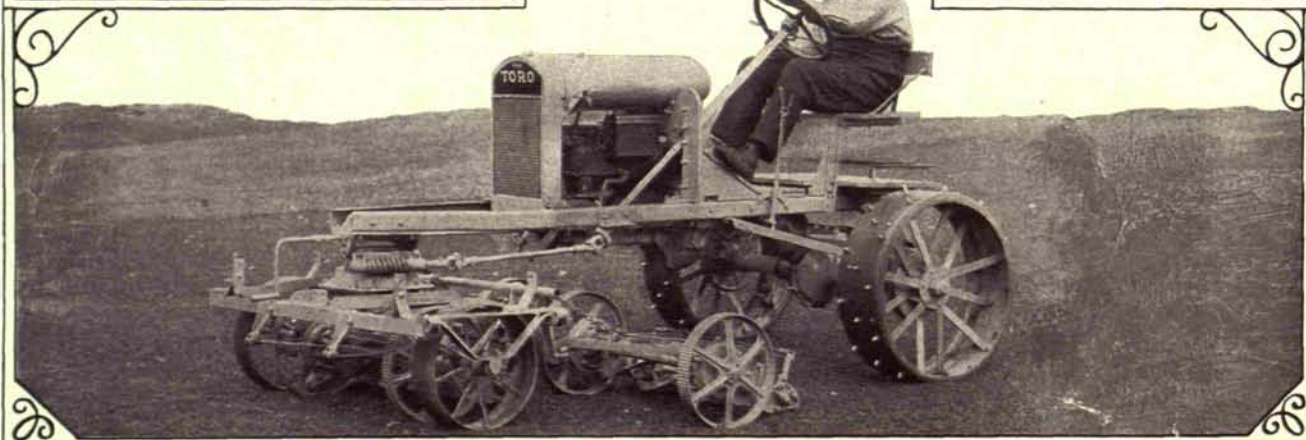




The New **TORO**

Junior Tractor



Announcing Two New **TORO** Machines

The TORO Junior Tractor meets a well-defined need, among both the eighteen and nine-hole courses, for a small, inexpensive and economical tractor to supplement our Standard Five-Unit Golf Machine, already established on several hundred of the larger clubs throughout the country.

For the larger club, the TORO Junior is strictly a supplementary machine. It is provided with ample power to carry three 30-inch mowers. In addition, it is well able to handle general hauling around the course, grading and construction work, together with numerous other drawbar needs.

On the smaller nine-hole courses, it can be used very profitably as the main power unit. It comes in a variety of ways to fit almost every need, including short wheel base, front end mowing attachment; truck style with platform and drawbar for pulling the mowers behind; truck style with all-steel dump box. Barth solid rubber tires are optional equipment for use on hard roads.

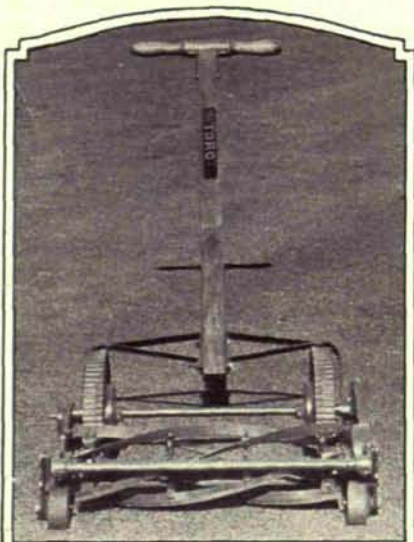
The TORO Tee Mower is light in weight, exceptionally easy running, and is built for close, clean cutting. The drive wheels represent a new departure from the older styles in that they are slightly inset from the side frame and are *back* of the revolving reel. This results in many advantages. The machine can cut more closely around trees and shrubs, has considerably greater traction and consequently greater ease of operation.

New illustrated Catalog, showing complete line of maintenance equipment will be sent on request.

TORO Manufacturing Company

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The New **TORO** TEE MOWER

The NATIONAL GREENKEEPER

Official Organ of The National Association of Greenkeepers of America

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VOLUME I.

No. 4.

An Editorial

By G. A. FARLEY

"KEEP YOUR EYE ON THE BALL!"

The beginner, in learning the game of golf finds this one of the most difficult things to remember. It is one of the most difficult to remember all through life.

