

The TORO Junior Tractors are the Speediest built » » » for Three, Five or Seven Unit Mowing Outfits

WITH a speed range up to 24½ miles per hour, the Toro Junior Tractor ranks as the speediest tractor built in America. No other tractor can compete with it in getting over the ground quickly.

But that is not all—because of an efficient system of transmission gearing, the Junior will pull five or seven mowers over severe grades.

Rear end trouble, which has been the bugaboo of all light tractor manufacturers, is absolutely eliminated in the Toro Junior, because the rear end in the Toro Junior is guaranteed against distortion and breakage under load for the life of the tractor.

Think of what this means to you in getting away from the constant grief and expense of flimsy, makeshift rear end construction.

The new Toro Trojan mowers which were the center of interest at the Columbus Show, were built specifically for high speed mowing.

Being close coupled and of short wheel base, they follow the undulations closely and hang to the ground. Machine cut steel gears, accurately fitted, mean less friction and provide a smooth, light running mower.

Now you can cut all of your fairways in one day or less with the new Toro seven-unit mowing outfit and handle this large scale operation better, quicker, and cheaper.

Write for complete 1931 Toro catalog

TORO Manufacturing Company

3042-3168 Snelling Ave., Minneapolis, Minn.

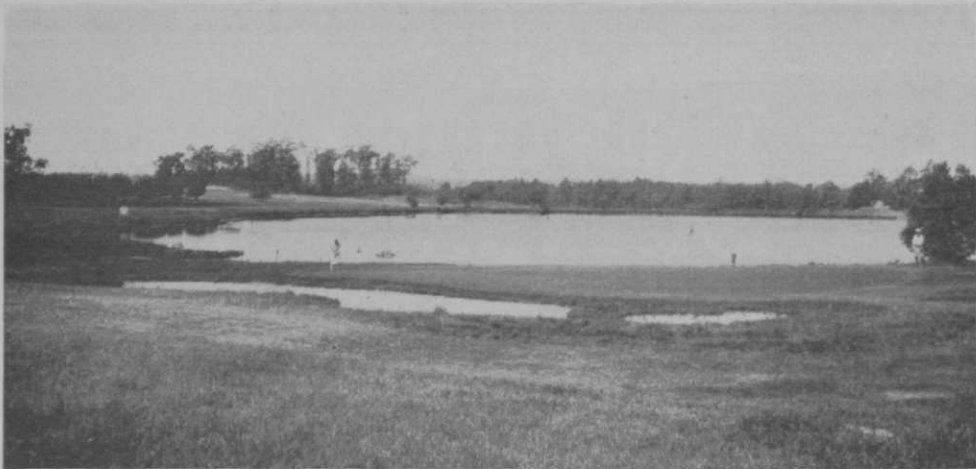
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This hole at Walpole, Mass., illustrates proper use of a lake for a water hazard. The tee, in the left background, is 152 yards from the green. The water carry extends 120 yards of this distance.

or near a playing surface situated on lower ground, sometimes it is necessary to build into the bank a retaining wall of concrete and stone.

It is a dismal job, bringing back into playing condition surfaces that have been gullied and washed away, or buried under tons of debris. Rocks, sand and silt deposited with old tree roots and branches on a fairway; an expensive bridge carried from its moorings and suspended where it is least wanted; cribbing timbers loosened and floated away on the tide; any of these and like tragedies are apt to happen where the greenkeeper has taken precautions against ordinary high water seasons. They are almost sure to happen at some time or other on courses bordered or crossed by rapid streams, where too much faith has been placed on old Mother Nature. Golf courses mean nothing to her when she decides to run wild for a while.

It pays to keep a constant check on the water courses around a golf course, clearing and deepening, or widening fast flowing streams wherever such changes will serve to protect surrounding areas.

A few dollars' worth of prevention in the shape of intelligent inspection and precautionary work before natural periods of high water sometimes saves thousands of dollars spent to cure the troubles caused by flood waters.

Ditches in and around the rough should not be overlooked in making such inspections, and the outlets of the course drainage system should be made clear and

ready to do their part in removing excess water.

Greenkeeper Should Play Golf

The average greenkeeper could play many a game of golf in the time he is sometimes forced to spend in listening to complaints as to why this hazard and that hazard does not penalize enough, or penalizes too much.

It is admitted that the putting qualities of the greens are always argued about, but the "dub" golfer, the player whose game is rather less than fairly good, represents by far the largest number in a golf club membership. Such golfers are struggling for the privilege of spending as much time on the greens as they do in the traps and in the rough. A bad hazard to a good golfer is often not so bad. To a high-score player they are all bad, and most of them worse.

