

Bright Future Predicted for Greenkeeping Profession

President Morley, in Opening
Address, Sounds Progressive
Keynote for the National
Association

*Address delivered by President John Morley at
first annual convention, Hotel Sherman, Chicago,
March 26, 1927.*

TIME will not permit me to go into all the details relative to the formation of this new association. The first issue of *THE NATIONAL GREENKEEPER* has given you full particulars. But I will state that the corner stone was laid at the beautiful Sylvania Golf Club, Toledo, Ohio, Monday, September 13, 1926. We were honored by having Doctor J. W. Harts-horn, chairman of the Toledo Green Committee, call the meeting to order, with a splendid speech of encouragement and endorsement of the new association.

We have now assembled to dedicate this organization, select its officers for the ensuing year and adopt a Constitution and By-Laws to govern this association.

I hope and trust that God will guide you in your deliberations, and that we will be able to adopt progressive legislation that may be a credit to the welfare of greenkeeping and the golfing fraternity in general. Being human we will undoubtedly make mistakes. But being progressive we will endeavor to correct them.

In bringing this body of greenkeepers together I desire to state that it has not been the work of any one person. We were favored by selecting officers and executive committee from all parts of America, and from golf courses that are nationally known. Their counsel and advice in outlining and directing this temporary organization is evidence to the character and ideals which we will endeavor to obtain.

Founded on Justice

This organization will be founded on justice, faithful brotherhood and generous benevolence, which should teach us human brotherhood and belief in love as the Holy Grail of life, and belief in a friendly handclasp, in cheerful comradeship, and in the love that lights a lamp for those that walk in the dark. Let us believe in clean speech, pure thoughts, high aspirations and the glory of doing our duty, that there is a silvery lining to every cloud, and that good is the center of all things, animate and inanimate. Let us believe in work as the remedy for worthlessness, and that fresh air, exercise and sleep are the best medicine for mind and body.

Let us believe that we are here to do good to others and that we succeed only as we help them to be happy. Let us realize that we journey this way but once, and that it is our duty to pluck rocks out of the paths of others and plant seeds of flowers that may bloom for them after we are gone. That you will endeavor to see the sun rise as often as the sun sets and so live a full and perfect day.



President John Morley

The objects of this association shall be to advance the art and science of greenkeeping to cement the greenkeepers of the United States and Canada into a closer relationship with each other; to collect and disseminate practical knowledge of the problems of greenkeeping with a view to more efficient and economical maintenance of golf courses and to provide direct financial benefits to families of greenkeepers who die or are disabled.

The National Greenkeeper

It is needless to state that this publication which has been ably edited by Mrs. G. A. Farley has proved a valuable instrument in bringing before the greenkeepers of America the aims and objects of this association. But we must remember that if *THE NATIONAL GREENKEEPER* is to be kept up to date it must have support not only from subscriptions but it must rely upon information and experiences by correspondence from greenkeepers and their friends.

Employment Bureau

Since this institution was organized I have been amazed at the fact that there have been so many greenkeepers that have been dismissed and often through no fault of their own, and with no other position in sight. We propose to assist those that are worthy in getting new positions.

District Organizations

We should at all times encourage, if possible, district associations and if impossible to do so, to give outlying clubs that cannot be reached by district help all the assistance in our power. There has been brought to my attention that a few districts that are at present well organized desire to be isolated from our association. If all districts were to do this what would become of the many clubs that are situated

over 70 miles away from any district association that now exists?

For illustration I may refer you to one district that has about 14 clubs. These clubs have greenkeepers that are above the average. Their courses are nationally known. They have profited to a certain extent by close communication with one another.

Now draw a circle of from 70 to 100 miles around this district and we find about 20 golf courses scattered in every direction. Most of these courses are in a deplorable condition. There is no opportunity owing to distance and expense to get the advice of these 14 clubs that are organized.

What will eventually become of these greenkeepers unless there is a national body to take care of them and help to give them the assistance needed. One of the principal objects of this association is to take care of and assist all isolated clubs. Let us not forget that the greatest gift a man can make to his God is to be kind to some of His other children.

Outdoor Meetings

A few years ago I was invited to attend a meeting of the Cleveland District Greenkeepers Association, which was held in a small banquet room in one of the leading hotels in the city of Cleveland. After dinner was dispensed with, a general discussion took place pertaining to the general welfare of golf courses. While listening to the various speakers I realized that the best place to discuss golf problems from a greenkeeper's point of view was on a golf course. So I invited them to try it out on my own course, the meeting to take place the first Monday in May, which invitation was accepted. But it happened that the day of our first trial meeting we were greeted with a cold drizzling rain.