Ambition, coupled with well directed energy has led many a man to the goal of his desire. It brought to the White House one of the greatest presidents in history, from candle light study in a doorless log cabin. It has raised newsboys to seats in the Stock Exchange, and times without number it has lighted the lamp of promise in a land of obscurity. Undirected or misdirected, it is purposeless and therefore wasted.

The man who "keeps his eye on the ball" learns to hit squarely and make his shots tell. The game of life holds many distractions, misguided friends who offer in kindness advice which if followed proves ruinous in the end; the perpetual "good fellow" who urges more relaxation and less work along the way; the restraint that is placed upon the energetic by the timid associate—all these and many more.

It is only when we look upon life as a "good game" that we give to it the best that is in us. We cannot all play it in Par, but we can lower our scores from year to year if we keep our minds on the necessary requirements of a good game.

If your golf course is inferior to that of your neighbor greenkeeper, there may be several reasons why. Some of the obstacles that stand in your way may not be of your own making. Others may be beyond your power to remove, because of some lack of knowledge of one or more of the essentials of good greenkeeping. Visit your neighbor greenkeeper, whose course is better than your own, and find out why. His knowledge coupled with your well directed energy is sure to remove some of the obstacles with which you have been contending. Every obstacle is like a wormcast lying in the path of a good putt.

Remove the wormcasts—and keep your eye on the ball!

GOLF CLUB OFFICIALS!

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AN EXPERT GREENKEEPER

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407 Caxton Building, Cleveland, Ohio

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Tractors and Mowers

Golf Show Offers Great Treat for Greenkeepers

New equipment features exhibits of wide-awake manufacturers and agents.
Largest Exhibition of golf course supplies and equipment ever held

LAST July the Saturday Evening Post published an authoritative article entitled "Golf—a New Business" in which the author states conservatively that from seventy-five to eighty millions of dollars is spent annually to maintain and operate the golf clubs of the United States. Consider that as an introduction to the second International Golf Show and Country Club Sports Exposition now being held in the Hotel Sherman, Chicago. The show opened Monday, March 21 and closes Saturday, March 26.

The list of exhibitors is representative of the vast field of golf activities and includes both Canadian and American manufacturers.

Seedsmen, implement manufacturers, equipment dealers and makers of golf clubs, balls and other accessories for playing the game, have attractive displays of their products attended by competent representatives to explain every detail to the Show-goers.

A great treat is in store for greenkeepers who want to keep abreast of the times, for several new and improved pieces of equipment just out for the 1927 season are being shown for the first time. Chief among these is the Toro Tee Mower, a light, high-speed machine with enclosed chain-driven cutting reel. It has greater traction than the old models and is easier to operate.

Two new greens mowers are also on exhibit, one being a product of the famous Pennsylvania Lawn Mower Works of Philadelphia while the other is from the F. and N. Lawn Mower Company of Richmond, Indiana. The new Pennsylvania Super Putting Green Mower is designed and built along automotive lines with cut gears running in oiltight casings, lubricated by Alemite system and with roller and ball bearings on all the various axles and intermediate gear.

The new F. and N. Special Putting Greens Mower is

claimed by its makers to be the easiest running machine. It has seven blades turning at high speed and is especially designed for creeping bent greens. F. and N. also show

their Titan Tractor Mower with self adjusting Timken rolling bearing, oil tight gear cases and finely cut solid steel gears.

Perhaps the newest machine in the tractor field is the Centaur, a light powerful outfit equipped with a twin cylinder four cycle LeRoi engine. It is manufactured by the Central Tractor Company of Greenwich, Ohio, and its makers say that the operating cost is but fifteen cents an hour. One Centaur Tractor with three mower gang will take care of all the work on a 9-

PROGRAM FOR THE GREENKEEPERS

Register at desk of the National Association of Greenkeepers of America, outside Show entrance, and secure badge and free admission ticket.

FRIDAY

MARCH 25—4 P. M.—Executive Committee Meeting in President John Morley's suite, Hotel Sherman.

7:30 P. M.—Informal general meeting of greenkeepers and assistants in Association Headquarters Room, Hotel Sherman.

SATURDAY

MARCH 26—10 A. M.—Opening session of Annual Convention National Association of Greenkeepers of America, Louis XVI Room, Hotel Sherman.

2 P. M.—Final session of Annual Convention, Louis XVI Room, Hotel Sherman, followed by business meeting for members only.

hole course including mowing of fairways and rough, hauling, plowing, seeding, leveling and other jobs.

