



NEWS LETTER

The man who trusts men will make
fewer mistakes than he who distrusts them.

—Cavour

MAY
1940

This NEWSLETTER is published monthly by the Greenkeepers Club of New England, and sent free to its members and their Green's Chairmen. Subscription price ten cents a copy, or a dollar a year.

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May, 1940

Vol. 12, No. 5

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The ideas and opinions expressed in the subject matter of this NEWSLETTER are not necessarily those of the Editor or the members of the club as a whole.

THE NEED OF TRAINED AND EDUCATED MEN IN THE GOLFING WORLD

by Anthony J. Sperandio

Today we are faced with a grave problem in this business known as golf. The selling of the use of golf courses, golf balls, golf clubs, liquor, food, and many other commodities involves millions of dollars, either directly or indirectly.

Let us look behind the scene and see what foundation the clubs have in men with education and training. Those who are most successful in the business world have the best educated and trained men in their particular field. These men have a thorough knowledge of the business in which they are employed in order to get the greatest value from the overhead but primarily, to satisfy the demands of the public.

There is a solution to our problem, but we have to find it now before it is too late.

Do you remember back in the early twenties when baseball had the black scandal? It was at a crisis. Now the men of baseball got together and appointed Judge Landis as the "czar" of baseball and made new rules and regulations. These rules were made for the

good of that sport. As a result, baseball came back and advanced to its present position as our national pastime.

Golf is another national pastime for the American public, if not for the world as a whole. Golf is played in a great many countries and to think that this sport is at a crisis today, especially in our country which is considered the wealthiest of them all.

Let us stop to think and see what we have to do to realize a wise and efficient way to put golf back in the financial condition which it once enjoyed. The question we have to answer is: How have our golf courses been managed? During good times, members would dig down and think very little in donating a few hundred dollars to meet the current expenses. Today is a different age and days of donating and gifts are a thing of the past. Our private colleges are also suffering from lack of gifts and donations, and are turning to other sources of income in order to meet their obligations.

The present economy wave has made a decided change in the present-day golf course maintenance. The time has come to deal with this problem with open minds and let personal and old ideas alone and come together with new ideas for the future. One of the greatest expenses connected with the operation of a country club is old and worn-out equipment. Many of these clubs cannot see these expenses mounting daily. Poor managing resulting from incompetent greenskeepers, managers, and greens chairmen brings out the real cause of our troubles. If they would only stop to give a little thought to see what lies ahead! If they would only apply some common sense to golf course management! The golf courses have survived by the changes in equipment and maintenance to carry them through the depression, but no thought has been given to the personnel. This is the problem now. Ask the question: How many men are qualified to manage a country club? It is safe to say that very few of them have the qualifications necessary to take complete charge of a golf course whose average investment is \$100,000.

The greenskeepers of yesterday were picked from the rank and file and with practically no experience and self-education. The club members looked upon them as laborers who are not on the same standing with them because theirs

was not a profession. He was not allowed to attend the directors' meeting or to take part in any of the club activities. However, he had the responsibility of the golf course. He had to obtain worthy results. There were many members who have not the responsibilities as great as those of a greenskeeper and yet they would look down upon the greenskeeper. Does it not seem right that a man who has charge of a golf course be respected as a responsible person? The men of the greenskeeping profession are lacking this respect today even with the education and training provided for them in schools and colleges. This training and education brings his standing up with that of other professional men.

The various industries of today have their departments. They are under a general manager or superintendent who has a thorough knowledge of the departments of that business. These men are trained and educated for their work. Now apply this picture to golf courses. They have their maintenance, sales, and restaurant departments. If there was a man in general charge with the necessary training and education he could see which department needed the proper adjustments to make it a profitable enterprise.

We often hear of the friction between pro and the greenskeeper in many golf clubs. The pro is to a club what a sales department is to a business organization. The sales department has to sell the use of the golf course to the public. A pro must contact the customer. If the course has well-kept fairways and greens, which is the greenskeeper's job, the pro will have little trouble to sell. The pro also sells the equipment used to play this sport.

Greenskeeper and pro should get together to discuss the problems of the other so that each can be thoroughly acquainted with what is to be expected of the other and also by the public. If the grass has been damaged, he should go to the pro, the salesman, and explain the trouble. Then in turn, the pro can explain it to the golfer.

These pros and greenskeepers should forget the jealousies in believing one or the other will out, and work together for the good of the club. That club will do more business as a result. The greenskeeper and pro should forget the possibility that his club might some day appoint one or the other as pro-greenskeeper.

Our colleges and experimental stations are carrying on research work in order to educate and train men in this profession. These schools started back ten or twelve years. The golfing world owes much to the men who are carrying on this work. It can look to them as pioneers who set forth new ideas for better turf. There is a need of more schools and colleges to bring to the golfing world more educated and trained men.

