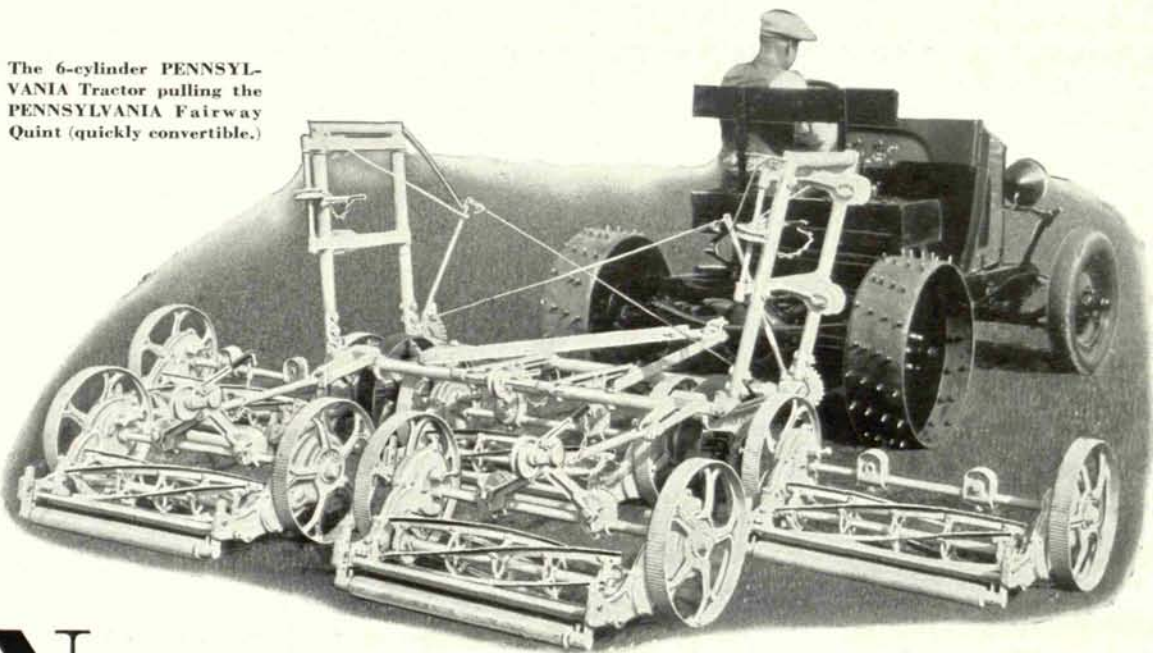


The 6-cylinder PENNSYLVANIA Tractor pulling the PENNSYLVANIA Fairway Quint (quickly convertible.)



“New Mowers and Parts . . . \$33.18”

Reports Overbrook's Treasurer for 1930!

USING PENNSYLVANIA machines exclusively — on fairways, greens, tees and as trimmers—Overbrook Golf Club, Philadelphia, spent only \$33.18 for new mowers and parts in 1930.

This is a record, particularly for an 18-hole course that is always kept in fine condition, and it reflects credit on everybody concerned. As for the part played by the mowing equipment, we gratefully acknowledge Treasurer H. T. McDermott's letter, in which he says: “Too much praise cannot be given the Pennsylvania Lawn Mower Works for supplying our Green Committee with such high quality machines.”

Write now for a copy of our NEW 1931 GOLF CATALOG, which is yours for the asking.

PENNSYLVANIA LAWN MOWER WORKS
PRIMOS, DELAWARE COUNTY, PA.

course under the conditions he has to work with, or the club's financial condition—all of these fall upon the man in charge.

On the other hand, if he is fully capable and an experienced greenkeeper many of these problems can be solved provided he is somewhat of a diplomat and can show his chairman the folly of trying to get by all the time with a poor working outfit which will cost twice as much in labor, half of which would pay for the necessary tools and put the place in much better shape and stop a deal of criticism.

What does he have for a starting-out place? Does he have a place fit to call a workshop for repairing tools and machinery? What has he got for a tool house where the tools, hand mowers, wheelbarrows, etc., can be housed without being thrown in a heap like a pile of junk among sacks of fertilizers and the like which have to be cared for and kept out of the weather, or where the men can go and get what they need without the trouble of throwing everything aside to find what is wanted.

This condition I have seen many times on so-called first-class courses, and is a reflection on a good greenkeeper. Far too often are good tools and machines carelessly thrown aside for the need of a rivet or set screw to put them in good shape.