In the line of sprinklers the Lark manufactured by L. R. Nelson Manufacturing Company of Peoria, Illinois is perhaps the newest and most interesting. It sprinkles up to 150 feet, has no gears to wear out and is carried on a roller base so as to prevent any damage to the greens. Being fool-proof and requiring no repairs, the Lark is bound to find many new friends.

Another gearless sprinkler is being exhibited by the Buckner Manufacturing Company of Fresno, California. It is called the Golf King, is mounted on a roller base and its makers say it will cover the largest putting green without a move. It can be adjusted to revolve once in five minutes or five times in one minute which makes it extremely flexible under all conditions.

So we could go on endlessly describing the new things at the Show, but space will not permit this month. However, watch for the May number of THE NATIONAL GREENKEEPER when we will describe and illustrate all of the Show exhibits that have to do with the work of the greenkeeper and maintenance of the course.

**May Issue—Show Exhibits Completely
Described and Illustrated—Watch For It**

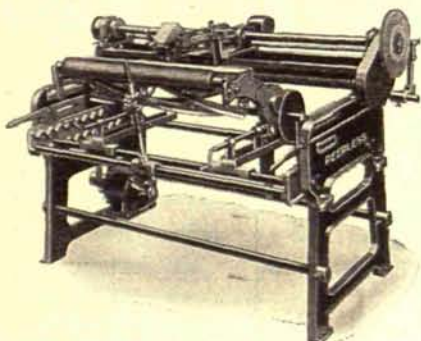
Some models of the latest and most improved equipment now on exhibit at the Chicago Golf Show



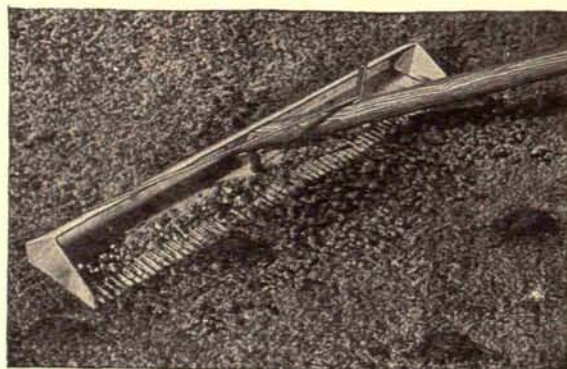
Tractor and five-unit gang of fairway mowers manufactured and shown by the Worthington Mower Company, Stroudsburg, Pa.



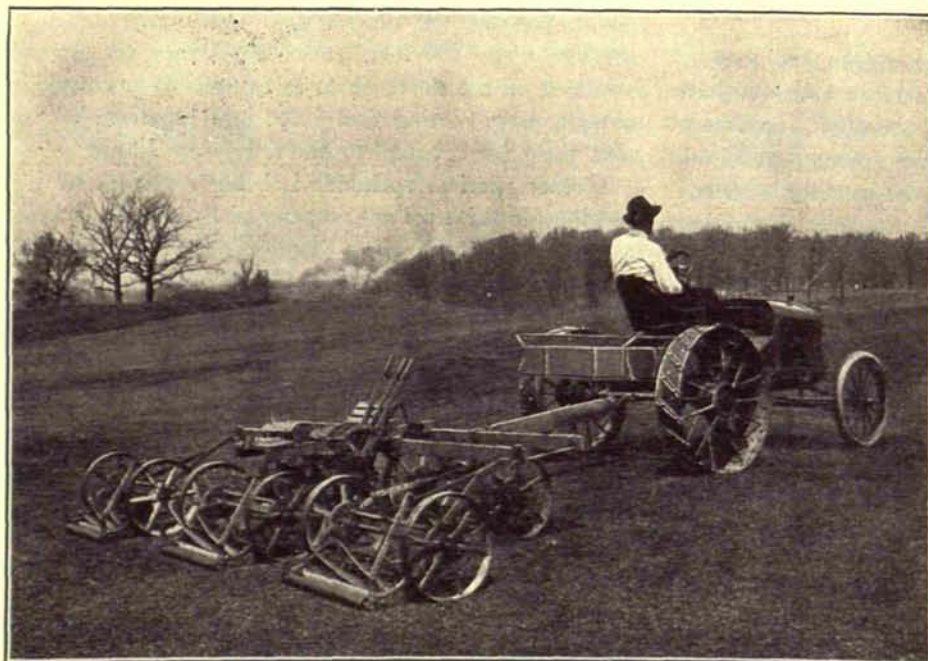
New Peerless Fertilizer Distributor just introduced by the Central City Fertilizing Company of Central City, Iowa, and shown by J. Oliver Johnson Company



