



NEWS LETTER

ADVERTISERS' NUMBER

JOHN SHANAHAN'S
SEASONABLE HINTS

CHARLES PARKER'S
A NEW SPIKE ROLLER

FEBRUARY

1931

This NEWSLETTER is published monthly by the Greenkeepers Club of New England, and sent free to its members and their Greens' Chairmen. Subscription price ten cents a copy, or a dollar a year.

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330 Waltham St., West Newton, Mass.

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"There is hardly anything in this world that some man cannot make a little worse and sell a little cheaper, and the people who consider price only are this man's lawful prey."

—John Ruskin.

We take pleasure in submitting for your approval our first Advertisers' Number. We hope that it may help you with your Spring buying. We were pleased to note the cooperation which our advertisers gave us to help make this number a success, and we heartily thank them for this cooperation.

SEASONABLE HINTS

From March 1 to early April is the most trying time of the whole year on the nerves of the Greenkeeper. Some may laugh at such a statement and say, "What has the Greenkeeper to worry about in March, the season has not yet begun?"

My answer is, the most trying time on the nerves of the soldier is just before the battle, and so it is with the Greenkeeper—the battle is about to begin, and the thought keeps continually running through his mind,—will the greens get by March without Winter kill?

I have asked what is the best thing to do to help to prevent Winter kill on greens. The best thing that I know of is, when building your greens to grade them so that they will shed all surface water.

About March 1 if there is little or no frost in the ground and the greens are covered with loose snow, then look out. At that time Spring is coming. It shows itself not only on top of the ground but also underneath. If there is no frost

in the ground and it is covered with loose snow, it sometimes creates a heat that starts the grass to grow, and we all know that when grass commences to grow it has got to have air. If not it will die, the roots soon following. So when you find your greens in that condition get the snow off.

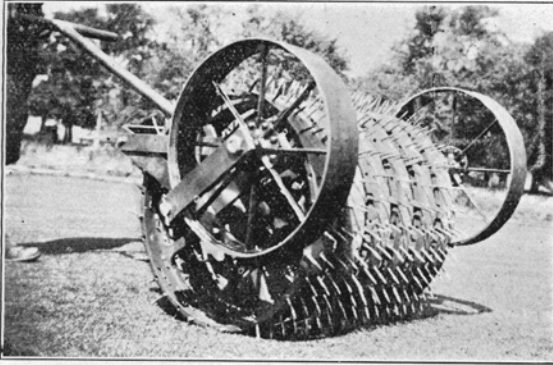
During March when the frost and snow have left the ground we sometimes get a spell of warm weather. The grass starts to grow. Quite suddenly it turns cold, followed by northeast storms, sleet freezing as it falls. I believe we get more Winter kill from this kind of storm than all other causes. If the grass is growing, and the sleet remains on the greens more than a couple of days, break it up if you possibly can. You cannot break up frozen snow or ice on greens when the wind is in an easterly direction, for the reason that it does not loose its hold on the grass, but it breaks up quite easily when the wind is in any southerly direction.

So I would advise all you Greens Committee men to keep in close touch with your Greenkeeper at this time. If he has no Winter gang, place him in such a position that when he needs help he can jump into the old flivver and get men enough to try and save the greens, and if he has a Winter gang but not enough to do the work, let him also use the flivver, for it is more than an even bet that a dollar spent at that time will save ten later, and then when Spring comes and the greens are opened for play, your golfers will not be meeting you with a grouch and a long face. They will meet you with a broad smile, pat you on the back saying, "I played the course today—it was great—the greens are in wonderful condition for this time of year."

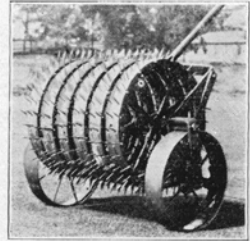
John Shanahan.

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SPIKING



TRANSPORTING

A NEW SPIKE ROLLER

Early in the season of 1929 it was decided that the Greens at Belmont Spring would be benefitted by a thorough spiking. That the Greens had become hide-bound was obvious and as we looked further along these lines it became apparent that some of the Greens would always be subject to this trouble.

An ordinary spiked roller was tried but the results were far from satisfactory. Next we had six hand tamperers (spikers) made, extra help was hired and all the Greens were spiked. Immediate improvement was noted but this method was open to the following criticism. The labor cost was high, the spikers did not stand up well, the surfaces of the Greens were roughened so severely that it made rough putting for several days and it was impossible to prevent serious tearing in thin turf. In spite of these drawbacks the Greens were spiked throughout the season, as this treatment was indicated, with improvement so obvious that we felt that we would be warranted in going ahead with experimental work towards developing a spiked roller to produce the same results as hand spiking without the drawbacks.

The Chairman of the Greens Committee of Belmont Spring, Mr. F. D. Shenk; Mr. J. F. Buel of Woburn and myself after considerable work finally evolved the spiked roller pictured here.

