

fluence of gravity, and which is *unavailable* for and *injurious* to plant growth, the need for drainage is proportional to the amount of this form of moisture present in the soil.

When the supply of soil moisture is replenished by rainfall that part in excess of what can be held on the soil grains by capillary attraction becomes gravitational moisture. As the water percolates from the surface downward the thickness of the films of capillary moisture on the undivided soil grains near the plane of saturation is gradually increased until after the full capillary moisture capacity has been supplied. This of course takes no account of the relatively large amount of water which passes from the saturated surface through the shrinkage cracks, small root cavities and worm bores downward to the zone of permanent saturation.

Gravitational Moisture Content of Soils:—The gravitational water-content is directly proportional to size of the spaces and is also the difference between the total moisture content of a given soil and the capillary and hygroscopic moisture contents. If the pore spaces become too small they may be almost entirely filled by capillary moisture as is the case in the fine grained clay soils. In general it may be said that the gravitational water capacity decreases as the total amount of pore space increases, because the largest total percentage of pore space is ordinarily found in the soil having the smallest grains and the smallest individual pore spaces.

Only a very small part of the gravitational moisture in the soil is available for plant use, and the major portion of it is injurious to vegetable life. Below the plane of saturation it completely fills the pore spaces in the soil, thus excluding the air. Most authorities on soils and turf culture contend that aeration, or the passage of air through the soil is one of the most important factors of grass production. The function of air in the process of plant food manufacture within the soil is a subject needing a separate and full discussion.

Water Table:—The surface of the gravitational water in the soil, or the surface of the saturated layer, is commonly called the water table. It is also referred to as the groundwater level, groundwater in this sense meaning gravitational soil moisture, or surplus moisture.

It sometimes happens that the presence of air in the soil causes two planes of saturation. After a rain there is sometimes a saturated surface layer and a true groundwater level at a greater depth. The pore spaces of the intermediate layer of soil are filled with air which excludes the water till such a time as the air can pass out through the upper saturated layer.

Between periods of rainfall the movement of capillary soil moisture is from the water table upward. In this one particular, that of furnishing a source of supply for capillary moisture, the gravitational moisture is very beneficial.

Capillary Moisture:—In so far as plant life is concerned, capillary water is the most valuable form of soil moisture and, in fact, the only form of water which is available for the sustaining of plant growth. Capillary water is held, against the force of gravity, in the small pore spaces between the soil grains and as a thin film surrounding each individual particle or group of soil particles. Every one has noticed the rise of water in a small bore glass tube when the lower end is immersed in water, the height to which the water rises increasing as the size of the opening in the tube decreases. It is the same force, surface tension, which holds the capillary water in the soil.

Capillary-Moisture Content:—In the field the grains of soil are surrounded by connecting thin films of moisture and the finer the soil particles the greater the surface area which holds this film of moisture. This variation of the capillary moisture capacity of soils with different sized grains is illustrated by the data in Table II.

TABLE II
MOISTURE CONTENT OF SOILS

Kind of Soil	Weight Per Cu. Ft. Pounds	Pore Space %	Maximum Water Cap. %	Maximum Capillary Cap. %	Max. Gravita- tional Cap. Depth Inches in Top 4 ft.
Dune Sand	80	52	40.5	10.7	29.8
Coarse Sand	81	51	39.5	10.6	28.9
Fine Sandy Loam	83	50	38.0	18.0	20.0
Silt Loam	83	50	38.0	20.9	18.9
Clay	68	59	54.5	30.4	13.9
Muck Soil	15	80	333.0	250.0	83.0

(Note.—Percentages are figured by weights. (From "Principles of Soil Management," Lyon & Fippin).)

An idea of the amount of water held in soil by the films of capillary water, and the thickness of the film, may be obtained by considering the fine clay soil where the effective diameter of soil grains is 0.005 m.m. or less. Professor King has determined that for 1 cubic foot of such soil the area of the surface of the soil grains is 173,700 sq. ft. or approximately four acres. Water equivalent to four inches in depth over one square foot could be held in one cubic foot of this soil if the thickness of the film was $\frac{4}{173,000}$ inches, or about one-half the thickness of a soap bubble just before it expands to the bursting point.