Many greenskeepers are self-educated in the raising of fine turf. They rose from a helper to greenskeeper. These men are lacking the education and training offered by schools and colleges to make them professional men. The business will accomplish more if it has a professional man to deal with the customer. Would he not obtain the most from each dollar invested? A master of his profession or trade can serve with greater efficiency.

Our clubs have in the past had costly mistakes with inexperienced men. That remedy has to alleviate this fault and that remedy can only mean more trained men. Many clubs have their backs to the wall because of poor methods. What would happen to all our business enterprises if the men in control were not trained in their field? It is safe to say our country would not be where it is today if it were not for trained men. So this holds true for the future of golf.

Let us picture a self-educated greenskeeper or pro as an animal in the forest. What would happen to it with the conditions which face him today, namely, the hunters with modern equipment such as guns, sounds to attract the animal, and trained dogs? So it must be trained and educated by its mother to cope with the new methods of hunting. The same applies to all professional men.

The clubs of the past had more money so that men in charge could get along with self-education in raising turf because there was money to protect him, as the forest protected the animal in yesteryear. Members did contribute heavily without realizing that their money was partially wasted. The time has come to protect himself from the present conditions of economy by providing himself with a man who can get the most for the money spent.

In golf, we have three nationally known organizations such as the Professional Golfers Association, the United

States Golf Association, and the Green-keeping Superintendents Assoc. These organizations should get together and set down certain rules and regulations for its professional men so that he may receive a standing in life. They all work together for the business as a whole.

The greenskeeper will have no worries about the pro who may be ambitious, or vice versa, because of the saving of one man's salary. The country clubs which are members of these organizations would hire only those approved by the associations. So it is not likely that a man who is a good greenskeeper will make a good pro or vice versa, and only those who are good are approved.

The public golf course of today is an asset to the community because there are many benefits to be received by this means. Many thousands have learned to play golf on public golf courses which ought to be proof enough as to their value.

A wheel of a wagon must have all the spokes to carry the load with more confidence to its destination. If one spoke is broken, it becomes weak and the big question arises as to whether it will reach its destination. Golf with its three main branches has to wheel together with all spokes if the sport is to survive.

CHARGE TO GRADUATES OF WINTER SCHOOL, 1940

by Pres. John Counsell of G.C.N.E.

Members of the 1940 Winter School
for Greenkeepers:

When I received the invitation from Prof. Dickinson to speak to this class I felt quite proud because it is an honor and a privilege to take part in the Graduation Exercises.

You are to be commended for your initiative and ambition to improve yourselves by attending the Winter School for Greenkeepers here at Amherst. Your attendance here proves that you have a desire to nourish and fertilize your mind as well as the soil.

You have had the opportunity to learn something about the technical as well as the practical side of greenkeeping. You have learned about the structure and functions of plants, soil physics, turf diseases, etc. and if you will combine

this knowledge with your practical experience, you will be a more efficient greenkeeper.

It has been said that education makes you think. Education and training are not the same. A dog can be trained to perform but the dog does not stop to think why he does it. There are two kinds of thinking. Worrying is disorganized thinking. It is a mental weed that crowds out intelligent thinking and planning. Clear, logical, organized thinking with sufficient experience is the foundation of good judgment, a prime requisite to successful greenkeeping.

The greenkeeper occupies an important position in the golf club. In most cases he is responsible for the major part of the golf clubs total investment and the competent greenkeeper is the only insurance the club has to protect that important asset. Conduct yourself with the dignity of your position and in a manner that will reflect credit upon you and your profession.

Today's problem is not "to work or not to work." It is to get a job and hold it. Equip yourself from every angle to deal with your employer's requirements. Study his problem and interpret your experience in accordance with his needs. Your employer is interested in you only in proportion to what you can produce or contribute to his work.

Get over the idea that success is due to some mysterious quality which some men have and others have not. Success is really made up of simple things that most men don't do. I believe that procrastination is one of the principal obstacles to success. The hardest job for the average man is to start to do something, because it is much easier to put off to some future time.

In conclusion let me leave this thought with you. Simply do the things you know you ought to do and stop doing the things you know you ought not to do.

May I extend to you my best wishes for a happy and successful future.

The Woodland Golf Club recently trapped the 18th green more severely. Plans for the immediate future call for raising the rear portion of the 14th green, and enlarging the trap to the left and rear.

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MEETINGS

Gene Mauro of the Framingham Golf Club won first net in the first tournament of the 1940 season held on May 6th at the Woodland Golf Club, Auburndale, Mass. His score was 97-25-72. Second net was won by Paul Hayden of the home club with 91-17-74.

Before lunch there was a demonstration of Jacobson power equipment, including the new 1940 power greens mower and power roller.

