

Bert Gee, in charge of the oldest municipal golf course in Canada, that of Edmonton, Alberta, has come to the Pacific Coast for his winter's visit, thus making local greenkeepers with work beginning to pile up green with jealousy. Course superintendents in the East have no cause to envy their contemporaries out here.

Paradoxically enough, now that the rain has come in California, greensmen have to work harder than ever to keep the color in the greens because the grass insists upon hibernating unless treated. Chemical fertilizers are in order on many courses because play is at its height and must not be stopped by heavy topdressing.

## Canadian News

By J. H. EVANS, *Golf Editor, Toronto Globe*

**A**LARGER delegation than in former years will attend the February convention of the National Greenkeepers' association in Columbus, Ohio, to represent the Ontario Greenkeepers' association, President W. J. Sansom announced at the January meeting.

Those superintendents and greenkeepers who are certain of attending the convention are Mr. Sansom, Toronto Golf club; Howard Lloyd, Rosedale Golf club; Frank Hamm, Royal York club; William Austin, Humber Valley club, William Kirby, Lambton Golf and Country Club; James McCullough, of the Scarboro Golf and Country Club and a representative from the Toronto Ladies' Golf and Tennis club.

\* \* \*

In addition to the seven greenkeepers who have made arrangements through their clubs to attend the convention, others are expected to join the party when it leaves on February 2. Mr. Sansom explained that club directorates were now considering the advisability of allowing their greenkeepers to take advantage of the opportunities provided by the National Greenkeepers' Association to study the problems with which they are confronted during the playing season.

\* \* \*

Officers of the Ontario Greenkeepers' association are pleased with the attitude taken by the clubs toward the association's annual convention. It has taken some years to convince club secretaries and other officials that greenkeepers can and do derive a great deal of valuable information from the annual gathering, and it is with some satisfaction, indeed that the Ontario association has accepted the changing attitude of the larger clubs of the Province.

Mr. Sansom believes there might have been a much larger representation of Ontario greenkeepers at the convention but for the fact that several greenkeepers failed to make the necessary arrangements with their clubs before winter and are now confronted with the fact directorates are being changed which makes it more



### BETTER GREENS at Half the Cost . .

Today, greens are cut to perfect putting condition in HALF the time at HALF the cost with the Jacobsen Putting Green Mower—America's foremost mower of its kind. Seven years have won for it great popularity among America's most particular greenkeepers and hundreds of clubs have adopted it.

#### Leaves Perfect Greens

Light, turf-protecting rollers bear the evenly-distributed weight of the Jacobsen. It mows, smooths and rolls without packing or scarring. Its high-speed reel gives a finer cut. Its special Jacobsen-made motor supplies a world of power and continuous trouble-free service.

#### SAVE Club Funds with the J A C O B S E N

Hundreds of America's leading golf courses use Jacobsen Putting Green Mowers. "One man cut 18 greens in 5 hours, 53 minutes." "Cuts labor costs 58%," says another. "One Jacobsen saved us \$500.17 first season," says another.

#### FREE Demonstration

Take nothing for granted. Let us show you. We challenge comparison. Demonstration free. You name date and place. Sales and service everywhere. Write TODAY.

#### JACOBSEN MFG. CO.

735 Washington St. Racine, Wis.

- 1 Interlachen Country Club, Minneapolis
- 2 Hawthorne Valley Golf Club, Detroit
- 3 North Hills Country Club, N. Glenside, Pa.
- 4 Potomac Pk. Golf Links, Washington, D.C.

Jacobsen Mfg. Co., 735 Washington Ave., Racine, Wisconsin.

I am interested. Note items checked:  
☐ Putting Green Mower. ☐ Tee Mower.  
☐ Approach and Clubhouse Mower.  
☐ Free demonstration particulars.

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_



Mail  
this  
Coupon  
Today!





One year from now—two, five or more—what will your mowing equipment be like? What will it have cost you? How will your course look? Have no regrets—no apologies to make—select the new F. & N. *Unbreakable All-Steel Mowing Equipment*—made by the world's largest mower manufacturers. Compare it yourself:

F. & N. *All-Steel TITAN Mowers* in this equipment are built especially for rugged service on all kinds of fairways. This year they are still lighter, more flexible, easier handled, longer lasting.

They won't break down just before a tournament or at any crucial time—they are positively *unbreakable!* Guaranteed!

Patented interlocking frame and cutter bar construction keeps the mowers in perfect alignment . . . prevents breakage . . . saves time and repair expense.

Gears are CUT from drop-forged steel—heat-treated—and turn on genuine Timken Roller Bearings in a constant bath of oil.