Available Capillary Moisture:—However, not all of even the capillary moisture is available for plant use. A cer-

TABLE III
AVAILABLE MOISTURE IN SOILS

Kind of Soil	Dry Porosity %	Approximate Per Cent of Water Crops Will Wilt	Available Moisture Water Still Held in the Soil When Grass Will Wilt %	Depth inches in top 4 ft.
Dune Sand	52.2	3.0	7.7	4.6
Coarse Sand	51	3.0	7.6	5.2
Fine Sandy Loam	50	5.0	13.0	8.5
Silt Loam	50	10.0	10.9	6.9
Clay	59	17.0	13.4	7.0
Muck Soil	*80	80.0	170.0	20.5

*Assumed

(Continued on page 31)



William C. Fownes, Jr.

Executive Committee Meets at Oakmont

William C. Fownes, Jr. Made Honorary Member Convention Committees Appointed

A special meeting of the Executive committee of the National Association of Greenkeepers of America was held at Oakmont Country Club, Oakmont, Pennsylvania, on December 12. It was called for the purpose of laying plans for the annual convention and golf show scheduled for February 21-25 at the Fort Shelby

Hotel, Detroit, Michigan. Special committees appointed by President John Morley to serve during convention week were:

Committee on Law—Joseph Valentine, Philadelphia, chairman; Victor George, LaFayette, Indiana; Alex Pirie, Chicago, Illinois; W. D. Chinery, Eglinton, Ontario; C. G. Barton, Toledo, Ohio; J. O. Campbell, Normal, Nebraska; Hugh C. Moore, Brunswick, Georgia.

Committee on Appeals & Grievances—B. G. Sheldin, Cleveland, Ohio, chairman; Robert Henderson, Buffalo, N. Y.; Joseph P. Mayo, Pebble Beach, Cal.; H. Hawkins, Port Credit, Ontario; James Muir, Cincinnati, Ohio; George Wellin, New Britain, Conn.; Ford Goodrich, Flint, Michigan.

Committee on Finance—Emil Loeffler, Oakmont, Pa., chairman; E. E. Snyder, Hartsville, Ohio; Joseph T. Varn Hagen, Sr., Redford, Mich.; Charles E. Mills, Lake Mary, Florida; Wm. W. Stewart, Sawtelle, Cal.; Al Schardt, Buffalo, N. Y.; Anthony G. Wagner, Rock Island, Ill.

Committee on Golf Show—Fred Burkhardt, Cleveland, Ohio, chairman; Edward B. Dearie, Chicago, Illinois; Herbert E. Shave, Detroit, Michigan; George Sargent, Columbus, Ohio; John Gray, Sandwich, Ontario; Charles Erickson, Minneapolis, Minn.; Captain David L. Rees, New York.

Committee on National Greenkeeper—A. E. Lundstrom, Brooklyn, New York, chairman; Lewis M. Evans, Mt. Airy, Philadelphia; A. M. Esterline, Muncie, Indiana; Christopher Bain, Cleveland, Ohio; Fred W. Sherwood, Ravinia, Illinois; John Fife, Duluth, Minnesota; Harry Hanson, La Crosse, Wisconsin.

Committee on Death Benefit Fund—John Pressler, Sewickley, Pa., chairman; Fred Kruger, Matteson, Illinois; James Livingstone, Avondale, Georgia; Thos. K. McClenahan, Edmonton, Alberta; Chester Mendenhall, Wichita, Kansas; Gus Stahl, Tulsa, Oklahoma; D. R. Valentine, Mitchell, So. Dakota.

Committee on Benevolence—John MacGregor, Wheaton, Ill., chairman; Eric H. W. Pahl, Hopkins, Minnesota; George Davies, Louisville, Kentucky; Alex McWhinnie, Burlington, Wisconsin; Paul Andress, Salem, No. Carolina; John Anderson, West Orange, N. J.; Carl A. Bretzloff, Indianapolis, Ind.

Committee on Permanent Organization—Charles Jarman, Canton, Ohio, chairman; William Bryden, New Haven, Conn.; J. T. Anderson, Scarboro, Ontario; Richard Baxter, Williamstown, Mass.; William McLean, Great Neck,

L. I.; Otto Nelson, Farmington, Conn.; A. B. Schoenbeck, Alameda, Cal.

It was decided that all greenkeepers allowed to be present at the annual business meeting to be held on the morning of Saturday, February 25, shall be members in good standing of the National Association.

A vote of thanks was given Mr. R. H. Montgomery, chairman of the Green Section of the Detroit District, for his offer of co-operation in making the annual convention and golf show a success.

A discussion of plans for the National Greenkeepers' Show followed, and Mr. Morley advised the group that the Detroit greenkeepers are working with enthusiasm to the end that the convention shall be an outstanding success. Also that Mr. J. E. Frawley, manager of the Hotel Fort Shelby, is offering full support in the matter of accommodations at special low prices, as well as the best of service to all who attend the convention.

