hundred pounds Lecco to one yard of top soil and Peat Humus and we use about two-thirds of a yard to each green. This would allow about ten pounds of Lecco per one thousand foot of green. We use a Toro Compost spreader and follow with a flexmat, afterwards water. With this method it does not interfere with play at all. Our turf is fine and a beautiful color. Our greens are watered between six and ten P. M. thus giving them a chance to temper out before play starts the following morning.

* We have just broke ground for a miniature 9-hole course near the clubhouse and that too will be planted to Washington Bent grass.

We have a new clubhouse just completed in December, 1927. It is a three story stucco, modern and complete even to the smallest detail. When it comes to the annual election of officers we always know who the next ones will be for they always succeed themselves. The officers and directors of the Pasadena Golf Club are Leo G. MacLaughlin, president, F. A. Wood, vice-president, Lee Ellinwood, secretary, Theodore Smith, treasurer, and Wallace Woodworth, William Rae and A. L. Stevenson. These seven comprise the Board of Directors. F. C. Shepard, is our Green committee chairman.

The club is officered by men of wide experience in club affairs. The same officers, the same chairman of the Green, Mr. F. C. Shepard, goes to show the complete satisfaction of the membership. As for myself, I have had the hearty co-operation of our officers, chairman of the Green and the members.

The Part the Hose Plays

The silky smoothness of the closely cropped beautifully colored grass greens of today certainly excites the admiration of everyone. Few of those, who walk upon these, however, give very much thought to the work and expense of making the greens so fine.

Players like the sunshine when playing golf. They have no objection to a fairway that is made hard by the sun—but—when they come to the green they want it soft and smooth. That means water, and water means hose lines. The water is often carried long distances, which means pressure anywhere from 60 to 125 pounds per square inch. The hose is dragged around, walked over and since the water taps are generally fifty to a hundred feet away from the spray, the man tending the green will kink the hose to shut off the water while moving the spray, rather than travel the distance to and from the tap.

Everyone knows the drying out effect of the sun's rays and—so it is easy to understand that the golf course is a place where quality is needed in hose lines.
Where Does Economy Start?

By EDW. B. DEARIE, JR., Greenkeeper
Ridgemoor Country Club, Norwood Park, Ill.

EVERY golf course should be maintained on some definite cost program year in and year out. The cost should be kept as the standard unless a departure is warranted by some good reason and the reason should be good.

Changes of program should be made sensibly with a clear view of the results that may be expected. There is no sense in trying anything and everything. Many a course has been ruined by that sort of work. However, there has been a vast improvement in maintenance equipment and its progress has greatly reduced course upkeep and no doubt will do more to help approach the ideal maintained golf course at a minimum than anything since the birth of the lawn mower.

Without machinery, we would be nowhere in modern golf upkeep today and the manufacturers of course equipment are rendering golf a great service to an end of arriving at reduced cost of upkeep.

Desirability of Standardization

Only experience will evolve a classification of accounts that can be used on all golf courses and there seems to be no doubt of the desirability of standardization. It is more than likely that experience will show that golf courses will be divided into groups in order to get a fair comparison of upkeep cost that can be used as a standard.

Course maintenance costs is the key to all course difficulty. For future yearly budgets, costs should include only those items necessary to present the course to members ready for playing the game of golf.

These items can be worked out only in unit costs. This means separate records of costs involved in various operations of course work such as tees, greens, fairways, traps and rough. Then there are the costs of fertilizer, seed, motor equipment and equipment repairs, gasoline, oil, hardware and many other items of material and service to keep the course in playable condition throughout the season. A record of unit costs is a basis for a year to year budget record for comparative costs of operations.

Establish Unit Costs

Establishing unit costs will prove the only fair means of comparing the cost of operating one course with that of another. This explains the reason of present cost variations. The differences that are found to exist may be accounted for in the unit system to the end that extravagances or excessive cost or inefficient management may be identified.

These costs are entered in the club ledger and a monthly report given to the greenkeeper for his monthly records to the ground committee.

The course maintenance account ought to be as simple as possible showing the unit cost of the things that are absolutely necessary and are common to all golf courses, and those that are simply desired for convenience or for comfort but are not absolutely necessary. There can be no comparison of costs of the maintenance of golf courses that is worth the trouble of making, without a standard method used by all clubs.