However, we had an attendance of 40. The following season we worked the outdoor meeting on a larger scale by having manufacturers of golf course machinery exhibit their equipment, etc. This meeting brought together about 75. The season just past we branched out further. This time we invited the Toledo and Pittsburgh districts to join with the Cleveland district at the Youngstown Country Club, the birthplace of this movement. This brought an attendance of 175, which included chairmen of green committees, professionals and greenkeepers.

The morning session brought these three bodies together and after listening to several addresses pertaining to golf course maintenance we were able to mingle together with a dinner served especially for this occasion. After dinner a tournament with appropriate prizes was held for those who desired to examine the course from a player's standpoint.

The balance interested themselves in examining the various equipment that was on exhibition from manufacturers, besides studying the various grasses on the course and nursery. Eighty per cent of those who attended this meeting resided from 70 to 200 miles from Youngstown.

Turf Nursery

Every greenkeeper for his own benefit and observation should maintain a turf nursery of not less than $\frac{1}{8}$ acre of land, for the purpose of experimenting along scientific lines, also to have on hand suitable turf to replace any that may have been destroyed.

Greenkeepers Should Learn to Write Their Experiences

Another item of importance in order to train the minds of greenkeepers and to teach them to express their observations and experiences is to induce them to write essays on greenkeeping. In order to induce them to do so, each session there should be given three suitable prizes, first, second and third for the best essay. And the three best essays should be published in THE NATIONAL GREENKEEPER. The information which they will contain will prove very useful to the younger generation of greenkeepers and some of the older ones.

In Union There Is Strength

If the United States Golf Association desires 100 per cent of efficiency and good will from the four units comprising chairmen of green committees, club managers, professionals and greenkeepers, it should endorse and encourage these four units to hold their conventions at the same time and place that the U. S. G. A. meetings are held.

These four units could hold a two days' session; the first three sessions to be held separately; and the last session to be held jointly, and presided over by the president of the U. S. G. A. This method should bring all these factors into a closer communication with one another, and I am of the opinion that if these ideas were adopted the only objection that might be raised would be that we may not be able to secure a hall large enough for such a gathering.

In Conclusion

Occasions like this are seldom soon forgotten; new acquaintances are formed and old ones renewed. Friendships are made, lasting and eternal. In the busy cares and anxieties of your lives many things may occur to engage your attention, but it matters little how deftly time may trail the

(Continued on page 36)

GOLF CLUB OFFICIALS!

If You Are Looking For
AN EXPERT GREENKEEPER

Address Headquarters, Giving Full Particulars

The National Association of Greenkeepers of America
407 Caxton Building, Cleveland, Ohio

BY-LAWS

NATIONAL ASSOCIATION OF GREENKEEPERS OF AMERICA

As revised and adopted at the Annual Meeting held at
Hotel Sherman, Chicago, March 26, 1927

NAME

The name shall be THE NATIONAL ASSOCIATION OF GREENKEEPERS OF AMERICA.

OBJECT

The object shall be to advance the art and science of greenkeeping, to cement the greenkeepers of the United States and Canada into a closer relationship with each other; to collect and disseminate practical knowledge of the problems of greenkeeping, with a view to more efficient and economical maintenance of golf courses; to provide direct financial benefits to families of greenkeepers who die or are disabled.

MEMBERSHIP

Regular and charter membership in the Association shall be confined to greenkeepers and assistant greenkeepers who have had at least three years' experience in actual work on golf courses either in the United States or Canada.

And also to greenkeepers holding the position of combined professional and greenkeeper, who have had five years or more experience in actual golf course maintenance work.

Charter members are those who joined the Association prior to the first annual meeting in March, 1927. They shall receive now and in the future during all the years of their membership a special and distinguishing membership card signifying this honor.

ORGANIZATION

The organization shall consist of a president, ten or more vice-presidents, secretary, treasurer, assistant secretary and treasurer. The president, first vice-president, second vice-president, secretary and treasurer shall constitute the Executive Committee. The president and the first vice-president shall serve in their respective offices for one year only. The second vice-president and the secretary may serve for two years, the treasurer for three years, if the members of the Association so elect.

DUTIES OF OFFICERS

President:

Shall be elected by ballot of the members from among their number at the annual meeting and shall hold office for one year or until his successor is duly elected and qualified. The president shall preside at all meetings and perform generally all

the duties performed by presidents of like organizations and such other and further duties as may be required of him by the Executive Committee. He shall act as a member of the Executive Committee.

First Vice-President:

Shall be elected by ballot of the members from among their number at the annual meeting and shall hold office for one year or until his successor is duly elected and qualified. The First Vice-President shall perform all the duties of the President in the event of the absence or disability of the latter and such other duties as may be required of him by the Executive Committee. He shall act as a member of the Executive Committee.

Second Vice-President:

Shall be elected by ballot of the members from among their number at the annual meeting and shall hold office for one year or until his successor is duly elected and qualified. The Second Vice-President shall perform the duties of the President in the event of the absence or disability of the President and First Vice-President and such other and further duties as may be required by the Executive Committee. He shall act as a member of the Executive Committee.