GREENKEEPER NEEDS A GOOD WORKSHOP
THE first essential and most important thing for the greenkeeper to have to start out with, is a good, clean workshop and an orderly and well-kept tool house, with a place for everything, and everything in its place when not in use. Then and only then is he ready to start off on the daily grind.

Another thing of great importance is the compost pile and the shed in which to prepare the top-dressing and to house it from the weather, where the men can work on rainy days instead of being laid off, and a cover for the tractors, trucks, and large machines. For a golf course without such accommodations is losing big money from waste and a rapid deterioration of equipment. With these accommodations which are most essential to efficiency and good workmanship, the greenkeeper feels a backing of security to meet the daily routine and speed up the work which otherwise would only be hindered by lack of such necessary accommodations.

The compost pile which has been so badly neglected for some time past, owing to new-fangled

ideas and high-powered fertilizers and salesman-ship, is steadily coming back to its own. A golf course without a compost pile is like a home without a mother—something sorely missing. Concerning the composition of the compost pile, I think little need be said, for every well-versed greenkeeper who knows his humus knows only too well how to prepare and keep a big pile constantly coming along to nurse and mother his greens when feeding time comes, which naturally it does at frequent intervals and more often than not is very much neglected.

COMPOST PILE IS MOST IMPORTANT

I FEEL I cannot emphasize enough along this line after many years of practical greenkeeping experience and listening to and trying the dope of experts who recommend this and that for putting greens and grasses in general and to many who tell us that the compost pile is all the bunk and obsolete—for they are not only all wet, they are completely soused. Still they may have something to sell which is well worth trying. Try it if you will but only after you have top-dressed from your compost and filled the empty stomachs of your crying and hungry babies. Then you will be taking no chances that you would be doing by using stimulants instead of a good square meal at feeding time.

And now the question. How often should we top-dress? Well, of course, that depends upon the nature and condition of the soil. Some greens which I have seen have been so carelessly built that they had no soil or humus content whatever, having been made from the ground taken from the sand trap near by with the theory that bent grass would grow in anything if you used dope. This is the trouble and worry of many greenkeepers today, they have nothing to grow grass in except a hard compact clayey substance which would not grow black-eyed peas, let alone the tender grasses a putting green should be composed of. So, of course, this soil condition would regulate the frequency of top-dressing more so than a loose fertile soil of a well-prepared green.

One thing is certain—you cannot go wrong top-dressing a poor soil often as long as you do not blind the grass. You are only giving it something to grow in and feed upon, besides making a porous condition for light, air and water to penetrate, without which nothing can grow well, especially grasses.

A Special Announcement to GREENKEEPERS

Fertilizer manufacturers frequently develop *apparently* improved fertilizers—but very often without taking into consideration the long-time effect upon turf maintenance. They think *only* from their own selfish motive of *selling*—some by-product, or some concentrate from a deposit they own.

They do not consider the greenkeepers' *continuous* job of maintaining satisfactory greens and fairways year after year.

The exact *reverse* of such reasoning was responsible for the production of DRICONURE. We studied the *needs* of turf; the elements that would produce *continuously* vigorous and healthy stands. We sought a product that would constantly *build* as it fed, adding a natural *reserve* strength to the soil instead of giving false, temporary stimulation, with ultimate ruin.

And we found what we wanted—what would do the *best* job for turf maintenance—in one of the oldest of proved materials, one that has been used on turf for generations. DRICONURE is cow manure, absorbed by peat moss, dehydrated to give five times the strength of fresh or green cow manure, better and stronger than ever before; de-odorized; absolutely free of weed seeds, filler or trash, by far the *safest* fertilizer, because, while it contains adequate quantities of nitrogen—it *will not burn*—Nature's Own Fertilizer—100% Organic. You can use as much DRICONURE as you like, as often as you wish, and there will be no harmful after effect.

Think what this means—every bit of liquid has been absorbed by fine quality peat moss and is available for quick feeding im-

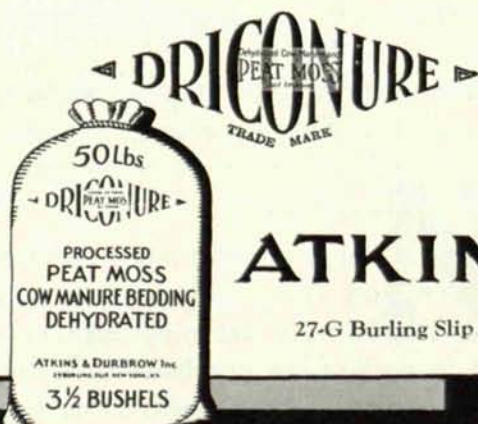
mediately upon coming into contact with soil moisture. Then the slow breaking down of the manure solids provides a source of long-term food. Then the peat moss and manure humus *permanently* improves the physical condition of the soil. Never before have you been able to secure so much in a single fertilizer, and many greenkeepers, realizing this, have now started on a *build up* program with DRICONURE.