In conclusion permit me to say that nothing is of greater importance than a trained and efficient crew of workmen in the economical management of a golf course.

Edward B. Dearie, Jr.
Give Thot to Your Equipment

Midwest president reminds greenkeepers of the importance of taking care of golf course machinery. Neglect means waste of money

By JOHN MacGREGOR
President, Midwest Greenkeepers' Association

SINCE the subject of golf course maintenance is, at the present time receiving more attention than it has heretofore, I believe it will be well for me to remind my fellow greenkeepers at this time, that there is one branch of our profession which has been given very little thought. That is the care of golf course equipment.

First comes machinery, which includes tractors, fairway, green, tee, and power mowers, compost mixers, compost screens, compost distributors, seeders, wagons, spraying outfits, etc. You should treat this equipment as something of great importance.

There should be an understanding in general, that when a machine does not operate properly, something is materially wrong and the cause most usually is an accident, or else the operator does not fully understand the working of this particular machine. When anything does break it should not be repaired with a piece of wire, but should be inspected by some one who understands machinery, and will if necessary, secure the parts to repair it from the manufacturer.

Teach the Operator What To Do

THE most important point is to teach the operator what he should personally do to keep the machine he operates in proper working order, as there are a great many who need much instruction, and who do not appreciate the value of proper care in the operation of the particular machine. I want to impress, on every one concerned, that the operators of machinery be given a thorough understanding of their responsibilities, making very clear to them the importance of lubrication. When they have finished for the day (especially cutting grass) the hose should be turned on the machines to free them from grit and grass. All bolts and nuts should be gone over every day and tightened where necessary. Such instructions usually come with machinery, and should be followed more closely.

When the equipment has been taken into the barn at the end of the season, work should be started immediately on the overhauling. The tractor should be the first to receive attention, the work to be done depending on the age of the machine. If the tractor has been in use for only one season all that is usually necessary is cleaning out the carbon, grinding the valves and going over the bolts and nuts on the chassis and body. All of the grease cups should be taken out and cleaned ready to be filled before operation.

Put New Rings in Tractor

IF THE tractor is two years old or more, it is possible that you have had trouble during the season with fouled spark plugs, which is usually an indication of leaky piston rings. The best way to remedy this trouble is to take the old rings out and replace them with new ones a little oversize. Then the connection rod bearings may need taking up. There may also be worn knuckles on the steering gear that may need replacing. If you are not familiar with this work it will pay you to spend a few hours in a garage once in a while. After that you will be surprised at what you can accomplish on your tractors.

Next comes the mowing equipment. Every unit should be taken apart and thoroughly cleaned. The cleaning can be done with kerosene and an old brush. Then all of the bearings must be examined as they frequently show a great deal of wear. If so, they should be replaced, as it is impossible to set a mower properly with loose bearings. You may find worn gears, but when replacing never put a new gear with a worn one as the old gear will wear out the new one in a very short time.

Order Parts in Duplicate

WHEN ordering parts from the factory always order two of each kind, then you will be prepared for an emergency. It is nearly always necessary to replace...
the bottom knives to start the season. The reels have to be ground at this time and those who have a lawn mower grinder are very fortunate, as the grinding is of short duration. Those who have no grinder must resort to grinding with emery, which is a laborious task, unless they send their units out to be overhauled. This should be avoided if possible as it means an added expense that can be eliminated.

There are probably a good many who do not know that by grinding the reels too frequently they are shortening the life of the mower. The grinding during the overhauling is all they require. It is only necessary to have an even surface so that the bottom knife touches at all points, and during the cutting season, the reel should be set so that it just touches the bottom knife, not tight as this causes undue friction and wears the reel. The green, tee, and power mowers should all receive the same treatment, if inexperienced at this work it is well to mark parts or lay them in such a position that you may put them in their proper place when assembling.

Taking Inventory An Annual Occurrence

When taking inventory, which should be an annual occurrence, it is very easy to check up on your tools making notes on replacements and new equipment. Then when making up your budget for the year these notes will aid you wonderfully.

