After establishment shallots should need no other attention than weeding; if the soil becomes compacted and aeration is restricted, cultivation may also be required.

Harvesting and Storing

In January or February, according to district, the foliage usually dies back and the bulbs can be harvested. Bulbs should be thoroughly dry, and if conditions are unfavourable for drying outdoors, they should be placed in a dry, well-ventilated situation under cover. Care should be taken to avoid sun scorch, which may damage the basal parts of the bulbs. When dry, bulbs should be separated from their clumps, cleaned of soil by rubbing, and sorted. Damaged bulbs should be removed and the remainder stored according to size in shallow layers in slatted trays or on fine wire netting in dark, well-ventilated storage. Unless storage conditions are very good and examination regular, it is not advisable to remove the dried leaves and loose, papery outer skin, because that material cushions the bulbs in handling, and if they are dry, tends to arrest the spread of rots by forming a barrier of inert material through which air can circulate.

Shallots are in demand mostly for pickling, for which they are particularly suited by virtue of their size, flesh texture, and mild flavour. In addition they can be used in soups, stews, and salads. Their green leaves may be used in sandwiches or salads as are those of spring onions or chives.

Pests and Diseases

Shallots are troubled by few pests and diseases. Those listed below occasionally cause damage, though shallots are rarely affected by them to the extent that onions are.

Thrips (*Thrips tabaci* **Lind**)

Thrips cause bleaching or silvering of the leaves by rasping the leaf surface and sucking the exuding sap, thus weakening the plant by depriving it of part of its power to manufacture plant foods. Thrips are minute, cigar-shaped, yellow or dark-brown insects usually about 1/25in. long. They can be controlled by D.D.T. applied according to the manufacturer's instructions or by H.E.T.P. at 1 in 800 (1 fl. oz. to 5 gallons of water).

Aphides (*Aphis* **spp.**)

Aphides ("greenfly") rarely trouble shallots except in store, where they occasionally infest the young shoots emerging from the bulbs. They can readily be controlled by spraying with nicotine sulphate or H.E.T.P. at 1 in 800. A little soap should be dissolved in the water if nicotine sulphate is used, and for the maximum effectiveness of that spray the air temperature should not be lower than 70 degrees F.

Bottom Rot or White Rot (*Sclerotium cepivorum* **Berk**)

Bottom rot is occasionally troublesome, usually where the crop has been grown on the same soil consecutively for several seasons. It is a fungous disease and can first be recognised by a stunting and yellowing of the leaves and a white or grey fungous growth at the base of the bulb. Later small black resting bodies about as big as a pin's head develop on the area covered by the fungus. The resting bodies may remain in the soil for many years. Control consists of long rotations of non-susceptible crops and the destruction of affected rubbish.

Neck Rot (*Botrytis* **spp.**)

The fungous disease neck rot is a much less serious disease of shallots than of onions, but in wet seasons or where the shallot bulbs are not properly dried before storing there may be some loss. The disease usually enters through damaged tissue on the neck of the bulb, spreading downward until the bulb collapses. The most effective control is crop rotation, the destruction of affected rubbish, care in handling at harvest, and ensuring that the tissues at the neck of the bulb are dry before the bulb is stored.

Yellow Dwarf (*Allium*) **Virus 1 Smith**)

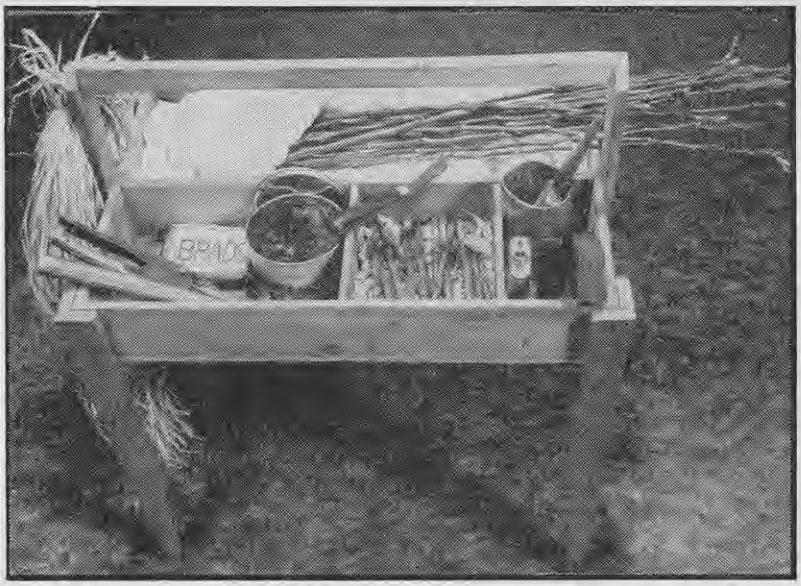
Several years ago the culture of shallots was forbidden in the Canterbury onion-growing area of Marshland, as it was shown that the virus disease yellow dwarf overwintered in them. This serious disease of shallots and onions stunts affected plants and causes the leaves to crinkle, droop, and turn yellow. Control consists of destroying affected plants and the insect vectors, mainly aphides, which spread the disease.

Smut (*Urocystis cepulae* **Frost**)

Smut is another destructive disease of onions and shallots confined to Marshland. It is a soil-borne fungous disease affecting young plants by causing dark lead-coloured stripes on the leaves (and later on the bud scales) which finally burst open and expose masses of black powdery spores which may remain in the soil for many years. Commercially the disease is controlled by using formalin in the seed rows. That may be necessary in the home garden, but while the affected area is limited the first essential in most gardens will be to avoid introducing the disease by examining all susceptible stock such as leeks, chives, garlic, onions, and shallots brought in and destroying it if infected.

Smut should not be confused with the fungous disease black mould (*Aspergillus niger* Tiech.), which is usually of minor importance, though it may cause some loss in bulbs stored in excessively damp conditions. On bulbs it can be distinguished from smut by the fact that the black powdery masses of spores are on the exterior of the scales and can be rubbed off easily, whereas bulbs affected by onion smut have oblong or linear black lesions near the base, usually as deep as the third or fourth scale.

Portable Stand for Grafting and Budding Equipment



By R. I. JUNE, Horticultural Instructor, Department of Agriculture, Hastings

WITH material usually available on an orchard construction of this handy stand that is useful for both budding and grafting is the work of a few minutes. The time taken in constructing the stand is soon offset in speeding up work in the orchard.

Considerable time can be lost in bending to pick up equipment from the ground each time something is wanted or in looking for tools in grass and weeds. Equipment is liable to be left behind in moving from one tree to another or it may be lost. By the use of a stand all requirements are kept in a convenient position.

Scions can be kept covered with a damp sack or cloth placed on the bottom of the tray and folded over to prevent exposure. Moist sphagnum moss can be placed in the bottom of a compartment to hold a few scions ready cut to the desired length.

Compartments can be made to suit individual requirements, but one side should be left full length to hold bud wood or scions. The dimensions of the stand illustrated are: Height 22in., length 21in., width 15in., depth of tray 3in., height of handle above tray 6in. The stand may be conveniently stored between seasons.

Heading photograph by R. W. Orr.