

1956

## Fall 1956

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Homan, Henry J.; Roberts, Eliot C.; Kirby, Ronald; Wogan, Eugene F.; Tull, Alfred; Cornish, Geoffrey S.; Brown, Leo; Dest, William; Coffin, Henry III; Edlund, W. E.; Camberato, Joseph J.; Kirkman, Ronnie; Moore, John; Dickinson, L. S.; and Cassidy, Philip I., "Fall 1956" (1956). *Turf Clippings*. 3.

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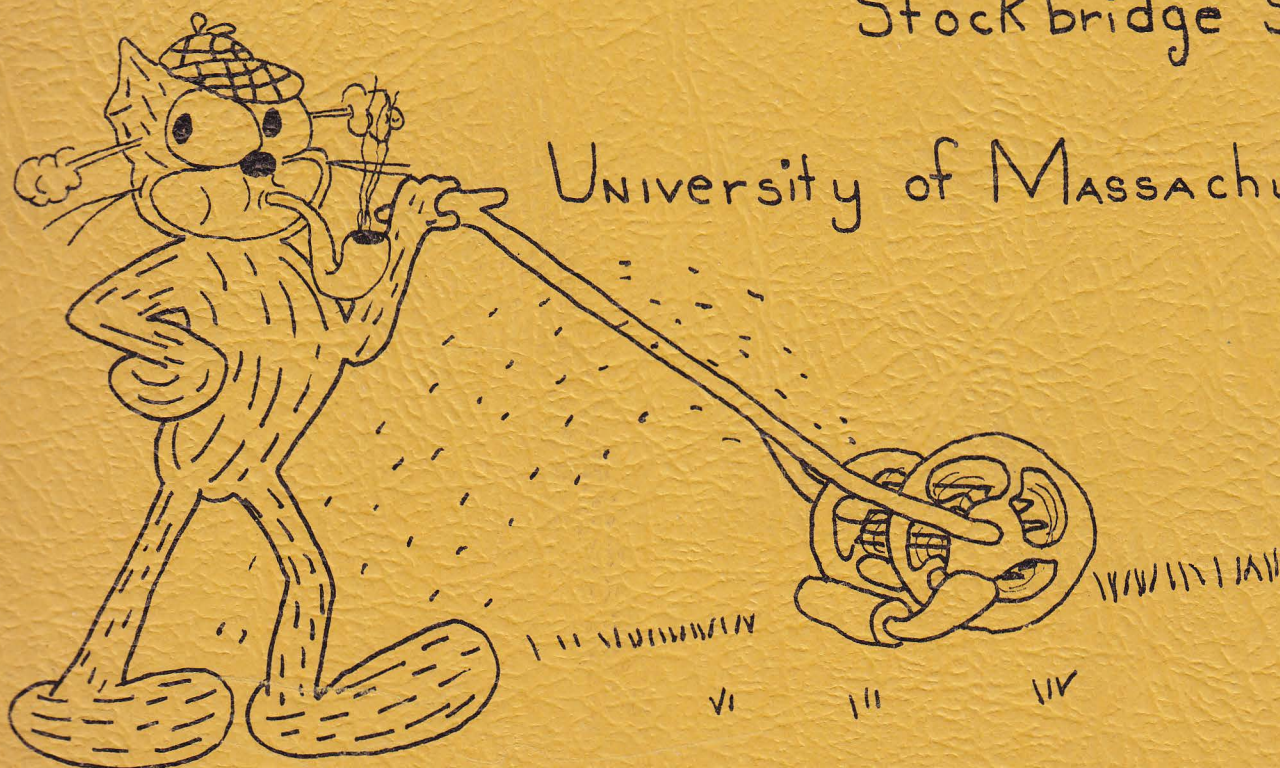
# TURF *Clippings*

A PUBLICATION of

THE Turf Management Club

Stockbridge School

University of Massachusetts



FALL

1956

Issue

# TURF CLIPPINGS

Published by

The Stockbridge Turf Management Club  
of the University of Massachusetts

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To form a bond of common interest between the Turf Management Club, the alumni of the Stockbridge and Winter School Turf Majors and all interested friends of the University of Massachusetts Turf program.