This roller is made up of six iron wheels 3" wide and 20" in diameter mounted on a dead axle. Placed 2" on centers are case hardened spikes, 1 1-2"

x 3-16"; these spikes are staggered 2 and 3 each set mounted on its own shaft. The angle at which these spikes are mounted and positively stopped is such that when the roller is running forward the spikes must enter the ground perpendicularly; as the roller progresses forward and the spikes leave the turf, they pull out perpendicularly also. A simple but nevertheless exceedingly clever idea—not mine—allows them to do this and absolutely prevents the ripping which all fixed spike rollers produce on the up turn. The small wheels are for turning and transporting.

The best results have been obtained with two men operating, one pulling, the other pushing, going over a Green four ways. This produces full penetration over the entire Green. The difference in penetration between the edges of a Green and in the cupping areas, the first time over, is startlingly noticeable, so we have found that four way spiking gives us equal penetration over the entire surface.

Running the roller forward produces a slight ruffling of the turf which disappears at the first mowing and as we have never received any complaints we feel safe in saying that this causes no disturbance to the players.

The roller can be run backwards, but penetration is not as good and the surface disturbance is greater but not injurious.

If this roller is operated intelligently and the operators do not attempt to make a right angle turn no tearing of the turf will result from its use.

A season's use of this roller indicates

that its upkeep is practically nothing and while we do not attempt to say that it is a cure all, we believe that it has a definite place in the equipment of any golf course where the Greens have the least tendency to become packed and hidebound.

Charles W. Parker.

NACO FERTILIZER PROVING POPULAR

"No golf course can be better than its turf," says Arthur B. Porter, President of Arthur B. Porter, Inc.; "and Greenkeepers realize that the economical program for the permanent improvement of greens and fairways is one that builds, through proper care and regular feeding, a thick, tough turf, with a healthy root system. This result can be obtained only from the constant use of complete fertilizers."

Naco is not only a complete fertilizer, analyzing 8-4-2; but is also a 100% organic fertilizer made from genuine Peruvian Guano, properly dried, pulverized and bagged for golf use.

No other complete organic fertilizer is obtainable today with an analysis more than half that of Naco. The Nitrogen is present in seven distinct types, both quick and slow acting, so that we strongly recommend its use on fairways and greens where not only quick, but lasting results are wanted.

The results obtained from the use of Naco have more than justified the name given to Guano years ago—"Nature's Finest Fertilizer."

NEW PENNSYLVANIA FEATURES

PENNSYLVANIA are featuring in their new catalog just issued, the 1931 model Fairway mowers constructed throughout of malleable iron. This has a tensile strength greater than steel, and the mower could be dropped from the top of Bunker Hill Monument without breaking. This will surely eliminate a lot of grief from broken castings, that is liable to happen with gray iron.

Another feature of the 1931 Units, is the dust-proof, universal, single ball bearing for the ground roller. On all mowers, especially Fairways, this has been a troublesome bearing, as it is right in line with the cut grass and dirt that is kicked up by the revolving cylinder. In tests made last season on a very sandy soil, this new bearing went

through the entire season with practically no wear.

Other features are an improved double race ball bearing on the cylinder and dust-proof oil retaining gear cases. It looks like a big year for PENNSYLVANIA, and anyone wanting further information, also catalogs, can secure them from: **John J. Nyhan**, 120 Cypress Street, Brookline, Mass., or **Rackliffe Brothers, Inc.**, New Britain, Conn.

Aside from the description and pictures of PENNSYLVANIA mowers, the new catalog has some interesting data for Greenkeepers, and Greens Committees.

BRECK'S

For over One Hundred Years the name BRECK has been known to all New England as the home of the best of everything that pertains to agriculture.

Everything for Farm, Garden and Lawn. There have been many changes in the past 100 years, gradual changes from time to time, but radical changes as compared to 100 years ago. One of the big changes of the past few years pertains to the Lawn Beautiful aside from producing the correct grass that go to make up the perfect lawn. The machine to mow the lawn is a vital factor. Many lawn mowers have been designed to meet many conditions that have arisen through rock gardens, golf, terraces, fairways, etc., so that today instead of the one hand lawn mower, we find it necessary to meet conditions with a great many different types of mowers.

Our experience has taught us that no one manufacturer has supplied the proper machine to care for the many individual demands. One manufacturer's mower in many cases will do a certain job better and easier than another's, and visa versa, so in order to meet all conditions we find it necessary to carry in stock several lines of lawn mowers, both hand and power.

There are at least twenty different power lawn mowers represented by our stock,—that is why we can meet all the necessary demands. Another important feature that we have found very necessary to customer satisfaction is a **Real Service Department**. We are now in a position to service all makes of hand and power lawn mowers. One of the best equipped shops in New England, together with trained and experienced workmen guarantee the best of service.

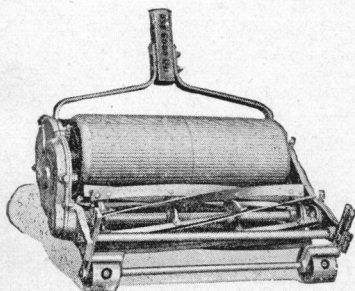
PENNSYLVANIA

Quality

LAWN MOWERS

Fairway Quint or Trio for fairways and rough. Super Roller and New Aristocrat for greens.

