



John Morley

Following Through With A Grass Seed

By JOHN MORLEY, President
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WE place a tiny grass seed into the soil, and as soon as it receives sufficient heat, moisture and air it will germinate on its own accord; but as soon as the nitrogen is used up in the seed, then we find that Mother Earth must start the seed on its life journey. First we find that nitrogen, oxygen and carbon, four powerful gases, combine and form a substance like the white of an egg, and enter the ovaries of the seed, which produces cells called protoplasm. Then the tiny green leaf commences to shoot forth. We are now enabled to see the structure which consists of root, stem and leaf.

The principle work of the root is to explore the soil for moisture. It is unerringly guided downward by gravity, which acts as a stimulus, causing the upper side of the root to grow faster than the lower side; hence forcing the tip downward no matter how it is placed. The stem bears the leaf and furnishes it with a constant supply of water, which it conveys from the roots.

The leaf is supplied with water by the activity of root and stem. The leaf is composed of numerous pores. These pores inhale carbon and oxygen. The upper part of the blade inhales the oxygen, and the lower part of the blade carbon.

When Nitrogen Should Be Applied

It may be of interest to know that when the grasses become dormant, especially from late fall to early spring, Nature forms carbon-dioxide, which is two parts oxygen and one part carbon, and accumulates it in the soil until it is drawn out later by the energy of the sun rays. It is a good thing to know this, for it shows that there is no need to fertilize in the early spring, especially with a quick acting fertilizer. We should wait until all danger of heavy frost has disappeared, because it makes the grasses to tender and retards their growth. In the late fall, after the putting greens have been given their final top dressing, no fertilizer with a high percentage of nitrogen should be used, as it makes the turf too tender to stand up well during the winter months.

It has been often stated that we do not know what makes the grass green. This is not so; we do know. It becomes green by the action of carbon and sunlight.

Practical Way to Test Soil Structure

The growth of golf grasses depends on four principle facts: They should be able to breathe, drink, feed and have sanitation, and the first thing of importance is

to know the mechanical conditions of the soil before we plant the seed to send it on its life journey. A good way for a greenkeeper to test his soils is to get a quart bottle with a large opening, fill it half full of the soil; fill the balance of the bottle with water, shake it well, then let it stand until the water becomes clear. This will show the approximate percentage of gravel, sand, silt, clay and humus.

Essentials of Plant Life

Plants must breathe, and it is of great importance for the grasses to obtain plenty of air. They should drink. We should be careful when we water, to water heavily and seldom. When we water often and lightly, the young grass roots come to the surface for water when they should be going deeper into the soil. There are two distinct objects to be borne in mind in watering. The first and most important is to provide the necessary drink, and with it the food for the grass. The second is to induce the young grass roots to go down into the soil as fast as possible. The roots should be kept hunting for water most of the time.

The productiveness of any soil for grasses is determined in a very large degree by the amount of water it can hold, by the manner in which it is held, and by the facility and completeness with which the grass plants growing in it are able to withdraw that water for their use as it is needed.

The grasses on our putting greens must be fed. Besides using ammonium sulphate, the use of tobacco dust, has a tendency to give the grass a fine, rich green color. It also furnishes it with an abundance of potash which the soil often needs. Pulverized charcoal, because of its absorbing power, acts as a sponge in absorbing and retaining water gases and solutions.

The cementing power of charcoal holds together the coarse particles of light sandy soils, and it also forms crumbs in clay soils, thus favoring the granular structure and promoting lightness. With the continuous use of sulphate of ammonia and pulverized charcoal, the angle worm will, during the warm weather, disappear, because the carbonic and nitrogen gases have a tendency to drive them out of the putting greens.

To have good putting greens, we must have sanitation. Here are a few things that should be remembered: Drainage aerates the soil. It enables the various fertilizers to act more beneficially. It deepens the soil in which the grass roots grow and allows better warming

of the soil. It lengthens the growing season for the grass and enables the grass-roots to resist drought, because the roots go into the soil earlier in the spring. It also improves soil ventilation; that is, it increases the rate at which the oxygen of the air can penetrate the soil.

Diseases Appear When Poisons Prevail

During Brown Patch weather one of the most important items necessary is to have a proper amount of air in the soil. But some greenkeepers are at a loss to know what is the best method to obtain it. We know that when the soils are in the best condition for the support of heavy turf about one-half of their interstices are filled with water; the other half with air.

For several years I have been a great user of charcoal, which I use for several reasons, and I believe that when a liberal amount of charcoal is in the soil, owing to its expansive power, especially when the soil is very moist, it allows more air to penetrate into it than would if it were not used.