At the close of the Executive session, luncheon was served at the club to members of the Executive committee and the Western Pennsylvania Association of Greenkeepers. Immediately after luncheon, John Pressler, president of the local association, introduced Mr. Morley. During the course of his remarks, Mr. Morley said, "This is the first time in fifteen years that I have had an opportunity to publicly express my gratitude to Mr. William C. Fownes, Jr., and Emil Loeffler, of Oakmont Country Club, for the great service they granted me when I took over the course at the Youngstown Country Club. From these two men I got my first real information on the keeping of greens."

Mr. Morley further stated, "There are no two men in the country who have a greater influence upon the business world than the club manager and the greenkeeper. Napoleon never allowed his men to go into battle unless well fed. The efforts of the club manager in arranging meals that appeal to the minds and bodies of playing members, equip golfers to enjoy the game. A course in the pink of condition gives the players recreation without unnecessary irritation. Such conditions are immediately reflected on the results that financiers and professional men achieve in daily business life."

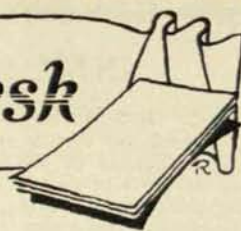
Mr. Morley requested a motion to make Mr. William C. Fownes, Jr., an honorary member of the National Association, which was unanimously passed.

Emil Loeffler, well known greenkeeper of Oakmont, stated his opinion of the National Association in these

(Continued on page 28)



Around the Office Desk



WE have just read over that paragraph in the By-laws of the National Association denoting the three objects under which the association was formed. Briefly, to cement the greenkeepers of the United States and Canada into a closer relationship; to collect and disseminate knowledge relating to greenkeeping, and to provide direct financial benefit to the members.

* * *

As we enter the New Year, with a glance backward over the path we have followed during 1927, we are inclined to agree with President John Morley, who recently said, "We've made a fine start."

* * *

Momentum gathers swiftly from a good start. Let no member forget the strength of purpose vested in the organizers of the National Association who lifted their wagon out of the rut and started it rolling on its way.

* * *

KNOWLEDGE is respected wherever it is found. Particularly is this true in the attitude toward the National Association which golf club officials are showing. More and more often we hear from chairmen of Green committees and officers of clubs and golf associations, expressing their appreciation of the information they read in the NATIONAL GREENKEEPER. The names of contributors are often mentioned in a complimentary way.

* * *

SPEAKING of contributing to the magazine, greenkeepers who are not in the habit of writing their experiences should take notes of what they do and how they do it, and mail these notes in to the NATIONAL GREENKEEPER in whatever form they may appear. No player breaks par in his first game of golf. Good golf is the result of practice. Many a poor story is torn up before a good one is written. If any member finds it difficult to write his experiences as he would like to read them in the magazine, he should send in a series of notes giving all detail possible, and let the editor of the GREENKEEPER do the rest.

Don't get discouraged and withhold good information

to brother members because writing for magazines is out of your line. Send pictures whenever possible, but send information in any form you happen to write it. Next spring and summer you will be too busy, so let us have some notes this winter while you have time to set down what you have done this past year.

* * *

THE GOLF SHOW is attracting the attention of manufacturers and dealers in the golf course field, and many inquiries have been received. A partial list of exhibitors will be found on page 18, and as space is considerably more limited than inquiries, a full list may appear in the February number.

* * *

MEMBERS will be glad to hear that Mr. H. L. Westover of the U. S. Green Section writes that it may be possible for him to attend and address the annual convention at Detroit. His many good friends among the officers and members of the association will welcome his presence.

* * *

REQUESTS for O. J. Noer's book on the ABC of Turf Culture are being received every day, and as the edition will be somewhat limited, members who wish to have a copy are urged to send in an application without delay.

* * *

ONE of the most valuable series which will be printed in the 1928 issues is that written by Lyman Carrier, agronomist, formerly connected with the U. S. Department of Agriculture and the U. S. Green Section. Mr. Carrier is contributing a monograph on golf grasses, containing his findings of many years' experiments in golf turf. Mr. Carrier was the originator of stolon-planted bent in this country, and his experience has been practical as well as scientific. Don't miss any of these grass chapters.

* * *

W. D. CHINERY'S contribution on the planting, grouping and pruning of shrubbery in this issue, is "worth a year's subscription to the magazine," as one of our Cleveland members expressed it after reading some excerpts from the first proof. Read it and you will agree with him.

