

clay, or humus layers in greens have been cited as reasons for rebuilding greens. Nobody can deny that this is the quick way. With the modern tools now available, the mat can be eliminated and the imbedded layers destroyed over a period of several years. Improved putting quality will result right from the start. Maintenance will become progressively easier.

Sand and other layers are best destroyed by using one of the several types of aerifying machines which are now available. After each operation, roots will go down through the layer in the aerifier holes. Before long there will be enough deep roots to keep grass from wilting quickly in hot weather. More frequent topdressing than would be necessary otherwise, is highly desirable also to build a deeper column of soil.

The problem of thatch is simple when recognized early which is before the stems start to undergo decay. The surplus grass can be removed in spring or early fall by alternate cross raking followed by close cutting each time.

Removal of surplus grass should not be attempted in hot weather. When done in the spring, it should not start until about the time grass is ready to renew its growth. An earlier start may delay recovery whenever the spring is unusually dry. There should be enough time in the fall for grass to recover before the onset of winter.

Topdressing would seem like the logical way to treat greens where the thatch is peat-like in character. Nothing could be worse because it is more difficult to destroy the organic matter of the imbedded layer. Topdressing should wait until it will make contact with the soil below. The organisms responsible for the destruction of soil organic matter must do the job. These organisms thrive in the presence of air because they need free oxygen. They work best when the reaction is at or near neutral. Enough aerification to introduce air and an occasional application of hydrated lime at not more than 2 to 5 lbs. per 1,000 sq. ft. is sound procedure and has produced desired results on many badly thatched greens.

Hydrated lime is better for this purpose than ground limestone because of its greater solubility. It reacts quickly with the organic acids which are intermediate decay products in the conversion of organic carbon in soil humus into carbon dioxide which is a gas.

After the peat-like layer is destroyed, or

COMPLETES AERIFYING JOB



Wilbert Waters, supt., Inverness Club, Toledo, O., put a chain drag back of his Aerifiers when he was giving his fairways aerifying and thatch-removing treatment. Plugs were pretty well broken up and worked in as a light topdressing.

nearly so, topdressing can be resumed. Before it is applied, the green should be spiked deeply with a spike disc, or it should be aerified so the topdressing will make contact with the soil.

Badly contoured surfaces, a poor location, the wrong kind of soil and a poor kind or strain of grass have been mentioned as justification for rebuilding a green. The importance of having the right kind of grass was dealt with first, including greens of *poa annua*. When it is the only grass on the green, re-turfing or rebuilding is justified except in a very few localities of very favorable climate.

Rebuilding Is Only Answer

Rebuilding is the only way to change a badly contoured green. Severe gradients and innumerable slight pocketed areas make the green bad for play and for maintenance. The contouring may limit the amount of cupping area to the point where the turf cannot withstand the traffic of heavy play. Pounded water in slight pockets causes trouble in summer and in winter.

A green should have enough character to test the skill of the golfer. Good design from that standpoint is the architect's responsibility. The contours should not be so severe that the modern greens mower cannot be used to cut in any and every direction.

The design should provide more than one path for run-off of surplus water during and after heavy rains. Downward percolation is too slow even in the best kind of soil, so the importance of designing a green to insure rapid run-off in several