NOT THE SAME

Although DRICONURE is composed partly of peat moss, the function is not the same as is the function of peat moss alone. DRICONURE is a fertilizer—and a most satisfactory one. GPM Peat Moss is a soil conditioner used in making perfect turf for fairways and unusually good greens. It contributes humus—more humus, over a longer period of time, than any other so-called humus material. It is cleaner, free of harmful mineral salts, and actually less expensive because its dry, pulverized form goes further, lasts longer.

GPM is being used by many successful golf course architects and greenkeepers and its continued use where humus without fertilizer is wanted, or as a carrier for concentrated fertilizers, will give better results than any other supposedly competitive material.

These two products—the greatest advancement in fertilizing methods in years, and the finest source of humus obtainable, help the greenkeeper to permanently lower maintenance cost, improve ground texture and appearance. Complete details and prices on both will gladly be furnished on request.



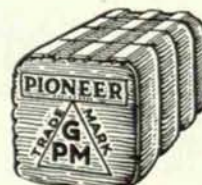
ATKINS

27-G Burling Slip

&

DURBROW

New York, N. Y.



SIZING UP THE WORKING FORCE

Now let us look over the force of men the greenkeeper has in charge and send them out to their respective jobs on the course. I have always tried to team men together at work they seem best suited for, for it is useless to send a good truck driver out with a scythe when another can do a better job and would rather have that kind of work, or to put a good ditch digger mowing the greens or a good shovel man to drive the tractor when he can pile up and mix more top dressing than two other men who never liked the shovel anyway.

So it is up to the man in charge to find out where best to place his men to accomplish more and do better work which means efficiency and money saved. First the tractor man goes to mow the fairways or the rough; another takes the truck to do the hauling of various and sundry things of which there is always plenty.

POLING GREENS

Next in order are the men to pole the greens which should be done first thing to break up any mycelia or fungus growth which spells brown patch in humid weather, and to remove worm casts and clean the greens ready for watering and mowing. When this is done the men are ready to start sprinkling.

At this point I would like to say that, personally, I prefer and do water the greens by hand in the morning for several reasons: First, to break up and wash off any fungus growth if any should be left there after poling; second, because I firmly believe and know a green can go through the heat of the day much better in its moist condition by morning watering than it can in a half dry state in which it surely is when watered the evening before; and the third reason is that I believe in letting nature do its work and leave the dew on the grass as long as possible all through the night. The grass is punished enough in the day time, so let it rest at night under a blanket of dew, nature's stimulant, and it will then be ready for a good drink to start a hard day in the morning when all things should move with the rising sun.

So, like yourselves, let your greens rest at night and I am sure they will respond and give better results by leaving them alone in peace at night. I do not know of anything that grows which is punished or tantalized more than a hard-working put-

ting green at all times, and many of them are fabled to death and killed by over-indulgence. Nurse them along and treat them kindly with common sense and stop some of the punishment.

WATERING GREENS

The men who have returned from poling the greens are now ready to do the watering and I venture to say that far too little attention is given to this all important part of greenkeeping—how it is done or how much water is poured on at one time, but this is often much neglected and done in haphazard methods by sprinklers.

It does not satisfy in the least because you have a sprinkler whirling around for a given time that the green has been watered properly, for the wind sometimes plays havoc with a sprinkler and carries the water wherever it will often leaving hard and dry one side of where the sprinkler stood. Yet it is moved to another location because the given time is up. This to me is all wrong for one place is saturated and over-watered, becomes soggy, closes up the voids in the soil, crippling the grass roots and causing a thinning out of the grasses and poverty of the soil, while the other, under-watered or neglected, turns brown and you wonder why.

I would suggest one-inch outlets at all greens and the use of a one-inch hose in one-piece length sufficient to cover the entire area, with one-inch jet nozzle battered to a flat fan shaped mouth which will, with the proper pressure, throw a feathered stream of water evenly. Then the rest is up to the man with his back against the wind to sprinkle the green as he would mow or roll it up and down a given space backing off until the green has been gone over thoroughly, then reversing his position side ways and start all over again until the allotted time is up for that particular green.