Secretary:

Shall be elected by ballot of the members from among their number at the annual meeting and shall hold office for one year or until his successor is duly elected and qualified. The Secretary shall keep minutes of all proceedings of officers and directors and attest the same. He shall keep all records of the Association and shall attest all instruments in writing from time to time designated by officers and directors and shall perform such other duties as may be required by the Executive Committee. He shall act as a member of the Executive Committee.

Treasurer:

Shall be elected by ballot of the members from among their number at the annual meeting and shall hold office for one year or until his successor is duly elected and qualified. The Treasurer shall keep a record of all monies, bills, notes, bonds and similar property belonging to the Association and shall be subject to the orders of the Executive Committee. He shall keep such financial accounts and records as may be required of him by the Executive Committee. He shall act as a member of the Executive Committee.

Assistant Secretary and Treasurer:

Shall be the salaried officer and clerk of the Association; shall do the clerical work, keep the books and records, collect the dues and pay the necessary office expenses. Shall furnish the treasurer with a monthly report of income and expense, and shall at all times act under the orders of the Secretary and the Treasurer, shall furnish a Surety Bond in the sum of at least TWO THOUSAND AND FIVE HUNDRED DOLLARS (\$2500.00), which shall be paid for by the Association.

The Assistant Secretary and Treasurer shall be appointed by the Secretary and the Treasurer, subject to the approval of the Executive Committee, and shall hold office until either he or she resigns or is removed. The salary of the Assistant Secretary and Treasurer shall be \$200 per month.

COMMITTEES

The President shall appoint a Nominating Committee at least thirty days before the annual meeting. This committee shall consist of five members from different districts. The Nominating Committee shall meet prior to the annual meeting and shall propose a list of officers to be elected. This list, properly certified by the Treasurer shall be submitted to the President when called for at the annual meeting.

MEETING OF MEMBERS

There shall be an annual meeting of members in the spring, as near the first Saturday in March as possible, the location, time and place to be designated by the Executive Committee. Special meetings may be called by the President upon request of a majority of the Executive Committee.

NOTICE OF MEETINGS

Sixty days advance notice shall be given all members of annual and special meetings, and said notice shall give the time, place, and purpose of such meetings.

MEETINGS OF EXECUTIVE COMMITTEE

The Executive Committee shall meet at least twice a year. First meeting shall be in the spring at the place of and immediately following the annual meeting and election, and in the fall as near the last Saturday in October as possible, the exact time and place to be decided by the President. Thirty days advance notice of the spring and fall meetings shall be sent to the members of the Executive Committee.

DUES

The annual dues shall be \$10.00 per year payable in advance at the date of the annual meeting, said dues to include subscription to THE NATIONAL GREENKEEPER, the official magazine of the Association. Members joining the Association after the annual meeting shall pay their pro rata dues for the fiscal year ending March 31 as follows:

Six months or more \$10.00

Less than six months 5.00

Members whose dues are more than sixty days in arrears shall be dropped from the Association and their rights and privileges cancelled.

BENEFICIARY FUND

Two dollars, or a pro rata amount from the annual dues of each member shall be set aside by the Treasurer and held in trust as a beneficiary fund for the families of permanently disabled and needy members. This fund shall be allowed to accumulate without disposition until the annual meeting in the spring of 1928, at which time the retiring and incoming presidents shall appoint a Board of Trustees consisting of three members of the Executive Committee to take charge of and devise proper ways and means of administering and disbursing said fund for the benefit of the needy members and their families.

Note: This clause will take effect from date of first annual meeting.

DEATH BENEFIT FUND

Each member, when he joins the Association, shall, if he so desires, pay to the Treasurer along with his dues the additional sum of ONE DOLLAR AND TEN CENTS (\$1.10) to be set aside as a Death Benefit fund. This fund goes to the widow or family of the deceased member and is paid at once upon proof of death. Notice of such death is sent to every member who contributes to the benefit fund together with another assessment of \$1.10 to replenish the fund, which is always kept intact and ready for prompt payment of the death benefit.

Note: This clause will take effect from date of first annual meeting.

OFFICIAL MAGAZINE

The official organ of the Association shall be THE NATIONAL GREENKEEPER. It shall be mailed to every member, and two dollars from each member's yearly dues or a pro rata amount shall be paid to the publishers for same.

The president has the power to suppress any article or articles which in his judgment is detrimental to the general welfare of the greenkeeping profession.

EMPLOYMENT BUREAU

The Association shall maintain an Employment Bureau for the benefit of its members. Through this bureau members of the Association will be given preference in securing help or in obtaining new positions, and this employment bureau will be advertised through THE NATIONAL GREENKEEPER to all the clubs in the United States and Canada.