A DEFINITION

J ust
O bliging
H onest
N atural

M odest
O bservant
R esolute
Loyal
E fficient
Y outhful

IN MEMORIAM

EVERY man for whom the game of golf holds interest has lost a good friend in the recent death of Charles O. Pfeil, nominee for the presidency of the United States Golf Association.

His ability and genial personality won for him an unusually rapid rise as a golf executive. He was vice-president of the Western Golf Association in 1921 and 1922, and then president of this organization for three years. In 1923 he was made a member of the Executive committee of the United States Golf Association, and in 1926 was elected first vice-president.

Born on an Illinois farm, he entered the Kansas Agricultural College with the intention of following agricultural work, but later he attended the Illinois School of Architecture, and became a gifted member of that profession.

His natural leaning toward the problems of the soil gave him an understanding and appreciation of the work of the greenkeeper. This is exemplified in a letter he wrote Mr. John Morley after the Western Open was held at the Youngstown Country Club in August, 1925, from which we quote as follows:

"I feel that I would not be doing my duty fully without expressing to you personally the thanks of the Western Golf Association, for preparing and giving them the best conditioned golf course upon which we have ever held a tournament. It is a great pity more clubs cannot have the benefit of a man who is so extremely interested in the development of grasses and conditioning of golf courses as the Youngstown Golf & Country Club has in you. I have never in my experience seen eighteen more wonderful and uniform putting greens than you have at your Club.

"You were very nice to us while there, and did everything possible in your power to assist in making the tournament the success it was."

A NEW writer will be introduced to our readers in the February issue. This contribution will also be a series, and on a subject always of interest to the greenkeeper, grass seeds and all about them. This will be the most valuable series on this important subject ever published in a golf magazine. Watch for it.

* * *

SOUTHERN greenkeepers should read G. H. Conger's story of how he maintains Bermuda on his course at Ardmore, Oklahoma. This will be followed by a very fine article in the February issue on the same subject and written by Chester Mendenhall of Wichita, Kansas.

* * *

JAMES LIVINGSTONE, one of our Charter members at the Ingleside Country Club, Avondale Estates, Georgia, believes that if Chester Mendenhall can grow bent out in southern Kansas, he should be able to grow it down in Georgia. Mr. Livingstone is starting experiments with stolon-planted bent this fall, and will send in a report of the results next spring, followed by another the following fall. It might be a good idea for greenkeepers in the South who wish to try a plot of bent to write Gustave Hansen at Greenville Country Club,

Greenville, Michigan, who says, "My strain of bent thrives in hot weather."

* * *

WE received an application for a greenkeeper a few days ago, stating, "We don't expect an Oakley or a Morley, but we do want a man who knows greens." We sent them a man who has improved every course he has had charge of in the last fifteen years, so he must know a good deal about greens.

GREENKEEPER'S ALMANAC

JANUARY

By JOHN MACGREGOR
Chicago Golf Club

OVERHAULING machinery is the main event of the month's work. This year the indoor work is not so far advanced as usual, owing to the unusual good weather.

* * *

In overhauling the tractor, the motor should be taken apart, carbon cleaned out, valves ground, new piston rings put in if the compression is weak, and bearings taken up. This usually has to be done every year. The main bearings very seldom have to be touched, but if this is necessary be sure that you knew how this is done before you tackle the job.

* * *

Mowers must be taken apart, thoroughly cleaned and parts replaced where necessary.

* * *

When the weather is favorable the trees demand attention, dead wood and suckers removed. In doing so, be careful to cut close to the trunk, so that there is no chance of decay starting, and eventually proving ruinous to the tree. Always paint over the cut when a branch has been removed. This will seal the wound.

* * *

Keep an eye open for pockets on the greens where water is liable to accumulate, and freeze out this area. Break the ice every day to let the air in to the grass. Ice should not be allowed to remain on a green over a week, without an effort being made to break it.

* * *

Winter sports are coming into vogue at many clubs. Toboggan slides, ice skating, hockey, trap shooting, etc., which keep a greenkeeper busy, especially on week ends.

* * *

Don't forget our friends, the birds! They must be fed throughout the cold months. Keep a hundred pounds of scratch feed on hand, also a few pounds of suet.

THE MARKET PLACE

HAVE you read the article by John Morley on the first page of this issue about peace and prosperity for 1928? Every manufacturer of golf course equipment and supplies should read that page.

With all the new courses starting up throughout the country, more and more good greenkeepers will be required to keep up with the growth. But what about the added equipment and supplies that manufacturers will be called upon to furnish?

Conditions are settling in the South, particularly in Florida, while in Alabama and Georgia considerable capital is being invested in golf courses. This is also true of the Carolinas, and other winter resort states. An increase above normal is to be looked for in all southern golf activities.

