

when compared with a large number of pupils in the same grade. Furthermore the teacher ought to be able to use these comparisons for purposes of motivation. The writer has tried the experiment of pointing out to pupils just where they stand when compared with other children of the same grade and finds this a very powerful incentive. Children like to try to improve so that they will stand in a higher percentile at the next testing.

Again we find plenty of sixth grades doing only fifth grade work, while on the other hand there are sixth grades doing or capable of doing seventh grade work. With percentile tables the teacher can compare the work of her children with that of higher and lower grades as well as with that of children in the same grade. Seven pupils in the grade mentioned before were doing work equal to that done by the best 20 per cent of the seventh grade.

S. C. GARRISON

II

GROWING FLOWERS IN THE SCHOOLROOM

It is difficult to find a more unattractive place than the average schoolroom at the beginning of the school year. Perhaps nothing else tends to discourage the new teacher quite so much as does that cheerless, vacant, undecorated room. It is a challenge to initiative, industry, and self-respect. No matter what other means may be used to make it more homelike, the use of flowers is necessary to add a touch of plant life and beauty during that time when the outdoor flowers are dormant. It is in the heart of every teacher to have growing flowers in the schoolroom. But few are successful in this; many know so little about the matter that they are afraid to make the attempt; many, not being familiar with their culture, secure only imperfect results. Since most teachers want to succeed in all projects conducted under the observation of the pupils and with their co-operation, it is the purpose of this article to give such simple and safe directions as will make this possible.

It is very important that hardy, well known, quick growing flowers be selected.

Descriptions of plants in seed catalogues are written primarily to sell what they advertise. The description of the rose may be rosy, but it seldom says that roses are poorly suited for house culture. Many flowers might be grown successfully in the classroom, but I am going to discuss those that I know will succeed even when conditions are not ideal. For this purpose, hardy bulbs and fleshy rooted plants are usually best, as they have a storehouse of reserve food that will start them off with a vigorous growth. Seedling plants on the other hand are too slow for the teacher who wants immediate results. A few exceptions will be noted later.

Among the bulbs that are satisfactory for forcing are Dutch hyacinths and Roman hyacinths; single and double early tulips; Sir Watkin, Poet's, Von Sion, Par White, Double Roman, Emperor, Empress, Golden Spur, Maximus, Trumpet Major, and Chinese Sacred Lily narcissi; and Lily of the Valley. Of the fibrous rooted plants, perhaps pansies and native ferns, such as the Christmas Fern, would prove most satisfactory. If the build-ings are kept constantly heated, of course this list could be considerably enlarged. A safe rule is to plant only what will live out of doors all the winter in your locality.

After the selection has been made your order should be placed with a reliable seed man early in September for large size bulbs. Small bulbs are not likely to produce flowers and it is poor economy to order them. As soon as bulbs arrive they should be put in the pots or boxes where they are to grow. Boxes of suitable length and width and 4 inches deep are very satisfactory. A good substitute for a flower pot can be made from an empty fruit can which can be draped with crepe paper when brought to the room. The size of pot or distance apart in the box will depend largely on the size of the bulb. As a rule too small a container should not be used; it is better to place several bulbs in a larger box or pot, as they are then subject to less rapid changes of temperature and moisture.

A good soil is very necessary, such as a mixture of sandy loam and well rotted leaf mold in equal parts, to which is added a little well rotted stable manure or bone meal fertilizer. If the latter is used, do not add more than a teaspoonful of it to the quart of soil. A good clay soil can be used if mixed with equal parts of sand and thoroughly rotted

manure. The bottom of the container should be provided with large holes for drainage, covered with bits of charcoal, pebbles, or bones. A layer of coarse sand on these is not a disadvantage. In this manner adequate drainage is assured, which is so necessary for the admission of air to the roots and to carry off the toxins produced by the plant. The soil is then added without packing, which would cause an expansion of the soil when watered and would cause the bulb to be thrust out. The bulb is planted so that its tip is barely covered. As has been said, all this should be done as soon as the bulbs are received in September. The containers with the planted bulbs are then buried in the open ground in a protected spot. A few inches of ashes or cinders are placed underneath the soil and worked in between the pots on boxes. A mound of soil or sand is then made over it. Sand is to be preferred. Rotted leaves or coal ashes can be used. When cold weather has set in a covering of coarse manure or leaves can be added.

After having been buried for six weeks or longer, the bulbs will have grown a good root system and will make a good growth when brought into the schoolroom. It is this failure to allow root development that is the most frequent cause of inferior flowers. If they are not first buried or at least kept in a dark cool place, the tops will begin to grow before the roots are ready. For a succession of flowers, additional pots or boxes can be brought out at intervals of two weeks. After they have been taken out of the mound, place them at first in a cool place with a weak light, and gradually increase the heat to room temperature and the light to that of the window where they are to be kept.

The same rules hold true for Lily of the Valley, except that they should be frozen by putting them in an ice box before planting, and they should be planted somewhat deeper than bulbs.

For culture in water, the hyacinths, Chinese Sacred Lily, and Paper White Narcissus are well suited. Place the bulbs in a bowl of water among a few clean pebbles which hold them in place. Best results are secured when the water no more than touches the bottom of the bulbs, or at least does not rise above the lower fourth of the bulb. This allows the bulb to secure its necessary oxygen. When the bowl has been arranged, it should

be placed in a dark, cool, airy place for six weeks, and then gradually brought to the light. The water should be frequently changed.

After bulbs have been forced once, they have been so weakened that they are worthless for a second forcing. They can, however, be planted in the open ground where they will grow and subdivide and make new bulbs that can in turn be forced.

Pansies are quite satisfactory if transplanted to boxes filled with earth prepared as for bulbs. They are sometimes affected by the aphid, a small green insect. This can be controlled by spraying with strong tobacco water or Black Leaf Forty, which can be secured at any pharmacy. Ferns do best when placed on a stand where the fronds will not come in contact with any object. They should be repotted when the roots completely fill the pot.

G. W. CHAPPELEAR, JR.

THE TEACHER

You cannot forget your teacher because he is always with you. He has given the trend to your thoughts and has shaped your destiny. He goes with the man to the factory, the banker to his place of business, the clerk to the store, and the boy to the field. The teacher is the noblest Roman of all. He has taught us all to think. He is the past master in every activity of life. He deserves the united support of humanity.—R. W. Himelick.

The teachers of Holland are using posters to caution young people against choosing the teachers' calling on account of the inadequacy of the salaries. They are pointing out the discrepancy between the 4,500 florins paid to postal employees requiring no special training and the 2,800 paid to teachers as the maximum salary.—*School Life*.

At least 15,000 teaching positions in public high schools are without properly qualified teachers according to the estimates of the United States Bureau of Education.