A special meeting was held at the Belmont Country Club on the evening of April 22nd to see moving pictures of brown patch control, and to hear Mr. J. Hunter Gooding, Sales Manager of the Bayer-Semesan Company of Wilmington, Del. discuss Semesan and Special Semesan.

NATURE TRAILS

Waldo E. Martin, Pro Greenkeeper
Norfolk Country Club, Norfolk, Conn.
(A 1940 Conference Paper)

Is a nature trail worth while on a golf course? Will it be used? How much will it cost? What will be the cost of maintenance? These are all pertinent and proper questions. In this era of extra club activities, it is interesting to note the interest shown by golfers in natural beauty on the golf course.

Last summer, Mr. William Chenery of Collier's suggested that I make a study of conversation of golfers. I found that a large percentage of their thought dealt with the natural beauty found in the autumn coloring, the green fairways, rolling hills, and the fragrant smell of pine. All of these placed nature as the subject of great interest.

If people talk about distant Nature, views and trees, a hundred or more yards away, they should be interested in the more intimate wonders of nature. Probably if one sits in the shade of a tree, on the beach, or on a stump in the woods, a great deal of the beauty of nature would come to him. Time forbids the wait, and the modern hurry to arrive at a point or destination, forbears a waiting disposition. Yet, in this modern hurry, people are interested in natural

things, the more intimate natural phenomena. It appears, therefore, points of nature interest must be brought quickly and in a sustained manner to the individual. Therefore, why not fix it so that one can walk to nature—a path, or, to be more woody, a trail. The nature trail is an outdoor museum in which all local, natural phenomena is displayed to the people. They are also called self-guided paths though the woods.

There are many types of trails, some of which deal with a single aspect of nature, while others might be executed in sections having a section devoted to geology, another to plants, another to insects, and a fourth to birds. Another type takes things as they come, a peculiar stone here, and an unusual tree there. Trails may vary in length from one-half to eight or nine miles. Nine miles is obviously too long for a golf course but a trail three-quarters to one mile long, with an occasional opportunity to return to civilization can be arranged on any eighteen hole golf course having woods, and even woods are not necessary. The trail must not be so long that the wife and young son cannot finish before the husband plays his round, but should be long enough to afford a fine opportunity to keep little Bobbie interested and painlessly teach him something while waiting for Dad. The long trails are often stake trails on which objects of interest are numbered and the trail follower refers to the number in the guide book which has been furnished him for information on the subject. The numbered stakes are changed frequently with the changing seasons. This type of trail would obviously be impractical for children and quite expensive to keep up, but it eliminates the necessity of large signs in the woods. The simplest type of trail is the "baggage-tag trail" on which linen tags, lettered with waterproof ink are used to identify and tell the story of the plant, insect, rocks and birds.

A nature trail will usually border or frame a golf course and have its entrance and exit near the clubhouse.

If there is an existing woodland trail which touches fields, swamps and woodlands, it will save a great deal of time and effort of cutting on the part of the greenkeeper. In selecting or laying out a path, one should have it lead to some kind of a climax, such as a high rock from which there is a beautiful view, or a lake, a bed of wild flowers, or a cool refreshing picnic ground in the pines.

As you set out to make the trail, plainly visible markers should be posted on any part along the route which may have to be cleared to make the trail easy to follow. This rather narrow path should disturb the vegetation as little as possible. Fallen logs and exposed roots can be cut out whenever necessary. A simple log walk can be built across wet spots. A crow bar, pick, and shovel will be the most useful tool with which to remove rocks, and shove aside fallen logs. An axe to cut out the logs or stumps will be the only other tool necessary to complete the job.

If you are not familiar with the various plants, rocks, insects and birds in your locality, have some local naturalist go over the ground to help you jot down the information that seems important and note the interesting features. When you are ready to begin labeling, there are many kinds of labels and signs to be considered. The simplest kind is the linen tag which is cheap, but rarely lasts more than one season. More serviceable is the wooden label of thin ply board $3\frac{1}{2}$ to 5 inches, painted a dull color and lettered with dark green or black. These are fastened to painted sticks or wired to trees and never tied to plants themselves. More elaborate signs are the tripod, pulpit, turn-about, and hidden labels which I will describe.

The tripod sign is usually supported by three sticks in the manner of an easel. The pulpit sign is a wooden label tilted as a pulpit and supported by a stake in the ground. This type is better for low plants such as moss and ferns, for they are placed low along the ground and are easy to read from a standing position.

Turn-about labels have questions on the face and answers on the reverse side and pivots on its center by pulling a cord. A hidden label is a small thin sheet of zinc suspended from a large screw-eye which is fastened to the trunk of the tree. The label is seen when the zinc is lifted up. The best way to make zinc labels is to cut a thin sheet of zinc, paint with two coats of white enamel and letter with a fine brush and India ink. Give two coats of varnish and punch holes for fastening with nails. Rustic labels made from gray birch slabs, cut at a slant, would be very attractive on a golf course. Sheltered labels are simple boards with a little peaked overhanging roof. Labels should identify, be friendly, ask questions, tell the story of the different plants and animals, or give a sug-

gestion to conserve or police the trail. For example, a sign on the Bear Mountain trail reads "Do not destroy the wild flowers; others wish to see them."