Perhaps one of the most valuable outlets for the golf course trade lies in South America. Ever since the war, immigration into our sister continent has been heavy. Agriculturally and industrially South America is wide awake and busy developing its great natural resources. Wherever there is well-capitalized business, there also will be found the recreation so necessary to the well-being of those engaged in its progress.

Some of the well established concerns in the golf trade advise that an appreciable amount of equipment and supplies for golf courses is being shipped from the United States to the foreign trade. With good sales methods, a steady increase in foreign business can be expected. In many other manufacturing fields this holds true, and manufacturers in the golf field will find it so.

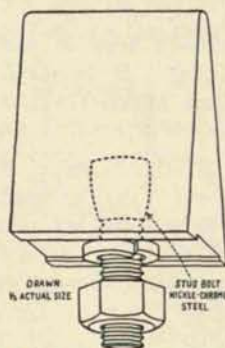
Already the NATIONAL GREEN-KEEPER is reaching beyond the borders of the United States and Canada. As time goes on it will be an increasing aid in solving the winter sales problem of golf course manufacturers. A healthy southern demand and a campaign for foreign business—that's the answer.

J. H. Connors New President Republic Rubber Company

AT the meeting just held by the Board of Directors in Company offices at Albert Street, Youngstown,

Ohio, Mr. J. H. Connors was elected President of The Republic Rubber Company.

Mr. Connors, whose connection with the rubber industry covers a period of over twenty years, joined the Republic staff six years ago. He brought to Republic a wide acquaintance and experience, and under his active administration the company has been rehabilitated to the point of an efficient aggressive institution whose forward progress has created much favorable comment. In addition



The R H heavy duty wheel spud

tion to a standard line of mechanical rubber goods, and tires the company's lines have been broadened to include various such new lines including automotive specialties, in which field Republic has achieved distinct prominence.

The elevation of Mr. Connors to the presidency of Republic will give wider scope to his executive and sales ability. Mr. John J. Watson, formerly President, continues as Chairman of the Board of Directors.

The Republic Rubber Company closed a successful year October 31st, 1927.

New Power Putting Green Mower

THE Jacobsen Manufacturing Company, Racine, Wisconsin, is speeding up production on their new 19-inch Power Putting Green Mower



Jacobsen power putting green mower. New model cuts faster

in answer to a demand already indicated by early buyers. This new mower is entering its second season after demonstrating its ability to negotiate undulating greens and do beautiful work on creeping bent and other ultra-modern greens. The narrow width, light weight, roller traction, special seven-blade, high speed cutting reel are some of the features incorporated in this mower. A special grade of aluminum castings account for light weight combined with adequate strength.

Notable improvements have also been made in the Jacobsen 24-inch Power Putting Green Mower. The motor power has been increased, the cutting reel speeded up. The Jacobsen Company state that it is practical for any modern green with the exception of those with extreme undulations or where the most difficult conditions are to be met. Some courses find the two mowers an ideal combination for speed and efficiency.

* * * *

Roseman 1928 Tractor Mowers

ROSEMAN 1928 tractor mowers are equipped with malleable (non-breakable) side frames and bed knife shoes and special machine cut gears.

Next spring will see the advent of a new elevating arrangement built for those courses where the Greenkeeper finds it necessary to cross roads, street car tracks or places where cutting of grass is not desired. Photographic cuts of this new lifting arrangement will be obtainable in the month of February.

* * * *

Special Lug for Heavy Hauling

MANY times during each season the greenkeeper needs to do some soil preparing, construction, grading, heavy hauling, or other work requiring a greater amount of wheel footing than his small turf-spud equipped tractor wheels will give.

Consequently, many of these tasks are put off, or time and money is lost in hiring teams or grader tractors to do this work.

The tractor wheel spud or lug shown in the accompanying sketch is

quickly attached, and is made to fit any tractor.

Write R. S. Horner, Geneva, Ohio, giving him the make of your tractor, and a sample spud will be mailed for your inspection.

* * * *

Two Useful Rakes

Introduced by

Stumpp & Walter Co., New York

THE George Low rake illustrated on this page forms ridges in the sand traps, and compels the player to use a niblick instead of rolling his ball with a putter. This rake is used on nationally known championship courses, noted for their careful grooming. The traps at Oakmont Country Club, Oakmont, Pennsylvania, show the marks of the George Low rake, and Emile Loeffler, greenkeeper at this club has received many compliments on the well-kept appearance of his traps.

