

Should Putting Greens Be Kept Closely Cut at All Times?

(Unfortunately the following contribution from Mr. Macbeth reached us too late to be included in the discussions on this subject published in the November Bulletin. We are glad to present it here.)

"Cutting closely may lead to either good or bad results, depending upon conditions. I am sure no one with experience would advocate the discontinuance of close cutting during the growing season under the following conditions: On a new green, say a year old; on greens of mixed grasses of different textures; on the greens of clover and grasses of the warm climate of southern California. Really I do not think the problem greatly concerns us out here, as the dormant season is so short and the steady play which we have the year round makes it almost impossible for a greenkeeper to raise his cutter blades for a period long enough to show results. As you know, many of the greens here are regular 'Duke's Mixtures,' and one week with blades set up would show bad results and make a joke of good putting. For a good and matured turf with no coarse grasses in it, I believe it is decidedly beneficial to let the grass grow up a little in height. I had the idea last year that perhaps I could get a thicker growth of fescue by not mowing closely, but the redtop, *Poa annua*, velvet grass, etc., made the greens look so ragged that I had to lower the blades again. If there is anything in the theory that plants draw nitrogen from the air, then one would naturally think that the more leaf-surface there is the more nitrogen is gained and the better and stronger is the turf in the long run. For southern California, from my observation of the average greens, I would recommend cutting pretty closely all the time, unless the green can be put out of play for at least a couple of months."—*Norman Macbeth, Wilshire Country Club, Los Angeles.*

Earthworms Learning by Experience

Science Service

Earthworms have memory and may be trained in the way they should go, but their brains are not in their heads but in their abdomens. Professor L. Heck, of the University of Prague, has announced this discovery as the result of experiments with a collection of worms some five hundred in number. They were introduced into a passage shaped like a capital T and carved from a block of wood which was covered with a glass plate so that the movements of the little creatures might be observed. When they came to the junction about half of them turned one way and half the other.

Then it was arranged so that those that took the left-hand passage received a mild but presumably disagreeable electric shock. At first the worms did not know just what to make of all this, but after they had all been through the experience about two hundred times, they nearly all were converted to "safety first" and took the right-hand turn. When the electrodes were then moved to the right-hand passage they learned to shift to the other after only 65 passages, evidently showing more aptitude.

In the human sense, earthworms have no brains; their nervous systems consist of a series of little ganglions, or nerve centers, on the under side of the worms and connected with each other by nerve fibers. If the worms were cut in two, the fragments still showed the ability to distinguish between the safe and the unpleasant road to travel, showing that the earthworm remembers in every one of his ganglions, and is able to learn and profit by experience, which in spite of their higher organization many men are unable to do.