The blades—FIVE—are made of special analysis chrome vanadium steel—the toughest, hardest known.

Every mower is accurately machined and fitted together—not merely assembled.

BEST OF ALL—the revolving reel embodies the genuine, patented F. & N. Self-Adjusting Device.

The new all-steel gang frame, too, is even stronger, lighter, more flexible, more efficient. It fits any tractor—handles mowers in gangs of three or five. Send for full particulars.

### The F. & N. Putting Green Mower



For obtaining velvety, smooth greens so necessary today, greenkeepers everywhere say this mower is easily the finest they ever used. Self-adjusting reel bearings—Alemite oiling—etc. Rubber-tired carriage for transporting is furnished. Write for catalog today.

**The F. & N. LAWN MOWER CO.**  
RICHMOND, IND. U.S.A.  
THE WORLD'S LARGEST LAWN MOWER MANUFACTURERS



Smooth operation is permanently assured with F. & N. *Unbreakable All-Steel Mowers*—they are equipped with the genuine, patented F. & N. Self-Adjusting Device in the revolving reels. No more difficult hand adjusting or poor mowing.

difficult to secure assent to a trip to Columbus.

"A number of the clubs are taking a deeper interest in the Greenkeepers' organization and are sending their representatives to the convention," said Mr. Sansom. "If some other greenkeepers had been able to get into touch with officials for 1931, there is every likelihood they would also have been at the convention. It isn't entirely the fault of the clubs."

The delegation from Ontario is going to the convention to extract a promise that the national convention will be held in Toronto in 1933. The delegation understands that the 1932 convention will be held in New York City, but is anxious to secure the gathering of the ensuing year. The delegation will have the official support of the city when it makes its plea for the convention.

That which would be expected from Ontario Greenkeepers' Association and the city of Toronto if the convention was held in Toronto was placed before the January meeting of the greenkeepers' association by Mr. Sansom who had secured the data from Fred Burkhardt, of Cleveland, Ohio. A representative of the city's official tourist bureau attended the meeting and expressed the opinion that there would be little trouble in meeting the requirements of the National Greenkeepers' association. As a consequence, the delegation to the Columbus convention proceeds with a hearty invitation to meet in Toronto in 1933.

"We hope to bring the convention to Toronto in 1933. Insofar as the city is concerned there will be no trouble," said Mr. Sansom. "In fact, I was surprised at the amount of assistance it was willing to extend to us. There is no use of thinking of it for 1932. We left the last convention with the understanding that it would be held in New York City. We must wait until 1933."

Officers of the Ontario Greenkeepers' association for 1931 are: President, W. J. Sansom; secretary - treasurer, Bert Hawkins, executive committee, Howard Lloyd, William Kirby, Joseph Stanfield, Fred Haines and James McCullough.

## Are those critical eyes that line-up 30 foot putts expected to overlook the unsightly, worn-out cups, markers, direction signs, etc.?

### THE 1931 CATALOG OF STANDARD ALUMINUM COURSE EQUIPMENT

shows how to properly, permanently and economically dress up your course, and speed up play

**IT'S FREE**—let your conscience be your guide, and STANDARD fixtures will guide your members for years to come

**STANDARD MFG. COMPANY**  
CEDAR FALLS, IOWA

See our Exhibit at



The Greenkeepers' Show



# Mid-West Elects

By A. L. BRANDON, *Secretary*

The annual meeting and election of officers of the Mid-West Greenkeepers' Association, was held in the Great Northern hotel, Chicago, Monday evening, January 5. After a pleasant dinner and social period the boys got to work and elected the following to guide the Mid-West for 1931:

M. L. Bezek, President, Beverly Country Club, Chicago, Ill.

Alfred Buller, First Vice President, Chickaming Country Club, Lakeside, Michigan.

R. N. Johnson, Second Vice President, Medinah Country Club, Medinah, Illinois.

Fred Kruger, Treasurer, Olympia Fields Country Club, Olympia Fields, Illinois.

A. L. Brandon, Secretary, St. Charles Country Club, St. Charles, Illinois.

Directors: Fred Ingwerson, Bunker Hill C. C., Norwood Park, Ill., for one year; John MacGregor, Chicago Golf Club, Wheaton, Ill., for one year; Gus Graham, Glenwoodie C. C., Glonwood, Ill., for two years; Alec Binnie, Shoreacres Golf Club, Lake Bluff, Ill., for two years; Pete Stewart, Lake Shore C. C., Glencoe, Ill., for two years.

Reports of the various committees showed that 1930 had proved an excellent and kind year for the Mid-West Association and the members being in a somewhat prophetic mood forecasted that 1931 would prove better yet.