Southern greenkeepers in particular will be interested in the Sawco lawn cultivator rake, pictured herewith, as it is a valuable implement to use in renovating Bermuda greens



The George Low sand trap rake makes a fair lie

for winter turf. It quickly establishes a roughened area in preparation for re-seeding. It is sturdily constructed and carries fourteen sharp-pointed and sharp-edged knives.

A copy of the Stumpp & Walter booklet, "Golf Turf" contains much useful information for the greenkeeper, as well as illustrations of

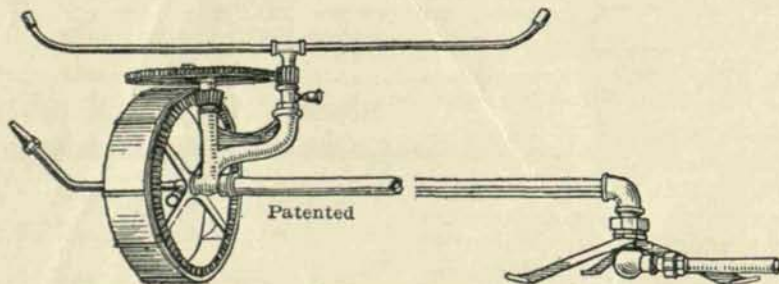
many items built to aid him in maintaining his course. Every greenkeeper should have a copy of "Golf Turf" on his table.

* * * *

New Barnes Outlet Box

THE only item the Barnes Mfg. Co. at Mansfield, Ohio, is making in the way of equipment outside of power pumps for golf courses is a cast iron outlet box. Mr. T. R. Barnes advises, "We have just about completed patterns for a new outlet box much larger in size which will have sufficient capacity to take care of 100 feet of 1-inch hose or 150 feet of $\frac{3}{4}$ inch hose. This will be a substantial box and strong enough so that a tractor mower can travel over it without damage. It will have a lock so that the hose need not be removed but will be kept where it is ready for use at all times and avoid dragging around the course. We believe there will be quite a saving to country clubs on this fixture."

Circulars showing this new outlet box will soon be ready. Write now for a copy.



The Economy travelling sprinkler covers a large area



Sawco lawn cultivator rake. In use on many Southern courses in renovating Bermuda greens

In the Berkshires of Ohio

(Continued from page 17)

fescue turf, the blue grass and red top dwindling away. In a couple of years our greens were such a heterogeneous mixture of grasses and weeds that it seemed hopeless to get them to the point where they would be called real putting greens. Hearing of the wonderful results other clubs were getting from creeping bent stolons we decided to try some. Mr. John Morley of Youngstown kindly supplied us with enough to start a green. We planted our number fourteen and a little later on with clippings from this green we planted number sixteen. In a few months these two greens were so much superior to our others that we decided to change them all to bent.

Washington Bent Proves Best

We then bought \$100.00 worth of Washington strain bent and set it out in a nursery. From this nursery we

have been able finally to change over all our greens and several tees to bent. We plan eventually to change numbers fourteen and sixteen greens to the Washington strain as we find it much superior to others.

Found Lime in Sand

In top dressing our greens we were using a sharp lake sand which upon test showed a very high lime content and encouraged the growth of chick weed. We discontinued the use of the sand and increased our sulphate of ammonia which checked the growth of the chick weed considerably.

We started out with a very poor piece of land but I am pleased to say it is now showing the results of our labor.

In overcoming some of the handicaps we started with, we have probably learned many things that greenkeepers on some courses never have to contend with. Any information along these lines will be gladly passed along to those wishing it.

The A B C of Turf Culture

To be published in Book Form

THIS remarkable series of articles on the growing of turf grasses for golf courses which has been appearing exclusively in the NATIONAL GREENKEEPER since last January will soon be published in book form.

Every greenkeeper and Green committee chairman will want to have this book, because it is the most practical and complete treatise on turf culture ever written.

The author combines a university education on this intricate subject with an intensely practical experience in golf course maintenance work throughout the United States. In fact, Mr. Noer has visited more golf courses and is personally acquainted with more greenkeepers than any other expert in his line.

The first edition of the ABC of Turf Culture will be limited. If you want a copy reserved for you write the NATIONAL GREENKEEPER, 405 Caxton Building, NOW and say so. The book will be issued some time in January and orders will be filled in rotation as they are received in advance. The price will probably be \$3.00 a copy.

Send in your order today,—but *don't send any money*. You will be notified when the book is ready for mailing.

THE NATIONAL GREENKEEPER, Inc.

