piece of crockery or coarse gravel may be placed in the bottom. Where flats are used without adequate cracks between the bottom boards, holes should be bored through them and a piece of crockery or coarse gravel placed over the holes when the flats are filled.

Filling the Flats: After the drainage material has been placed in the bottom of the container, ordinary sandy loam soil is placed in the container, particularly if it is a flat, leveled and smoothed down until the flat is one-half full. Soil which has been screened through a quarter-inch mesh is then used to finish filling the flat. The soil is then leveled down and packed firmly around the inside edge of the flat with the fingers. This is done to guard against the soil cracking away from the edge of the flat leaving an air space which would hasten the drying out of the soil. The soil is firmed with a wooden trowel which is usually just

long enough to fit inside of the flats. A little sand screened on top of this is beneficial in lessening damping-off fungus diseases. It hastens the drying-off of the surface of the soil after watering. When filling flats for seedage they are usually filled to within one inch of the top. The soil used should be moderately moist but not wet. It should contain a reasonable amount of humus.

Seeding: The seed is usually sown broadcast using the packet method. In case more than one variety is sown in a flat, a small stick may be used to divide the varieties. The seed is sown as uniformly as possible and firmed into the soil with the trowel. When moving the trowel from one variety to another, always brush the bottom of the trowel, thus guarding against carrying of seed of one variety over to the next. The seed is then covered by sifting a mixture of sand and soil through a window screen covering the seed to a depth of approximately four times the thickness of the seed. The covering is then leveled and firmed with the trowel. The smaller the seed the higher the percentage of sand in the mixture used for covering it. A florist pot label is usually placed in the upper left hand corner of the flat or portion of flat used for one variety. The flat is then set away, watered, and covered with glass. Such small seeds as petunia, lobelia, and snap-dragon must be handled carefully to guard against too deep planting and ununiform spacing. We usually water the flats after they have been filled and firmed and before seedage. This is to guard against the washing of the seed by watering after seedage. The seed is sown broadcast by the packet method over the top of the firmed and watered flat of soil using precaution in getting the seed as uniform as possible. When covering this seed we use a mixture of dry soil and sand which contains a very large per cent of sand. In this case the mixture used in covering is placed over the seed as uniformly as possible. It should not be firmed after seedage since this would have a tendency to pack the soil too firmly. The flat is then labeled, set away, and covered with glass.

Care of the Seed Flats: After the flats have been sown, placed away and covered with glass, they will usually not need watering for three or four days. Should the sun shine brightly during this time, the panes of glass should be shaded with paper during the hottest part of the day to guard against too high temperatures and the condensation of moisture under the pane of glass which lies over the seed flat. The object of placing the glass over the seed flat is to keep the surface of the soil in the seed flat moist, to conserve moisture and heat, all of these being essential for quick germination of the seed. After germination, the pane of glass may gradually be removed and left off entirely and as the soil dries requiring watering, water should be given, preferably in the middle of the forenoon and always on a rising temperature. Do not water late in the afternoon or evening since the soil in seed flats watered at this time of the day is apt to remain damp and wet throughout the night. This encourages the growth of damping-off fungus diseases. Water should be applied moderately rather than abundantly. The seed flat, however, should not be allowed to dry out. In case trouble is experienced with the damping-off fungus diseases, more sand may be sprinkled over the seed flat and the seed flat placed where greater ventilation over it will be secured and the surface of the soil dried off more quickly. Some florists prefer to water by placing the seed flats in shallow tin trays of water, the seed flat taking up the water from these trays by capillarity.

Transplanting in Flats: When flats are filled with soil for transplanting, it is usually customary to fill them full so that after firming, the soil will be about one-fourth of an inch from the top of the flat. The

same precautions in regard to drainage should be taken as in preparing flats for seedage. The seedling plants should be forming their first true leaves when transplanted the first time. This will usually be between two and three weeks after seeding. The seedling plants should be lifted carefully from the seed flat by means of a broad-bladed knife or trowel. They should be handled carefully by the cotyledonous or seed leaves, guarding against pinching the stems. The holes for the plants are most conveniently made by means of a dibble which is inserted into the soil, rotated and taken out, leaving a round hole. Holding the young plant by the cotyledonous leaves, usually in the left hand, the roots are dropped into the hole far enough so that the cotyledonous leaves are just above the surface of the soil which is packed firmly around the roots by inserting the dibble a second time a short distance from the hole in such a manner as to force soil over into the hole occupied by the roots. The distance apart in this first transplanting will vary with the size of the seedling plants and the rapidity with which they are expected to grow. Such plants as cabbage, tomatoes, and the larger of the flowers are usually planted an inch and one-half to two inches apart. Smaller plants such as lettuce, celery, and most of the flowers are transplanted an inch to an inch and a half apart each way. Care should be taken to firm the soil well around the roots in the bottom of the holes. The seedling plants should be so firmly set that they cannot be lifted out of the soil in which they have recently been transplanted without mutilating the plant. The flats after being filled with seedlings, should have the top soil smoothed down by running the dibble up and down between the rows. A light sprinkling of sand is then given the transplanted flat. This is done to guard against damping-off fungus diseases and to prevent the seedling plants from sticking to the soil when watered. The flat is then thoroughly watered, set away, and shaded with newspaper for two or three days or until the new plants have straightened up and started growing again.

