

# Clubhouse Gardening

## Selecting and Planting Perennials

By W. D. CHINERY, *Greenkeeper*  
York Downs Golf Club, Eglinton, Ontario, Canada



W. D. Chinery

**T**HIS is a question that before now has puzzled some of the most experienced. How then must it affect those who have not had any experience in this branch of horticulture? More especially when one considers the huge collection of perennial plants that are available for the lovers of flower gardens to pick and choose from, and which may be obtained from any reputable nurseryman.

Where there is ample scope for beds or borders of liberal dimensions, then the task of selecting is somewhat simplified, as with a larger variety one is reasonably assured of securing the cream of the perennials in cultivation, and therefore have a wider range of plants wherewith to maintain a longer period for cut flowers as well as a wider range of color. Whereas, on a smaller scale one has to make a more careful selection if longevity of flowering and cutting are required.

### Commonplace Plants Accentuate Beauty of Others

To lovers of nature all plants and flowers are more or less beautiful, aside from the fact that there are quite a number of varieties amongst perennials that are rather drab looking or common-place when compared with others, especially when seen in small clumps or isolated. When planted to form a mass and in conjunction with other plants their attractiveness is more apparent.

It is not always the beauty of one plant over another that is so conspicuous as that the comparative plainness of one plant enhances the beauty of another one.

### Plant for Variety of Cut Flowers

Where there is a steady demand for cut flowers, this should be borne in mind when making a selection of hardy perennials and to choose such plants that lend themselves to such a purpose.

There are a great many varieties which are beautiful and of great merit from an ornamental point of view, but which are practically useless for cut bloom, but by some growers are considered indispensable to complete an herbaceous or perennial border. I readily admit this where there is ample scope for such plants and one is noted for having a large collection, but where space is limited and cut flowers are essential I think it would be policy to cultivate those varieties that are of greater utility, and in this respect as before mentioned the assortment is so large as to satisfy even the most fastidious.

Now we come to that all important point in connection with perennials, viz., that of planning and planting

out beds and borders for effectiveness, compatible with usefulness. To the average person this may appear quite simple and probably would be if the majority of the plants were somewhat uniform in size, etc., no matter what quantity. But where there are perhaps, say fifty varieties and running into hundreds of plants of varying height, form and color, then it would indeed appear more complicated and consequently require some little knowledge to execute.

If this were a question of annuals to be planted and by some reason or another such as blending of colors, they were not satisfactory, one could make a note to that effect and rectify another time, but with perennials which are more or less permanent, well, that is a horse of another color.

### Planting Methods not Recommended

There is an old saying, yet true, "old customs die hard," and this is verified when one often sees the old method still in vogue of mixing shrubs, annuals and half hardy or greenhouse plants with perennials. Though I do not say this plan should not be adopted, it is one I would not recommend, but would rather speak of the disadvantages of adhering to this plan.

In the first place such a planting would not, strictly speaking, be a perennial border. A miscellaneous collection if you like—a jumble would be a better description. Experience proves that shrubs have a tendency to rob the other plants of both food and moisture, beside shading some. By introducing annuals, etc., into the border, this is injurious to the permanent plants by overcrowding and smothering them, oftentimes causing decay and premature ripening of the foliage, beside creating work which the permanent plants are supposed to lessen. A survival of the fittest is what one may look for in a year or two if this plan is practiced.

Another method which is upheld by some is to dot their plants singly throughout the border, irrespective of genera, species or varieties, the consequence is a sameness throughout, leaving much to be desired. One of the chief attractions of a perennial border is to see bold

(Continued on page 38)



# From the Local Viewpoint

ONE of the most direct and shortest routes to success in the greenkeeping profession has been taken by the Mid-West Greenkeepers' Association this year. This is toward the establishment of a turf experiment station to be maintained in the Chicago district, by the local clubs, in co-operation with the U. S. G. A. Green Section and the Mid-West Association.

The Forest Preserve of Cook County has offered to furnish sufficient land gratis for the station, through the efforts of "Chick" Evans, Mr. Kendicott, chief forester, and Mr. A. Cermak, president of the county board of supervisors.

The name of "Chick" Evans has been one to conjure with in the game of golf for several years, and he is known almost as well for his genial smile and handshake as he is for the cups he has won. Golf claims him, whatever other activity he is connected with, and now he is identifying himself with one of the most progressive movements for the betterment of golf turf that has yet been promoted. On a recent visit to Chicago, the editor of this magazine asked John MacGregor if the project would go through. "Oh," he replied, "Chick'll get it squared away, because he knows what it is all about, and believes in it as we do." From what we hear, "Chick" does know what it is all about, and more than that he doesn't muffle many shots that he makes for the Mid-West Greenkeepers' Association.

At the annual meeting of the Mid-West, the following officers were elected to serve during 1928:

President, John MacGregor; first vice-president, Alex Binnie; second vice-president, Robert Dugid; secretary, Edward B. Dearie; treasurer, Fred Sherwood.

\* \* \* \* \*

## Philadelphia Re-Elects Officers

THE Philadelphia Association of Golf Course Superintendents, at their February annual meeting, re-elected for 1928 the officers who served during the past year.