Caxton Bldg., Cleveland, Ohio

Bermuda in Oklahoma

(Continued from page 6)

men. My greatest difficulty is holding good labor. Good greensmen are scarce as hens' teeth down here, and if we get a good one we have to let him go in the fall and take a chance on getting him back in the spring.

We have a very nice shop with electric driven mower grinder with emery wheel, and compost machine, as well as drill press, anvil, forge and vise, hand tools and plumbing equipment.

We have native mesquite grass on our fairways,

which is very good. We plan to plant our numbers three and six to Bermuda next spring.

Quick Development of New Greens

With Mr. Devery's help I remodeled our number eighteen green last spring and number four this spring putting Bermuda roots about every four to six inches, using a hand plow to make the furrows and cover. They were out of play only ninety days. A Bermuda green can be planted and played on in sixty days in summer, but it takes longer in spring as it won't grow up fast until hot weather. I think the vegetative method is quicker, but our method was more economical.

Southern Members, Write for this Magazine!

In conclusion I wish to say I think the NATIONAL GREENKEEPER is a very valuable magazine, especially to the men down here in the south, as we are given the opportunity to get the advice of men such as John Morley. Otherwise we would have no other source. The reason I haven't joined the National Association of Greenkeepers of America is due to my not having been a greenkeeper three years, but a farmer until 1925. It is my wish to join next spring.

I would like to hear from some of the men down south, as you know our problems are somewhat different from those in the north.

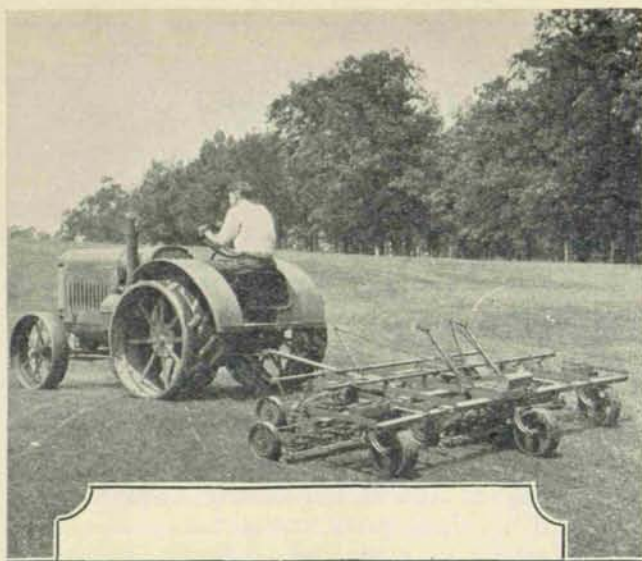
They are experimenting some at Oklahoma City Golf and Country Club with creeping bent. It came through the summer and is looking very good at this time.

Notice to Chairmen of Green Committees

The program which will be presented at the coming annual convention of the National Association of Greenkeepers of America is of vital interest to you and to your greenkeeper.

You are cordially invited to attend the meetings of February 23 and 24 at the Hotel Fort Shelby, Detroit.

The foremost golf course maintenance experts of the United States and Canada will talk on subjects of direct interest to you. Read pages 18 and 19 in this issue, and make early reservations at the Fort Shelby.



IDEAL **Bulldog** MOWERS

the choice of nearly a thousand clubs

It will pay you to insist on these genuine "Bulldog" mowers for your club.

Greenkeepers like them because of their sturdiness, speed, flexibility and big capacity—and because they are easily kept in good repair.

Greens chairmen like them because they are economical to own and operate, and inexpensive to maintain.

Club officials and players like the smooth, well cut fairways resulting from their use.

Get our quotations on the Ideal "Bulldog" fairway mowers and ask for a copy of the new 1928 complete golf equipment catalog.

IDEAL POWER LAWN MOWER COMPANY

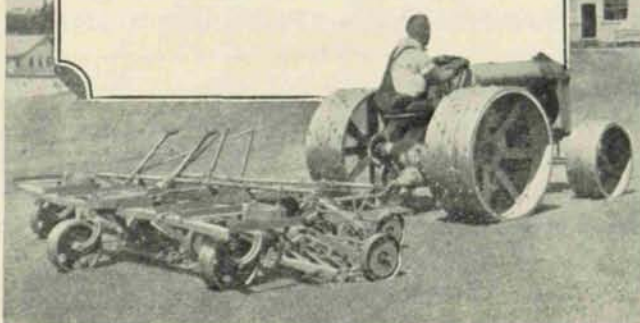
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New York, N. Y.