But don't forget that more greens are poverty stricken and worn out by over-watering than are ruined by under-watering, especially the bents, as many have learned too late by the scourge of brown patch after a rain in humid weather. So, beware!

MOWING GREENS

Mowing greens is next in order when the men are through sprinkling. They are paired two to a green and they take in order one to eighteen, cutting the most convenient low numbers of the first nine so that they keep ahead of the players starting out. I have found this system most successful.

The men cut 4 or 5 widths around the green be-



One of the Fairways at the Royal Pine Golf and Country Club, Pinewald, N. J.

Why Mr. Schupkagel *selected* **NITROPHOSKA**

THE reasons why Conrad Schupkagel, builder and greenkeeper of the Royal Pine Golf and Country Club, Pinewald, N. J., has chosen Nitrophoska to fertilize his fairways will be of interest to every other greenkeeper and greens committee.

This winter, Mr. Schupkagel took the short course for greenkeepers at the New Jersey State Agricultural College. He learned there that there are three important points to consider in choosing fertilizer for fairways: (1) that high-analysis fertilizer is most economical, (2) that water-soluble fertilizer is most effective, (3) that good mechanical condition insures even distribution and ease of application.

When Mr. Schupkagel put these measuring sticks up against differ-

ent fertilizers he found that Nitrophoska filled every requirement. Nitrophoska 15-30-15 is a high-analysis complete fertilizer which supplies plant-food at low acre-cost. It is water-soluble and, therefore, it feeds the grass quickly, thickens up the sod and maintains a good turf. It is a granular, free-flowing material—easily distributed.

These reasons why Mr. Schupkagel has chosen Nitrophoska are exactly the same reasons why you should choose it for your fairways.

Spring application of 200 pounds per acre is sufficient. Early application produces best results. It's time now to order Nitrophoska from your supply dealer or direct from us. Synthetic Nitrogen Products Corp., 285 Madison Ave., New York.

UREA

Urea is recommended by the Greens Section of the U. S. Golf Association. It contains 46% nitrogen and is easily soluble in water. It furnishes soluble organic nitrogen in the same form as the nitrogen in liquid manure, and is long-lasting.

LEUNAPHOS

Contains 20% nitrogen and 20% phosphoric acid—a concentrated fertilizer, excellent for use where a fertilizer without potash is preferred. Use at the rate of 100 to 200 pounds per acre.

SYNTHETIC

SULPHATE OF AMMONIA

A high quality product—pure, clean and dry. Practically acid-free. White in color. Packed in 100-pound bags.

NITROPHOSKA

TRADE MARK REG. U.S. PAT. OFF.

15-30-15

The Most Economical Fertilizer Ever Made

fore starting straight across and reverse the direction each time the green is cut, north to south, east to west, and diagonal which has a tendency to stop the grass from growing or running all one way. The cuttings are disposed of immediately by scattering them thinly through the rough, leaving no unsightly places by dumping them around everywhere.

After mowing these men take care of the sand traps and the work in general through the course of which there is plenty at all times, mowing banks and slopes which can be done only by hand and the other jobs, fertilizing, top dressing, etc.

The tees and approaches are cut regularly by the same man who is responsible for the power machine he uses, and no other man is allowed to handle it; in this way better results are obtained, and the man in charge of this work feels his responsibility.

RAKING OR SCARIFYING GREENS

THERE is now on the market a greens rake which I have termed a scarifier and consider this a most wonderful and efficient tool and a long felt want, especially as a labor saver for it does a much better and thorough job than can be done by hand rakes. It is 30 inches wide and pushes like a mower with flexible wire teeth one-half inch apart. The man pushing it can put on any desired pressure.

This scarifier rakes up all dead grass and the runners of the bent without tearing and leaves the grass after mowing clean and upright, just what is needed for good putting. My own greens have shown a remarkable change since using it. It also prepares the green much better for top dressing and would advise the use of this machine on all greens at least twice a month and am sure you will be pleased with the results.

TOP DRESSING

TO me top dressing is one of the most vital and important parts of greenkeeping, as it certainly covers up a multitude of sins as many of you well know, for it hides the scars of weeds and carelessness and cloaks from view the results from brown patch when that pest has been neglected. It trues up a rough green which the greenkeeper would surely hear about when the players see him.