AMENDMENTS

These By-Laws may be amended by a two-thirds vote of the Executive Committee at a meeting called for this purpose, thirty days' notice of same having been given, by the presiding officer of the Association.

Don't Be a Sleepyhead!

By JOSEPH VALENTINE
Greenkeeper, Merion Cricket Club, Philadelphia, Pa.

IN this article I do not intend to eulogize myself as the greenkeeper of the Merion Cricket Club, but in plain words I wish to express to my fellow greenkeepers just what is expected of them in order to become successful.

First of all a greenkeeper should make a thorough study of the natural conditions which exist in his particular locality. By this I mean the climatic conditions and the nature of the soil. Another greenkeeper might tell you what to do, or what to apply to the soil in overcoming a certain obstacle or condition which may exist. But before doing anything ask yourself, are my conditions, climatic and soil, the same? Then be governed accordingly.

Be in constant watch of the weather, because you know Nature changes often and very suddenly, and your daily work depends much upon her moods.

Face Your Own Problems

Always strive to make your course better, so that members of the club will appreciate what you are doing, and they will be proud of their club. Do not look at the worst course when you are



Joseph Valentine

having difficulties, but always look at the best, so that a feeling comes over you to surpass the other, or at least to make your course just as good as the best in existence. In order to accomplish this a greenkeeper must always be on the alert and ready to combat unexpected developments which may suddenly appear. When things seem to be going along smoothly, some unforeseen trouble may arise, and the greenkeeper must prepare to go after it like a soldier going over the top.

Do not trouble the chairman of the Green committee or the president of the club with every little thing that happens. The officers of the club usually have enough troubles of their own. Consult the chairman when you have something new

to offer which will benefit the club and improve the course. Don't load him down with stories about brown patch, grubs, etc., but get after these pests as quick as lightning, and fight them until you have obtained the results expected.

Greenkeepers Do Not Study Enough

Greenkeepers as a whole do not study



Top, Number Thirteen; Left Lower, Number Twelve Tee, East Course; Right Lower, Number Nineteen Green, East Course, on the famous Merion Cricket Club Courses, Philadelphia

enough. They have for the most part considered practical experience all that is necessary. That time is all gone by, as greenkeeping is now recognized as a science, not a hit-or-miss job that any ordinary man can pick up in a short time. No matter how long you have been a greenkeeper, there is always something for you to learn.

Many persons all over the country have remarked upon the wonderful condition of the greens at the Merion Cricket Club, but the methods I follow may not be suitable for greenkeepers in other localities to use. Therefore I am not going into details as to solving difficulties which always appear during the summer months, nor what methods to use in keeping putting greens in velvety condition. You as individual greenkeepers should know how this is done,—if not you should not be called greenkeepers. We all have different methods in handling labor, how and how often to apply fertilizers, top dressing, etc., and by studying cause and effect you can work out methods that will be sure to get results.

Let This Magazine Speak for You

We have this wonderful organization, the National Association of Greenkeepers of America, and too much praise cannot be given those who labored so faithfully to make a dream of years come true. Their dreams were ours, and now they are a reality in the form of this as-

sociation. This organization and magazine will put the greenkeeper in the place where he rightfully belongs, at the top of his art. Let everyone fall into line and let this magazine speak for you, for what you know and for what you deserve.

In conclusion let me urge you to keep on striving to make your course in every way better. Make your club members feel proud to bring their guests out to play, so that they will approach the chairman of the Green committee and say, "Our greenkeeper certainly knows his profession."

Use More Bent

Improve the bunkers, so that the outlook will be pleasing to everyone's eyes. Have first class turf all over, and especially bent grass for the putting greens, approaches, fairways and tees. Let the other greenkeepers come to see how well you are keeping your course. By setting such an example, any greenkeeper less well qualified than yourself, will go away determined to put forth his best efforts to improve his own course.

If you happen to have a first class course, keep it so. If not, wake up and make it so. Don't go to sleep on your job. Stay awake at least in the daytime, that no important duty be left undone. Success comes to him who goes to meet it.



The Clearing House



Address all questions relating to general golf course maintenance to this department. Every question answered free of charge by a committee of experts.

Mowing Greens

The mowing and sweeping or dressing up of how many putting greens averaging 5500 square feet do you find is the average days work of the man mowing greens, and do most clubs favor early mowing or later mowing with more men?

Saratoga, New York.

Assuming a man has to care for slopes, traps, tees, greens, weeding and mowing, one man will have his work cut out in caring for three greens averaging 5,500 square feet. As to the mowing work, it is always better to have this done as early as possible, so that play is not disturbed. If done late in the day, the men spend about 75% of their time waiting for a chance to cut a green.