It is interesting to note that greenkeepers known for their expert care of the course play golf whenever they can find the time. They are the greenkeepers who *know* just about how fair to play each hazard is, for they cannot by reason of their duties play a lot of golf, therefore for the most part they are in a playing class with the greater number of the members.

Playing greenkeepers can not only check the putting qualities of their greens, but they see just how each green responds to a pitch shot, or a chip shot, or any other kind of a shot. They know from



*Northport Country Club,
Northport, Long Island, N. Y.*

"....have used the
new **IDEAL ROUGH
MOWER** during 1930
with complete
satisfaction"



*Allen G. Jarvis,
Greenkeeper*

We have used the Ideal Rough Mower during the season of 1930 with complete satisfaction. Its simple adjustment has enabled us to keep our rough cut at the height desired.

We have never been forced to stop for repairs, thus saving time and labor.

After a careful checking up at the end of the cutting season, we find that there are no repairs to be made, due to its sturdy construction.

Allen G. Jarvis

*Greenkeeper,
Northport Country Club,
Northport, Long Island, N. Y.*

Write for details to Ideal Power Lawn Mower Co., Lansing, Mich.

IDEAL GOLF COURSE EQUIPMENT

You Can Pick Up the New Power Greensmower with One Hand -- It Weighs Less Than 100 Pounds

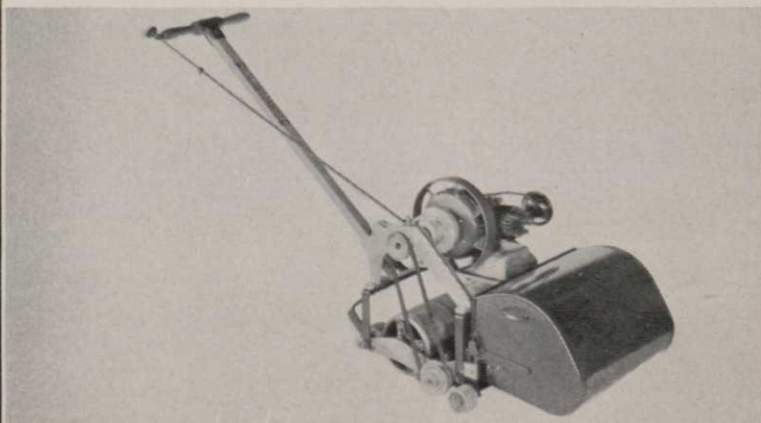
Easily handled as a hand mower, the new Ideal Power Greensmower provides the extra help of a smooth-flowing reservoir of power. Turns about without effort. Seven keen blades operate at greater speed—to give smoother greens. Ball bearings give effortless action. Weighs less than 100 pounds—costs less than \$200.00. It makes larger machines seem clumsy, and more expensive ones unnecessary. Ask for a demonstration on this companion to the famous Ideal (hand) Greensmower—the lightest running hand machine in the business.

IDEAL POWER LAWN MOWER COMPANY
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*The Ideal
Power Putting
Greensmower*

IDEAL
GOLF COURSE EQUIPMENT

MILWAUKEE
MILORGANITE
 IDEAL TURF
 FERTILIZER



DARK AREAS ON KNOLLS FERTILIZED WITH MILORGANITE

Built Fairway Turf On Poor sandy soil at Muskegon Country Club

In 1928 when this Club embarked upon a program of fairway improvement, the task seemed hopeless in view of the deplorable turf condition, and the extremely sandy soil which is characteristic of western Michigan along the lake.

The method adopted by Mr. Kaye was not only effective, but remarkably simple. It was designed to overcome the two great failings of sand soils—extreme poverty and low waterholding capacity—and did not include extensive reseeding or topdressing with heavier soil.

The final program involved generous feeding with Milorganite, a carload each spring and fall, and installation of an adequate fairway water system, to encourage existing fescue to spread and form dense turf.

Milorganite was selected because the gradual release of its water insoluble plant food elements sustains growth over long periods and minimizes leaching losses to which sandy soils are always subject. In both these respects Milorganite is superior to water soluble mineral fertilizers.

The above treatment quickly transformed the sparse fairways into a dense luxuriant turf. An equally successful and economical program can be devised for your fairways. Our Service Department will be glad to assist and will respect your confidence.