A healthy delegation of Philadelphia members will attend the annual convention and golf show of the National Association at Detroit the week of February 21-25, it was decided at this meeting.

One honorary member has been added to the list of the Philadelphia association, Mr. B. J. Farr, steward of the Marble Hall Golf Club, because of his untiring efforts in making the annual picnics a success.

\* \* \* \* \*

## New Jersey Discusses Fairways

AT a recent meeting of the Greenkeepers' Association of New Jersey, the subject of improving fairway turf was discussed at length, Mr. Roth of the Plain-

field Country Club first reporting his success with the use of mushroom soil. His theory is that a definite program of fairway fertilization, once started, should be consistently carried on.

Mr. T. H. Riggs Miller in the general discussion which followed, compared a turf crop with the plants grown on a truck farm, in that turf requires consistent fertilization in order to renew itself and maintain a thick stand on a fairway. "Not only must we incorporate organic fertilizer, such as manure, into the soil of fairways before seeding, but concentrated fertilizers are required during the entire life of the fairway," said Mr. Miller.

Mr. T. J. Roth was elected president of the association for the year, Mr. W. Tuddy as first vice-president, Mr. Eaton second vice-president, Mr. Burton treasurer, and Mr. Kells secretary. Mr. Anderson was appointed to serve as trustee for two years.

Mr. T. H. Riggs Miller was given a vote of thanks for bringing the New Jersey association through a successful first year, and it was unanimously voiced to undertake a constructive and progressive program during 1928.

\* \* \* \* \*

## Cleveland Greenkeepers Give Dinner

THE chairmen of Green committees of the Cleveland district were entertained with a dinner and speaking program by the Cleveland District Association of Greenkeepers at the Hotel Winton, Monday evening, January 23.

At the preceding meeting held at 4:30, a goodly number of chairmen were present with their greenkeepers, and the feature of the meeting was a talk on putting green construction, given by Mr. John Sheridan, greenkeeper at Chagrin Valley Country Club. Mr. Sheridan assisted in the building of a number of courses prior to taking the position with the Chagrin Valley Club, and his paper was much appreciated by all present. This talk will be published in one of the early numbers of the GREENKEEPER.

Mr. George L. Fordyce, chairman of the Green committee of the Youngstown Country Club, who is well known all over the country for his efforts of many years in the protection of bird life, was called upon to give an informal talk on the birds commonly found around golf courses of the north central states. Mr. Fordyce spoke of the necessity of providing bird houses in plenty to encourage birds of economic value, and among the most valuable of our birds, he mentioned the purple martin, flicker, nighthawk and bobwhite. When asked about crows, Mr. Fordyce said that even this often despised bird does wonders for the golf course in

(Continued on page 45)



# Golf Course Drainage

A series of articles written exclusively for The National Greenkeeper  
by America's foremost golf course drainage engineer

WENDELL P. MILLER

THE cost of a drain is made up of two elements; (1) the cost of construction and (2) the cost of maintaining it in working order. The most profitable drain is that which costs but little for construction and maintenance, or that which, costing more yields correspondingly greater profits. The cost is less to drain thoroughly with tile than with open ditches. Tile keep their depth, and with the trench filled over them they leave the land free for play and maintenance. Uncrossable open ditches are objectionable. Shallow open ditches and sodded surfaces are better in this respect, but they are not deep enough for underdrainage and suffice only where surface drainage is the sole requirement. Good underdrainage requires lateral drains three feet deep and with a good outlet.

*Tight Subsoils:* In a tight subsoil water moves no faster toward an open ditch than it does toward a tile of the same depth because it has the same path to travel to reach either one. An open ditch or surface run may remove some water from the surface of tight clay without subjecting it to the slower process of seepage. This advantage is lost, however, where flat areas are not provided with good, broad, shallow, open ditches and where the tight clay of the subsoil is covered by a foot or more of loose soil, which, if dry, absorbs water readily. Surface obstruction traps the water in the subsoil, and lines of tile 30 feet apart and costing from \$150 to \$200 an acre are required to overcome the damage done by poor surface drainage. It is cheaper to keep the water out of a tight soil than to take it out after it gets in. A \$100 tile drainage system aided by broad shallow open ditches costing \$20 per acre may do better than the \$200 system alone.

*Effect on Floods:* Thorough tile drainage does more to reduce flood water than is commonly believed. When several parallel lines of tile lower the water-table three feet below the surface of the soil, they not only give the plant roots a better opportunity for development, but they put the upper three feet of soil in condition to absorb a rainfall that a saturated soil would shed as surface water. Using the upper three feet of soil as a reservoir from which the tile may have two weeks' time for removing the water, an 8-inch tile may be ample for an out-



*Editor's note: Mr. Miller was formerly Extension specialist in Agricultural Engineering at Ohio State University, and his background of training includes several years of study in soil physics and chemistry. Since 1920 his unusual abilities have been devoted to solving drainage and soil improvement problems on golf courses*

let, where if the water had to escape suddenly as surface water a ditch 3 feet wide at the bottom, 6 feet deep, and 15 feet wide at the top would not be too large. By working 24 hours a day, a good tile drainage system gives the soil such absorptive powers that excessive demands are seldom made upon the outlet at any one time.