Borers at work on stumps, webs and ant hills demonstrate the manner in which insects work and live. Some insects, such as the Katy-Did, may be kept in boxes with sides of glass or fine wire mesh, along the sides of the trail. These insects would be hiding during the day so that a lot of people would not see them. Attention may be called to some interesting characteristic of the insect by means of a label. For example, one of Dr. Lutz's labels reads, "Happy are the cicadas lives; For they all have voiceless wives."

Rustic bird houses may be placed on the edge of the woodlands which shelter most of the birds and generously stocked feeding stations close by will attract many various kinds of nesting birds in your locality. Apples, bread crumbs, sunflower and canary seeds and hemp and millet will provide an adequate diet for most types of birds. The value of birds to a golf course is well known by many greenkeepers who find that the sparrows and gold finches will destroy weeds. Tree swallows near a pond sweep the air clean of mosquitos. Chickadees destroy insect eggs. The brown thrush and catbird destroy the insects which are too large for the smaller birds to handle. The gay plumage of the birds, their song and their sudden and unexpected movements create a cheerful atmosphere which will delight both the golfer and trail follower.

Some members may object to a nature trail bordering the golf course as being dangerous for stray shots that may find their way along this path. It is doubtful that there is any danger if the trail is fifty or more feet in the woods. In this case, the greenkeeper need not be entirely blocked in his efforts to bring his members closer to nature. Many beautiful trees on the course may be labeled; small ponds on the fairway may serve as points of interest as well as hazards. In my opinion, the area about the tees is the most important place for the greenkeeper to start his nature project, especially the walk from green to tee, if it is through woods or swampy areas. These short trails will lead up to interest in longer nature trails.

Oakmont Country Club, Pittsburgh, Pennsylvania, has small signs near the greens explaining the variety of grasses

on the greens. Why not the birds, insects, and animals which are occasionally seen near the green. For example, deer may be frequently seen in a clearing, and an arrow would be pointing in that direction. On the Banff Springs Course in Canada, there is a sign which says "Look for the mountain goat three thousand feet above us." The signs near the tees could be changed to conform with seasons, and keep continued interest.

Perhaps a trail may be impractical because of lack of woods, similarity of terrain, closeness of holes, or lack of unused land; don't give up the idea that nature doesn't exist there.

During the course of the year, the greenkeeper and his men observe many interesting natural phenomena, and often destroy many natural curiosities because to them they are common. They forget that the player seldom has a chance to get out and commune with nature, and, therefore, hasn't seen these apparently simple things. A museum would preserve such interesting bits of nature, which could be arranged in the form of a series of exhibits, pictures, diagrams, specimens, photographs with explanatory comments. When you find and identify an animal track, you can mix some plaster paris and pour it into the footprint. The plaster paris becomes a cast which can be brought home and later mounted on the surface of a set block of cement. After the name of the animal has been printed on the cement block, it can be exhibited in the museum as an entertaining novelty. Small cement blocks of this kind may also be used as book ends. Arrowheads, woodchuck teeth or interesting minerals would help. An interesting display might be a section of trays of growing bent grasses raised on the course in the summer time, samples of fertilizers and mercury compounds from raw to finished state, samples of weed and grass seeds which are mounted, pictures of various weeds and grasses, section of turf showing the effect of snow mould in the spring, or pytheum and large and small brown patch in the summer, mounted specimens of June, Japanese and Asiatic beetles. Many of the exhibits in the museum can be effectively labeled, for example, the weed label on a dandelion may be used to explain how the seeds are blown on and affect the green. The autumn foliage provides us with many samples for a leaf collection and with the opportunity to explain the

color changes. Most of our group here are making an active start in this direction if they will display the sealed glass tubes containing specimens of their soil types, various grass seeds, fungi, fertilizers and insects, about which the average golfer knows very little. With this collection as a start, we can use any available space in the clubhouse, or near the first tee. The ideal spot would be an addition to the professional shop, and, undoubtedly, the professional would gladly cooperate in the simple maintenance of this room. This is an excellent opportunity to become acquainted with your members in an easy manner, for they will ask you about these curiosities and you can tell them about other oddities and other points of interest about the course.

The cost of a nature museum would be very small, unless a special building was added. Some members would probably help to increase your collection, and the cost of the maintenance would be practically nil.

I realize the planning of a nature trail or museum is a project which varies with the locality and will present different opportunities to each greenkeeper. I personally feel that a nature trail or museum will be worthwhile on my golf course because it will teach conservation, develop among the members a greater appreciation of nature, enable me to make new personal contacts, be more respected by my members, and increase the value of the club to all the members and their families.