If we were to pay more attention to our compost which we use on our putting greens, we would help to eliminate a great deal of the Brown Patch disease. We often use the soils from the compost before the nitrifying bacteria have had a chance to put the organic matter which it contains in a

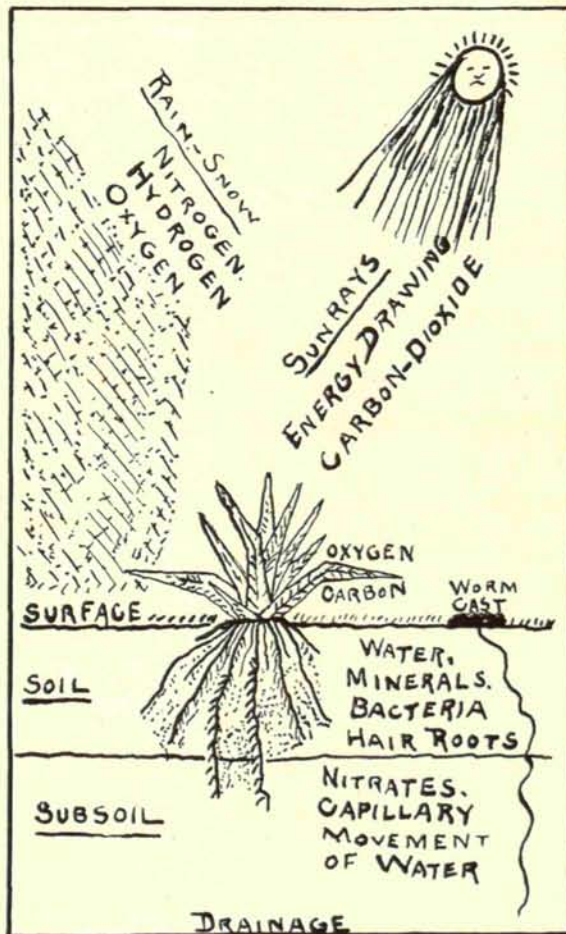
proper soluble form for the tiny young hair roots of the grass plant to make use of it.

I have observed while visiting various courses, that a large number of greenkeepers are using what we may call too much black muck, not properly composted, which often creates a toxic or poisonous condition in the soil.

During Brown Patch weather, in order to keep the grass in a healthy condition I fertilize each morning six putting greens after they have been mowed with six to eight pounds of sulphate of ammonia, and no more. I get it on the turf in liquid form and allow it to remain on the turf until evening, and then water these six putting greens. It makes no difference how high the temperature may be after the ammonium sulphate has been applied. We have never by our methods burned any of the turf. This has a tendency to promote a healthy condition, especially when the humidity is heavy, and further helps to ward off the Brown Patch disease.

We are informed that this disease is only on the blade and does not to a great extent affect the roots of the grass, which is true, but we should be mindful that when the humidity is heavy it causes the soil at the surface to sweat and keeps the air from pene-

(Continued on page 35)



Rough drawing showing the influence of atmosphere, moisture and fertilization on a grass plant

Long Life and A Clean Cut

From the Viewpoint of the Manufacturer

FOR some reason, not easily explained, the impression has prevailed for many years that golf course machinery as a class does not need much if any intelligent care. This idea may have been derived from the carelessness of the average farmer, who is notoriously neglectful of his farm implements. Farm machinery in many instances is allowed to rust out rather than to wear out.

Editor's Note: The manufacturers of the United States and Canada are each spending thousands of dollars annually in perfecting labor saving machinery to increase the efficiency of the greenkeeper. Golf clubs invest huge sums of money in outfitting their courses with high grade machinery, which given intelligent care, is in a large measure responsible for the fine playing conditions enjoyed by the modern golfer. Much of the rapid increase in golf's popularity during the last ten years is directly due to the carefully designed equipment placed on the market to save hand labor in the maintenance of our golf courses.

Golf course mowers that were built a few years ago could stand pretty rough treatment, as they were strong, heavy cast iron affairs, and rugged enough at the slow speed at which they were propelled by the overburdened horse. But the situation is entirely different today.

As soon as the gang mower had demonstrated its wonderful efficiency, its economical importance was soon realized.

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(Continued from page 9)

trating the soil. This helps to create a poisonous substance which later evaporates and closes the pores of the blade, which causes it to wither, because the upper part of the blade fails to obtain oxygen and the lower part carbon.

Forced Turf Cannot Resist Disease

Another method which may have a tendency to create a fungus or Brown Patch disease is too much forcing, which may keep the young grass too tender to throw off any disease that may clog its pores.

Under such conditions many fungi are able to gain entrance and become the cause of epidemics, whereas under normal conditions they may remain as harmless inhabitants of dead material.

I have been able during the past two seasons to keep this disease in check, by watching the weather conditions and by paying more attention to preventives than cures.

A grass seed planted on a putting green starts life under the handicap of conditions which are unnatural to the healthy growth of any grass plant. Maintaining a perfect, or nearly perfect, velvety surface under the vicissitudes that lie before such a seeding, is the mark of skill. It is not only that, it is the evidence of vigilance in guardianship. Sometimes I wonder how many of us realize the full meaning of the word "greenkeeper." We are soldiers standing guard, armed with what experience we have gained, what knowledge we can muster, that nothing may pass unobserved and molest that which has been given into our keeping.

Are you applying lime
to your golf turf
without knowing it?

Watch the May number
for this information.



"Rush!"

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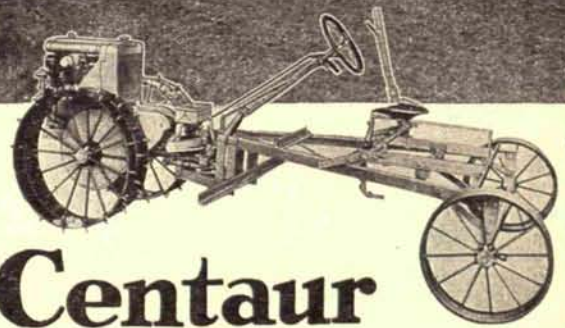
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rough.



At Left:
Centaur with
dump cart for
hauling jobs.

Below:
At work on
the fairway.