ADDRESS INQUIRIES TO

SEWERAGE COMMISSION, MILWAUKEE

MUSKEGON COUNTRY CLUB
 MUSKEGON, MICHIGAN

Sewerage Commission
 Milwaukee, Wisconsin

January 30, 1931

Gentlemen:

During the past three seasons, we have used two carloads of Milorganite each year - one in the spring and the other in early fall. It is used with entire satisfaction on fairways, tees, and greens.

Remarkable improvement of fairway turf was effected by feeding with Milorganite and fairway watering. Phosphate and potash in addition to Milorganite were tried, but failed to produce any noticeable improvement, so we have relied upon Milorganite as the sole source of plant food.

When the program of improvement was started, areas was so sparse that mowers picked up clouds of dust. Fairways are now covered with a dense mat of beautiful fescue.

Yours very truly,
James Kaye
 Professional in charge of maintenance

actual experience how springy the surface is in play, whether or not an undulation should be modified, and how fast or slow the green really is.

It is quite true that there are seasons during which the greenkeeper is too busy to play eighteen holes of golf, or even nine. It is just as true that he should know from the actual playing of the game against the par of his course whether playing is enjoyable, owing to good conditions, or generally irritating, because he has a lot more to learn about greenkeeping.

There should be less argument about the "putting" quality of golf greens, and more about the fairness or unfairness of the hazards on the course and the response of the greens to driven shots, when the question comes up as to whether or not the greenkeeper should play golf.

The standard rules of golf as approved by the U. S. G. A. are as much as possible in favor of the man who is keeping the course. They are just enough in favor of the golfer to make him work to lower his score.

The greenkeeper should have as good knowledge of the rules of golf as the average golfer, and a better knowledge if possible. He should also be entirely familiar with the local rulings of his club, why they were made, and how they work out in play.

So-called "local rules" are those that apply to certain playing angles that are found on one course and not on another. Such rules are almost invariably necessary, as no golf course is standard as to either lay-out, contour, or special features and equipment. Therefore general rules must usually be augmented by specific local mandates, individual with each club.

There are many times when special work is being done on the course, such as drainage ditches half finished, greens being topdressed, fairways being cut, re-turfing in progress, and sometimes jobs of reconstruction on the way. Piles of sand or topdressing, golf course machinery and tools, to say nothing of extra workmen, are in evidence and to some degree retard the game for the players during these periods. At such times, the greenkeeper realizes that he should know his exact rights as a greenkeeper, and also the rights of playing members of the club. What constitutes his privilege to the placing of signs reading "Ground Under Repair" in relation to the rules of the game, is a matter that for his own protection he should know all about. In order to understand why it is

well to let some of the work wait while hurrying another job along; in order to distinguish the difference between necessary and unnecessary nuisances from both a playing and a greenkeeping viewpoint; for these reasons, and others that space refuses a place to enumerate, the greenkeeper should know how to play golf, and play a few holes straight "through the green" every once in a while.

Some greenkeepers know when a hazard looks well. Others know whether or not it looks well, play the course once or twice a month, or as often as they can, and judge the hazard by both its appearance and its features of play. When a greenkeeper can talk intelligently about the various features of his course, and the course speaks for itself as to its expert management; when there is an atmosphere among the membership that is ruffled only occasionally by adverse criticism, *that greenkeeper plays golf.*

There are some greenkeepers who carry telescopes to keep a check on distant workers. That's a good idea. It is also a good idea for him to lay down the telescope once every week or ten days and pick up a golf bag. He will find that by doing so he can more intelligently direct the work of the men he views through his telescope.

REDUCED PRICES ON HOFMANN FERTILIZER DISTRIBUTOR

Salem, O.—Price reductions on the Hofmann All-Purpose fertilizer distributors are announced by the maker, The Salem Tool Co. This price reduction, amounting in some cases to as much as 33 $\frac{1}{3}$ %, has been made possible through increased and simplified production. Design and construction have been greatly improved and a broad range of sizes been made available.

A special new feature of the Hofmann, on which application for patents has already been made, is a feed control arrangement which automatically stops the machine from feeding when the man stops pushing, thus eliminating any piling up of fertilizer in one spot.

AMHERST CONFERENCE AND EXHIBIT

MASSACHUSETTS Agricultural College annual course conference and maintenance exhibit will be held March 13, 14, and 15. This finale of the winter school will feature speakers of national prominence, motion pictures, question box and demonstrations.

This event is open to all interested in golf course maintenance and a record attendance is expected.