ERAS AND FADS IN GOLF COURSE MAINTENANCE

Thomas R. Bowen, Greenkeeper,
Utica Golf Course and Country Club,
New York Mills, N. Y.

We who are engaged in the maintenance of turfed areas, are well acquainted with the fact that ideal fairway, tee and putting green conditions are rarely ever developed simply by letting nature take its course. The main effect in large scale turf production and maintenance is toward keeping the grass plants in the same stage of growth throughout the playing season, a procedure in direct opposition to nature for she has intended that her plants shall pass gradually through cycles, from the seedling and active vegetative stage to seed production and maturity.

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On this side of the water, we have gone a long way from the original spirit of the game of golf as it was played on Scottish heaths where every player expected, and even now still expects to play the ball exactly as it lies, whether the lie be good, bad, or on bare ground. Today, our golfers demand a weedless turf, perfect brassie lies, dry fairways in spring, and soft resilient turf in August.

This increasing demand for perfection has been made on every greenkeeper, regardless of whatever turf situation he has inherited from the golf course contractor and previous committees; regardless of soil types, soil fertility and what not. Naturally, every progressive greenkeeper has made an earnest endeavor to meet this demand and overcome, if possible, any untoward conditions prevailing on his course.

This noble effort on the part of the greenkeeper has resulted in various remedies and fads, some of which, successful in varying degrees where originally tried, have swept across the country in cycles or waves of so-called "cure-alls" or panaceas. Within all too recent memory, we have enjoyed four or five of these cycles, a nice but very expensive game of follow the leader.

Just previous to the outbreak of hostilities in the last World War, our golf courses were white-washing their fairways and greens with lime, and applying very little fertilizer to replenish the plant food supply which was rapidly exhausted by the very high rate of availability induced by the liming. This panacea eventually reached the tolerance point limit in about 1922, and it was decided that liming was the cause of the majority of turf troubles, especially many varieties of weeds.

About this time, some experiments conducted in Rhode Island disclosed that certain fine turf grasses thrived best on slightly acid soils and that various weeds which usually accompanied these grasses could not exist in this environment. This discovery was widely advertised and the ultimate result was the never-to-be-forgotten epidemic of heavy application of ammonium sulphate, more commonly referred to as the "sulphate of ammonia era." While astonishingly successful results were experienced at first, the cumulative effects of regular, heavy applications of this inorganic fertilizer resulted in some very interesting conditions. To begin with, soils that

were still evidencing the effects of excessive liming and no fertilizing were suddenly exposed to the other extreme. On the other hand, soils that were bordering on the optimum pH line gradually sagged to a dangerous degree of acidity. Fungus diseases enjoyed an unequalled period of prosperity on these ideal situations. Patches of unsightly clover ravaged greens as a result of the enormous supply of potash that was liberated and made soluble by the constant applications of this caustic chemical. Concentrations of soluble aluminum and iron appeared as toxic agents on these highly acid soils and much needed phosphoric acid was made unavailable. Finally, the deflourcating effects of this inorganic increased compaction and added to the dilemma of many a beleaguered greenkeeper.

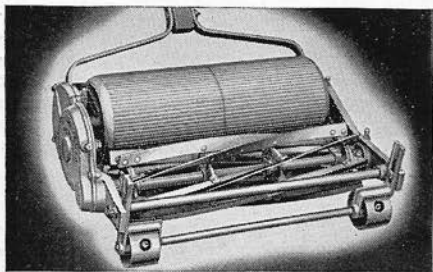
The agitation exerted by ammonium sulphate on compaction, resulted in the utilizing of devious methods of "opening up" tight, hidebound soils. The use of sand and peat mixtures for conditioning and aerating purposes had been used very successfully on the peculiar soil conditions prevailing on the British Isles. When it was generally recognized that these materials would alleviate the compact condition existing on many courses over here, the "Sand and Peat Era" emerged as a panacea. Although the abnormal acid condition prevailing on many courses at this time was not improved by applications of these materials, a temporary improvement in aeration was noted and soon, regular heavy applications of sand and peat became a routine procedure on many golf courses. In fact, the practice has not entirely disappeared yet. That the additions of these materials in the form of top dressings exerted only a temporary effect on soil porosity is illustrated by the fact that investigations have disclosed that actual stratification or layering of these materials appeared on areas where applications of sand and peat were used indiscriminately.