*Importance of the Outlet:* A drainage system is no better than its outlet. The smaller lines of a tile drainage system discharge into the larger ones, and the larger ones discharge into outlet ditches or ravines. The top of the water in the outlet drain should be below the outlet of the lateral tile except possibly for a few hours after a freshet when a submerged outlet is permissible. Tile outlets discharging large quantities of water all winter may be permanently submerged with safety, but their efficiency is impaired nevertheless.

*The Right Drain for the Right Place:* To drain wet lands, first find the cause of the wetness and then prescribe the remedy.

The water is either entering too fast or leaving too slow. High or steep land above an area causes too much water to enter it. Lack of fall within or below an area keeps the water from getting away. Fine subsoils also retard the movement of water.

Drainage may be effected either by carrying the water around important areas or by facilitating its passage through it and away from it. If the water is entering too fast either as seepage or as surface water from higher land, try to cut it off at the upper side and carry it around the area to be drained. The more water kept out, the less there is to be taken out. The damaging water that enters in spite of the intercepting drains may be removed either by getting a better outlet, or by putting in better drains to a present outlet, or by supplying both of these necessary features.

*Potholes:* Potholes are depressions which have no natural surface drainage. Drainage is usually possible only by a deep cutting through the lowest point in the surrounding ridge. Occasionally the conditions in the subsoil are such that a vertical drain may be dug through a tight layer of soil into a more open dry soil below. Frequently intercepting surface drains may be installed to keep surface water from entering potholes. This lessens the demands made upon their outlet drains and reduces



the expense of drainage. The drainage of small potholes in playing areas is highly desirable. It is easier to drain them than to dodge them when wet.

Mistakes have been made in draining potholes only deep enough to permit the surface water to escape. Successful drainage calls for a tile 3 feet below the surface of the ground at the lowest point in the pothole. In small potholes the required covering for the tile may be obtained economically by scraping in earth from the surrounding high land.

*Seepage Marshes:* At the foot of almost every hill there is a narrow zone kept wet by seepage from the higher land. This is most serious where the hills are high and where there are seams of sand or gravel in the subsoil through which water moves easily until it comes to the surface. Frequently large springs are caused in these places. In other places millions of smaller springs, each doing its share to keep the land wet, take the place of a few larger springs, and zones 80 rods and more in width are kept wet continuously by the seepage from the higher land. Seepage marshes, although relatively high and sloping, are frequently the wettest of lands.

The most economical way to drain the seepage marsh is to cut off the seepage water before it enters. If a line of tile can be laid in the layer of sand or gravel bringing in the seepage water, it may dry the area for 20 rods below it.

Seepage areas can be drained easily because they usually have a liberal fall—sometimes 1 foot in 100 feet. Their drainage is desirable also because they are adjacent to higher playing areas. The drainage of seepage marshes occurring in narrow swales is particularly desirable for the double reason that they increase the playing area and decrease maintenance costs.

*(To be continued)*

### More Attention for Fairways

**T**HE present day golfer demands better fairways. Golf clubs have been too much inclined to put more seed on their thin fairways and to overlook the fact that the grass already there was starving to death. Plants require food just as animals do. Greens are top dressed and fed regularly, but many fairways are allowed to shift for themselves. Much money is wasted in seeding impoverished fairways. Much money can be saved by properly fertilizing them.

At one Chicago district club it was the custom to spend about fifteen hundred dollars a year on seed for the fairways, and nothing on fertilizers. The soil was a worn-out clay hill farm. The turf was thin; bare patches were the rule rather than the exception. A change in policy brought fairway feeding. The first year under the new plan four hundred dollars was spent for seed and about a thousand dollars for fertilizer. The results were most satisfactory. The ground was com-

pletely covered with turf the first year and the grass stayed green much later in the summer. After the first year no seed was used on the fairways except for repair work, but fertilizer was used each year. There has been no winter kill and no bare spots since that time. Many other clubs have had similar experiences.

Unless the soil contains sufficient properly balanced plant food, the individual grass plants will not spread and cover the ground. Weeds will come into such thin spots and rob the grass of what little plant food may be there. The parallel veined plants such as all fairway grasses thrive on neutral or slightly acid soil. An alkaline soil promotes the growth of the broad leaved plants such as clovers and most weeds.

### Fertilizing to Eliminate Weeds

All greenkeepers have seen the effect of the consistent use of sulphate of ammonia in eliminating weeds from greens, due to its residue of acid sulphate. A fairway fertilizer should also always be so compounded as to give an acid reaction and residue. The continued systematic use of such a mixture will gradually eliminate most of the objectionable weeds from fairways. Practically all grasses will grow in acid soils; few common weeds such as the dandelion, plantain, etc., are happy under such conditions, and they will eventually die out if such soils become well sulphated.

Fairways are usually not watered. The problem is to produce a grass plant of sufficient health and vigor to grow throughout the playing season, to maintain a thick solid turf that will afford a perfect lie and will quickly replace itself when divots are removed and when otherwise injured. A complete fertilizer containing all the plant foods, ammonia, phosphoric acid and potash is necessary.