413 W. Chicago Ave.
Chicago, Ill.

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Tile Drainage For Golf Courses Is A Permanent Investment Insures Good Turf

Hancock Vitrified Tile is Everlasting

Write for Drainage Bulletin

The Hancock Brick and Tile Company
Orchard Avenue FINDLAY, OHIO

Executive Committee Meets

(Continued from page 22)

words "I consider it to be the greatest power for good that has ever been started in the golf world of America."

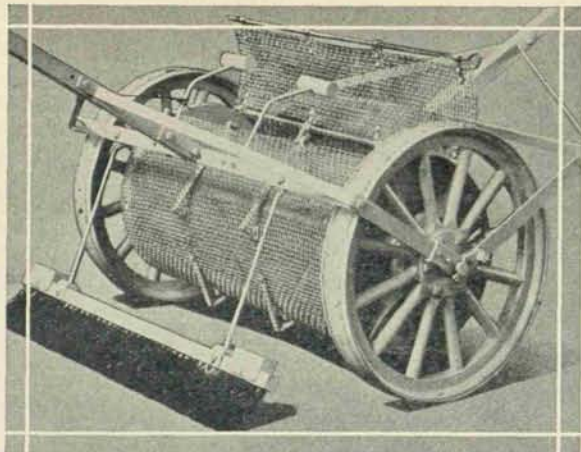
One remark made in the course of Fred Burkhardt's talk reaches into the future of the national organization, and was heartily acclaimed by all present. "Nothing can stop us," said Mr. Burkhardt, "except short-sightedness, which should never be allowed to creep into the National Association. We must keep a broad viewpoint in all our dealings and our decisions."

John McNamara, first vice-president of the National Association, and greenkeeper at the Pittsburgh Field Club, next addressed the meeting. "When I went around to golf courses years ago, I met few greenkeepers," he said, "but since the first annual meeting we held in Chicago I have met two or three hundred of them. One duty enjoined upon every member of our National association is the searching out of greenkeepers in towns we pass through. They will always welcome the visiting greenkeepers. Show your card of membership, and if the greenkeeper you are talking to is not a member, make him one. Some greenkeepers are so far away from other courses that they find their only communication with the profession is through their membership and receiving the NATIONAL GREENKEEPER every month. I strongly urge every member to make friends with greenkeepers wherever they can be found. Scatter friendship and gather members every chance you can get."

John MacGregor gave a most interesting report of the work being done by the Mid-West Association in Chicago, and in his capacity as second vice-president of the National Association, he expressed his confidence that organizing the greenkeepers last year was a start made at an auspicious time. "We have only scratched the surface of what can be done," said Mr. MacGregor. "I believe that within five years every greenkeeper in the United States and Canada will be a member of the National, and we owe Mr. Morley more credit than we can ever give him."

Say you saw the ad in The National Greenkeeper

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What A User Says:

MacGregor Compost Distributor Co.,
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Gentlemen:

I am a member of the Green committee of two local clubs, and induced each of them to order one of your compost distributors last spring, with the result that with your distributor we can compost a green in thirty-five minutes and brush it in, whereas by hand work it formerly took three hours and a half. The distributor applies it so uniformly and the brush for brushing it in does its work so well that it interferes very little with play.

We made one application during our fall tournament about the first of September, and our Greenkeeper was very much disturbed when he was instructed to apply compost during a tournament, but the greens needed the composting and tournaments would be in progress for at least two or three weeks, so we insisted upon the work being done. The result was that we received no criticism or complaints from the players, and before the tournaments were over the greens were so materially improved because of the application of the compost that we received words of praise instead of the criticism the greenkeeper anticipated.

Very truly yours,
A. P. Webster, Chm. Green Committee,
Black Hawk Hills Country Club,
Moline, Ill.

Write for Literature

MACGREGOR COMPOST DISTRIBUTOR CO.
P. O. Box 717 WHEATON Illinois

Planting Shrubbery

(Continued from page 12)

without support are the well known Ampelopsis and Bignonia radicans.

Other vines that will probably meet all requirements are: Actinidia arguta; Aristolochia Siphon, Celastrus Scandens; Clematis-Lonicerae (Honeysuckle), and Lycium europaeum (Matrimony Vine).

The last mentioned is a strong quick grower, oftentimes making ten to twelve feet in one season, bearing purple blooms and later on scarlet berries.

Wisteria Sinensis is one of the best, but I have never seen it in flower in this part of the country.

In addition to above vines there are the glorious climbing roses, with which most of us are acquainted.



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Greenkeepers will meet here Feb. 23, 24, 25

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6-23

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FORT SHELBY**
Lafayette and First, Detroit

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