1930 ended with a deficiency of slightly over seven and one-half inches of precipitation and at this writing Jan. 10th the deficiency is already .47 inches—it seems that the gentleman who remarked that this is supposed to be a dry country said a mouthful. As to the temperature, it has been decidedly mild—probably the thermometer has flirted with zero a half dozen times this winter.

Our next meeting will be January 29th at the Great Northern Hotel, Chicago. Arrangements will be made for attending the N. A. G. A. conference and show—train time, fare, etc., will be discussed.

## Schardt Elected President

Al Schardt, greenkeeper, Wanakiki golf club, Buffalo, N. Y., was elected president of the Western New York District Greenkeepers' Association, at the annual meeting held recently. The other officers for 1931 are: Vice President, Frank Bulges, Municipal Links, Niagara Falls; Secretary, Arthur Stephen, Erie Downs Golf Club; Director, Robert Henderson, Buffalo Country Club.

It was announced at the meeting that William Philipson, greenkeeper at the Willowdale Golf Club for the past ten years, has accepted a new position in Grand Rapids, Michigan. "Bill" has made a splendid record in Buffalo and every member of the Western New York District Greenkeepers' Association wishes him the best of success.



*State Sealed and Certified*

## The Putting Green Grass of America

*Distributors*

THE J. M. McCULLOUGH'S SONS CO.

316 Walnut Street  
Cincinnati, Ohio

THE NORTHWEST SEED CO.

1103 Post Street  
Seattle, Wash.

THE WESTERN SEED MARKETING CO.

Post Office Box 1447  
Salt Lake City, Utah

## AT COLUMBUS

Call for your sample at the Booth of The J. M. McCullough's Sons Company and take advantage of our introductory offer.

## Seaside Bent Co.

SEATTLE

WASHINGTON

*Write distributors direct for prices*



# Purer



U. S. Gov. Standards of Testing

## Cocoos Creeping Bent

The true strain selected by Dr. Lyman Carrier.

## Triple A Bent

The best form of *Agrostis capillaris*

## Colonial Bent

## Rhode Island Bent

## Fancy Red Top

## Chewing's N. Z. Fescue

(N. Z. Gov. Test)

In offering above "Grass Seeds of Known Quality," with a purity of 99% or over, we present an opportunity of securing seeds of exceptional purity—and at lower prices, when comparing pure live seed content with that of commercial or standard grades.

We also offer *Kentucky Blue Grass* with a purity of over 97% and true *South German Bent* with a purity of over 90%.

In addition to purity, we give special care to the elimination of weed seeds, and, as all grass seeds are carried on hand in our own warehouses they are under our complete control.

Write for our prices on your requirements of grass seeds, also equipment and sundry supplies.

New Edition of "Golf Turf" (8th) will be ready about Feb. 15th

# Stumpp & Walter Co

Specialists in Golf Grass Seeds and Equipment  
30-32 Barclay Street New York City



## Tractor Wheel Spuds

The R. H. wheel spuds save time installing and removing, they are made in many sizes for any type tractor or purpose. Low price and quality has been welcomed by Golf Clubs, in use on 2,000 clubs.

Sample spud and circular on request; advise make of tractor and purpose used for.

(If your Ford or Equipment dealer cannot supply, write direct.) Immediate shipment.

**R. S. HORNER - Geneva, Ohio**

Manufacturer of

Wheel Spuds, Golf Cart, Golf Wheels for Fordson old and new type.

## Rutgers Course in Turf Management

Rutgers University, New Brunswick, N. J., will hold a short course in Turf Management, February 16-21. This course is designed to acquaint greenkeepers, members of Green committees, estate managers and others in some of the fundamental principles that underlie the successful establishment of turf on golf courses. The same principles apply to the lawns of parks and estates.

Tuition is free but a charge of five dollars is made for registration. Applications should be filled out and sent in as early as possible, to F. G. Helyar, Director of Short Courses, Rutgers University, New Brunswick, N. J. Following is a summary of the course:

Period	Subject	Instructor
<b>Monday A.M.</b>		
1 hr. 9-10	Registration.	
1 hr. 10-11	Modern turf management.	Dean J. G. Lipman
1 hr. 11-12	Soil types and plant growth.	Prof. L. L. Lee
<b>Monday P.M.</b>		
2 hrs. 1-3	Soil Physics—Structure, aeration, moisture, supply, etc.	Dr. J. S. Joffe
2 hrs. 3-5	Drainage—Natural and artificial.	Prof. E. R. Gross
<b>Tuesday A.M.</b>		
1 hr. 9-10	Principles of soil and plant chemistry.	Dr. J. S. Joffe
1 hr. 10-11	The natural supply of plant nutrients from the soil.	Dean J. G. Lipman
1 hr. 11-12	The nature of commercial fertilizers.	Prof. A. W. Blair
<b>Tuesday P.M.</b>		
1 hr. 1-2	The use of commercial fertilizers.	Prof. A. W. Blair
1 hr. 2-3	The nature of soil acidity and its detection.	Prof. A. L. Prince
1 hr. 3-4	Forms of lime and their use on turf.	Mr. H. R. Cox
<b>Wednesday A.M.</b>		
1 hr. 9-10	Fertilizer tests at New Brunswick.	Dr. H. B. Sprague
2 hrs. 10-12	Soil micro-organisms and plant nutrition.	Dr. R. L. Starkey
<b>Wednesday P.M.</b>		
1 hr. 1-2	Compost materials and composting.	Mr. H. R. Cox
1 hr. 2-3	The structure and function of plants.	Dr. H. B. Sprague
1 hr. 3-4	The characteristics of good turf plants.	Dr. H. B. Sprague
<b>Thursday A.M.</b>		
1 hr. 9-10	The climatic adaptation of turf plants.	Dr. H. B. Sprague
1 hr. 10-11	The soil adaptation of turf plants.	Mr. E. E. Evald
1 hr. 11-12	Seeds of turf plants.	Miss J. G. Fiske
<b>Thursday P.M.</b>		
1 hr. 1-2	Inspection of seed testing laboratory.	Miss J. G. Fiske
2 hrs. 2-4	Turf infesting insects and their control.	Prof. C. C. Hamilton
1 hr. 4-5	Weeds and their control.	Dr. H. B. Sprague
<b>Friday A.M.</b>		
2 hrs. 9-11	Turf diseases and their control.	Mr. E. E. Evald
1 hr. 11-12	Starting new turf.	Dr. H. B. Sprague
<b>Friday P.M.</b>		
1 hr. 1-2	Renovating poor turf.	Mr. E. E. Evald
1 hr. 2-3	Care of turf—watering, mowing, rolling, top dressing, etc.	Dr. H. B. Sprague
1 hr. 3-4	Final conference.	Dr. H. B. Sprague



## Short Course for Greenkeepers

The College of Agriculture of the University of Wisconsin at Madison, will give a short course for greenkeepers and Green committee members which will include a number of vital problems of golf course maintenance. It will cover a period of four and one-half days, from February 9-13.

The number which can be accommodated is limited to 80. Applications will be accepted in order of their receipt until the maximum number is reached. Applications must be filed not later than February 9, 1931.

A registration fee of \$10 payable when application is made, will be charged to help defray the expense involved in giving the course. There will be no other fees. Registration will take place at the Horticultural Building, University of Wisconsin, Monday, February 9, between 10 and 12 a. m.

For additional information, write to James G. Moore, Horticultural Building, Madison, Wisconsin.

### Wisconsin Greenkeepers' Course

#### MONDAY, FEBRUARY 9

- 1:30 P. M. Fundamentals in Preparing Soils for Greens Construction ..... O. J. Noer  
 2:30 P. M. Topography of the Green in Relation to Drainage and Play ..... Kenneth Welton  
 Other Drainage Problems of the Green ..... E. R. Jones  
 The Orientation of the Green as Regards the Snow Problem ..... J. G. Dickson

#### TUESDAY, FEBRUARY 10

- 8:00 A. M. What to Look for in a Fairway Mower ..... F. W. Duffee  
 8:45 A. M. Fundamentals in Grass Development ..... G. W. Mortimer  
 9:45 A. M. What to Look for in Grass Seeds ..... A. L. Stone  
 10:30 A. M. Grasses for Greens ..... John Montieth, Jr.  
 1:30 P. M. Laboratory Instruction  
     Section 1. Seeds and Weeds.      Section 3. Land Drainage.  
     Section 2. Mowers.              Section 4. Soil Problems.  
 3:30 P. M. Experiences in Growing Bent .....  
     C. T. Pedlow      Robert Zwerg      H. A. Arnold

#### WEDNESDAY, FEBRUARY 11

- 8:00 A. M. Sources of Plant Nutrients ..... C. J. Chapman  
 8:50 A. M. Fertilizing and Top Dressing Greens ..... O. J. Noer  
 10:00 A. M. Mowing Greens—Its Relation to Maintenance and Play ..... John Montieth, Jr.  
 11:00 A. M. Controlling Diseases of the Green ..... A. S. Dahl  
 1:30 P. M. Laboratory Instruction.  
     Section 1. Mowers.              Section 3. Soil Problems.  
     Section 2. Land Drainage.      Section 4. Seeds and Weeds.  
 3:30 P. M. Landscaping Problems ..... F. A. Aust