A portion of the ammonia should come from nitrate nitrogen so as to be available at once while the soil is cold; the balance should be largely in the form of sulphate of ammonia, which becomes available during the growing season and leaves in the soil the sulphate residue so discouraging to weeds. A well balanced combination has been found to be a fertilizer analyzing 6% ammonia, 8% available phosphoric acid, and 6% potash.

*(Contributed by C. H. MacDowell, President Armour Fertilizer Works, Chicago.)*

## The A B C of Turf Culture

IN BOOK FORM  
IS NOW AVAILABLE

*Have you written for your copy?*

See page 3 this magazine





## Big Capacity at Low Cost With **IDEAL Bulldog MOWERS**

A careful comparison quickly reveals the advantages that these big capacity, flexible, "Bulldog" mowers provide.

An indestructible, all metal frame, carried on wide faced casters. Sturdy, close coupled cutting units are suspended beneath the frame by side arms, allowing free vertical motion of the units. As the cutting units are *pushed* beneath the frame they hug the ground and wade right through the heaviest kind of cutting.

The hinged frame provides extreme flexibility for rolling and undulating grounds. The close coupled units ride over narrow ridges and sharp contours, doing clean, smooth work.

The entire outfit is easily handled. It can be backed up—turned in a short radius—manipulated in close quarters—and the cutting units can be lifted completely off the ground.

All these factors mean better fairways—greater speed and lower upkeep cost. If *your* club is in need of new mowing equipment make some comparisons—investigate the advantages of these "Bulldog" gangs.

### IDEAL POWER LAWN MOWER CO.

444 Kalamazoo St., Lansing, Mich.

237 Lafayette St.      161 Vester St.      413 W. Chicago Ave.  
New York, N.Y.      Ferndale (Detroit), Mich.      Chicago, Ill.



Get our New 1928  
Equipment Catalog

A complete catalog of labor saving golf tools—tractors—compost screens—golf carts—golf barrows—flags—poles—markers—ball washers—rollers—seeders—rakes, and a full line of necessary equipment for the greenkeeper.

# IDEAL GOLF COURSE EQUIPMENT



# THE MARKET PLACE

## Pennsylvania "New" Fairway 1928

IN order to meet the demands of some greenkeepers who regularly use Pennsylvania cutting units, the Super fairway mower manufactured by the Pennsylvania Lawn Mower Works was simplified, and a lighter weight was achieved at their plant in Philadelphia during the past few months.

The new mower for 1928 can be easily adjusted by the tractor operator, and it is so designed that it is readily repaired.

This new design is shown at Booth Number 4, on the show floor of the convention, together with their improved Super Roller putting green mower.

The Pennsylvania Lawn Mower Works wishes to extend their appreciation of the suggestions that have been made to them during 1927 by practical greenkeepers who use their equipment. "The man who uses a mower is the one to be suited, and that's what we are in business for," said Mr. N. D. Perine, assistant sales manager of the company, recently. Mr. Perine will talk with visitors during the convention at the Pennsylvania exhibit.

## Analysis of Poultry Manure

FROM the Premier Poultry Manure Company, of Chicago, we have received the guaranteed analysis as required by the Illinois fertilizer registration laws, as follows:

6% ammonia  
2.75% phosphoric acid  
1.30% potash

The Premier product frequently runs as high as 7% ammonia, and sometimes 8%, which is well above the state law requirements.

About 15,000 tons will be the quantity available at the Premier plant this year, and the supply is in excellent mechanical condition.

A new folder is now ready describing the uses of this product, which will be mailed immediately upon request.

## A Useful Broom Rake

THE True Temper Brume Rake, which was developed about two years ago by The American Fork & Hoe Company of Cleveland, Ohio, has met with very enthusiastic reception by golf clubs. First used for cleaning up around the gravel paths and club house grounds, it was soon found to be ideal for use on the putting greens.

It is the only raking tool made which will pick up leaves, trash, litter, etc., from the greens without any danger of tearing the sod. Its blunt, flexible teeth will not dig into the tender grass, but will pick up small objects like twigs and matches.

In using it for leaves it is particularly fast and convenient because the leaves will not impale on the teeth and hence the teeth do not require frequent cleaning. Its easy, sweeping motion is not only much less fatiguing, but much more rapid in operation than the old-fashioned raking motion. It is light, durable and very moderately priced.

## A New Gearless Golf Sprinkler For Greens and Fairways

ALTHOUGH getting a late start last spring, several hundred Lark gearless golf sprinklers were sold to golf clubs in the United States and Canada during the past summer, and the reports coming in show that these sprinklers are proving highly satisfactory. Mr. L. R. Nelson of the L. R. Nelson Company writes us as follows:

"The Lark sprinkler has several improved features. An unbalanced rotor with a spray cap on one end distributes the water evenly over the inner circle. This rotor also acts as a vibrator which controls the speed of the entire head rotating on its axis. On the end of the long arm opposite the small rotor is a spray nozzle that sprinkles the outer circle covering an area up to 150 feet in diameter according to water pressure and size of hose used. This nozzle is on a swivel which helps to control the speed of the revolving head, and furthermore it can be turned up for calm weather or down in case of a strong wind.