New Chevrolet - Pennsylvania Tractor



Write for copy of new catalog describing and picturing the 1931 models of unbreakable fairway mowers and our complete line.

Distributors

John J. Nyhan

122 Cypress St., Brookline, Mass.

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New Britain, Conn.

PENNSYLVANIA LAWN MOWER WORKS

Established 1877

Philadelphia

BRECK'S

REPAIR SERVICE

We now maintain for the convenience of our customers a **complete repair and rebuilding service** for hand and power Lawn Mowers.

Our Shop is equipped with modern machinery especially designed for this work. We will return all mowers given to us for repairs working and looking like new.

A feature of our shop is a specially designed grinder that weighs over six thousand pounds. This machine will grind your lawn mower absolutely true, so that it will remain sharp for a long time. This machine also saves your mower, as it grinds away less metal than the obsolete grinders used by the average machine shop.

Repainting is a regular practice in this shop. Our truck service is available at a reasonable charge within 30 miles of Boston, or send your machines to us by your truck or by express prepaid.

20 LEWIS WHARF, BOSTON

NACO

"A Golf Course Fertilizer"

Developed and recommended for the sole purpose of growing better turf on Golf courses, NACO is an all-organic, complete grass food fertilizer.

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NATIONAL ASSOCIATION CONVENTION

The Golf Show and Conference held by the National Association of Greenkeepers of America at Columbus, Ohio, Feb. 3-6, 1931, was well attended. Several groups took advantage of the fine weather and visited nearby golf courses.

As usual the conference part of the program was held on each afternoon, each day having strong speakers. The equipment show was well arranged, had many exhibits, and held much of interest. The Banquet and entertainment held Thursday night was well attended and was enjoyable. We left before the "Stag" party was held at midnite Friday so can give no first hand information in regard to this.

We understand that there was a general re-election of officers, and that it was decided to hold the Show at New York next year.

Some items of interest in the addresses follow:

Dr. McClure of Ohio State acted as chairman, introducing the first speaker, Tom Winton, who spoke on "Golf Course Construction in Relation to Maintenance". Choosing the site is most important, get site that is adaptable; next of importance is site for club house. The caddie house should be near first tee. First and tenth tees should be near club house. Not more than one blind hole in eighteen is advisable. First hole should be long, with few traps, or on edge, so as to get play started quickly. Two kinds of two shot holes—420-450 yards, and 360-370 yards. Take all advantage of natural features. There should be four short holes in the eighteen; 140, 160, 190, 220 yards; some over a gully if available, or on a side hill. Make one three shot hole in the eighteen, 560 yards best length. There should be no hidden traps in the fairway; draw sides of traps and bunkers well out so as to be able to cut with tractor.

Tee construction: On up hill drive drop back of tee a little, as it gives poor players more confidence. Shape should not be square, better oval or irregular. Tee should be as large as the green; repair by divot sods from nursery. Make tees so that they can be cut with three unit fairway cutting outfit.

Greens: Make as much variety as possible, good drainage, keep water out of traps, mounds should be wide at base, no mounds around greens to turn bad shots to green. Green on one shot hole may be trapped all around. Do not trap more than two out of eighteen at back of green. Have no trap or mounds in back of green on 400 yards hole. Three shot hole can be trapped more like a one shot green.

The next speaker was Martin Davey, who spoke on "Care of Trees." Trees are important; trees are living things. One cannot operate on a tree unless one knows the process of tree life. Sides of cavity should be parallel, with the ends pointed—essential to know how tree lives, grows, and functions. Proper pruning: remove a source of infection. Every limb should be cut parallel with the main limb when pruning; leave no stub. The interior of a tree is partly dormant, has no means of protecting itself, all the life is on outside. Feeding trees: must have food, trees are just big plants. In native woods Nature takes care of that by decay of plant life. Tree under lawn conditions has no food furnished by Nature, most of it is taken away—a well balanced fertilizer should be used—one that is good for foliage plant is good for trees.

The next speaker was Professor R. J. H. DeLoach, subject—"Why Minerals in Fertilizers". Some of the points brought out in a rather long and scientific paper were: Minerals relate plant life to sun's rays—they absorb sun light—plant world forms a reservoir—combines carbon of the air and the water of the soil. Chief function of minerals is to make organic matter. Special elements have special work to do. Minerals must be in soil or be put there. Average soil has 42½ tons of organic matter per acre, 50 tons in the Middle West. This is in the first few inches of the soil. There is a carbon cycle as well as an organic cycle. Carbon compounds are first made in the tissue of the plant—amount depends on capacity of plant to take up water. There are seven million miles of roots in an acre of grass. A proper proportion of mineral matter is needed. 560 pounds of water is needed to make one pound of organic matter; 262 pounds of water to make a pound of dry matter; the fine root hairs do most of the work; more mineral matter means more

organic matter. Mineral matter also offsets the root decay, helps keep the soil from getting toxic. Organics leach upward more than minerals leach downward. Applying an organic fertilizer at rate of 400 pounds per acre can only put into the soil 100 pounds of organic matter per acre. Some leaching of mineral matter is brought back by capillary action. A humus soil should have minerals also.

