MOST seeds, with the exception of carrot, onion, parsnip, and parsley, will grow fairly satisfactorily even if they are more than one year old, so that left-overs from the preceding year may be planted with good results. Before using these left-over seeds, however, it is wise to test their germinating power before committing them to the garden. To plant seeds which will not germinate is a waste of time and labor. Testing the viability of seeds is a simple and easy matter and very advisable if there is any doubt. Count out fifty or one hundred seeds of the kind that you wish to test and plant them in sand or earth in a cigar-box or something similar. Place them in a fairly warm room (temperature about 60°) and keep the soil moist. In a week or two take note of the number which have sprouted, and this will give you the percentage of good seeds and
SOWING AND TRANSPLANTING

some idea of the quantity you will have to plant in order to get a good stand. For instance, if only 50 per cent. of the seeds germinate it means that it will be necessary to plant double the usual number to make sure of having a sufficient number of plants. Another and less messy way of testing seeds is to place them on a plate between blotters or cloth, which must be kept moist, covering them with another plate to prevent too rapid evaporation of moisture. Although they adequately furnish the desired information, neither of these methods of testing seeds gives an absolutely accurate indication of what will take place when they are planted in the garden. Seeds out of doors are exposed to a number of hazards that are not present under indoor conditions.

Before planting any seeds outdoors the soil must be in the proper condition. It must not be so wet that it sticks to the tools used, the surface must be finely pulverized with a rake, and all large stones taken off.

There are three ways of planting seeds outdoors—in drills, in hills, and broadcast. The drills consist of shallow trenches from one-half inch to two inches deep, in which the seeds are sown. The young plants are later thinned out so that they stand an equal distance apart.
WAR GARDENS

Seeds are said to be planted in hills when they are sown in such a way that the resultant plants are in groups of three or more standing the same distance in the rows as the distance between the rows.

Broadcast sowing is when the seeds are scattered over the surface of the ground and covered by raking them in, or by sprinkling soil over them.

A garden line should always be stretched across the plot as a guide when making the drills. This insures straight rows, resulting in an enhanced appearance of the garden and greater ease in subsequent cultivation. A variety of tools can be used for making the drills or furrows. For those seeds which require to be planted deeply,¹ a draw-hoe is a useful tool, or, if this is not available, the corner of a rake will suffice. The shallow drills can be made with a hoe or rake handle or with a pointed stick.

The seeds should be planted immediately after the drill is made, before the soil dries up. Consult the table in the Appendix showing the quantity of seed required to plant a row one hundred feet long, and refrain from planting too thickly. Being too liberal with seeds

¹ See Appendix, Table III, for the depth to plant various seeds.
SOWING AND TRANSPLANTING

at planting-time is not only wasteful, but also involves a great deal of extra labor later on when the young seedlings have to be thinned in order to give them room for proper development. Sow the seeds as evenly as possible and cover by raking the soil over them. The soil over the seeds must be firmed. In the case of the larger seeds, such as peas and beans, this can be done by walking along the row. The earth over the smaller seeds is best compacted by means of the back of a hoe or rake. This firming process is carried out in order that the earth may come in close contact with the seeds, so that they may absorb the moisture contained in it; also to establish capillary action with the soil below, resulting in moisture being drawn up to the surface.

There is a tendency among beginners to plant their seeds either on raised ridges or, sometimes at the other extreme, in deep trenches. The first method is liable to result in the plants suffering from drought, and the latter in flooding, if it happens to be a wet season. There are times when it is advisable to make use of these practices, as will be described when the methods of cultivation are taken up in detail, but speaking generally, level cultivation is best.
WAR GARDENS

After the seeds are planted we are enabled to sit back and have a breathing-spell until the young plants appear, when it is necessary to proceed with thinning and cultivating as described in the following chapter.

It is the common practice, in connection with some crops, not to plant the seeds directly where they are to mature, but to sow them elsewhere at first and to transplant the young plants to their permanent quarters later.

In the Northern states the growing-season is not sufficiently long to get best results from such tropical plants as tomato, egg-plant and pepper if the seeds are sown outside. A longer growing-season is afforded to these plants by raising them in a greenhouse or hotbed, and transplanting them to the garden when the earth has warmed up and danger of frost is over.

Cabbage is transplanted for the reason that if the seed was sown directly in the field it would be necessary to plant much more seed than was actually needed, and because the ground can be profitably occupied with another crop while the young cabbage plants are reaching a sizable condition. Early cabbage is also sown in a greenhouse or cold-frame in order to hasten the time of maturity.
SOWING AND TRANSPLANTING

Although it is possible to raise these transplanted crops with no other facilities than those provided by the ordinary dwelling-house, it is not worth while when only a few plants are required. Young plants of tomato, egg-plant, pepper, and cabbage can be obtained at such a trifling expense from seedsmen who make a business of raising them that it does not pay to bother with raising them yourself.

An eye should be given to weather conditions when transplanting. The plants will feel the check less if a cloudy, humid day is chosen on which to do the work. The soil should be moist, but not so wet as to be sticky. The hole for the reception of the roots can conveniently be made with a trowel. Make it large enough so that the roots may be spread out and then press the earth gently but firmly around them. If the soil is dry leave a shallow depression around the stem of each plant to facilitate watering. Sufficient water should be applied to soak the ground for a depth of six inches or more, and when it has drained away from the surface, the depression may be filled with loose dry earth to prevent the moisture escaping by evaporation.

If for any reason it is necessary to do the
work of transplanting on a dry, sunny day, the young plants should be shaded. This can be accomplished by covering them with inverted flower-pots, or with newspapers weighted at the corners with stones to keep them from blowing away, or a shingle or thin piece of board may be stuck in the ground on the sunny side so that its shadow falls on the plant.

In most cases, unless they are grown in earthen or paper pots, the root system of the plants is injured in transplanting. In order to restore the balance between root and shoot it is advisable, and customary, to cut off part of the leaves. If the whole of the leaves are left on the plant they wilt and sometimes die because the reduced number of roots is unable to supply their demands for moisture.