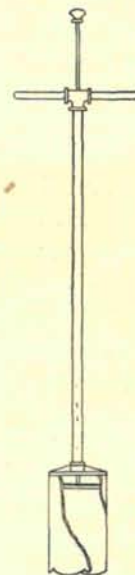
The Peerless Mower Grinder, manufactured by the Fate-Root-Heath Company of Plymouth, Ohio, will sharpen any size mower, from small lawn size to 30-inch fairway units. Greenkeepers should watch this grinder in operation at the Show



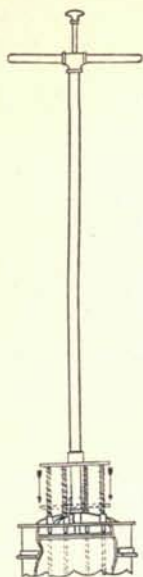
The Early Bird Worm Cast Rake, found indispensable on most golf courses, shown by J. Oliver Johnson Company



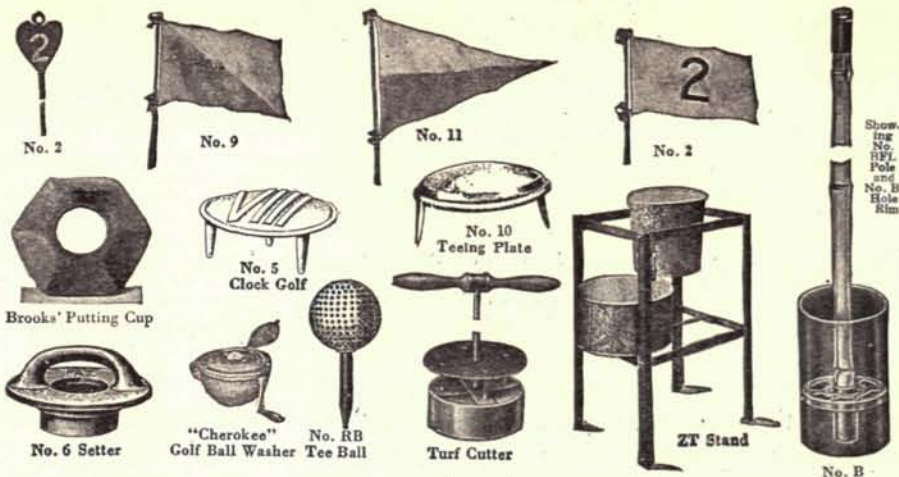
The Titan five-unit gang of fairway mowers, manufactured by the F. & N. Lawn Mower Company of Richmond, Indiana, connected to the Staupe Mak-a-Tractor. These are shown individually by the manufacturers



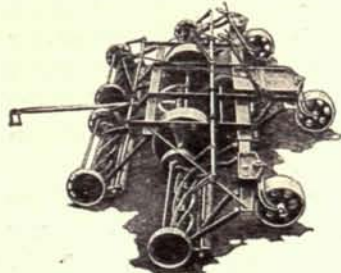
The Gem hole cutter, popular on many golf courses. Hardened steel edge, and special plug expeller. Manufactured and shown by the Golf Course Supply Company, Cleveland



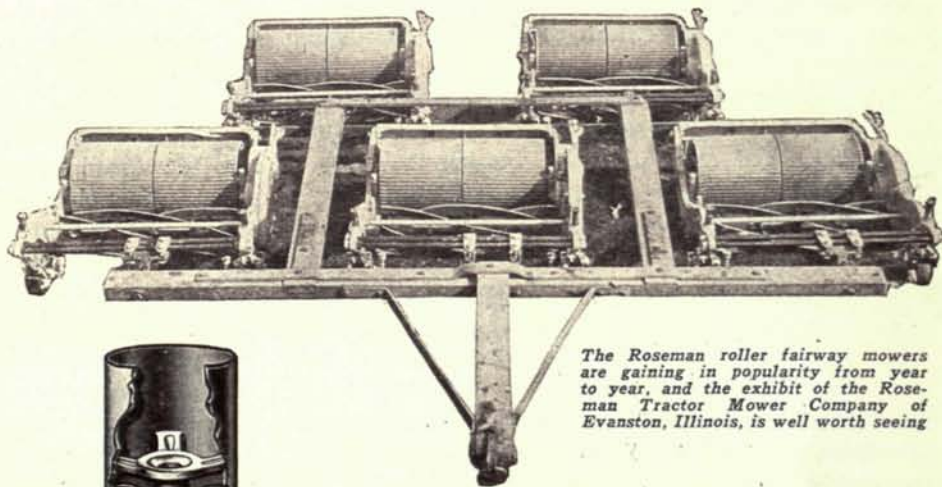
Hercules Turf Repairer, design similar to the Gem hole cutter, manufactured and shown by the Golf Course Supply Company, Cleveland, Ohio