Tournament Schedule

June 25-30—Trans-Mississippi Golf Association Amateur Championship at the Wakonda C. C, Des Moines.
July 2-3—Pennsylvania Golf Association Open Championship at the Oakmont Country Club, Emilie Loeffler, Greenkeeper.
July 4-6—Annual Fourth of July tournament at Del Monte.
July 6-7—New York State Golf Association Open Championship, Onondaga Golf and Country Club, Syracuse, N. Y., Jack Welsh, Pro-Greenkeeper.
July 18-20—Metropolitan Open Championship, Shackamaxon C. C, Westfield, N. J.
July 31-Aug. 5—Public Links Championship, Cobbs Creek Course, Philadelphia, Daniel Flaherty, Greenkeeper.
August 15-18—Buffalo District Amateur Championship, Cherry Hills Country Club, Charles Behm, Greenkeeper.
August 27-Sept. 1—Western Golf Association Amateur Championship, Bob O'Link Golf Club, Chicago, Ben Freberg, Greenkeeper.
August 30-31—Walker Cup Matches, Chicago Golf Club, Wheaton, Ill., John MacGregor, Greenkeeper.
October 5-6—Lesley Cup Matches, Winged Foot Golf Club, Mamaroneck, N. Y., John Elliffe, Greenkeeper.

Every greenkeeper should be able to take care of his equipment thereby reducing his budget materially.

All of the machinery should receive a coat of paint, in fact every piece of equipment, including the tools, as it prolongs their life, and removes that dilapidated appearance, which everything gets after it has been in service any length of time. If these methods are strictly adhered to by all especially those who have not given this very particular branch of the profession the care it most decidedly deserves will find a most decided reduction in their maintenance budget, which the Chairman of the Greens will not fail to see and appreciate.

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What's Doing About New York

By P. C. PULVER

AN OLD timer, whose golf has been largely in the past, had occasion recently to visit a number of courses in New Jersey. Not in years had he paid any particular attention to golf conditions, consequently when his tour of inspection was over he kept referring to what he had seen in accents of surprise. One remark in particular he made is recalled by the writer somewhat this wise: “Why, these are not golf courses, they’re parks.” Well, compared with say thirty years ago the courses of the present possibly are park-like in appearance. Incidentally, that is what your linksman of today prefers. He wants his golf served up to the highest standard—a standard, by the way, which has only been brought about through constant and intelligent study of turf and soil conditions.

It was such study and interchanging of ideas that marked the gathering at New Brunswick on June 18 under the auspices of the Greenkeepers’ Association of New Jersey. Affairs of that nature are doing their part in bringing about the transition between conditions old and new.

In sending out notices for the gathering at the State Experimental Station, F. J. Roth, the wide-awake president of the Greenkeepers’ Association, extended a cordial invitation to all members of greens committees; in fact, anyone interested in the production and maintenance of turf for golf courses was welcome.

Good Attendance at New Jersey Meeting

As a result there was a good attendance. The New Jersey station has been experimenting with turf plots for a number of years and these plots because of their local character, were naturally of vital interest to green committeemen as well as greenkeepers throughout New Jersey. During the meeting held in the afternoon, talks were delivered by Dr. Lipman, on Fertilizers; by Prof. Cox, on Soil in New Jersey; by Miss Fiske, on Seed Analysis and by Dr. Sprague on Test Plot Work.

At the conclusion of the meeting the party adjourned to the turf plots for observation and discussion. In the evening there was an informal dinner at the Elk’s Club with the speakers of the day as guests of the Greenkeepers’ Association. The whole affair served to demonstrate more forcibly than ever that the Jersey association is an active, going organization, its one sole purpose having to do with the bringing about of better maintenance conditions among golf clubs where its members are employed in the State of New Jersey.

William D. Baucker, golf course engineer of Basking Ridge, N. J., is constructing a new course for the Valley Country Club at Hazleton, Pa. Herbert Strong, profes-

R. A. JONES
General Manager and Greenkeeper of the Baltusrol Golf Club

The Safe Way to Rid Greens of Worm Casts

"In regard to your 'ELECTRIC' Worm Eradicator, I can truthfully say from my experience that it is very effective. The men prefer it to the dry compounds, due to the simplicity of using it and the cleanliness in handling."—Geo. H. Wolf, Supt., Briarcliff Lodge, Briarcliff Manor, N. Y.