Ganson Depew of the U. S. G. A. Green Section Committee spoke on "Cooperation". There is no more important work in golf than that of the Green Section. Work is intended to help greenkeepers—never a thought of forcing it on greenkeepers. Much help has been given Green Section by many greenkeepers. \$42,000 was spent by the Green Section, \$9000 more than was received in dues. Some of the problems intended to take up—insects, growth of putting greens, still more on fairway work, best use of water, treatment of brown-patch, how to combat effect of drought of last year. Cooperation asked, and extended to greenkeepers.

The last speaker at the first session was Dr. T. E. Odland of the Rhode Island Experiment Station. Dr. Odland gave a fine paper on "Growing Grass Seed", similar to that given at our December meeting, and reported in the NEWSLETTER.

John MacGregor, Greenkeeper at the Chicago Golf Club, opened the Thursday session with a talk on "Irrigation". He spoke of his first system for fairways installed ten years ago, using 1-2" pipe, took four days to water nine fairways. A good watering will last about ten days, object is to keep soil in condition for at least eight days. \$20,000-60,000 to install, used elevated tank 130' high, pump with 500 gallon capacity, uses 2¼-5 million gallons for season. The hose-less or "pop-up" system is now much in favor, saves hose, labor, sprinklers. It doesn't overlap, is a one man system, one valve to a fairway. Look into this system if you are going to install, buy the best, you only buy once for a lifetime. Ground plan showing all connections is needed. Course should be well drained before a system of irrigation is installed.

Dr. Howard B. Sprague of the New Jersey Experiment Station gave an interesting talk on "Some Water Rela-

tions of Turf Plants." Plant must have water at every stage, for germination, the roots, etc. Plant roots have about 90% water. It takes from 35 to 40 pounds of water for every 100 pounds of tissue. After plant dies water still needed to make plant decay and form organic matter. Water supply is not always regular, always deficient at times; May, June, July and August the months affected usually. It takes Kentucky Blue 14-28 days to germinate, Bent 14-20 days, Red Top 5-10 days. Early Spring and late Fall have more rain than evaporation, have moisture in soil, hence best time to seed. In seeding try to keep soil moist continually. Plants take most of their moisture from the soil—not all water in the soil is available for the plants—most of the capillary water is. There should be an ideal relation of water and soil—if soil is compact the runoff is high, if open and porous it will hold a lot. If the soil takes up water the plants may use it or it may evaporate. Organic matter helps absorb water; packing soil wastes water. In irrigation drainage is of the highest importance. The natural ability of soil to hold water varies. The depth of the root system is a critical matter. Using peat, mushroom soil, etc. increases the water retaining value of the soil. Artificial drainage increases the root system. Over-watering can cause more injury than drought; excess water excludes oxygen. Bent grass roots cannot take up water as readily on over acid soils. Too much nitrogen overdoes top of plant at the expense of the roots. Actual water requirements are 8-11 gallons per day for 1000 square feet turf in May, and 20-45 gallons per day in July. Supply of water and quality of grass related—cells of grass are smaller in less watered grass. Ideal condition is to provide only enough water to make good grass without being succulent.

Edward B. Dearie, Jr. next spoke on "Drainage". Definite plans needed. Under drained courses cause of great loss to clubs of the country. Let the oxygen in the soil. Land needing drainage: 1. Removal of surface or ground water; 2. Flat land with hills around; 3. Land undulated; 4. Flat lands underlain with clay. Golf course drainage is a problem of local conditions. Drainage increases water retaining capacity of the soil; capillary action also in-

(Continued on Page 12)

BARBAK 211

Insures Perfect Greens, Eliminating the Dreaded BROWN PATCH

We are pleased to announce that we have been appointed New England Distributors for Barbak 211, a new product for the control and cure of Brown Patch. It is manufactured by the American Cyanamid Company and has been thoroughly tried out before being placed on the market. It will reduce the Greens upkeep costs as it gives a longer period of Brown Patch prevention than ordinary disinfectants.

As a preventative, Barbak can be applied dry, mixed with a top dressing of soil, sand or fertilizer and watered in. If a chemical Fertilizer is used, such as Ammo-Phos or Sulphate of Ammonia, five to ten pounds of fertilizer can be saved per Green. It can also be applied in Water Solution, by means of Power Sprayers, Sprinkling carts or Proportioners, supplying at the rate of one pound to fifty gallons of water per one thousand square feet. In using a Power Sprayer a lesser quantity of water may be used.

Barbak 211 used as a preventative should be applied at the rate of one pound per thousand square feet over a period of three weeks or a month. It may be applied all at once or in proportionate amounts at different times, such as weekly intervals. Treatments should begin in April or May and end in September or October.