The products of A. G. Spalding & Brothers, Chicago, are almost too well known to require description. Greenkeepers will find this exhibit of small equipment complete and up-to-date



The Ideal "Bull Dog" fairway mowers are connected to a flexible frame, operate with no weight on the cutting units, and the entire gang can be backed up quickly and easily whenever necessary. These with other products are shown by the Ideal Power Lawn Mower Company of Lansing, Michigan



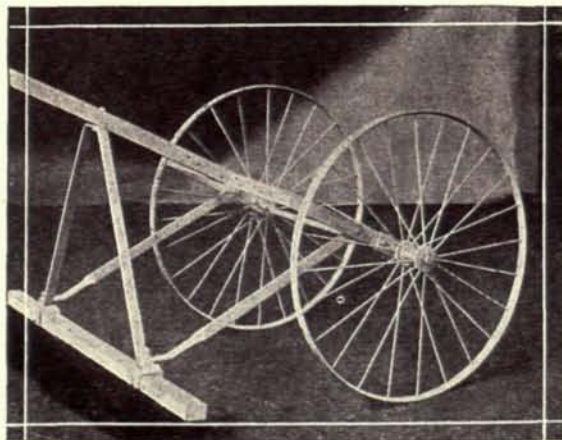
The Roseman roller fairway mowers are gaining in popularity from year to year, and the exhibit of the Roseman Tractor Mower Company of Evanston, Illinois, is well worth seeing



The Putter Hole Cup, built of seamless steel tubing, and with special four-arm bridge which insures sturdiness. One of the products of the Golf Course Supply Company of Cleveland



There is a use for a good light weight dump cart every day on a golf course, and here is one which answers requirements, manufactured and shown by the Ideal Power Lawn Mower Company, Lansing, Michigan



After spreading the top dressing on a putting green, a compost brush such as this saves a great deal of time, and greenkeepers should examine the MacGregor compost distributor and brush carefully. Shown by the MacGregor Compost Distributor Company, Wheaton, Illinois



The Royer Compost mixer not only screens top dressing perfectly, but the action of the machine tends to aerate the soil as it falls, preparing it for the green in a light fine, fluffy condition. Shown by L. F. Mitten, Sole Distributor, Wilkes Barre, Pennsylvania



John Morley

Following Through With A Grass Seed

By JOHN MORLEY, President
The National Association of Greenkeepers of America

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

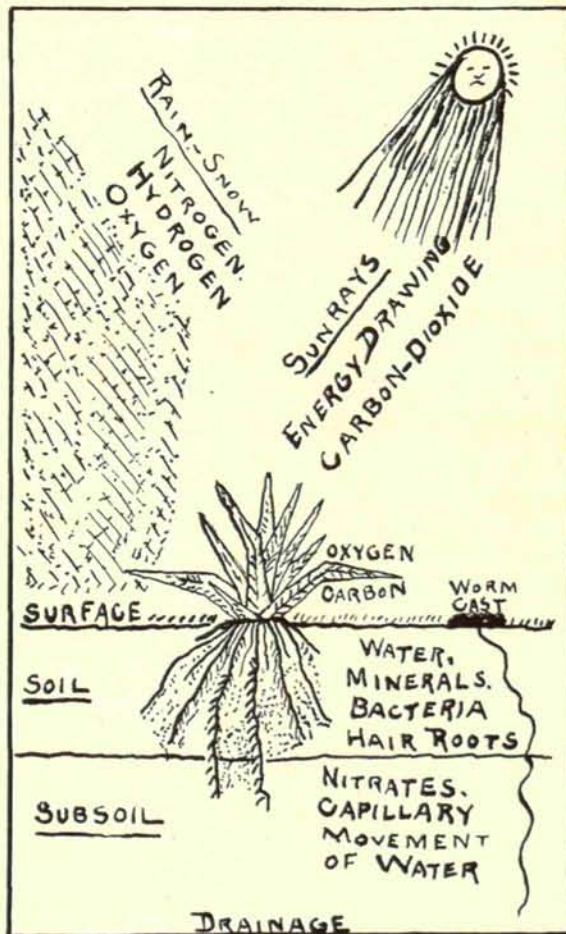
proper soluble form for the tiny young hair roots of the grass plant to make use of it.