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"ELECTRIC" not only brings up the worms but actually improves the greens, stimulating, fertilizing and protecting against "brown patch" and other fungus diseases.

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Gentlemen:
Two years ago I had the pleasure of visiting the Chicago
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into the turf, by the use of a compost brush.

Having used several devices for working the compost into
the turf, which have not given me good results, I tried out
the MacGregor brushes, and I feel, owing to the good re­
results which I have received from them, I should acknowledge
my appreciation to you for the service that the two brushes
which we received from you have given.

Yours truly, (Signed) John Morley, Greenkeeper.
Youngstown Country Club, Youngstown, Ohio

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A development in New York State, not many miles north of the big town, is known as the Chappequa
Country Club. It is on a large tract of land near Mt. Kisco, and a by no means small part of the attraction
when everything has been completed will be an eighteen-hole course laid out by Donald Ross. This circuit is
now nearly completed.

Upper Montclair Meeting

THAT greenkeeping and its ramifications are getting
somewhere in the Metropolitan district received
further proof at a gathering held June 11 at the Upper
Montclair Country Club. Preceding that, first meeting
under the direction of the New Jersey State Golf As­
sociation green section, green chairmen, greenkeepers,
as well as quite a sprinkling of professionals who are
not greenkeepers, assembled for play over the course
in the afternoon. In the evening Dr. Monteith delivered
a talk and there was a general discussion on matters of
interest.

While the value of the tests made by the United
States Golf Association green section at the Arlington
turf garden near Washington has been appreciated, the
question has often been raised as to the practical appli­
cation of these results on courses in other parts of the country. Supplementing this work with further tests under various local, climatic and soil conditions may therefore be regarded as a natural outcome.

Three Green Sections Formed

In co-operation with the Metropolitan Golf Association three green sections have been formed in that section, one by the Long Island Golf Association, one by the New Jersey State Golf Association and the other by the Westchester County Golf Association. Although each section has its own committee it works in harmony with the others. The objects of these green sections are to carry out tests on turf under local conditions and to bring together green chairmen and greenkeepers at occasional meetings for a better understanding of problems of course maintenance.

In New Jersey test plots have been prepared at two courses, Morris County Golf Club and Upper Montclair Country Club. Similar arrangements have been made in Westchester and Long Island, and it is also intended, where possible, to conduct some tests on a larger scale on the courses themselves.

Weeds at Wheatley Hills

Quite a mystery was recently solved at the Wheatley Hills Golf Club at East Williston that may interest greenkeepers. For several years Chairman Kidd of the green committee couldn't figure out why so many weeds appeared periodically at a certain spot on the
The Wheatley Hills course is divided by the Motor Parkway and under a part of the parkway is an opening through which the west wind whistles. On the leeward side, as the nautical man would say, is the tenth fairway. On the windward side of the opening is a patch of rough filled with weeds, or at least was filled with weeds.

One day while on a tour of inspection Kidd saw the wind carrying the flying seeds of the weeds through the opening, and the mystery of the weeds on the opposite fairway was solved. Those particularly obnoxious weeds were removed from the rough and the trouble ceased, but for a long time their presence on the tenth fairway presented a worrysome problem. Wheatley Hills, by the way, never looked in better turf than at present.

Heavy Rains Soften Courses

The frequent and heavy rains during the early part of June developed not a few soft spots on quite a number of the courses in the New York zone, although it is doubtful if the turf on a majority of the fairways has ever been in such fine condition. Up at Rockwood Hall, near Tarrytown, the course is in wonderful shape, with the possible exception of one spot at the tenth hole in a little valley where some of the artists and writers in their recent tournament managed to get their feet wet in a pretty piece of green that needed draining.

Still More Cutting Hours

The simplified design of the PENNSYLVANIA “New” Fairway Mower lessens the time required for adjustments, as well as the need for minor repairs, and thus insures a maximum number of cutting hours from this lighter, faster Quint or Trio. Furthermore, both the adjustments and any minor repairs may be made by the average tractor operator.

The “New” Fairway gives the same efficient, flexible operation as our Super Fairway. For instance, as shown in the illustration, it has the same unique lifting device which enables the operator to raise or lower the two outboard units without leaving his seat.

