change its composition through aggressive coring and topdressing (Fig. 14). If the soil problem of the green is considered severe, then the superintendent's green's committee will probably be disappointed with the coring and topdressing approach and should consider reconstruction. If a topdressing program is chosen to try to eventually improve the soil makeup, then the next question is what material to use. Most undesirable playing surfaces are predominated by fine textured soils high in clay and/or silt. The thought is to introduce a coarser texture soil, most notably sand, to improve water percolation and aeration. Current trends for such situations involve frequently topdressing with 80% or more of pure medium-fine (0.25 to 1.0 mm) sand. This size sand is usually coarse enough to provide the desirable effects of changing the constituent of the soil and fine enough to be easily worked into the turf surface but is not so fine as to seal the surface and impede air and water movement.

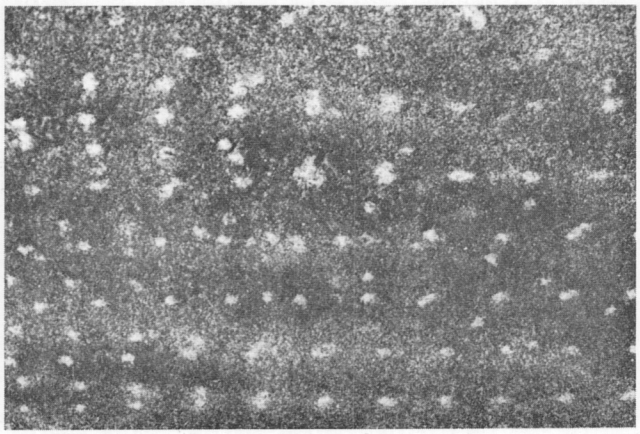

Fig. 14. Coring holes filled with topdressing material in an attempt to improve the soil characteristics of a golf green.

Some problems with topdressing with pure sand can result. Sandy soils tend to produce harder (firm) playing surfaces that do not hold approaching shots well. Sandy soils also require an increase in nutrient and water application since they drain so well and localized dry spots may develop if the sand becomes hydrophobic. Proper coring and vertical mowing will help minimize some of these problems associated with high sand content soils.

Applied topdressing should be matted in by dragging a piece of chain-link fence, brush, or piece of carpet over the areas in several directions to evenly distribute the material. This should immediately be followed by watering to reduce drying that may occur when the sand comes in contact with roots exposed from the coring process and to provide further settling of newly topdressed soil. With the introduction of deep core aerifiers, changing of underlying soil characteristics may be expanded. Minimum twice per year of using deep coring followed by heavy topdressing with a desirable sand should be practiced to improve poor draining greens. Between these corings, conventional aerification and topdressing should still be performed. Over several years, progress can be made in radically improving the soil characteristics of the playing area by this technique.

One of the commonly observed problems with improper topdressing is the formation of various alternating layers of soil. This results from using different topdressing materials over time. Differences in textural characteristics between these sands(s) and organic matter layers results in miniature perch water tables. The soil above a layer stays persistently wet and root growth is restricted. Once these layers are allowed to form, aggressive vertical mowing and coring are required to correct the problem and this usually draws complaints from club members due to disrupted play.

If the golf green soil is currently satisfactory, then the topdressing material used should match it. When new greens are constructed, stockpiling additional topsoil to cover 2 to 5 years of routine topdressing is highly recommended to prevent introduction of dissimilar soil into the green. The only difference in the stockpiled material and regular soil mix used in construction may be the absence of organic matter in this topdressing material. Enough organic matter is usually produced over time by turfgrass plants to cover future needs.

Only weed- and nematode-free materials should be used for topdressing. If the material's origin is not known or if it has been piled and exposed for a period of time, fumigation with methyl bromide is highly recommended before use. Nematodes and weeds are becoming very difficult to control with an ever shrinking number of pesticides and re-inoculation by using contaminated topdressing soil further complicates the problem. Washed sands used for topdressing may not need sterilization before use but should be closely inspected to determine this. Excess topdressing material should be properly stored to keep it dry and uncontaminated. Covered soil bins or polyethylene covers provide good storage conditions until use.