#### THURSDAY, FEBRUARY 12

- 8:00 A. M. Grasses for Tees, Fairways and Rough ..... John Montieth, Jr.  
 9:00 A. M. How Cutting Affects Grass ..... L. A. Graber  
 10:00 A. M. What the Movies Show ..... F. A. Aust  
 10:40 A. M. Traps, Their Location and Maintenance ..... Kenneth Welton  
 1:30 P. M. Laboratory Instruction  
     Section 1. Land Drainage.      Section 3. Seeds and Weeds.  
     Section 2. Soil Problems.      Section 4. Mowers.  
 3:30 P. M. The Greenkeepers' Records ..... F. R. Elwell

#### FRIDAY, FEBRUARY 13

- 8:00 A. M. The Well-Kept Course ..... John Montieth, Jr.  
 9:00 A. M. Fertilizers as Related to the Character of the Turf on Fairways ..... George Mortimer  
 9:45 A. M. How to Determine the Need of Plant Food Elements ..... O. J. Noer  
 10:30 A. M. White Grub Control ..... C. L. Fluke  
 11:15 A. M. The Control of Weeds on the Fairways ..... A. L. Stone  
 1:30 P. M. Laboratory Instruction  
     Section 1. Soil Problems.      Section 3. Mowers.  
     Section 2. Seeds and Weeds.      Section 4. Land Drainage.  
 3:30 P. M. Final Conference.



Make Plans Now For A

## SYSTEMATIC PROGRAM of FAIRWAY FEEDING with MILORGANITE

This year fairways are in special need of plant food to repair the damage resulting from the severe drought of last summer. The acute need is for sufficient nitrogen to encourage surviving grass to spread and reproduce dense turf.

You make no mistake in selecting Milorganite for fairway use. The many outstanding examples of revolutionized fairways resulting from its use in the area extending from the Atlantic to the Pacific Oceans and from Canada to Miami, Florida, prove its worth.

Start right by inaugurating a systematic program, one which meets the need of the fairways and still comes within the maintenance budget. Many clubs find this superior to haphazard methods.

We recognize the importance of efficient and economical programs. Our experienced Service Department specializes in turf fertilization and will gladly devise an effective program. Your confidence will be respected.

For further information address

**THE SEWERAGE COMMISSION**  
MILWAUKEE WISCONSIN

*Representatives will be in attendance  
at the National Greenkeepers Show,  
Columbus, Booth No. 47.*





E. W. DOTY

# Nation-Wide Authorities

Here is the complete Official Program of the 5th  
Conference at Columbus, February 3-6, 1931. N  
golf course mainten

## Official Program, Meetings, Etc.

Monday, February 2—7:00 p.m.

Exhibitors' dinner—Headquarters, Deshler-Wallick Hotel

Tuesday, February 3

10:00 A. M.—Golf Show Opens—Columbus Auditorium (Admission free)

7:30 P. M.—Meeting of District Vice-Presidents

8:30 P. M.—Executive Committee Meeting

Wednesday, February 4

10:00 A. M.—Golf Show Opens—Columbus Auditorium (Admission free)

10:00 A. M.—General Meeting of N. A. G. A. Committees—Headquarters. John  
Morley, President

10:30 A. M.—Show Committee Meeting—Headquarters

2:00 P. M.—Conference Opens—Columbus Auditorium

7:30 P. M.—First session of business meeting—Headquarters

Thursday, February 5

10:00 A. M.—Golf Show Opens—Columbus Auditorium (Admission free)

2:00 P. M.—Educational Conference—Columbus Auditorium

7:00 P. M.—Annual Banquet—Deshler-Wallick Hotel (Secure tickets at Registra-  
tion Desk)

Friday, February 6

10:00 A. M.—Golf Show Opens—Columbus Auditorium (Admission free)

10:30 A. M.—Annual N. A. G. A. Convention—Deshler-Wallick Hotel (Open to  
members only)

2:00 P. M.—Educational Conference—Columbus Auditorium

12:00 Midnight—Annual Stag Party (See Jos. Williamson)



GEORGE M. McCLURE



EDWARD B. DEARIE, JR.



PROF. L. S. DICKINSON



PROF. J. W. WHITE



MARTIN L. DAVEY



JOHN M.



# On Educational Program

Annual Greenkeepers' Convention and Educational  
ationally-known speakers will discuss problems of  
nce and management.

## Greenkeepers' Conference Program

GEORGE M. McCLURE, CHAIRMAN  
Soil Technologist, Ohio State University

Wednesday, February 4—2:00 p. m.