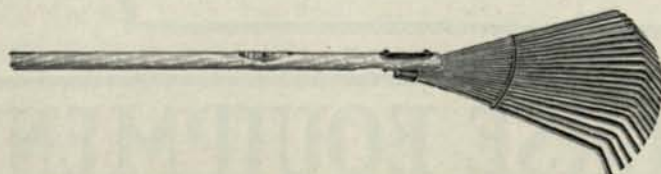
"The Lark has no gears and is so constructed that both the small and large bearings are self-closing to prevent leakage. The head of sprinkler is mounted on a roller base which enables setting the sprinkler at the right spot without getting wet. When the sprinkler is to be moved, one can easily roll it off by pulling the hose and thus avoid walking on the green when the ground is soaking wet. It is sturdy and strong, has nothing to get out of order, and performs on sloping hillside as well as level ground."

The Lark sprinkler will be shown by Mr. Nelson at Convention Booth Number 17.

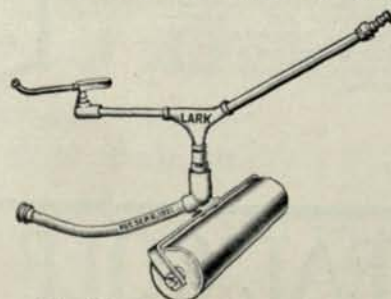
## First Man to Use a Royer Machine

A NOTE of interest is added to the exhibit of L. F. Mitten and E. L. Winn, at Booth Number 5B, by receipt of a letter from the first man to make use of a Royer compost machine on a golf course. Mr. B. J. Marley, greenkeeper at the Wyoming Valley Country, Wilkes-Barre, Pennsylvania, writes:

"I have the honor of being the



The American Fork & Hoe Company's Broom Rake



The "Lark" gearless sprinkler



first man to ever use the Royer Compost Machine in the world and to assist in perfecting that machine up to the present time. At this time I look back four years to the time Wyoming Valley decided to enlarge their golf course. At the time I took charge there were nine holes on our course, and they decided to have eighteen. From the start the weather was against us, and I could not foresee the many problems that I would have to face. But the greatest one of all was the preparing of soil for the seed beds on the greens and tees.

"The weather being very wet, a screen I decided was out of the question. The chairman of the Green committee and myself realized that if we did not do something we would be up against it for soil when the time came to seed our greens. He is a man who has worked all his life in the engineering department of one of our largest factories in the city and said to me one day 'Have you ever seen how they clean sand in a foundry?' I told him I had, and he then asked if I thought one of the machines would act as a compost machine. My answer was, 'Columbus took a chance, why can't we?'

"We then got in touch with Mr. Royer and put the proposition up to him, and asked if he would send a machine to us and let us try it out. He said he would not only send a machine, but would come along with us and see what it would do, so we started the next day.

"The first machine we used lasted only seventy-two hours and we certainly used it hard. Mr. Royer asked me if I had any changes or suggestions to offer. I told him that he should change the pitch of the belt so it would free itself quicker of the stones, also enlarge the hopper, and that the machine should have more speed. Mr. Royer then went to the expense of manufacturing one of the machines, making the changes I suggested as well as some of his own.

"When the machine came down it was set up on the course and started to operate. The belt lasted thirty days. It certainly was encouraging. The point that made me feel good was the fact that I had enough prepared top soil for six greens. By the 15th of September I had enough soil and the seed beds were all under seed on the greens, tees and approaches. I am still using that first machine and I take great pride in its care."

### Testing Soil For Clean Turf

AT Booth Number 26, the La Motte Chemical Products exhibit shows how golf course soil can be quickly and accurately tested. It is not a difficult operation, as will be demonstrated to interested visitors. Every greenkeeper should know what degree of acidity is favorable to the growth of fine clean turf.

In golf course management it is desirable to establish certain species of grasses and eliminate others. This is done by making the soil slightly acid. The acidity happens to be very much more detrimental to the grasses not wanted, as well as to weeds, than to those which are wanted and, as a result, the latter soon hold sway. It is true that a neutral soil has a higher fertility than an acid one, but in this case it is advantageous to forego the higher fertility of a neutral soil and secure instead the desirable species of grass and a good sod.

The various flowers, shrubs, trees and crops also have definite ranges of acidity or alkalinity at which they thrive best and, unless the reaction of the soil is regulated to the proper point, they will either die or will not develop properly.

### Preventing Worm Casts

READE MFG. CO., makers of "Electric" Worm Eradicators, have solved the problem of handling and applying worm eradicator. This concern turns out an eradicator that gets the worms and also supplies everything necessary to put the eradicator on the greens quickly and effectively.

With every 10-gallon order, the following are furnished gratis: a measure; a faucet for drawing the liquid from the container, and several one-gallon glass jugs for carrying the eradicator from the stockroom to the greens. In addition, they manufacture an efficient spray cart for distributing the eradicator on the greens.



Armco pipe line being laid at the Verity Golf Course, Middletown, Ohio.

### Scott Looks Ahead



THESE two golfers had become so absorbed in the game they over-played the season slightly! This cartoon was used recently by O. M. Scott & Sons Company of Marysville, Ohio to illustrate a letter about golf course seed. Its purpose was to show that there isn't much time between seasons after all and that even with snow on the ground someone must be thinking about the season ahead.