We advise the use of Barbak 211 as a preventative rather than a cure because this eliminates the possibility of scars which are caused by the deadly Brown Patch fungus. As a cure Barbak 211 should be applied at the rate of one pound per thousand square feet. Use in solution or dry, after every attack of Brown Patch, large or small.

We would like every Greenkeeper to give this material a thorough trial during the coming Season. Full information sent upon request.

Mr. Percival S. Brown who established and for the past ten years had charge of The Thomas W. Emerson Company Golf Department, is now associated with HOVEY & COMPANY, 150 Milk Street, Boston, Mass.

Mr. Brown is thoroughly familiar with all phases of Golf Course Construction and Maintenance. We believe

his services will be valuable to our customers, who will find him competent and willing to help them with their problems.

Mr. Brown, co-operating with Mr. Norman Howden of HOVEY & COMPANY, will devote their entire time covering the Golf Course Trade of New England. An invitation is extended to all to pay a visit to the above Company.

Hovey & Co.

FEBRUARY MEETING

The February meeting was held at Horticultural Hall, Boston, on February 2nd. The speaker was Dr. B. R. Leach. Dr. Leach gave an interesting talk on "Fairways and Fertilizers." He said in part:

"Ten years ago not much was done to fairways, now they are important. Different organizations and the fertilizer industry have taken up this business of managing fairways. It is easy to throw money away on fertilizer for fairways. Fertilizer knowledge as applied to other crops must be readjusted when applied to fairway treatments.

Fairway cycle — as snow disappears fine turf grasses green up, from then until the end of May fine turf grasses in fairway do most growing, have less competition with weeds, hot weather, etc., most always have enough rain. From June 1st until the last of August period is characterized by droughts, spells of hot weather, crab grass and tap rooted weeds come into their own. From September 1st until end of season is another period of good growing conditions for fine turf grasses, annual weeds and grasses slow up. Hence, first and third periods are ideal periods for grass growing.

Common sense dictates that we use a system of fairway maintenance and materials that will augment these periods to help fine turf grasses, and a system which will not lap over into Summer to help crab grass, etc.

Fertilizer can be divided into three classes: 1, easily available, as nitrate of soda; 2, next rapidly available, as sulphate of ammonia, ammo-phos, etc.; 3, organics, usually more complex, must have moisture and heat to quickly change nitrogen into available form. It is obvious that no one type will fill the bill for fairway fertilization. Best arrangement would be to have a third of

GREENKEEPERS ATTENTION

When making out your requirements for the coming Season, don't forget that we are Headquarters for everything in Golf Course Upkeep. Get a copy of our new complete catalog of Golf Course Grasses and Equipment.

A FEW SPECIALS

Fancy Recleaned Grasses
Barbac 211 (Turf Disinfectant)
Koppers Sulphate of Ammonia
Emerald Cord Hose
Etc. Etc.

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the nitrogen as nitrate of soda to snap the grass into growth as soon as greening starts in the Spring. This will perhaps function for a month, and there should be ammonium salt to carry it along then. Probably best not to use organics in Spring fertilization, as there is a pronounced tendency for organic fertilizer to remain in the soil until the period for fine grass growth is over, and the crab grass gets the fertilizer.

The warm period comes along, fine turf has been fed during the best growing period; during June, July, and August the weeds are problem themselves, without feeding them.

In September the fine grasses are ready to grow, the weeds are about to fade out of the picture. Nitrate of soda should be used to put pep into the fine turf; mixture should also contain some ammonia, and organic also—this is one period of year in which organic can be applied efficiently.

The Green Section for years only recommended nitrogen; Nitrogen is essential, but we never get the best out of the Nitrogen unless it is backed up with Phosphorus and Potash. New England soils in general are deficient in Potash, and are not strong in Phosphorus. Fertilizer mixtures used Spring and Fall should contain adequate amounts of Phosphorus and Potash.

There is pronounced feeling that quickly available fertilizers are a loss, subject to leaching. All fertilizers must be in nitrate form before they are taken up by the plants. The only way in which Nitrogen can leach out in is nitrate form; any fertilizer will leach in this form if there is more than the grass can take up."

In replies to questions the following ideas were brought out by the speaker.

Where there is little trouble with weeds on fairways, organic fertilizer might be included in the Spring mixture.

Usually fertilizing is better than top-dressing.

Fairways must be very bad before reseeding is necessary.

The keynote of the English climate is freedom from extremes.

Arsenate of lead seems to vary in its control of weeds, will control chickweeds. There is much more to find out about lead arsenate, a field for much further experimentation.

Birds are probably not affected by use of arsenate of lead on the golf course, as they usually feed where they know there is food.

Weed and insect, especially ants, control are the big problems of today. There is a big chance for research along these lines.

WORTHINGTON TIME - SAVERS

The Worthington Mower Company has been devoting much time during the past year or two, to increasing the efficiency of mowing equipment and of reducing the time expended on the major mowing operations. They have met with remarkable success.