ADDRESS OF WELCOME—By Colonel John Morley

GOLF COURSE CONSTRUCTION IN RELATION TO COURSE MAINTENANCE—By Tom Winton, Golf Course Architect, Tuckahoe, New York

CARE OF TREES—By Martin L. Davey, President, Davey Tree Expert Co., Kent, Ohio

WHY MINERALS IN FERTILIZERS—By Professor R. J. H. DeLoach, Director of Agricultural Research Armour Fertilizer Works, Chicago

GROWING GRASS SEEDS IN AMERICA—By Theodore E. Odland, Agronomist, Agricultural Experiment Station of Rhode Island, Kingston

COOPERATION—By Ganson Depew, Chairman, Green Section committee, United States Golf Association, Buffalo, N. Y.

Thursday, February 5—2:00 p. m.

IRRIGATION—By John MacGregor, Greenkeeper, Chicago Golf Club, Chicago

SOME WATER RELATIONS OF TURF PLANTS—By Dr. Howard B. Sprague, Agronomist, State of New Jersey Agricultural Experiment Station, New Brunswick

DRAINAGE—By Edward B. Dearie, Jr., Golf Course Architect and Constructor, Chicago

POISONS IN LIMED AND UNLIMED SOILS—By J. W. White, Professor of Soil Technology, The Pennsylvania State College, State College

A FEW COMMENTS ON THIS AND THAT—By B. R. Leach, Riverton, N. J.

Friday, February 6—2:00 p. m.

THE GREENKEEPER AND HIS CHAIRMAN—By L. S. Dickinson, Assistant Professor of Horticulture, Massachusetts Agricultural College, Amherst.

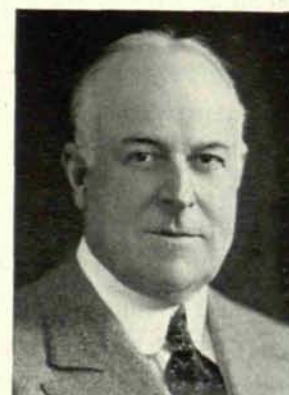
PRACTICAL GREENKEEPING—By Jos. Williamson, Greenkeeper, Scioto Country Club, Columbus

BOOKKEEPING FOR GOLF COURSES—By E. W. Doty, Treasurer Cleveland District Golf Association, Cleveland

THE FORUM—An Open Discussion, Conducted by Professor L. S. Dickinson



R. J. H. DeLoach



GANSON DEPEW



THEODORE E. ODLAND



GREGOR



TOM WINTON



PROF. B. R. LEACH



DR. HOWARD B. SPRAGUE



# Uses of Peat and Muck\*

By WRIGHT McCALLIP

*Read at the January meeting of the Central Ohio District Golf Association*

THE subject assigned for this meeting is the "Uses of Peat and Muck" to supply the lack of much needed organic materials in the construction and maintenance of our golf courses. It is a pertinent subject and one that should interest us all and by going back to the beginning we find the origin as well as the composition of the materials and will be better fitted to judge values.

Nature provides a cycle of life, growth and death followed by decay. She clears the path for the future growth of plants, animals and humans by this cycle. Unless this were the case, there would soon be no space available for life of any sort.

The first stage of decomposition is the same in either animal or vegetable matter. An animal soon starts to putrefy because its body is made up largely of water. Grasses, mosses, trees, weeds, straw and the like take longer because in dying they have dried out and must first come in contact with moisture before decomposition can set in.

Annually, as the plant growth of one season falls to the ground, it is soon covered with water from the fall rains, winter snows, etc., and by the following season has undergone partial decomposition. In many low-lying areas, this partially decayed organic matter has accumulated for countless ages and has resulted in the formation of our peat deposits which in some areas reaches to a depth of 75 to 100 feet.

The top layers of these peat deposits undergo further decomposition because the air, moisture and heat so necessary in the breaking down process have been present, while the underlying peat seems to stay in practically the same state of decay as in its early formation. The fact that this underlying peat is nearly always in contact with very cold water tells us why further decomposition has not taken place, for without heat above 40 degrees decay is impossible. Ordinary

refrigeration is evidence of this fact.

Peat, under these conditions, seems to be a material that is resistant to further decay but like scrap leather contains a future available nitrogen content. We must remember, however, that further decomposition, in either case, must so change the character of the material as to make it possible for it to give up this nitrogen content. When this change has taken place "peat" is no longer "peat," it is now "peat humus."