The Scott Company has been distributing golf course seed for a good many years and they are also growers of Creeping Bent Stolons on a rather large scale. The back cover of this magazine shows a picture of a splendid green in New York state planted with the Washington strain of stolons that grew in the Scott nursery.

### Improvements in Mower Grinder

IN this "Age of Machinery" the Greenkeeper and green committee of every progressive golf club are interested in equipment which will aid in making theirs one of the popular golf courses in their district.

One of the most important things in golf course maintenance is the care of grass cutting units. The blades should be so ground that when the mower is properly adjusted there is an even contact between the revolving cutter blades and the bottom knife. This will insure a grass clip which is clean and smooth and leave the roots uninjured.

The Peerless Lawnmower Sharpener for 1928 has a rapid traverse reversing screw which returns the grinding head to the left side or starting point. This relieves the operator



of considerable effort. On the old model the head was pushed back by hand.

The feed on the Peerless has been increased, thus saving time in grinding. A new supporting rest has been added for holding putting green mowers with 8-inch rollers placed behind the cutting reel. The main shaft is carried on New Departure ball bearings. The grinding wheel has special ball bearings and is driven with a roller block chain. All parts are interchangeable.

### Construction of the Moto-Mower

THE Moto-Mower Company of Detroit, Michigan, was organized in 1919 and in that year started the manufacture of a power lawn-mower.



*The Moto-Mower in use on terraced lawn*

In design Moto-Mower is compact, sturdy and flexible. It is powered by a four-cycle, air-cooled, valve-in-head motor.

Malleable iron, a tough, rigid metal, not subject to breakage, is used in the side frame and all small castings. The connecting rod is drop-forged steel and fitted with split babbitt bearing. Crankshaft and camshaft are of chrome-nickel steel and their bearings are of Bunting bronze shell, lined with babbitt.

Oiling is provided by a combination force feed and splash system. The chain drive is employed because it is considered by many leading authorities to be a most efficient means of transmitting power. Cutting blades

are oil hardened and tempered. A patented feature eliminates "chatter" in the cutting reel and undue wear on the bottom knife. Proper cutting adjustment is also automatically maintained.

### Applying Semesan for Brown-Patch

THE preventives and cures for some diseases are so well known and so generally recognized that the disease and the preventive are usually thought of in the same connection. One of the standard preventives and controls for both the large and small forms of brown-patch is Semesan, a Dupont product.

Although Semesan may be applied in the original dust form, the majority of greenkeepers who have brown-patch to combat prefer to apply it as a water solution using power sprayers. One pound to a barrel which effectively covers 1000 square feet of green is the strength recommended and most generally used.

A bad attack of brown-patch can practically ruin the playing quantities of an expensive green in just a few days so it pays to be prepared for the first spell of "brown-patch" weather. Be sure and visit the Du Pont exhibit in Booth 21 at the National Greenkeepers Show to pick up practical pointers on the use of Semesan under the condition at your course.

### J. Oliver Johnson Reduces Prices

A REPORT has been received from J. Oliver Johnson, Inc., of Chicago, distributors of a large line of general golf course supplies, that their prices on many items have been reduced for 1928. "The large vol-

ume of business received in 1927, due to the support and patronage given our company by greenkeepers all over the United States, has effected a reduction in manufacturing cost which we are passing on to the clubs," writes H. S. Bailey of the golf department.

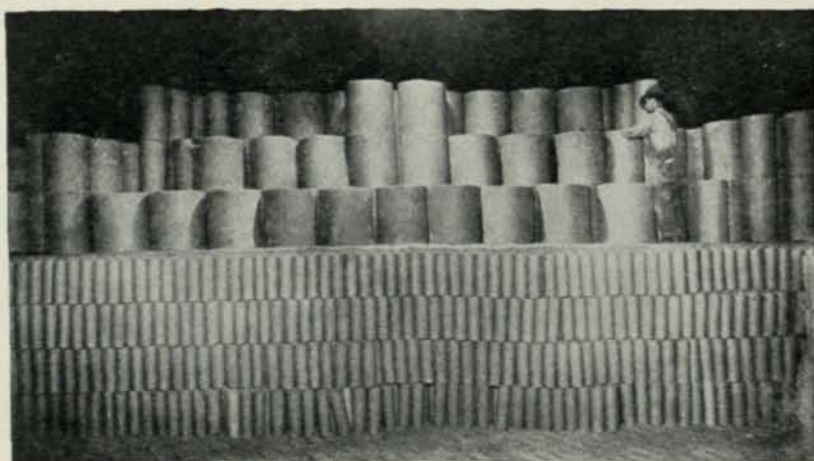
An oval shape divot cutter, patented by Harry Collis of the Chicago district, and distributed by the Johnson company is called to the attention of our readers.

The Buch three-section gang fairway spike roller is used on many courses for the dual purpose of rolling fairways and opening up the turf for quicker action of fertilizers. The entire line of Buch rollers is distributed by the J. Oliver Johnson Company, and stocks of various types are kept on hand.

Recognizing the need of an up-to-date tee marker, J. Oliver Johnson, Inc., have patented a tee arrow, which will have the number of the hole, the yardage and par placed on it by means of removable figures and letters. The idea was to reduce the cost and at the same time give adequate information. By the use of this arrow the direction of play is indicated and extra figures may be obtained so the yardage can be changed at will. The arrow has a baked enamel cream finish and the raised letters are in red. Arrow is about 14 inches long and set at a 45 degree angle to the turf to permit of easy reading.