A few years later, the difficulties of securing pure seed of the bent family in practical quantities resulted in the discovery that pure strains of creeping bent could be vegetatively propagated by means of stolons. Many perfectly good putting greens, especially those sown with German Mixed Bent, were torn up in different sections of the country, simply because of the pronounced variations in color, characteristic of this type bent grass. However, the fallacy

Planned Economy

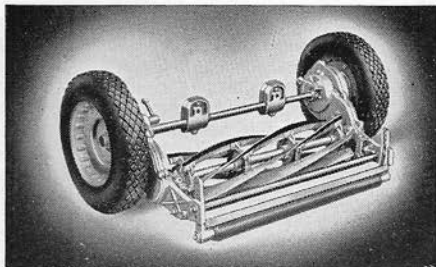


THE economy of operation and maintenance of Pennsylvania Mowers is no accident! It is a "planned economy," worked out by Pennsylvania engineers just as carefully as the ease and accuracy of cutting for which Pennsylvanias are so famous. Pennsylvania designers are constantly at work to build still more perfect, more economical mowers. Plan your own economy in mowing costs by giving the two Pennsylvanias described below a thorough test in competition with other mowers. Such a comparison will prove to you their greater efficiency and economy.



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Ball bearing, high speed 8-blade cylinder provides a smooth, ribless cut that insures a perfect putting surface. Blades are of the finest crucible analysis steel—oil hardened and tempered. Train of 3 cut gears, running in grease in dust-tight case, assures an easy-pushing, fast-cutting mower. Castor wheels are mounted in hardened steel bushing with alemite lubrication. Extra castor wheel for cutting sharply undulating greens. The light weight aluminum rollers, 7 inches in diameter, are interchangeable right or left.



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Available in both 30 inch and 36 inch sizes. Unbreakable malleable iron construction. 6 heavy crucible analysis steel blades provide a smooth cut (5 blades if preferred). Timken roller bearings on cylinder are adjustable, to take up wear. The raised edge lower blade is reversible. Train of machine-cut hardened gears on BOTH sides, protected by dust-proof, grease-retaining cases. Steel roller with hardened steel bearings. Pneumatic tires optional.

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of this action was recognized when it was discovered that the various species of bents comprising German Bent Mixtures afforded a natural protection against complete loss of a green as the result of a serious fungus attack. Where a particularly weak strain of bent was vegetatively planted, the ultimate complete loss of an entire green was not uncommon after a fungus attack. The stolon cycle has lasted well but it has brought on, in addition to increased susceptibility to fungus diseases, difficulties in the form of matting and high cost of maintenance.

Since 1930, the relentless effort toward perfect conditioning has resulted in the return of Calcium compounds combined with a definite fertilizing program. There is no doubt that lime has a definite place in the maintenance of most golf courses, provided a thorough understanding of its limitations as well as its advantages are recognized.

In the evolution of this profession of greenkeeping, the efforts to keep maintenance expenditures within budget limits has resulted in various attempts to reduce the time required to perform certain routine jobs. While it can be appreciated that reduced budgets exert a very noticeable influence on the general standard of maintenance methods, we should carefully analyze all the factors involved before embarking on any drastic time reduction campaign. In the last four or five years, there has been a steady decline in the time required for fairway mowing. That restricted budgets have played an important part in this decline, no one will deny. From the standpoint of dollars and cents alone, this represents a substantial saving. However, the ever-present cultural cost must also be taken into consideration. By increasing mowing speeds in excess of six or seven miles per hour, we increase the degree of slippage accordingly. On courses with undulating fairways, the factor of slippage is, of course, greatly accentuated. In addition to this significant fact, the increase in bounce or torque, resulting from excessive mowing speeds, subjects fairways to the danger of compaction. Finally, the lives of the mowing units themselves are materially shortened by the increased vibration and resultant abuse.

In recent years, there has developed a pronounced trend toward fairway irrigation. While no one questions the efficacy of fairway irrigation, it is quite certain it is by no means a cure-all. That

the applications of artificial irrigation to large turfed areas must be accompanied by careful attention to soil acidity, increased fertilization, adequate drainage, and increased maintenance costs are factors that are worth consideration. Unless fundamental conditions are favorable for artificial irrigation and the factors mentioned previously have been thoroughly investigated, the steady dousing of fairways may ultimately result in an inferior turf infested with clover and other weeds.

These cycles or general applications of cures and remedies should be of particular interest to the modern greenkeeper because they illustrate vividly the fact that a given treatment seldom shows identical results on two different golf courses because conditions of soil, climate and other numerous factors are seldom the same.

In fact, a given treatment very frequently does not show the same results on all the areas of a single golf course. The answer lies to a large extent in knowing definitely the source of any improved method and comparing accurately the conditions under which the conclusions were reached with those of our own courses. In this way, the old urge to try every new panacea, and to keep in step with every new fad and cycle, is completely eliminated.

It is readily appreciated and easily understood that it is becoming increasingly more difficult for fads and so-called "cure-alls" to gain a footing in this profession of greenkeeping. That institutions such as this have played a dominant role in bringing this situation about is significant. The greenkeeper who is armed with a complete knowledge of all the factors he is dealing with is able to dispense with unsound opinions and deal in terms of facts. The greenkeeper in this position is able to anticipate his difficulties and forestall them with proper cultural methods. He is able to carry on the development of his turf under a definite, continuous program, which outlines in advance what the requirements are and how to deal effectively with every-factor.