Caskey Gives Further Details of Rochelle's Watering System

By GEORGE CASKEY

Greenkeeper, Rochelle (Ill.) G. & C. C.

(Continued from last month)

WHEN the question of installing the system came up, the board asked the local plumbers and city engineer to submit bids. Their bids, however, were too high and they were rejected. I got in touch with J. E. Nelson of Findlay, Ohio, who makes a specialty of this kind of work and asked him to submit a bid. His bid was accepted and he started work immediately.

The pipe was all laid to drain with a minimum of one foot cover. On account of the timber and the size of the job Mr. Nelson did not use a ditching machine but dug the trenches by hand. Under his contract he was obliged to dig the trench to grades submitted by the engineer, lay the pipe, and test it to the satisfaction of the engineer in charge, and backfill the trench. He commenced work on May 5th and completed the work on May 31, laying 7,094 feet of pipe and digging 5,900 feet of trench at a cost to the club of only \$529.33, a remarkably low figure, I think.

He paid his labor 40 cents per hour and his foreman \$50.00 per week.

Right here is a good time to mention

the drinking fountains. Two were installed. One at No. 1 tee which is but a short distance from No. 3 green and also one between No. 4 green and No. 6 green. The one at No. 4 green serves players as they hole out at No. 4 and again at No. 6 green. The pipe serving these fountains is connected to the water supply at the clubhouse and is laid in the same ditch as the irrigation main, but about four inches above it. The irrigation main was first laid, and then backfilled to a depth of 4 inches above the top of the pipe and a new grade established for the fountain lines.

The construction of the pumphouse presented a small problem. For the installation of such a small pump, it seemed foolish to spend much money on a pumphouse. A good, strong man could lift the whole unit, pump, motor, and base.

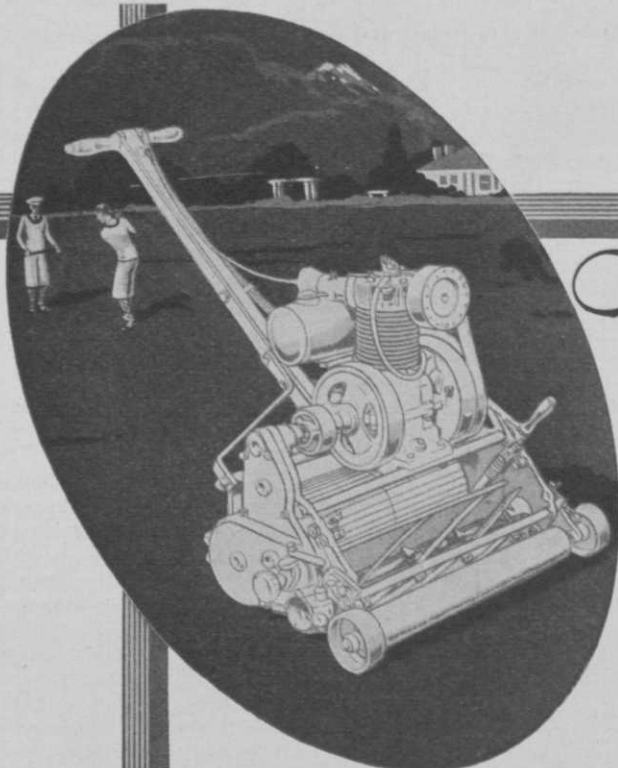
Kyte creek where it flows through the golf course, flows on solid rock. It is a drainage ditch, and at this point had been deepened by blasting. The edges were loose and flaky, back from three to five feet from the waters edge due to the blasting. I decided to dig down along the edge of the creek bank through the flaky material to solid rock and make a place large

enough to hold a concrete box six feet square with walls six inches thick, leaving an opening on the creek side for water to flow into the sump. An eight-inch mesh screen was placed over the opening, keeping out all dirt, sticks, etc. This concrete box was built up to one foot above the highest high water mark known.

It formed the foundation for our pumphouse, which is a wooden structure covered with paper shingles and pa-



This pumphouse, on the banks of Kyte Creek, cost only \$250 to build.



The
**Jacobsen
 POWER
 PUTTING
 GREEN
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For FASTER CLOSER Cutting

Today it embodies the greatest engineering refinements money and skill can produce. From pioneer to the day's outstanding leader, the Jacobsen today cuts the greens on hundreds of golf courses.