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Vol. 1	No. 2	Turf Management Club Agronomy Department University of Mass. Amherst, Mass.	Editor Ronald Kirby Advisor E.C. Roberts
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## Greetings from the Club President

The president of the Turf Management Club wishes to express thanks for the support of all those who made this publication possible. The Club itself was formed in December 1955 and to undertake a task such as this during the first years of activity was no easy matter. It would not have been possible without the contributions of all those who were willing to help.

After the club was formed, officers elected and an advisor appointed, the members had to decide on a constitution and set of by-laws. These were finally approved and have been submitted to Recognized Student Organizations on Campus for their O.K. The next important step was to bring the alumni of the turf schools and all those interested in the turf work at the University of Massachusetts into the organization as associate members or honorary members. This publication with news of interest about the work here and with articles submitted by anyone who has an idea or comment about turf work will help to keep us all in touch with one another. If we can accomplish this, it may help to produce grass that is a little greener, and also add to the pleasures of the work.

Thank you,

Henry J. Homan, Jr.  
President, Turf Management  
Club

## Winter School and Turf Conference Canceled for 1957

For the first time in a non-war year the Winter School for Turf Managers will not be offered this January. This marks the fifth suspension of operation since its start in 1927, other inactive years being 1943, through 1946.

The decision not to conduct the short course was indeed a hard one to make. It was realized early last fall that there would probably be shortages of instructors in 2 key fields of study as well as space limitations for holding adequate laboratory and shop classes. Such a lack of staff and facilities would necessitate a basic change in the design of the course and in the subject matter offered. This situation has arisen in other years; however, in those instances Professor Dickinson has taken a notch in his belt and added extra hours to his schedule to help make up for the deficiencies. Under his present assignment as part time Agronomy and part time Administrator for Student Organizations on Campus this was not possible. Since the Stockbridge 2 year turf major is servicing a total of 23 students this year, it is no longer possible to combine winter school and Stockbridge classes because of size limitations. It was either alter the material given or shorten the winter school course or both, and those concerned with the final decision felt that such drastic action would so alter the

effectiveness of the program as to render its objectives invalid. The Massachusetts Winter School has been unique in its approach to Agrostology in that it has always been a course of study of sufficient duration to allow for a thorough coverage of material presented. It would in no measure be the same course "For Turf Managers" if these precepts were changed.

A strong factor existed in favor of the continuation of the school at all cost. This was the number of men interested in attending this season. There were almost double the number which could ordinarily be accommodated and they represented 15 different home states and Canada; i.e., California, Connecticut, Illinois, Iowa, Maine, Maryland, Massachusetts, Michigan, Minnesota, Nebraska, New Jersey, New York, Ohio, Rhode Island and Vermont. Such an interest on the part of turf maintenance personnel is difficult to turn aside; however, it was decided that the foregoing considerations should outweigh the latter and that hopefully many of those interested in Agrostology will have the opportunity to come to Massachusetts at such time as the Winter School can again be offered as in the past.

The cancellation of plans for the Annual Fine Turf Conference this winter was also due to the same general conditions which necessitated the inactivation of the Winter School. In this regard the Stockbridge Turf Management Club has requested my assistance in soliciting letters, notes and comments on the importance of these programs from all those interested in short courses and conferences in the turfgrass field. The accumulation of such correspondence is a commendable project and the club should be encouraged in taking an active position in striving for the reinstatement of services which they believe are worthy of continuation. Your views will be particularly welcome and should be addressed to Henry Homan Jr., President of Stockbridge Turf Management Club, Stockbridge Hall, University of Massachusetts, Amherst, Massachusetts.

Eliot C. Roberts  
Advisor, Turf  
Management Club

#### Value of Turf Clippings

Turf Clippings, sponsored by the Turf Management Club, has, we feel, become one of our valuable publications. It is designed to reflect the views of a group of individuals whose sole interest is better turf for better golf. Articles by golf course superintendents, men on construction sites, chemical representatives, and equipment salesmen are important to a publication such as this. They will constitute a large portion of the magazine because their experiences with different problems is of unlimited value.