Care of the Transplanted Flats: The same precautions should be taken in handling the transplanted flats as were taken in handling the seeded flats in regard to watering and ventilation as well as heat. Too much water encourages damping-off fungus diseases and too rapid a growth making the plants spindling and soft-textured. Leaving the plants too long in this transplanted flat tends also to encourage them to grow too tall and leggy. It is better if they may be brought along more slowly by moderate watering, fertility, and heat than to attempt to force them too vigorously by increasing these items.

Field Transplanting: Before transplanting into the field it is desirable to harden off the plants. This is accomplished by lessening the amount of water given and subjecting the plants to cooler temperatures and greater ventilation for several days, gradually accustoming them to outdoor conditions. The plants which are to be transplanted should be watered six hours before being removed from the flats. The roots of the plants should be separated as carefully as possible with as much soil clinging to them as can be secured. After the plants have been taken from the flats and separated, the soil adhering to the roots is firmed into a ball. If the plants have become leggy or spindling, they should be set in the field leaning preferably towards the north so that a goodly portion of the leggy stem will be covered with soil. This is particularly true with tomato plants. Where the plants have been transplanted twice in the greenhouse and are growing in pots the plants are taken into the field without being removed from the pots. Little difficulty will be met in removing a complete ball of soil from an earthen pot if the pot has been watered several hours previously.

HARDY PERENNIAL FLOWERS

Mrs. M. W. Sheafe, Watertown, S. D.

The Stately Delphinium (Larkspur)

Among the perennials the delphinium knows no peer, the densely flowered spikes, large individual flowers, with many blossoms open at one time, cannot be excelled by any other family of plants. Blue is, of course, the rarest color in the flower world, and in delphiniums, we have it from the palest shade to the deepest indigo, together with pinkish tints to pure white, and both single and double.

These plants need a deeply dug, well fertilized soil and planting should be done with crown about two inches below the surface. As these plants feed from the main root system, and small surface feeders, that are sent out during the growing season, it is possible to stimulate growth when necessary, by feeding with bone meal, but avoid spreading too near the crown, mix well into the soil. After blooming season is over cut down stalks and water sparingly. After their period of rest they will again throw up fine spikes of bloom, which will continue up to freezing.

Never allow seed to form, unless you wish it to plant, as maturing the seeds lessens the vitality of the root. It is well to stake the plants when set, Japanese Bamboo stakes are best, as they are slender and sway with the plant, also less noticeable.

Black spot and stem rot are the worst enemies of the delphinium. To prevent spray the plants, and drench the ground about the roots with "Bordeaux" mixture, every ten days. For stem rot the following formula has been found effective: Water, five gallons; unslaked lime, two pounds; tobacco dust, one-half pound; mix slack lime with water, add tobacco dust, and when used, dilute using one quart of this solution to three gallons of water. Pour a cupful around each plant at intervals of two days beginning when growth starts in spring, until you have given four or five applications.

It has not been my misfortune to have either disease trouble my delphiniums. "An ounce of prevention is worth a pound of cure." So I scatter dry Bordeaux about the plants, till ground is white as a preventive measure. The Agricultural Department, Washington, D. C., recommends this formula to prevent both diseases, as follows: Mercuric Chloride, one grain; Sodium Nitrate, one grain; water, six and one-half gallons. Pour a cupful close to the roots, giving several treatments at ten day intervals. All this seems complicated but is very simple if once tried.

Trollius or Giant Buttercups

One may visit many gardens and fail to find even one plant of the giant buttercup, yet, when well established, it is a gloriously beautiful plant, especially adaptable to partially shady situations in the perennial border. The ornamental foliage is low growing, the flower stems that push up in May or June in this locality, rise from 18 to 24 inches, each surmounted by buds that open, one after the other, into glowing yellow buttercup-like flowers about one and one-half inches across and last a long time, either cut for the house or in the garden. The trollius likes fairly light soil, and a situation that is shaded from the strong sun, for while deep rooting, and drought resisting, the plants must have moisture to make good growth. Plants can be divided after spring blooming, every small crown will make a plant if pulled off with some roots, but will not make a big showing the following season. It takes nearly a year for the seeds to germinate, so one better buy the plants.

SOUTH DAKOTA STATE HORTICULTURAL SOCIETY

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(Continued from Page 7.)

How Organized

A meeting may be arranged in your town, and certainly enough of those interested will attend that a working organization may be perfected. Then the ingenuity of the officers can arrange snappy programs which will appeal. The meetings themselves will probably constitute the principal attraction and result. A constitution will be sent by the author of this article and may be adapted to the local desires. Speakers may be obtained and lantern slides used to help interest but a snappy round table discussion will likely prove as interesting and helpful as any feature.

How Conducted

A Garden Club may be used for only the personal interest or enjoyment of the members. But we ambitious Westerners will likely get a larger vision and want to make the club helpful in improving our communities. The club may perhaps do the planning for securing and improving public parks where needed, for adding to the beauty of streets, and doing away with unsightly places.

Several clubs have been organized in the state, some under other names than Garden Clubs. A club in Watertown has promoted some excellent shows featuring peonies but including all flowers of the season. The Sioux Falls club has conducted successful shows, both spring and fall, but has made a specialty of home grounds contests, affording a recognition to those who have especial success or have made serious effort to improve the home premises. Huron had some excellent flower shows. Centerville and Parker have conducted good shows. Delt Rapids started several years ago. Brookings has participated. Many towns have taken part of the program.