The top dressing is prepared from the compost pile by pulverizing, screening and mixing with sand, and when piled in the shed ready for use is loaded into coal sacks with handles on each side and

hauled to the green. There it is carried to the men waiting with wheelbarrow and shovels to spread it broadcast. Two men do the broadcasting, one on each side of the wheelbarrow and take a strip from the far side of the green about 15 feet wide, backing off until that strip is covered, then they continue with another strip until the entire green is gone over.

When the men broadcasting have completed the first strip and are out of the way, two men drag or brush it in with a flexible steel mat 6 feet wide. A little speed with the mat puts the dressing well into the grass leaving it smooth and true, ready for immediate play and in much better shape than it was before.

By using the sacks it saves much shoveling and handling as the one operation puts it right where it is going into the wheelbarrow on the green without being dumped on the side of the green to be shoveled up again, leaving an unsightly place especially if it rains. Also by using the sacks a quick retreat can be made back to the shed with the top dressing under cover.

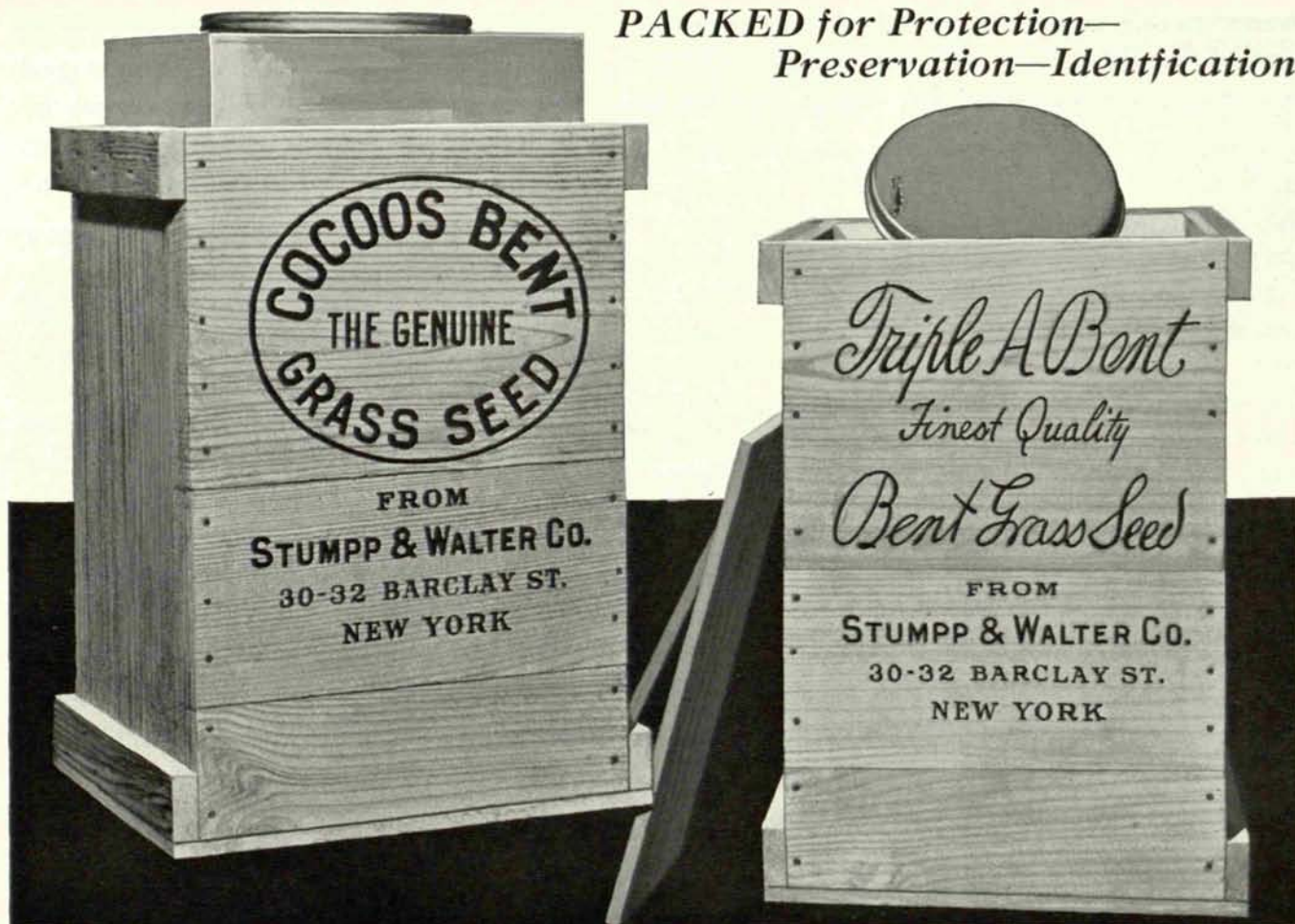
FERTILIZING

THIS is a part of greenkeeping which is very often much overdone and the cause of a deal of our troubles. Over fertilization is just as harmful as not enough; many greens have been badly burned and set back by applying too heavy a dose of what have you and the sun beating down before you get it watered in. This is the experience of many of my fellow greenkeepers, and I know it. This is often the case with ammonium sulphate especially. A lighter application more often would be better and less likely to burn or discolor.

Not only sulphate of ammonia but other fertilizers which are used today in different forms are very much over used and cause an unnatural growth out of season, when most grasses should be dormant. It causes a mushy and soft blade to spring up in a hurry through having been forced, leaving the green in a weakened condition and a victim to the ravages of brown patch, and why?

A little thought and caution before you apply your fertilizer will pay you well. You must know the condition of your soil and its make-up and does it really need another dose? Or is your turf hide-bound and in need of a good massage or scarifying to loosen it up for light and air? Very often this is

**PACKED for Protection—
Preservation—Identification**



Now packed in tin canisters, enclosed in strong wooden boxes

As a means of protection in shipping, assurance of safe arrival of the seed and for protection and preservation when in your storage, as well as for clear identification, hereafter all lots of 50 lbs. or over of Cocoos Bent and Triple A Bent will be packed in tin canisters enclosed in strong wooden boxes, as shown in picture.

Two Outstanding Bents

Cocoos Creeping Bent