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.

Lawns and fairways that had always taken days to cut were better done by the gang mower in as many hours. Anyone familiar with the mowing practice before the gang's discovery will remember that it required at least four horse mowers a full week to cut the fairways on a golf course that now is finished in one day. Had this saving in time been secured by merely joining together a plurality of the old roller mowers, there would have been nothing extraordinary in the discovery, but the demand was insistent for much faster travel and far better material than came within the compass of this older type. The old mowers were too weak to resist the strains and blows that they were subjected to by the greater speed and yet could not be made stronger without unduly increasing their weight and in consequence their draft.

To make a machine that would be much lighter but stronger became therefore, one of the many structural problems that could be solved only through long tests and experience before the gang combination came to have the approved and accepted dependence that it has today.

The required speed has been so easily furnished by lawn tractors, it is unfortunately too often forgotten that the combination includes a highly specialized apparatus for the mowing and which, while being dragged around at eight to ten miles an hour, over rough surfaces and all sorts of obstructions must be always in shape to give a good account of itself every day. It is unreasonable to class this especially designed and adapted apparatus, capable of doing far more work in a given time than any other mower has ever before done in the history of the world, with rough and ready farm implements. The fact is, few machines deserve better care or more intelligent inspection. Experience has shown that when anything fails in a gang mower, to function satisfactorily, the cause is almost invariably due to inattention, accident or lack of knowledge on the part of the operator. In such a case, he should make no attempt to repair it himself with a bit of wire, as often done, but should report it to the greenkeeper in charge, who may then take steps to have it fixed before the failure becomes chronic and a source of irritation and increased expense.

Check Your Machinery Every Day

It is still more important, however, that the operators should be taught what they must do to keep the machine in dependable order. They as a class, have in recent years acquired a better knowledge of mowing equipment but many still fail to appreciate the value of giving it *regular and systematic attention*. It should be made clear to them that their machines must be kept clean and should be oiled and greased, not in a hap-hazard way, *but every day*. A half hour spent before quitting time is enough for this and will be the most valuable period in

the whole day's work. A hose should be used for the cleaning operation. Bolts and nuts should be regularly examined and tightened. The manufacturers instructions usually accompanying such machinery should be followed with special care.

Sheltered Equipment Lasts Longer

As a final provision for the protection of tractors and mowers, arrangements should be made to put the entire outfit under cover every night. Exposed parts of such machines rust more or less rapidly, which of course means decay. It would often pay a golf club a good interest on the investment to purchase one of the small, inexpensive, portable and ready made garages of the kind that are being widely manufactured. They are just large enough to accommodate a tractor and mower combination. Such protection as a measure of economy will soon justify itself.

Cylinder Knives Sharpened Too Often

It is not as well known as it should be that frequent sharpening or grinding of the unit knives is a mistake. They require nothing like as much sharpening as they get. In fact they rarely need to be ground at all. On some courses throughout the country, the mower units are never touched oftener than once a year, at the time of their annual overhauling. The wear of the blades is thus reduced to a minimum and the life of the unit reel greatly prolonged. If the reel is set as it should be, to barely touch the bed knife, never to scrape hard against it, it will wear evenly and will need no further attention. This sounds like radical advice but it is based upon long practice and experience and can readily be demonstrated as sound. The operation of cutting is not like that of a pair of scissors but more like the blow of a sickle. The high revolution speed of the fly knife drives the grass against the bed knife and cuts it off more through the force of the blow than the sharpness of the knife itself.

Nothing could bring to the quest for economy more valuable assistance to those who have a golf course in charge, than careful investigation of this entire subject. The manufacturers would welcome their cooperation to bring about a better appreciation of its fundamental importance.—*Courtesy of the Worthington Mower Company, Stroudsburg, Pennsylvania.*

TO EVERY MEMBER!

Before the playing season starts, will you please mail a story about your course to The National Greenkeeper?