Greenkeepers who operate under definite turf programs are able to secure more definite, positive results from all their efforts devoted to the development and management of turf areas.

M.S.C. 1940 Conference Paper.

YOU HAVEN'T SEEN
ANYTHING IN
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UNTIL YOU HAVE SEEN THE
NEW RAIN BIRD
IN ACTION



Rain Bird Sprinklers are of the slow rotating type driven by an oscillator forced outward by the stream and returned by a torsional spring causing an impact against the main nozzle that is positive and steady. There is never any whipping or uncertain turning. No internal mechanism to interrupt flow. This insures maximum coverage. Working parts are on the outside, always accessible and foolproof.

No. 20— $\frac{1}{2}$ " Sprinkles to 80 ft. dia. Cap. 2 to 9 G.P.M. With standard nozzle \$2.50. With adjustable nozzle \$2.90. On 15" x 15" Sled Base, $\frac{3}{4}$ " connection, \$5.00.

No. 40— $\frac{3}{4}$ " Sprinkles to 115 ft. dia. Cap. 5 to 26 G.P.M. Head only \$5.00. With 12" Roller Base \$8.50.

No. 70—1" Sprinkles to 150 ft. dia. Cap. 12 to 49 G.P.M. Head only \$7.20. With 18" Roller Base \$11.00.

No. 80— $1\frac{1}{4}$ " Sprinkles to 220 ft. dia. Cap. 35 to 104 G.P.M. Head only \$14.30. With 36" Roller Base \$22.00.

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—Let us give you a demonstration—

BLADES OF GRASS

In the suburban household the perennial concern of the lord and master is the green plot out in front known as the lawn. Unless he is one of the breakfast gobblers he casts a few loving glances toward it before departing for work. When he returns of an evening he reaches naturally for the hose, with which to encourage the grass to grow.

At the week-end he spends hours in old clothes manicuring the turf, eliminating weeds, dandelions and other misplaced vegetation. The lawn mower is pushed and the borders are trimmed with care. There are men who appear more interested in blades of grass than in the baseball scores or in the fate of nations.

Stirring within them is the land hunger that motivated countless generations of ancestors. Devotion to a grass plot is really the love for our mother—the earth.

From Boston Globe (May 16, 1940)

WORTHINGTON COMMENTS

For 1940

Every year the Worthington Mower Company makes refinements and improvements to its machines, if necessary, to keep up to date, and maintain our leadership in the mowing industry.

Tractor—No changes were made to the "Golf Chief" designed in 1939. Users from over the entire country found it the best tractor in the field and no improvements were necessary.

Gang Mowers—The fly knife reel of the cutting unit was improved for all types of service by adding $\frac{1}{4}$ " to the width of cutting blades and increasing hardness by special heat treatment and oil tempering. An increased angle or pitch was given to both "V" type and "Spiral" type reels to give more blade contacts and smoother operation. The new 1940 Worthington unit weighs 223 pounds and we believe is the strongest and sturdiest mower available.

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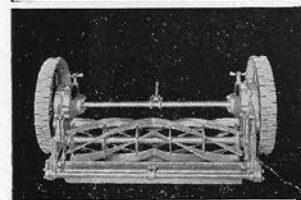
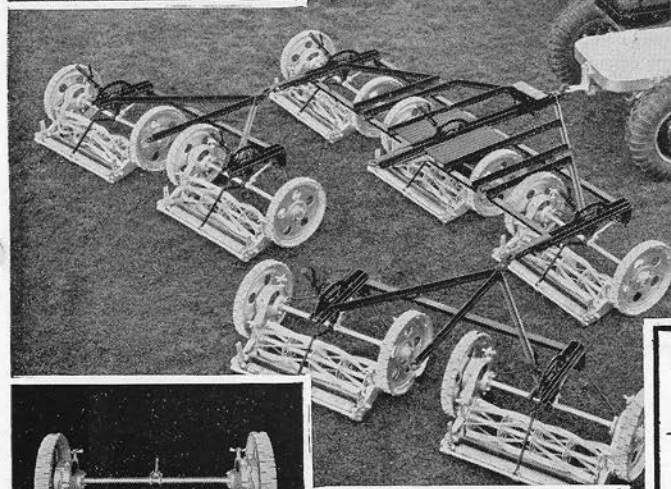
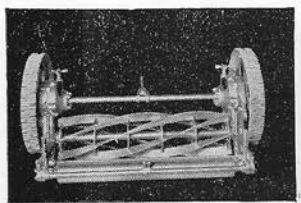
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WORTHINGTON CUTTING UNITS give you improved playing conditions at lower mowing costs

Twenty-six years of research and practical operating experience have developed the 1940 Worthington Cutting Unit to the highest state of efficiency and operating economy. Gear housings are dust, sand and grease-proof. Filled to proper level they require checking only once during the season. There are no other places to grease or oil. Hand adjustment of the bed-knife steel is an exclusive Worthington feature—and the quickest of any cutting unit on the market—no tools required.