This is the Bent that has made California greens famous, now in use from Coast to Coast. While Cocoos is botanically known as *Agrostis maritima*, it should be borne in mind that all strains of *Agrostis maritima* are **not** Cocoos Bent.

We offer the **true** Cocoos Bent, the finest of the *Agrostis maritima* grasses—over 99% pure.

1 lb. \$2.50, 10 lbs. \$22.50, 100 lbs. \$200.00

Triple A Bent

This is a comparatively new strain of *Agrostis capillaris* that produces turf of the same beautiful color and texture as Velvet Bent. The seed we offer has been remachined for the elimination of weed seeds and has a purity of over 99%. It has been an outstanding plot at our trial grounds.

1 lb. \$2.25, 10 lbs. \$20.00, 100 lbs. \$185.00

Other Turf Producing Grasses

Grass Seed of Known Quality

South German Bent

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Kentucky Blue

Special formulas for Putting Greens, Fairways, Tees and Rough

"Golf Turf"—A new and revised edition (the 8th) of our book, devoted to the production and maintenance of fine turf, sent on request

Stumpp & Walter Co

Specialists in Golf Grass Seeds and Equipment

30-32 Barclay St., New York

needed to refresh and bring about a transformation on many greens.

BROWN PATCH

IN regard to the ever-present question of brown patch so much has been said and done that I will not dwell upon this, for as you all know it is the greenkeepers' woe; but I am sure Prof. Dickinson of Amherst College, Mass., has fully expounded this subject and truly explained everything concerning this pest. I heartily endorse and can confirm his findings as absolutely correct for I have tabulated with a recording thermograph which has proved conclusively that he is right. The only thing I can say is—keep your eyes open for its appearance, then get busy, scarify and give it the knockout.

KEEPING TAB

FOR many years I have kept a daily diary of each green's treatment and find it a great help in keeping a record without guess work, of when and how a green was treated when you top dressed or fertilized and how much was used. From this diary or record you know just how your greens have responded. It only takes a few minutes and will often stop doubling up by mistake which sometimes occurs with disaster.

TURF NURSERY

IT is good policy to have a sod nursery kept in good shape at all times for emergency to replace by patching a damaged green. It is mighty convenient when a green goes wrong and is worth the trouble.

In conclusion, I would like to remind you that it is the little details which count on a golf course. It is like the old adage—"Take care of the pence and the pounds will take care of themselves." Cleanliness and neatness are most important. How rough and ill-kept a place looks when fallen tree limbs are left lying around! And rubbish piles, tin cans, and bottles are left to litter up an otherwise well kept place. It not only mars the beauty of the course but it also detracts from the qualities of good workmanship and casts reflections upon the greenkeeper for his lack of attention to these little things which count.