Its moderate price is another “New” Fairway feature. The price of the Quint (144-inch cut) is $625; of the Trio, $375; and of the single mower units, $110 each—all f. o. b. Philadelphia.

Write for further facts on the “New” Fairway and for our new folder describing the Improved 1928 Model Super Roller Greens-Mower.

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Say you saw the ad in The National Greenkeeper
At Lido during the invitation affair a few weeks since, the players were greatly surprised at the wonders that a new drainage system had worked. It seems that thousands of acres of lowland surrounding the Lido course had been filled in, causing water to back up into the course. The conditions looked bad for a time, but a system of ditches was cut and piped and now the course is in better shape than ever.

One of the surprising things in the Long Island section is the wonderful condition of the five daily fee courses at Salisbury. Jack Hagen has the entire layout groomed to everyone’s approval, notwithstanding the fact that for the first time in Salisbury’s history play was permitted throughout the winter and spring. On occasions a few players were allowed to use one or two of the circuits in the past, but this year the courses were open and a green fee charged. The play was quite heavy up to the regular opening, after which records were broken, as many as 1183 playing in the bad weather preceding Memorial Day.

But even if the aforesaid rains did soften up the fairways throughout the Metropolitan section they only slightly affected the attendance at the numerous events. The triangular women’s matches between Long Island, Westchester and New Jersey was brought off at Montclair during a heavy downpour and rain also prevailed during the greater part of the three days required for the women’s Eastern championship, also decided at Montclair. Then there was the Metropolitan Seniors’ tournament—the first of its kind—held at Garden City midst two days of rain. This rain may be good for growing grass, but it tends to spoil the players, disposition, and if anything it increases the “chin” golf in the locker rooms.

**New Public Course for Westchester**

The most impressive undertaking in a municipal way in the New York sector has to do with a 27-hole layout near Yonkers under the auspices of the Westchester County Park Commission. Tom Winton, who has had pretty much of a monopoly so far as these Park Commission course developments go, was the architect and he also has had charge of the construction work. The plan is to open the layout for play this summer. Just who the greenkeeper will be is at present in doubt. It is a Civil Service post, which of course, means an examination.

Winton, by the way, has just finished a course at Hopewell Junction, N. J., and he is also building a new nine holes for the Westport Golf Club, Westport, N. Y.

Quite an interesting development is being completed on Long Island by the Gould Realty Corporation. It is near Huntington on a beautiful tract consisting of some 300 acres containing houses of exquisite design, attractive roads and bridle paths to say nothing of an eighteen-
Brown Patch and Angle Worms

By HENRY A. MILLER, Greenkeeper

Barrington Hills Country Club, Barrington, Ill.

THE past season was rather bad for brown-patch in this locality. From the weather conditions we had it would almost seem impossible not to get brown-patch on the greens, as it had rained practically the whole summer and it was very humid at times, which will make brown-patch jump up and spread.

Being a wet season we had plenty of angle worms which from my experience helps to spread brown-patch (the more worms the more brown-patch) and also too much water will help toward having brown-patch. A green being surrounded by trees and woods or down in a valley where the wind and sun do not help dry out the wet and sour soil, will be an easy victim of brown-patch. But a green out in the open where the sun and wind can dry it out fast will withstand brown-patch much longer.

All our greens which were surrounded by hills and trees and which wouldn’t dry out fast, and stayed wet for a long time had more brown-patch than the greens that were out in the open. Although this was the first year that we had brown-patch out here, owing to wet and humid weather conditions, it was almost impossible not to have it, but we didn’t have any trouble controlling it with Uspulun treatments. We followed this with sulphate of ammonia or any quick acting fertilizer and a sand dressing which would dry up the surface and this would soon put a green on the way of recovery.

Care should be taken in mixing a solution of Uspulun for brown-patch for bent greens. From my experience a fescue or redtop green will stand a stronger solution then bent greens. I found that the mixture of solution described to be sufficient to kill brown-patch is too strong for a bent green. I had followed directions and had put it on spots of brown-patch on a bent green and almost burned the spots up. It took the rest of the season to bring them back, and then they didn’t green up the way they should. In the fescue greens, however, it didn’t hurt at all as they got green again as soon as the disease was killed. But Uspulun will surely kill brown-patch, if you use it right.

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