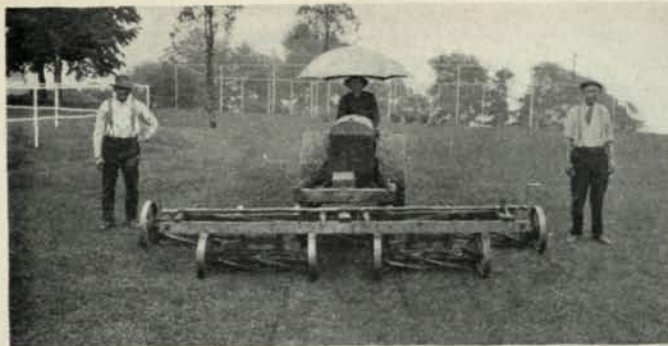
### Automatic Self-Closing Valve Introduced by Buckner

BUCKNER Manufacturing Company, of Fresno, California, has taken over the national distribution



*Setting drain tile in the kiln before firing at the plant of the Hancock Brick & Tile Company, Findlay, Ohio*





*First Toro machine ever built. Taken at Minikahda Club in 1919*



*Latest model Toro mowing outfit, taken at Minikahda Club in 1927*

of a new underground snap valve for water systems, the purpose of which is to eliminate outlet boxes on the course, and allow of instantaneous connection at any point.

The Golf King sprinkler Number 6 is now manufactured by Buckner for connections from  $\frac{3}{4}$ -inch to  $1\frac{1}{2}$ -inch size, and is used for both putting green and fairway watering.

The two items mentioned above represent the latest accomplishments of Mr. W. A. Buckner, pioneer in hoseless water systems for golf courses. Write him, giving particulars of the system you have already installed, or your water system problems on new courses.

### Smaller Model Sea Serpent Fairway Sprinkler

**B**UILT of brass, and in the exact proportion of the large Sea Serpent, made by the Toro Manufacturing Company, of Minneapolis, Minn., this new item on the Toro list bids fair to exceed in popularity the mother model. It will be demonstrated at the Toro booth, Number 1A, in the center of the golf show floor during convention week.

As we watch the smooth operation of modern fairway mowing equipment, most of us forget what some of the machines used in the early days looked like. It is not so long since tractors displaced horses on the golf course. Tractor equipment was cried down less than ten years ago by some of our best known golf maintenance authorities, and was more or less ridiculed on all sides. Just as one example of what the greenkeeper has to thank the persevering manufacturer for, examine the photographs of the Toro fairway mowers, then and now.

### Development of "Friend" Sprayers

**N**EARLY a half century ago, Hull Brothers, when they were but boys in business, displayed particular ability in solving mechanical problems, those, particularly at the time, in connection with agricultural and horticultural machinery. They



*"Scotty" McLaren, the Toro service engineer, who has an ear for motor music*

conducted a little repair shop in the heart of the Niagara Fruit Belt and were pioneers in the making of spraying machinery. Their activities, quite naturally, were confined to western New York until the reputation for dependable sprayers began to extend into more distant regions, until now, the name "Friend" in connection with Sprayers and High Pressure Auto Washers is universally known.

During these years, the developments have been noteworthy because

in the beginning, a 100-lb. pressure was not only wonderful in action, but regarded as quite dangerous; whereas now, there seems to be no particular limit, and any of the sprayers bearing the name "Friend" will maintain 300 pounds with perfect ease and some of them, those for special work—operate at 700 pounds.

The developments have all been the result of very closely followed field observation and practice. The first gasoline power sprayer ever built was a "Friend" and the only motorpump so called ever placed upon the market is a "Friend." In this machine there is a combination of motor, transmission, and high pressure pump, all in one unit, on a common base or frame, with stress self-contained.

Because the pumping of caustic spraying solutions is more difficult than clear water, it is highly important to have greater accessibility features, finer adjustments and facilities for quick and economical replacements than with water pumps. Furthermore, facilities for easy and positive lubrication of such pumps are very important.

When the need for golf sprayers became apparent, here the "Friend" Company again demonstrated its ability to meet the situation and has developed a line of machines made in several sizes to meet all conditions—machines that can be used, not only for the application of liquid fertilizer, insecticides and fungicides, for putting greens and fairways, but the complete spraying of golf course and country club shade trees and shrubs.

### John MacGregor Filled His Own Need

**S**TARTING six years ago at the Chicago Golf Club, from a former position as greenkeeper on Long Island, John MacGregor found both climatic and soil conditions of a dif-



ferent nature than contended with in the east. Modifying the heavy clay top-soil of the new greens with top-dressing laboriously spread by hand, was an expensive and not thoroughly satisfactory method, so he conceived an idea to lighten the work.

In spare time he finally constructed a screen cylinder to run on wheels, and the first time the men hauled it out on the course, a member called after him, "What are you going to do with that contraption, John,—catch butterflies?"

