

green," which are peculiar to the North American continent.

Although water and fertilizers are freely used on the greens, the fair greens get none, and yet the play of the long shots is, or should be, just as important as the short shots, and if it is necessary to have good, true putting greens, surely it is equally necessary to get a good lie on the fairway; yet, as a rule, little or no attempt is made to improve matters.

If the above is admitted—as it must be—I ask, why is the turf on the fair green allowed to peter out from sheer starvation, when it could not only be kept alive but improved year by year by an annual dressing of fertilizer at a cost of about \$15 per acre and an occasional sprinkling of water? The answer to the question is always the same: the area is too big for any club to handle; but is this true?

A course six thousand yards long by fifty yards wide occupies approximately sixty acres; from this deduct, say, fifteen acres for the rough in front of the tee and short holes, where good fair green is unnecessary, which leaves forty-five acres to deal with.

The fertilizer for forty-five acres would cost about \$675, but that of the water I cannot even guess at; but surely it would not be prohibitive to put in hydrants, say, one hundred yards apart, and devise some method of semi-automatic watering by means of demountable perforated tubes, after the style of the Skinner system, or a complete system similar to the Cornell system.

An occasional watering would not only be a great help to the grass, but it would also improve the play of the whole course by reducing the hardness of the soil and the abnormal summer run of ball.

The next question is the use of heavy automobile mowers, weighing 2,000 pounds or more. These heavy tools may be economical so far as the wage-sheet is concerned, but I am quite sure that there are few soils and less turf

that can stand their regular use without injury.

If they are used on medium to heavy soils when they are wet, they cap or seal the surface and so arrest the natural flow of air and water and generally get it into a state inimical to the growth of grass, and they crush and bruise the grass if they are used when the ground is dry. On light soils they do not do so much damage, assuming that the turf is thick and well-rooted, but where it is not, the back thrust of the driving roller actually moves the surface soil, especially when starting or grunting up a gradient.

If one with a knowledge of mathematical engineering was to calculate the hammer-stroke imparted to the turf by the driving roller in terms of pounds per square inch, the result would be simply staggering.

The ideal automobile mower does not weigh more than 1,200 pounds, it cuts thirty inches wide, and is operated and steered by a man who walks behind it.

Those who own a heavy automobile mower and do not wish to scrap it, can use it with advantage in the early spring as a roller when the frost is out of the ground, provided that care is taken to see that the soil is neither too wet nor too dry, or, in other words, is in good condition for rolling.

If the few suggestions that I have made are given careful consideration, especially those in reference to the making and upkeep of fair green turf, I am sure good will come of it, as the fair greens of the American golf courses are undoubtedly their weak spot.

THE END.

If silt soil is used without at least a year's weathering, you may be reasonably certain that after seeding, fertilizing, and all else is done, sooner or later the acid constituents will be brought to the surface and the grass will die out in patches, or possibly altogether. In such cases, fertilizers are absolutely useless.