



Before Wilshire staged the Los Angeles \$10,000 Open they performed a "skin grafting operation," taking the turf from one of Hillcrest's greens.

## My Method of Building a New Green

By CAPT. D. L. REESE\*

President, Metropolitan Greenkeepers Association

**Q**UITE frequently in these times a greenkeeper is required to construct a putting green; sometimes because the hole has been lengthened, sometimes because the site of an old green has proved unsuitable for turf culture, and for other reasons.

The first thing to consider about the new green is its location. In this connection the eye will naturally travel to where the green would fit artistically into its surroundings. Utility and upkeep must, however, be very seriously considered as well as beauty, for the site of a green is governed by two factors that can not be slighted: the ease and cost of construction, and the ease and cost of maintenance.

An ideal position for a green is a gentle grade into the face of which an approach shot can be played. Such a site calls for comparatively little construction and as a

rule the necessary guarding traps will be easy to carve out and simple to drain.

### Handling Rocks

Very often the slope is too great to be left as it is and the back of the green has to be raised. This always is expensive, the cost mounting in proportion to the amount of fill required. Where rocks and boulders have to be taken away or buried, considerable money and time can be saved by using the rocks and boulders to form a foundation for the sub-grade. In doing this particular care is necessary in two directions. First, the rocks and stones must be packed so that very few, if any, air pockets or cavities are left among them, causing undue and troublesome settlement later on. Often in the case of a green built in the location now under discussion it is necessary to guard against flooding at the entrance, either by a drain or a gently sloping apron.

\*Address before National Greenkeepers' convention.

The punch-bowl or saucer type of green, considered very useful when the green is blind, makes the constructor strive for adequate surface drainage. He can gain his objective by making use of one side of the green.

### Correcting Soil Conditions

The job of rebuilding a putting green falls on the greenkeeper sometimes by reason of bad soil conditions on an existing green. In the construction of a green on a heavy clay soil the most important object is to improve the mechanical condition of the soil. Most greenkeepers have had experience at some time with clay soils, and it is scarcely necessary to point out that such soils are usually deficient in humus and, although comparatively rich chemically, they may be of such structure as to exclude beneficial soil bacteria. For this reason their chemical contents are practically unavailable. For rectifying clay soil conditions I recommend the following procedure:

1. Strip the soil to a depth of 8 or 9 inches.
2. Pile it nearby where it can be worked on.
3. If remodeling a green you will have to use the subsoil as a foundation. Pack it well down to avoid settling.
4. When the contours are finished, it may be well to lay a system of 3-inch tile piping linking any depressions or hollows in the surface of the subgrade. A fall, of course, is essential.
5. Cover the entire area to a depth of 3 or 4 inches with crushed cinders or breeze screened through a 1-inch mesh screen and pack them firmly into position. A Royer machine comes in handy on a job like this.
6. Next have a quantity of  $\frac{3}{8}$ -inch breeze or cinders and mix it with the top soil previously removed from the site in the proportion of 3 of soil to one of cinders. Apply a layer of this 4 inches thick.
7. On top of this place a second layer, also 4 inches thick, of the same top soil, mixed this time with  $\frac{1}{4}$  inch cinders in the proportion of 2 of soil to one of cinders.
8. For the final layer or seed bed use a 2-inch layer of equal quantities of top soil and sharp sand (or  $3/16$  inch cinders) into which has been mixed one yard of well rotted manure for each 1,000 square feet of surface. Spread this evenly, and

roll or tread it thoroughly, so that in the end you can hardly see footprints on it.

9. During all of the above work see that the undulations are maintained true according to the plan.

10. It will prove highly advantageous to work into the surface about 100 lbs. or 150 lbs. of good commercial fertilizer and the green is ready for sowing or turfing. In the case of a green to be planted with stolons there will be required a quantity of top dressing of the same composition as the seed bed.

We have provided a firm, smooth foundation with all the hollows adequately piped. Then we have a filter bed that cuts off the cold wet clay, passes the water through rapidly yet retaining moisture, artificially or otherwise applied, during the hottest weather. On top of this we have what may be called two additional filter beds, each capable of conducting surplus water from one to the other, then to the real filter bed, then to the drains. These two filter beds, being composed partly of the top soil, which is warmed and conditioned by absence of surplus water and the presence of air yet kept supplied with water held up by the breeze or cinders, make wonderful rooting media for the finest grasses. The seed bed, composed of soil, sand (or fine cinders), rotted manure and soluble fertilizer, forms a fertile, porous soil rich in humus. The latter is the home of the beneficial nitrifying soil bacteria which work on the chemical constituents of the soil and are largely responsible for its fertility.

I suggest you give thought to the following factors in your green construction:

1. Traps help orient the shot. Try to construct traps so they show the sand.
2. Make surface rolls almost imperceptible and such as can be easily cut by the mower; do not give rolls too much room on the green—leave plenty of room for placing and changing the cup.
3. Take care of flooding from higher levels, either by grassy hollow or by drainage.
4. For a pitch shot, use a narrow opening or an opening to one side, but make it wide enough for economical maintenance.
5. Do not build a terrace where you do not have much more area than an ordinary green required—each terrace should be about two-thirds the size of an average green.