Muck is a peat humus that has been mixed, through the ages past, with washed in soils and consequently is an adulterated substance. Its very name implies a mass of undesirable materials and should be considered as such in construction and maintenance work. These undesirable materials have been supplied with air, moisture and heat, causing a very rapid breaking down and as a result we have a black, gummy mass of very poor physical structure due to the active peat humus being consumed. Therefore, its value as a peat humus material is a doubtful quantity and will only have a nitrogen-producing value in proportion to the peat humus which it now contains.

With a clear idea of what peat, peat humus and muck are we can intelligently consider the uses we might put them to in our construction and maintenance.

Peat, as you know, is used quite extensively by landscape architects, gardeners, florists and to some extent by greenkeepers. The only practical results we may expect to get from the use of peat is as a moisture holding mulch and an aid in the improvement of physical condition. Thoroughly mixed in the soil it will improve the physical condition but only in proportion to its fineness. To what extent the soil texture will be improved depends upon the number of soil particles that it will separate and the results are in direct proportion.



WRIGHT McCALLIP



If we are expecting the immediate availability of the nitrogen content of the peat we are bound to be disappointed for it cannot become available until it has reached that stage of decay where it is possible for the nitrifying bacteria to become active, thus forming nitric acid which combines with lime or other alkaline bases to make a nitrate.

#### USE OF MUCK A MISTAKE

**T**HE use of muck on our golf courses is clear out of the picture. It's invariably poor physical structure alone is reason enough for us to dismiss it at once as a useable material. However, it is a strange fact that its black color entices us on and leads us to believe it has wonderful possibilities. Its color is just a mask and back of it is nothing but trouble. The structure is gone and when wet, it is a mass impervious to moisture and air so vital to the activities and welfare of our nitrifying bacteria.

Some of you may be planning to use muck. Before you do, take the precaution to have an analysis made, particularly of its physical condition and note especially the speed that water will penetrate into it after it has become wet and dried. If one C.C. (15 drops) of water takes more than 60 seconds to penetrate into a dried plug of soil one inch in diameter it is a sure sign that the physical condition is poor and that its peat humus content is very low.

One sample of muck soil, that looked like it had wonderful possibilities, was examined during the past year and showed a speed of porosity of 1245 seconds, compared to the normal speed of 60 seconds. This gives you some food for thought as it is not an unusual case.

#### PEAT HUMUS HELPS BACTERIAL ACTION

**T**HE deductions to be gathered from these facts points on an organic material in a stage of decay between peat and muck as the most desirable material for use. Peat humus is such a material and is the building structure in which every important bacteriological activity takes place. It furnishes food and energy and supplies the additional air and moisture so necessary for their interrupted and ceaseless workings.

It follows that with a great amount of peat humus in the soil the greater will be the housing facilities for and a corresponding increase in the number of desirable soil bacteria. It greatly improves soil texture or physical condition; through

## IT CAN BE DONE

You can convert impervious clay or loose sand into good moisture retentive putting green soil.

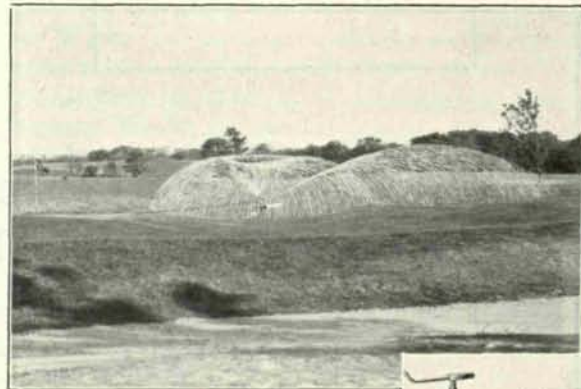
Cleve-Brand Soil Improvement **CHAR-COAL** is being successfully and economically used for that very purpose. Try a sample.

THE CLEVELAND CHARCOAL SUPPLY CO.  
3905 Jennings Road—Cleveland, Ohio

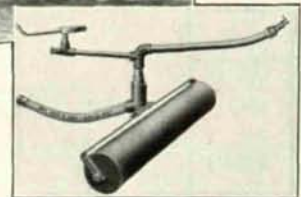
its fineness it provides mellowness; through expansion and contraction, porosity and aeration; through its water-holding power, added moisture. As a dust mulch, it conserves surface evaporation. It acts also as an insulation against sudden temperature changes, making possible a slow transition from heat to cold, or cold to heat.

There is just as much difference between peat and peat humus as there is between pig iron and steel.

Think it over.