From the greenkeepers' and operators' viewpoints, there is less fussing

Below is the conventional spiral-type reel. Note sturdy demountable rims which, when worn or broken accidentally, can be replaced in a few moments at less than $\frac{1}{2}$ the cost of a new wheel.



Above is the patented "V" or herringbone reel preferred by many golf course superintendents. Note—rubber pneumatic tires are available as extra equipment.

and trouble with Worthington Cutting Units and Gang Mowers. The general design is simplicity itself, its construction strong and sturdy to give years of service, and a beautiful cut under all conditions with a cutting range up to 4 inches. Its ground weight is 223 lbs.

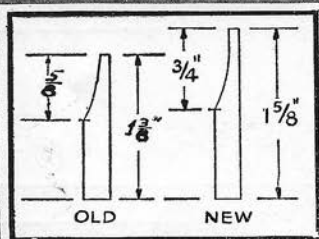
Investigate the Worthington 1940 Cutting Unit before your mowing problem becomes acute this Spring, or write us today for complete data and specifications.

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The Worthington Golf Chief and the Worthington Multi-gang with 7 cutting units, cutting a width of 16 feet is, we believe, the fastest, most flexible, most efficient and economical gang-mowing outfit in the world.



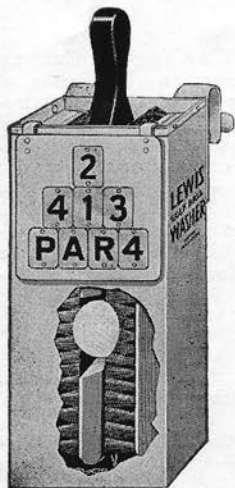
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Note size of new fly-knife steel section above. It is a special heat-treated, oil-tempered alloy steel with a minimum Rockwell hardness of 40-c, allowing for greater wear and greatly lengthening the life of the reel.

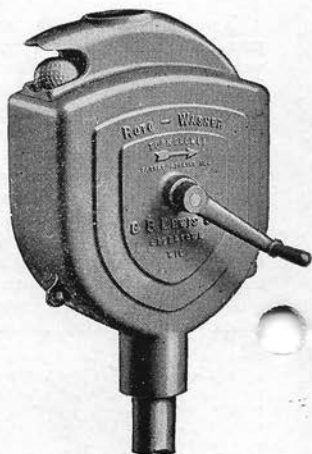
Plan ahead with LEWIS TEE EQUIPMENT



Multi-Ball Roto Washer →

Just feed dirty golf balls into the opening—turn the crank—and out they pop—clean, sparkling and white. Unique construction eliminates troublesome gears. The long-wearing circular brush has an aluminum back to prevent warping and a constant pressure is kept against the ball by a coil spring. A drain plug at the bottom of the aluminum case facilitates cleaning.

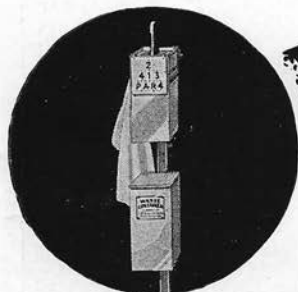
Roto-washers, each.....\$15.00
 4½ ft. post for mounting, each.. 1.25



← Paddle Type Washer

This is the inexpensive washer that does such a good job of cleaning—has such an exceptionally long life—is easily kept clean. Just pull up the paddle—insert the ball—and with a few easy strokes the ball is clean. The patented slot (shown in the phantom view to the left) does the job. Brushes have equalizing spring on back to compensate for wear, and can be easily and inexpensively replaced. Washer is finished with two coats of durable white enamel.

Paddle-Type Washers, 1 to 10, ea..\$6.00
 11 or more, ea..... 5.50
 (price is washer alone)



Regular Tee Ensemble

This includes the Paddle-Type Washer, Tee Stake, Tee Data Plate, Waste Container, Towel and Towel Ring. It is a complete unit for the tee. Items may be purchased separately if desired.

Regular Tee Ensemble,
 each.....\$10.50



Bag Rack

Lewis Racks are a necessity on the well-groomed course. This sturdy rack is made of a scalloped aluminum casting set—screwed to a 54" long galvanized post. Complete, each \$4.75



Roto Tee Ensemble

This unit is made up of the Multi-Ball Roto Washer, Tee Stake and Towel Ring, and a Waste Container with Tee Data Plate—all conveniently mounted on a permanently installed post. Items may be purchased separately if desired.

Roto Tee Ensemble,
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