Not content with the wonderful accomplishment of the Worthington Triple and Quintuplex gang mowers which this Company some years ago gave to the golf courses of the world, it has been their effort to still further cut the time of fairway mowing. This they have accomplished with a mower they call the "Multigang". It cuts a swath sixteen feet wide. When drawn by a Worthington lawn tractor it will cut an acre in four minutes, and will completely finish the mowing of the eighteen fairways in five hours actual cutting time. This is practically cutting in half the time that is now required for this work on any courses using either triple or quint. It is claimed that the "Multigang" is as easily handled as any of the well known machines; is as simple and as flexible. It is of the "convertible" design of this company, capable of being transformed into either a triple or a quint without more than a moment's delay.

The 1931 Worthington "Scout Overgreen", which is illustrated in an advertisement appearing in this issue, is a new and perfected roller unit in gang formation. This model and the high wheel type of last year's Overgreen, give to the greenkeepers the choice of either one or the other. It has already been discovered by the present large number of users of the Overgreen, that the time now consumed in cutting an average putting green by hand—which is forty minutes to an hour—is reduced to eight, or ten minutes. All of the eighteen greens may be cut in four hours actual cutting time.

The Worthington Company has been pleased to find that these time saving machines are not as a rule made the excuse for discharging men, but merely for differently distributing their activities. Instead of having so large and unbalanced a proportion on the greens

THE WORTHINGTON "SCOUT OVERGREEN"



A new and perfected roller unit in gang formation.

A product that carries every improvement that long tests and many leading greenkeepers could suggest.

Leaves no mark on even the most delicate turf and is of such amazing efficiency as to be out of the reach of competition.

Has a total cutting swath of nearly four feet.

Will cut an average green of 6000 square feet in ten minutes.

As a time and money saver nothing approaches this performance.

Eight blade high speed reel.

Newly designed grass boxes catch all of the cut grass, wet or dry.

For going from green to green the units rest upon rubber tire carriers.

The "Overgreen" can also be supplied with cutting units of the high wheel type.

Although cutting the greens is known to be the most expensive operation in golf course maintenance the adoption of the Worthington "Overgreen" reduces this cost to an almost negligible quantity.

No club or greenkeeper in these days can afford, from an economic standpoint, to disregard the claims of this great time and labor saver.

The Worthington gang mower was first on the fairways and is first on the greens!

Write For Full Particulars To The
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and fairways, the men who are released from these jobs are more advantageously put to work on the many things about the course so often now completely neglected. The great advantage in this reassignment of the force, made possible by these Worthington time-saving machines, is found particularly in the preservation or improvement of the standard of general upkeep, without any increase in the payroll.

In these times of retrenchment the Worthington Mower Company feels that the great danger to the golfing interests of the world is that the present high standard of our courses may suffer. At all hazards this should not be permitted. With the falling off in the condition of the courses there will follow a corresponding falling off in the interest attaching to the game itself.

National Association Convention

(Continued from Page 7)

creased. Soil aeration is of much benefit, Winter-kill is less. Benefits of drainage—golf course equipment can be used earlier in the season, 35-50 days increase in play.

“Poisons in Limed and Unlimed Soils” was the subject of Prof. J. W. White of the Pennsylvania State College. The continued use of sulphate of ammonia and ban on lime has caused much trouble. Phosphoric acid and lime are needed. Ideal pH from 5.6-6.5. Phosphorus should be added each year, also limestone. Limestone is preferable to hydrated lime. Bent can use ammonia, also is strong feeder in calcium. Nitrification is lessened when greens are rolled. Excess of sulphate of ammonia reduces nitrification. Arsenate of lead increases nitrification, sometimes as high as 40%.

Dr. B. R. Leach closed the afternoon program with a talk on “This and That”. He took up the problem that the greenkeeper must sell himself to the club, must not have an inferior complex, must talk, think, and dress the part; no longer a foreman, but has a profession and must act professionally. Greenkeeper is purchaser for greens department. Service Bureaus have been stumbling blocks and are very much on the decline. The Green Section has not functioned as it should; greenkeeper has been ignored in this as in Service

Bureau. There has been no chance for the greenkeeper to say what he needs or wants; would do much better if they consulted the greenkeepers more. The greenkeeper's chance for advancement depends on his control of his club.

Professor Lawrence Dickinson gave a fine talk on the “Greenkeeper and His Chairman” to open the Friday session. He as usual brought out many fine points and his address was finely received.

Joseph Williamson based his talk on “Practical Greenkeeping” on his forty years' experience. He brought out that since the advent of creeping bent and many other modern things the greenkeeper has been in “hot water”. The greenkeeper must be a general to handle his men, a master of arts to show them how, a housekeeper to keep his course in shape, and in fact must be a miracle man—a genius. Should have up-to-date labor saving machinery. Often the policy of getting by with old worn out equipment for a while most always costs more than getting new. If capable, and a diplomat, a greenkeeper can often get all equipment necessary. Should have work-shop, a house for his tools. A compost pile is next in importance, better covered so that the men can work in rainy weather. Compost has been neglected but is coming back. Compost dressing covers a multitude of sins. In dressing greens, load compost into coal baskets into the truck, then there will not be so many unsightly places where compost has been dumped around the greens, and if it rains can be easily put under cover. Old fashioned methods may be of much help. Professor Dickinson's method of large brown-patch control heartily endorsed.