**WHY GREENKEEPERS »  
the WORLD OVER prefer  
the LARK SPRINKLER »**



Greenkeepers in the British Isles, Australia, Canada, and in every State in the Union use and recommend the Lark because—

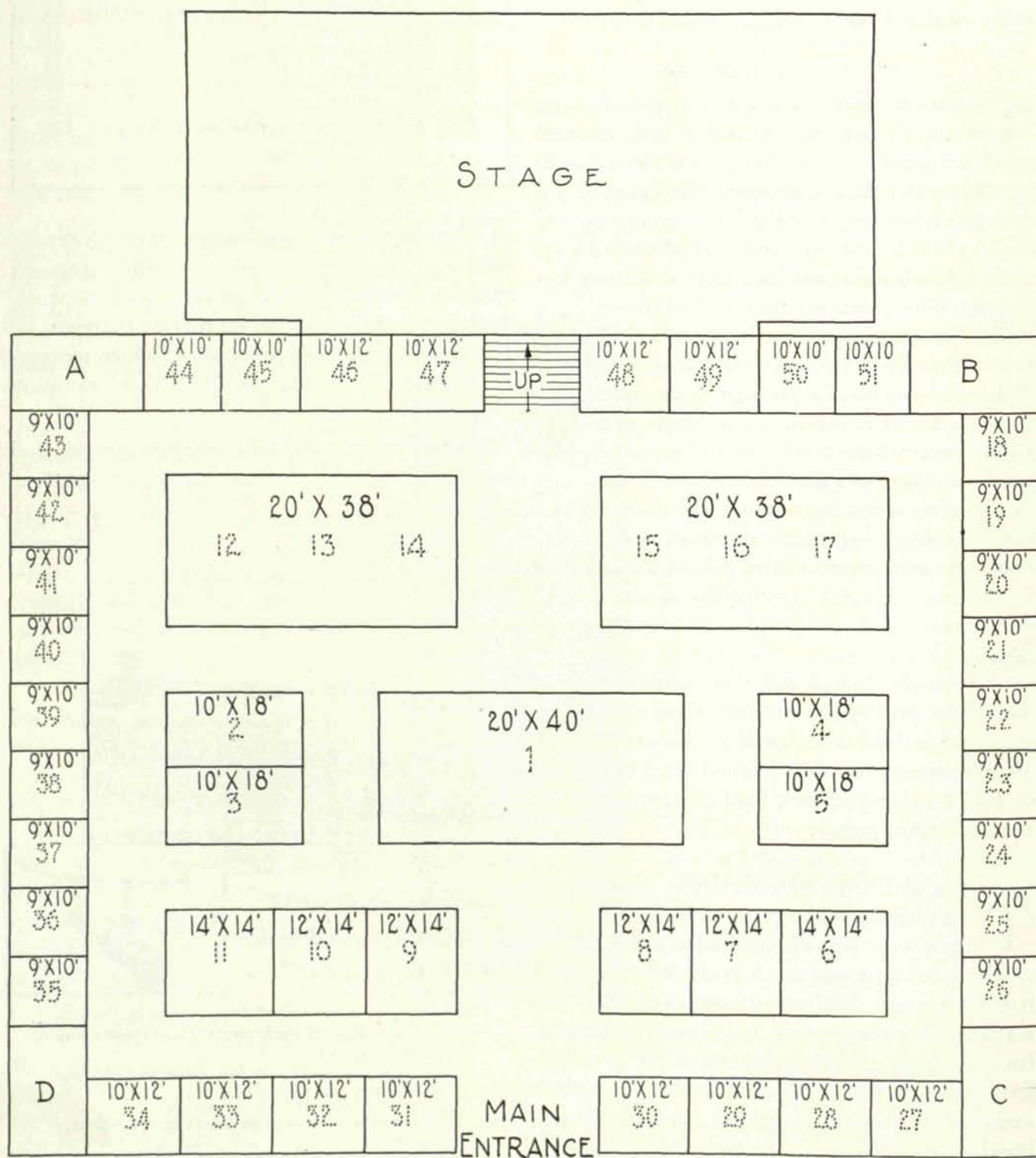
1. It covers an area up to 150 feet in diameter. (See large picture above).
2. Spreads the water evenly at all pressures.
3. Gives the grass a thorough drenching. "Better than rain."
4. Made entirely of long-lasting bronze mounted on iron roller. (See close-up view of sprinkler.)
5. A scientifically designed sprinkler at low cost.

Price, \$15 in the U. S. (Slightly higher in Canada and abroad.) Send at once for a trial sprinkler. You, too, will be delighted with the Lark!

**L.R. NELSON MFG. CO. INC. Peoria, Illinois**



# Diagram of Space—Fifth Annual National Greenkeepers' Golf Show



Columbus Auditorium, Columbus, Ohio