Top Dressing

My greens have a clay subsoil, the top soil is black muck about 8 to 12 inches deep. This soil out in the open is very light and the kind that blows away. It does not seem to take water very well and our greens get hard in the summer, despite the fact that we do all of our

watering at night. What top dressing would you use to help these greens hold moisture? These are all Metropolitan Bent.

Lansing, Michigan

If your greens are not tile drained, they evidently should be. Top dressings of 50% sharp sand, 25% well rotted manure and 25% loam, are recommended. Also two dressings of clean granulated charcoal during the season, one in spring and another in the fall, at the rate of 150 pounds per average sized green. Late in the fall, when the course is closed, a light application of sharp sand will be beneficial.

Fertilizing Old Trees

I would thank you if you would get some information for me in the feeding of old trees about 100 years old.

Nashville, Tennessee

In fertilizing an old tree the same practices should be followed as in fertilizing a young one. It is of prime importance to get the soil under the tree in good physical condition. This can only be done by cultivating with

spading forks, rakes or in some cases even plows can be used. The best method to follow is to mix thoroughly with the soil fertilizer of organic origin. To supply nitrogen nothing surpasses dried blood, to supply phosphorus nothing surpasses bone meal, to supply potash wood ashes and muriate of potash can be used, although it is not essential because the supply in the ground and the application of manure ordinarily supplies sufficient potash for the tree to grow vigorously and there is no particular advantage gained by putting these different materials at different depths in the soil. Place them as near as possible to the feeding roots and thoroughly mix them with the soil.

For a tree 100 years old 2 to 3 yards of manure, 40 to 60 pounds of dried blood together with 100 to 150 pounds of bone meal can be used most effectively.

After the operation is completed sod or reseed ground as desired.

Brown-Patch

Late last season several of our greens had a bad attack of large Brown-Patch. We gave a rather late treatment of "Semesan," but it seems that it was too late in the growing season for the greens to show much recovery. These greens are all high and well drained and are two years old. What treatment would you give this spring?

Lansing, Michigan

Greens treated late in the fall which did not respond to the Semesan treatment, should be top dressed the following spring, followed by an application of sulphate of ammonia or Ammo-Phos, at the rate of two pounds of fertilizer in fifty gallons of water to each 1000 square feet of green. This application should be repeated in two weeks or a little more.

Bi-Chloride of Mercury (corrosive sublimate) applied for the eradication of earthworms, also has a tendency to prevent Brown-Patch.

Fertilizing Young Trees

In transplanting young trees is it necessary to mix some fertilizer with the soil?

Nashville, Tennessee

In placing soil for the reception of newly planted trees it is well to mix either compost or well rotted manure in the soil.

The tree is planted the size of the hole depending almost entirely upon size of the root system which is to receive it. In planting the average size nursery tree, that is one about two inches in diameter and twelve to eighteen feet tall the hole should be dug about 4 by 4 by 3. The bottom 2 feet can be filled with this rich mixture of top soil together with manure or compost and the tree put in place and similar soil placed on top. It is not particularly advantageous to use quick available fertilizer such as sulphate of ammonia, nitrate of soda, because ordinarily these will get away before the tree is able to absorb them from the soil.

As time goes on, THE NATIONAL GREENKEEPER will publish some interesting figures, with detailed informa-

tion showing why this variance in golf maintenance costs exists.

Pruning Transplanted Trees

In transplanting young trees is it necessary to prune the tops of the trees to make up for the roots that are cut when lifting?

Nashville, Tennessee.

In transplanting young trees it is necessary to prune the tops to make up for the roots that are cut when the trees are lifted. In pruning the tops great care should be taken so that all the main and leading branches are preserved in their entirety.

Following, one-half the top can be removed without damaging the branches which are the so-called leaders. Pick out the branches which are the least desirable and can be the best spared without material damage to the shape or beauty.

Cut its branches flush with the parent stem from which they arise. In this way no dead or diseased broken stubs are left, but clean wounds which will heal quite rapidly in a comparatively short time.

Maintenance Costs

Have you any records of maintenance costs, men employed, etc. for 18-hole golf courses, exclusive of club house costs?

Saratoga, New York

There is no method of cost accounting that is standardized to any extent among golf clubs throughout the country. The cost of maintaining an eighteen-hole course varies so greatly that it is impossible to set any sum which could possibly govern the expenditures of eighteen-hole courses in general. Some courses spend \$15,000 per year and others \$25,000. The demands of the members must be satisfied, and these demands vary in cost of maintenance with each individual membership. Some experts claim that eighteen holes should be maintained at about \$1000 per hole, but the club located well in town, having to pay for city water, for labor at a city wage scale, and possibly even suitable top soil for the putting greens, often shows a higher cost per hole than this.

The number of laborers per eighteen holes also varies; some greenkeepers find fourteen to fifteen men necessary during the playing season, and others manage with ten to twelve.