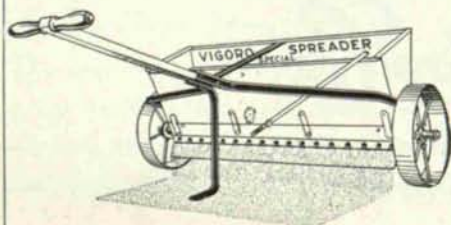
Clean towels regularly on the tees, changing the discs every day and the cups in the greens moved often, with a nice clean flag on the flagpole all go to show how well the course is cared for and is noticed more by the players in general than the bigger things on the golf course.

Feed Greens and Fairways a Balanced Diet

GREENS AND FAIRWAYS can be no better than the plantfood they receive. Only by feeding a complete, balanced diet can healthy, vigorous growth be developed and maintained.

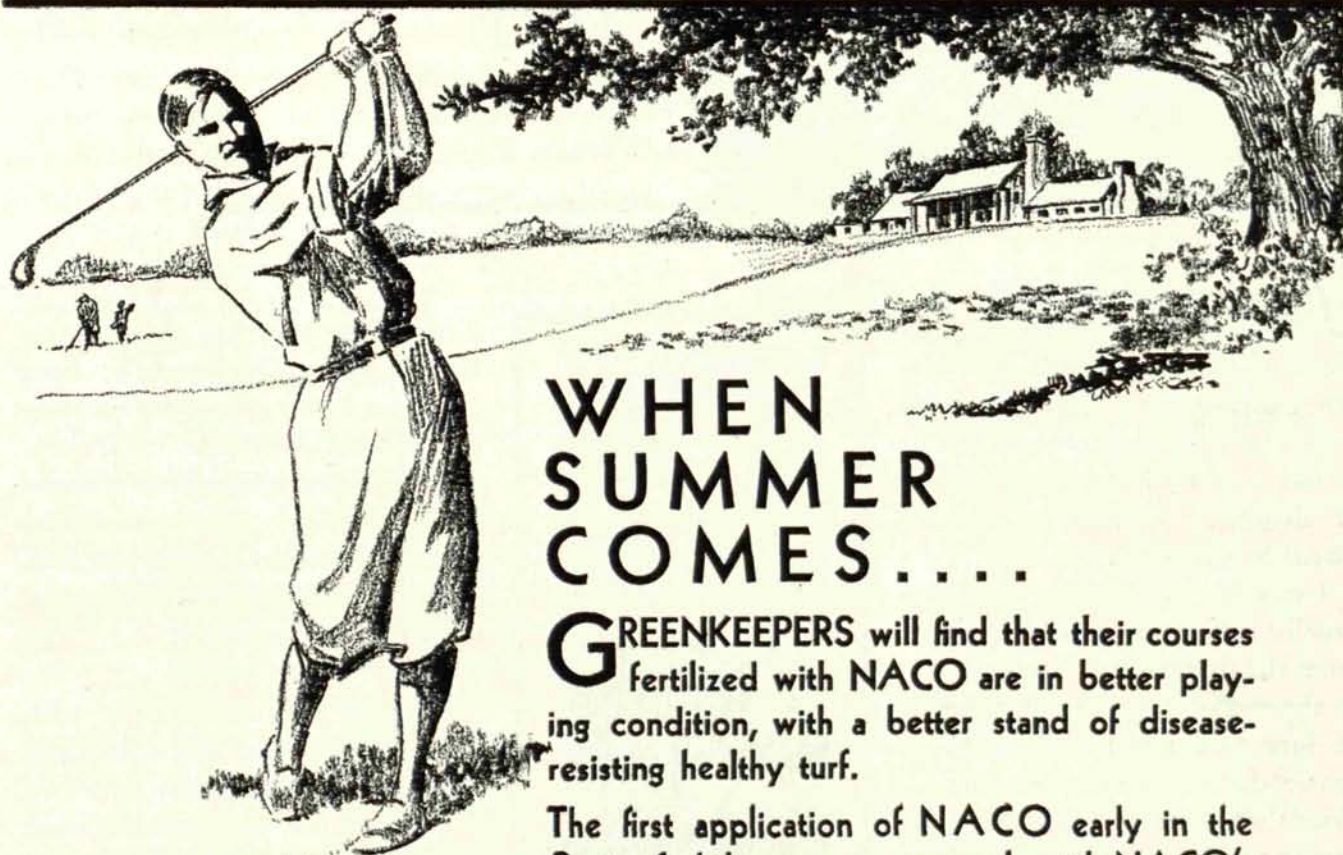
*The Vigoro Spreader
applies plantfood evenly
and accurately, saves
time, labor and money.*

*Write for descriptive
folder and prices.*



Such a diet is supplied by Vigoro and Swift's Special Golf Fertilizer. Let us give you particulars concerning a complete feeding schedule with these products. Write

Swift & Company
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Chicago, Ill.