The first attempt worked fairly well, and encouraged, he went ahead with another and better constructed machine. From his own need as a greenkeeper, the present well designed and constructed MacGregor compost distributor came into being, and after that, he completed the outfit with a brush.

At Booth Number 22 on the show floor of the Greenkeepers' convention, this spreader and brush will be exhibited, and as one of his fellow greenkeepers says, "Ye'll find it a verra gude job."

### The Urann Fairway Top-Dresser Dresser

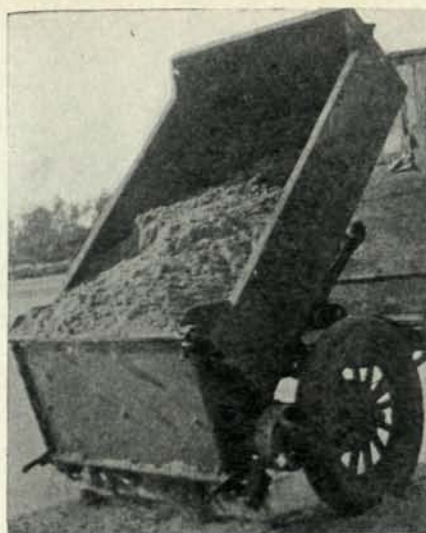
**T**WIN enemies of thick fairway turf are drought and starvation. Modern golf course water systems include outlets along fairways for protection against a long period of hot and dry weather. Starved turf, even when well watered, will not thrive, therefore it is safe to say that fertilization of fairways is an item that is carefully considered by golf club officials in planning maintenance appropriations for yearly operations on the course.

Top-dressing putting greens is now taken for granted as a method followed by expert greenkeepers to fertilize and "true up" the putting surface, and to insure a proper "springiness" and moisture holding capacity. Putting greens have frequently been over-fed, but the soil on thousands of fairways is no better than that which supports the thin growth considered ideal for the rough.

A regular system of fairway top-dressing is followed at the Kittansett Club, Marion, Massachusetts. In sending us this information, Mr. Elliot D. Pierce, superintendent of the grounds, states as follows:

"I am greatly interested in golf courses and am on the lookout for anything that is a money saver and labor saver.

"Mr. Carl B. Urann of the United



*The Urann Fairway Top-Dresser*

Cape Cod Cranberry Company, Wareham, Mass. has the credit of inventing a top-dressing machine to spread top-dressing on fairways, which certainly is a big help to golf courses.

"I have tried this machine out and I find that it is what the golf courses have been lacking to improve their fairways with, at a greatly reduced price.

"This machine will spread a load in two minutes and will spread very even, much better than can be done by hand.

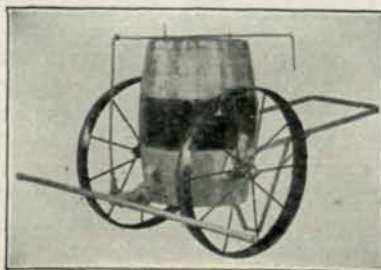
"By hooking on back of machine, a common metal door mat, the whole job of top-dressing and smoothing up of fairway is done at the same time.

"The amount of top-dressing on a fairway is regulated by the speed that the truck is driven.

"There is an actual saving of \$25.00 to \$35.00 an acre with this machine.

"The machine will pay for itself in top-dressing eight acres."

Write Mr. Carl B. Urann, United Cape Cod Cranberry Company, Wareham, Mass., and he will be glad to answer any inquiries in detail.



*The "Cleveline" sprinkling cart*

### The New "Cleveline" Sprinkling Cart

**M**ANY greenkeepers employ the use of sprinkling carts in the application of soluble fertilizers, chemical cures, etc., to putting green and fairway turf.

The newest cart of this description which has come to our attention is of the usual fifty-gallon size, with a six-foot boom, with holes drilled three-quarters of an inch apart, for a more penetrating and even flow.

It is fitted with a valve which can be turned off and on at the handle.

This new cart is manufactured by the Golf Course Supply Company, 3049 Carnegie Avenue, Cleveland, Ohio, and their literature also describes other new items they are offering to golf clubs this season.

### Vitreous Enamelled Tee Markers

**L**IKE liveried ushers in a public theatre, they are sources of service and information. . . . One marker politely requests you to replace the turf. . . . The other marker gives you the number of the tee from which you are playing, the distance to the next green, and the par."

The foregoing paragraph was taken from the copy now in process of being made into a folder for distribution to the golf course trade by the Chicago Vitreous Enamel Products Company, of Cicero, Ill.

The tee markers in question are made of cast iron, heavily vitreous enameled, with a black background and white lettering. Made to order for each individual club, and special drawings submitted in advance.

Early delivery is impossible unless orders are placed well in advance. Clubs desiring distinctive markers should write Mr. E. Hogenson, at the factory office address given above.

### The New Worthington "Overgreen" Mower

**L**AST year the Worthington Mower Company of Stroudsburg, Pennsylvania, introduced an innovation in the shape of a fairway cutting unit with reel designed on a herringbone pattern. This was considered a radical departure in cutting reel design, but evidently did not create a vacuum in the Worthington engineering department, as now the new "Overgreen" power putting green mower is contributed to the golf course field.

It is in reality a miniature reproduction of the Worthington fairway tractor with triple mowers. The