CONVENTION PHOTOGRAPHS

Through special arrangement with Kaufman & Fabry Co., commercial photographers of Chicago, photographs of the annual convention and the members of the newly elected Executive committee for 1927 as reproduced in this issue may be purchased by readers of the GREENKEEPER.

A large 12x20 picture of the meeting is priced at \$1.50, and size 8x10 of the Executive committee at 75c.

Please send orders accompanied by either money order or check to Association headquarters, 407 Caxton Building, Cleveland.

The A B C of Turf Culture

Lime in Sand, Soil or Water Often Overcomes Acidic Properties of Sulphate of Ammonia

By O. J. NOER

CLOVERS are lime-loving plants and do not grow well on acid soils. This fact makes it possible to rid greens of clover, because the bent grasses appear to thrive on soils sufficiently acid to discourage clover. Acid producing fertilizers, such as sulphate of ammonia, are commonly used on greens to create conditions unfavorable to clovers and weeds. Yet in many instances this treatment has not been effective.

Soils Become Acid Slowly

Soil acidity develops slowly. Soils have a remarkable power of resisting change and hence acidity is slow in asserting itself. Loam and clay soils possess this power of resistance to a marked degree and develop acidity more slowly than sandy soils. One application of sulphate of ammonia is not sufficient to create the conditions desired, and it is only when repeated applications are made that a neutral or alkaline soil develops the desired acidity.

Lime Often Added to Greens in Sand, Soil or Water

In many instances, particularly in limestone regions, the sand and soil used in top-dressing mixtures contain sufficient lime carbonate to entirely overcome the acid producing power of the small amount of sulphate of ammonia used. The local water supply in such regions may contain sufficient lime to produce the same result. Since it is not possible to increase the rate of application of sulphate of ammonia without danger of injuring the turf, care must be used in selecting sand and soil for top-dressing use if acid soils are desired.

Last fall, casual inspection of a sand used in top-dressing mixtures, showed the presence of lime rock particles. This sand came from a pit which supplies large quantities of sand to the Chicago district. Upon analysis it was found to contain 20 per cent lime carbonate. Each time a green received 500 pounds of this sand in the top-dressing mixture it was equivalent to applying 100 pounds of crushed agricultural limestone. The green chairman and greenkeeper on this particular course would commit murder rather than scatter a 100 pound bag of crushed limestone on the green. Yet the greens had received repeated applications of lime un-



O. J. Noer

Editor's Note: For the past four years Mr. Noer has investigated the value of various fertilizers in relation to golf turf at the Soils Department, University of Wisconsin, under a fellowship established by the City of Milwaukee.

known to either of them. The same condition obtains on many courses in the Chicago district and undoubtedly in other districts also. Soils in limestone sections often contain 2-5 per cent lime carbonate and here again the greens receive a generous dose of lime whenever such soil is used in the top-dressing. If 2000 to 3000 pounds of this soil is applied to a green it receives about 100 pounds of lime carbonate which is capable of counteracting soil acids. At least 65 pounds of sulphate of ammonia must be applied for each 100 pounds of lime carbonate simply to overcome the alkaline properties of the lime. Additional sulphate must be applied to create acidity. Such heavy applications are never made, and as a result greens do not become acid even though sulphate of ammonia is used repeatedly. If acidity is desired any sand or soil used in top-dressing mixtures must be tested for lime carbonate.

In limestone regions it is often difficult to find local supplies of sand free from objectionable lime. If acid soils are desired it may be necessary to obtain sand from other areas. Acid soils, however, are often encountered even in limestone areas.

Rough Test for Lime in Sand and Soil

The presence of lime carbonate in sand or soil can be easily detected. Whenever an acid is poured onto lime carbonate a gas called carbon dioxide is liberated. The liquid froths and the gas escapes into the air. To test a sample of sand or soil procure some muriatic acid from a nearby drug store and pour it on the suspected material. If lime carbonate is present carbon dioxide gas will be liberated and escape. The amount of gas liberated serves as a rough measure of the amount of lime carbonate present. Often a few tiny bubbles emerge at the surface even though the sand or soil does not contain lime carbonate. This is escaping air which was trapped by the liquid. In case of doubt hold the dish to the ear. If a hissing sound is audible the material undoubtedly contains some lime carbonate.

Accurate determinations of the amount of lime carbonate present can be obtained by submitting samples to

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Great Crowds Greet Golf Show

Splendid Exhibits of Golf Course Maintenance and Supply Manufacturers
Features Chicago Exhibition. Many New Inventions Displayed

MIDST the turmoil of two rival mayoralty campaign camps, flanked by milling thousands of job hunters, curiosity seekers and what not, the Chicago Golf Show battled its way through a torrid week at Hotel Sherman. The Show opened March 21 and closed March 26.