E. W. Doty, Treasurer of the Cleveland Golf Association gave an interesting talk on “Bookkeeping for Golf Courses.” Bookkeeping different from cost accounting. Bookkeeper should know something of the different things used by the greenkeeper. Keeping costs up to the greenkeeper while writing the history of the maintainence is up to the bookkeeper. If the greenkeeper keeps the cost he knows what has been done. Depreciation should not be used in the history of maintainence. The greenkeepers job is the work necessary to keep eighteen holes of golf ready at all times for play. Many clubs have charges of from \$100 to

\$300 per hole in excess of actual expenses in maintenance. In comparing courses or costs, consider Service, such things as tee towels, stands, benches, etc., even roads.

The Forum over which Professor Dickinson presided completed the program.

(A report of Prof. Dickinson's talk and of the Forum will be given in the March issue, as copy did not arrive before going to press.)

Carlton E. Treat.

TORO NEWS

The NEW ENGLAND TORO COMPANY of NEWTON, MASS. has announced in their 1931 issue of catalogue a number of improvements to the TORO line as well as many new machines. We understand that a copy of this useful booklet has been sent to every Greenkeeper on record in the New England district. If you have not received a copy, then we suggest you drop a line to them requesting same.

Among the changes noted we find—a general downward trend in prices—an entire change in the roller frame—transport trucks with the compost machine at no extra cost—roller bearings in the Silver Flash mower drive wheels—numerous refinements on all articles.

New additions take in the Power Roller for newly sodded greens, tennis courts, cinder walks, paths and smoothing spring frost upheavals.—A gang mower attachment for the ever popular Park Special power mower, this makes the Park Special practical for tees, approaches and lawns.—The complete line of power mowers may be had now with a riding cart.—An entirely new unit, The TROJAN, has been announced. This unit has been carefully tried in other fields before announcing it to the trade. It embodies these new features, a six blade reel, chrome vanadium steel in reel and bed knife, double lip bed knife, single throwout for gearing, shorter wheelbase, larger rear roller, longer studs on drive wheels, notched rear roller adjustment reading, drawbar attachment on side frames and below center of reel, gearing guaranteed for life of mower, and all of this at a lower price than any previous TORO 30" unit.—A new attachment known as the renovator for loosening hard turf

may be attached to any Park Special. This has filled a need.—The most spectacular new addition is the TORO Knockabout, a three wheeled gig for quick and cheap transportation about the links. At first this was considered somewhat a joke but the TORO factory men advise that an entirely new slant was received after a large number of Greenkeepers in the Twin Cities used it for a few days each. They have reported that changes in holes, towels, sprinklers and odd jobs can be quickly and efficiently accomplished with this machine. The New England Toro Co. advises that they will loan a demonstrator to any of our members who wishes to demonstrate to himself or his chairman its utility.

The New England Toro Co. advises that they have a most complete line of equipment, fertilizer, chemicals, hand tools, accessories and sundries now ready for distribution to our members. They are one of the pioneer Golf Equipment houses in New England, the company is owned entirely by New England taxpayers. They are but one of the many examples of a successful business owned and operated within and for New England.

We have received word from Mrs. E. E. Pattison, Director of the International Seed Service, that all lots of Chewings Fescue seed so far tested have been extremely low in germination, and their use would not be warranted this Spring. Mrs. Pattison writes:

"Present stocks of Chewings Fescue are showing very low germinations and this as well as other seeds requires more scientific consideration this year than ever before. Due to the fact that no attempt is made to determine the species of individual seeds of fescue, there will be some mixing of Chewing Fescue and European Fescue and this mixture will be sold as Chewings. We have already seen evidence of this. The reason for the mixing is obvious, European Fescue having a very high germination and furthermore being very much lower in price. As you know, the common European Fescue imported into this country is really a mixture of Red, Sheeps and Hard.

"There are quite a few parcels of old and uncertain bent seed which were brought in prior to the duty that are now being offered at bargain counter prices, but such seed is the most expensive seed in the long run."

NEW CONSTRUCTION AT TATNUCK C. C. THE PAST SIX YEARS

As most of our greens were giving us considerable trouble with Winter-kill and heaving, due to faulty construction chiefly, my Greens' Committee in 1925 decided to make a start by reconstructing the third green. It was planted with creeping bent stolons, Virginia strain. As the old green was poa annua, after planting this green I found poa annua to be germinating again very strongly, some seed no doubt having been left in the soil. This spread itself so rapidly that it was impossible to remove it. This was a great disappointment to me, but later I was thankful that poa annua had come in, as the Virginia bent alone would have been a failure.

The following year we reconstructed the eighth green. This was also planted with Virginia bent. These greens now have from 30 to 40% poa annua, and make a fairly satisfactory putting surface here.