The PERFECT Putting Green

is the work of only a few minutes with a Jacobsen. A finer cut is given by its high-speed, reel made in 19 and 24-inch widths. Auto-type differential assures easy handling of mower; independent control of traction and cutting units; enclosed gear drive; specially built, powerful motor; aluminum construction of major castings, are a few Jacobsen developments for greater speed and better results in cutting modern greens. The Jacobsen greens brush and power transport cart are valuable extra equipment for better greens maintenance and transportation of mower.

FREE Demonstration Take nothing for granted. Let us show you on your own course. You name the date. We will show you WHY the Jacobsen can save maintenance costs; HOW it makes the perfect putting green in HALF the time. Sales and Service everywhere. Write

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per roofing, and it makes a dandy at a low cost of approximately \$250.00. The form lumber used on the sump was used to build the house so as to eliminate waste and save money.

I placed the hose connections at the greens, wherever possible, so that a sprinkler at the end of a 100 foot hose could be made to reach the entire green surface, slopes and approach. This necessitated two outlets at No. 1 green, No. 7 green and No. 9 green, though we were able to get by with only one outlet at No. 2 green.

We bought 800 feet of one-inch hose and 100 feet of three-quarter-inch. The three-quarter-inch hose is unsatisfactory. We decided on the Thompson Master sprinkler as fitted to our system and pressure. We are using eight of these sprinklers with the one-inch hose, the nozzle which has an opening of 7/32 of an inch. These water a circle approximately 80 feet in diameter when all nine sprinklers are operating. On our largest green, No. 4—180 yards, three settings of the sprinkler covers the entire green, slopes and approach out to 20 feet from the edge of the putting area.

On the sprinkler operating from 3/4-inch hose we are using a nozzle having an opening of 3/16 of an inch and watering a circle about 70 feet in diameter. The sprinklers using the 7/32 inch nozzles are throwing from 10 to 11 gallons per minute depending on their location, and the other sprinkler operating on the 3/4-inch hose is throwing about seven gallons per minute.

Checks Up on Pressure

A pressure gauge placed between the hose and the sprinkler when all nine sprinklers were operating showed the following pressures:

At No. 1 green.....	32 lbs.
At No. 2 green.....	34 lbs.
At No. 3 green.....	34 lbs.
At No. 4 green.....	35 lbs.
At No. 5 green.....	35 lbs.
At No. 6 green.....	35 lbs.
At No. 7 green.....	38 lbs.
At No. 8 green.....	44 lbs.
At No. 9 green (3/4-in. hose),	28.5 lbs.

Note the difference in pressure using the 3/4-inch hose. No. 1 green is the highest point on the course and farthest from the pumphouse; No. 8 green the lowest and closest to the pumphouse.

The big thing we are crowing about is that we have a system with which we can water nine greens at one time if we want

to and, believe me, this dry summer, we did want to several times, and at a small cost because we are operating at maximum capacity. And when we only want to water one green or two or more or treat a green, we don't have to have a big pump turning, eating up electricity to give the club treasurer the hebe-jeebies when the electric power bill comes due, and must be paid, and the dues are still due.

The entire cost of the system to date is as follows:

Pipe and fittings	\$1,875.39
Pump, complete with motor	236.25
800 feet hose (1-inch) & clamps..	242.85
8 sprinklers	129.60
Pumphouse complete (Approx.) ..	250.00
Installation costs	529.33

Total

\$3,263.42

There may be a few items left out of the list for example, the engineering which I handled myself along with the other work of superintending the building which would run the cost up.

Low Operating Cost

Our operating cost for the season was \$112.92 for electric power. This dates from June 10 approximately, when we first started using the system, to September 25 when the last bill was received. It costs us 42 cents per hour for electricity to operate the pump and 40 cents per hour for labor or a total of 82 cents per hour to water nine greens or nine tees at one time.

This covers the cost of all current used in watering the greens, slopes, approaches, tees, and clubhouse lawn, and many areas on fairways that threatened to die unless something was done immediately.

Nine Drains in System

We have nine drains on the entire system, six on the irrigation lines and three on the drinking fountain's line. One of these drains is located at the pumphouse, one at the creek where the line crosses to No. 8 green, one on the drinking fountain line in the basement of the clubhouse and one draining the irrigation on the clubhouse lawn which empties into the gutter. Of these drains the pipe line is exposed in such a manner that the water from the lines flows away freely, and it is impossible for water, accumulating in the wintertime, to flow into these drains unless unusually severe conditions exist. The remaining five are all the way from two to three feet underground. All the drains on the irrigation system except one are