About everything that pertained to golf and many things that didn't, found a place along the winding confines of the mezzanine floor and ball rooms adjoining. At one end was an elevated stage where living models displayed gowns and Joe Kirkwood played trick shots into the curtain. At the other end was a putting course with two-bit admission that furnished amusement to the general populace. Scattered in and about this medley of noise and color were some two dozen exhibits of supplies and equipment for golf course maintenance. These displays were creditable and ably attended, but most of them were sadly crowded, and handicapped through lack of space to demonstrate what they had to sell.

One of the most comfortable places we found at the show was in an Androck chair with the Michigan Wire Goods Co. Seldom have we experienced the restfulness that the Aristocrat model gave us after the mental concentration necessary in following Joe Kirkwood's stymie shots on the exhibition putting green. Speaking of comfort, reminds us of another period of rest on a large wood bench set in handsome concrete ends in the J. Oliver Johnson Co. booth.

Jacobsen Mfg. Co.

MOWING a golf green without pushing the mower is an innovation to most greenkeepers, but the Jacobsen Manufacturing Co. of Racine, Wis., showed a putting green mower which will do this very thing. It is equipped with a small motor, and is guaranteed not to drip oil on the turf. Its speed is a little faster than the ordinary man walks, but can be instantly controlled from the handle.

Robt. F. Leesley Co.

ROBERT F. LEESLEY CO. showed nursery samples of velvety putting green turf of a quality that interested everybody "in the know" on creeping bent. Such turf as this means accurate putts for the golfer and a minimum of trouble for the greenkeeper.

A. G. Spalding & Bros.

THE products of A. G. Spalding & Bros. were effectively shown, and their booth was a busy scene all during the show. The new steel backed brushes in their Cherokee ball washer are a distinct improve-

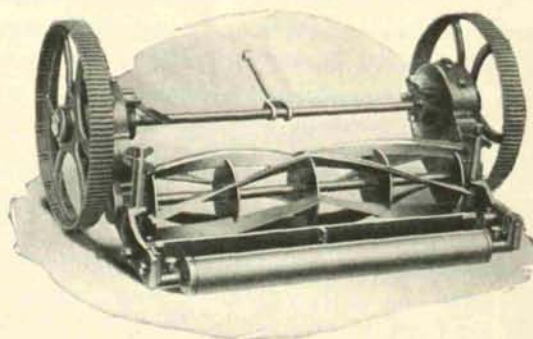
ment over the wood backed brushes used in the old model. Flags and hole cups, and several other small but important items stamped with the Spalding brand are in general use, and we were particularly impressed with their line of golf flags.

Reade Mfg. Co.

"EARTHWORMS just give up the ghost when some of our Electric Worm Eradicator touches them," we heard at the exhibit of the Reade Manufacturing Company of Jersey City, N. J. "And it also goes a long way in preventing Brown Patch," he continued. We'll give any club a chance to prove it." 'Nuf said.

Worthington Mower Co.

THE chief item of interest in the exhibit shown by the Worthington Mower Co. was their improved design fairway mowing unit. The cutting reel is entirely different from any other make, and is constructed on a new principle, one which prevents any cut grass collecting ahead of the roller. The cylinder knives are



The new herringbone design cutting reel knives which are a feature of the fairway units manufactured by the Worthington Mower Co., Stroudsburg, Penna.

set in a herringbone design, electrically welded, with no rivets whatever used in construction. The bed knife can be adjusted at any time with the fingers, no wrench or screw driver being necessary.

The unusual design of these units will be better understood by referring to the accompanying cut, showing exactly how the knives are set on the cutting reel.

Dayton Globe Iron Works

STEAMING compost for top dressing golf greens is now being done. "You can steam three yards of top dressing, screen it, shred it and mix it, in just one hour with the Dayton mixer," Mr. H. K. Anderson of the Dayton Globe Iron Works, Dayton, Ohio, told us. We waited for no more, as we had seen the original

mixer in use at the Miami Country Club, Dayton, over two years ago. Object, killing weed seeds without killing the bacteria in the soil, and reducing compost to a powdery fineness so that it can be readily brushed into the turf.

Central Tractor Co.

PUT a Centaur tractor mowing outfit anywhere. It will do the work asked of it," declared the young man approached at the exhibit of the Central Tractor Company of Greenwich, Ohio. That doesn't leave much for us to say, and as he ought to know more about it than we do, we just accept his statement as made. We do not, however, believe that he was overconfident in his remarks, because when asked if he could play golf he admitted his game was not as good as it ought to be, considering the time he had put into it. He refused to give us his handicap, but was willing to tell us how many tractors he had sold. Judge for yourself.