WHEN SUMMER COMES . . .

GREENKEEPERS will find that their courses fertilized with NACO are in better playing condition, with a better stand of disease-resisting healthy turf.

The first application of NACO early in the Spring fed the grasses generously with NACO's quick-acting organic Nitrogen just when it was most needed for vigorous growth.

Because NACO is complete, its Phosphorus in the form of digested fish bones helped to build a thick deep-rooted turf and the Potash controlled the feeding of Ammonia to produce a fine stand of wear-resisting grass that does not wilt under drought and the heat of summer sun.

NACO being organic, is long lasting and economical . . . takes less per green and less per acre of fairway. Its Ammonia is in seven different forms and regular feedings of NACO will furnish a continuous supply of this most essential plant food for it is not leached by heavy rains or excessive watering.



NACO is made from Genuine Peruvian Guano according to a formula that produces the definite chemical analysis of 8% Ammonia, 4% Available Phosphoric Acid and 2% Potash.

Sold by Golf Supply and Seed Houses throughout the United States
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NITRATE AGENCIES COMPANY

104 PEARL STREET - - NEW YORK CITY

Irrigation

By JOHN MACGREGOR, *Greenkeeper*
Chicago Golf Club, Wheaton, Ill.

Read at the 5th Annual Educational Conference of the National Association of Greenkeepers of America, held at Columbus, O., February 3-6.

THERE are three methods of irrigation, namely, rainfall, hose systems and hoseless systems. Rainfall is naturally the most economical. It is also a fact that a small amount of nitrogen is supplied to the grass plants by every rain.

Irrigation by means of rainfall is usually sufficient to carry the turf from the first part of September up to the end of May. From the first of June to the end of August, we cannot depend on Nature. It is obvious then if we expect to keep the turf in a healthy condition, artificial irrigation must be resorted to. The hose system of irrigation has been practiced for years.

Up to about ten years ago, irrigation was used for greens and tees only. In those days, a greenkeeper was known by the condition of his greens; as far as that goes, he still is, but about ten years ago, progressive golf clubs felt they wanted more than perfect playing condition on their greens. They wanted perfect playing conditions also on their fairways.

The club at which I am now employed was the first, I believe, in the Chicago District, to install a fairway irrigation system. It was the last word in irrigation at that time, and for a hose system, it still is satisfactory. I had no idea how I was going to operate the outfit. I considered it was just another thorn in what I considered my already full crown of thorns.

HOSE FAIRWAY SYSTEMS OF IRRIGATION

HOSE fairway systems are operated with different size hose from 1-inch to 2-inch, with sprinklers throwing from 15 to 90 gallons of water per minute. The 90-gallon per minute sprinkler and the



JOHN MACGREGOR

The author of this story needs no introduction to our readers. He is a past master at greenkeeping and has originated many devices for the betterment of golf.

2-inch hose were the type of system we used. This system has been in use for 9 years for approximately two months every year. It is obvious, then, that irrigation is a necessity every year. You may use the system two weeks less this year, but next year you may find you have to use it four weeks longer.

My first year's experience with fairway irrigation, was a howling failure; there was plenty of water distributed, but the results far from gratifying. I had already figured my budget was going to be plenty high through this added item on maintenance, and was figuring on holding the expense down as much as possible. I had led myself to believe that the last Spring rain of account, was not the last one with the result that irrigation was started just about five days too late and the condition lasted through the whole season. I never did catch up with the condition.

NINE HOURS TO WATER ONE FAIRWAY

IT takes an average of nine hours to water one fairway, or, seven days to water the entire eighteen fairways, with a 24-hour-day operation. It is necessary then to start operations soon enough and never let a summer shower, be it of one or two hours' duration, interfere with your irrigation schedule, or grief will be yours.

When one talks of irrigation, it is well to remember that enough water must be supplied the turf to keep it in a healthy condition for eight days. Soil and climatic conditions may alter this from four to ten days. A watering which penetrates from 2½ to 3 inches into the soil is enough under