In 1929 we reconstructed the first and fifth greens. The fifth was also planted with Virginia bent. The first was planted with the so-called Latvian bent, creeping bent stolons. This bent was a wild strain, captured by me here, and propagated by stolons. Any greenkeeper who has visited the Massachusetts Agriculture College at Amherst will know how Latvian bent originated. Its texture and color are comparable to Metropolitan bent. It seems to give a satisfactory putting surface. I topdress these creeping bent greens once a month. I find that stolon greens require considerable more care and topdressing than seeded greens, hence the upkeep is much more expensive, and for this reason I prefer seeded greens.

Last Fall it was decided to reconstruct the ninth green. This time we are not putting in stolons, but are going to use some of the sod from the old green, and get the rest from the turf nursery, which was seeded with South German mixed bent. The turf from the old green has been removed, and laid earth side down in the rough; in this way it remains in good condition through the Winter to be relaid in the Spring.

John S. Latvis.

The Rogers & Hubbard Company of Portland, Conn., manufacturers of a general line of fertilizers for more than fifty years, have recently developed a complete fertilizer treatment for Golf Courses. They simplify the problem of Golf Course Fertilization by furnishing two complete mixtures, one for Greens and one for Fairways. These mixtures will replace the large number of materials which have formerly been used, none of which in themselves met the situation permanently because they were not complete fertilizer treatments.

It is generally recognized that most fertilizer materials have certain undesirable qualities for Golf Course Fertilization. Some may increase worm casts, others may develop too much soil acidity, while others may tend to bring in clover or weeds, or have an undesirable odor. It has been the aim of this company, not only to develop formulas in which the right kinds of plant food were supplied in proper proportions, but to so balance the materials used, that these undesirable qualities would be modified.

Two different formulas are necessary because the intensive development of a bent grass turf for greens requires a different fertilizer treatment than a fairway turf developed under less intensive conditions and made up of different grasses.

Both of these mixtures are the result of extensive research and combine the recommendations of leading turf authorities. Further information may be obtained by writing to

The Rogers & Hubbard Company,
Portland, Connecticut.

There is a possibility that many are turning too strongly to the inorganics this coming season. It should be remembered that there still is a place for the organic fertilizers that no inorganic can fill, and greenkeepers should beware of the same trouble which many have experienced already by using inorganics alone.

We have recently heard of a new fertilizer containing an 8-8-4 ratio, with the nitrogen supplied by dried blood, nitrate of soda, sulphate of ammonia, and cottonseed meal, two units each. How does this sound to you?

GRO - FAST
Fertilizer
FOR GOLF GREENS

Here are two mixtures which will solve your Fertilizer problems. The formulas are based on the latest developments in the fertilization of turf grasses.

Write for further information.

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Write for price list or send specifications where large quantities desired. Prices reasonable.

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Announcement

Due to change in policy of The Thos. W. Emerson Co. I resigned my position with them Feb. 1, 1931.

I am now associated with Hovey & Co., 150 Milk St., Boston. This company specializes in golf course supplies and I feel that through my association with them I can better serve my customers.

I thank all my friends for their past co-operation and hope for a continuance of their business.

Faithfully,
PERCIVAL S. BROWN.

SPRING FERTILIZATION

The damage by the prolonged drouth of the past season will be partially overcome by extensive spring fertilization on fairways.



A great deal is now being said and written as to the merits of inorganics as well as organics. It is our opinion that a definite use does exist for both types and we have accordingly arranged our stocks.

Sulphate of Ammonia

We are supplying the regular 25% Sulphate at current prices. This material has been used for many years and its benefits are well known.

We are also selling **Koppers Velvet Lawn**, a more refined Sulphate which is packed in moisture proof bags and remains dry and fine.

Superphosphate

Superphosphate of both 16% and 20% analysis is now being carried by us.

Milorganite

Milorganite has already been accepted by many Greenkeepers as a very satisfactory organic fertilizer. Our sales for 1930 were some 20% in excess of those of 1929. We firmly believe that this material has a definite use on every golf course where an organic source of nitrogen is desired.

Milorganite is a uniform material chemically and physically. It is free of weed seeds and harmful bacteria of all kinds. Odorless—easy to spread—will not burn—inexpensive to use.



Ammo-Phos



We believe the Ammo-Phos B as produced by the American Cyanamid Co., to be of the highest quality on the market. The analysis is 16½/20. That is 16½% nitrogen (20% ammonia) and 20% available phosphoric acid. It is clean, dry, granular—a superb material to handle and apply.

When making up your fertilizer estimate for this spring, send a list of your needs to us. We will quote you delivered to the club grounds when shipped by truck or freight prepaid to your depot if shipped by freight.

“Sedgepeat”, nature’s product, a perfect soil conditioner.

“Charcoal”, MacKellar’s grade T, powdered.

Write For Prices.

NEW ENGLAND TORO CO.
247 NEWTONVILLE AVE., NEWTON, MASS.
Phone Newton North 7900 - 7901