E. I. Du Pont De Nemours Co.

THE specter of most dread to the greenkeeper along in July and August is Brown-Patch, and if he finds in the early morning hours evidence that the evil "fairies have hung their washing out" in the form of skeins of cobwebs on his greens, he knows that it is high time to get busy and stop the inroads of the disease before it gets a head start. Semesan, one of the best known preventives and cures of Brown Patch, was discussed with Carl A. Bartle of the E. I. Du Pont De Nemours Co. Chlorophenol Mercury is the base of this product, and the company suggests that if Semesan is used as a preventive, there will be no Brown-Patch to cure.

George A. Davis, Inc.

THE varied line of golf course equipment exhibited by George A. Davis of 5299 Elston Avenue, Chicago, is too large to mention in detail, but in his ex-

hibit we found many items of interest, including the Elwin brass hole cup, the MacGregor compost distributor and brush, Premier pulverized poultry manure, the Lewis ball washer, and several types and makes of putting green sprinklers. Mr. Davis is also the distributor of the F & N Lawn Mower Company's products.

L. R. Nelson Mfg. Co.

THE Lark putting green sprinkler, operated with air pressure, was on demonstration conducted by Mr. M. A. Hoag, representative of the L. R. Nelson Company, of Peoria, Illinois. It was a treat to watch Mr. Hoag, and we came away wondering what kind of arrangement he will have at the Golf Show next year in order to show how much of an area the sprinkler will cover operated with water pressure instead of air. We'd suggest a tiny working model sprinkling a golf green in a water tight glass case. We'll bet he can do it. Any takers?

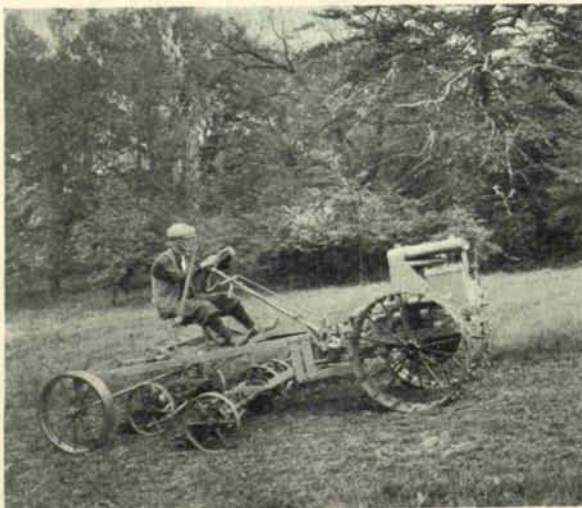
Kemp Manufacturing Co.

THE Kemp soil shredder, operating with either gasoline or electric power, was shown by R. J. Haight, Chicago district representative of the Kemp Manufacturing Co., of Erie, Pa. Mr. Haight waylaid us on the stairs to the entrance hall and said, "I hear you've got a magazine for greenkeepers." When we admitted as much, he replied, "It's the best thing I've heard about at the show. Better come around and see what I've got." So we did, and found just the shredder and nothing else.

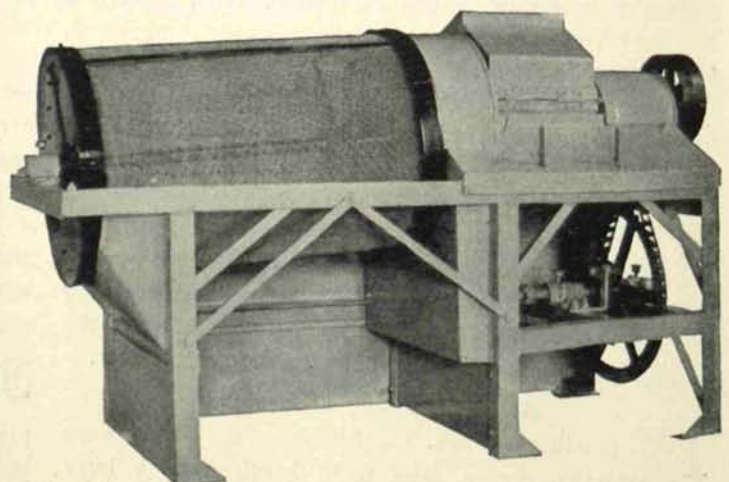
"It will handle any kind of soil, wet, stony or dry, and some operators put through as much as twelve cubic yards in one hour," Mr. Haight explained. This shredder is a complete unit in itself, and can be hauled anywhere on a golf course and set immediately to work.

Dickinson Seed Co.

ONE of the best known seed houses is that of the Dickinson Seed Company, of Chicago. Their plant is very large and well equipped with recleaning machin-



Some up-hill work with a Centaur. Manufactured by Central Tractor Co., Greenwich, Ohio



The Kemp Soil Shredder, pictured above, is a complete unit with gas engine enclosed. Manufactured by Kemp Mfg. Co., Erie, Pa.