There are also articles by the staff here at the University. Dr. Roberts and Prof. Dickinson should keep the educational

aspect of the magazine on an even keel. Students may from time to time contribute valuable information not found in other turf magazines.

New developments in turf problems are always open for discussion and here is a chance to present both sides of the problem; from the superintendent as he deals with it, and from the school or manufacturer as they see it. Here is a place where superintendents can voice their opinions on any item. It is hoped that this means of making ideas known will be used to its fullest advantage. For instance, this year's dropping of the Winter School. This magazine is the place to voice your opinions and we will be waiting for them.

The staff of this publication wishes to thank all that have helped make this issue possible. Our special thanks to Dr. Roberts for his support as advisor of the Turf Management Club.

Ronald Kirby  
Editor-in-Chief

#### Dedication to Professor Miner J. Markuson

Professor Markuson is the man many golf course superintendents will remember as the inventor of differential and profile leveling. Markuson was one of Professor Dickinson's original instructors in the first winter schools of the late 1920's. He taught drainage and irrigation and stressed the point that the small problems of golf courses could be solved by the same methods that civil engineers use in much larger projects. The members of the Turf Management Club recognize the value of these contributions and have dedicated this issue of Turf Clippings to this man who has helped so many others.

Professor Markuson was born in 1896, in Faribault, Minnesota. He graduated from High School in 1914 and tells of his Mother providing the drive which kept him pursuing an education. He taught one year of rural school which financially enabled him to attend two years of college. But money ran out and he went back to teaching at High School. Then he served with the U.S. Army Engineers in World War I. After being discharged he taught rural school and one year of High School. His subjects were shop and drawing, and he coached all sports. He finished three years of college and was awarded a B.A. in Architecture at the University of Minnesota. He then taught two years at V.P.I. and has been at the University of Massachusetts since 1925.

Professor Markuson became interested in golf when he started teaching golf pros and pro-superintendents in the winter school. Many nights were spent going through the mechanics of the golf swing. Professor Markuson became a loyal golfer and topped his golf career with the Club Championship at the

# MINER J. MARKUSON

Amherst Country Club for two years. He was chairman of the greens committee for many years and remodeled the Amherst course using members to do the laboring.

He gave up the golf game to build one of the finest homes in Amherst, which he designed like the Gones Country Club Club House in Black River, Virginia. He was the engineer that designed that Club House and was awarded an Honorary Life Membership.

In 1935 he and Professor Gubbins published to write "Soil Management for Greenkeepers" which many will remember as their first text in Turf Management. Professor Markuson has enjoyed teaching lawmen and we certainly have valued his teachings. Good luck to you, Professor Markuson.

Interrelations Between Design, Construction, and Maintenance

The following 3 articles were presented at the 1956 Fine Turf Conference. The first article was "Thinking of a Golf Course as a Living Organism".

Introduction

I would like to discuss with you today the changes that have taken place in this country as it pertains to the game of golf. It is just over thirty years old. It has undergone a number of changes along with the times, it has undergone a number of changes. The changes have been in the number of changes in the design of the original courses; and through the years we have observed a number of changes in design. Essex, Massachusetts, has undergone a number of minor modifications. Through the years golf architecture has reflected many of the changes that have taken place in the game itself, in the design of the game, in the number of the players and in the growing popularity of the game.

Evolution of Design

Today's design is a result of consideration all types of golfers and not just the skilled golfers. The original golf courses were designed by architects and then by professional golfers. These early courses which were built in the pastures and farm land of the Northeast, encountered many stop walls. Rather than remove these walls, they were added on one side; and the depressions left by the removal of the walls were filled with sand.

Later, golfers started to duplicate famous holes on Scottish courses. The National Golf Links of Shinnecock Hills, designed by Charles S. Macdonald, is a good example of

*Handwritten signature or initials*



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In 1933, he and Professor Cubbon combined to write "Soil Management for Greenkeepers" which many will remember as their first text in Turf Management. Professor Markuson has enjoyed teaching turfmen and we certainly have valued from his teachings. Good luck to you, Professor Markuson.

#### Interrelations Between Design, Construction, and Maintenance

The following 3 articles were presented at the 1956 Fine Turf Conference. Here they provide the current thinking of specialists in this field on this important subject.

#### GOLF COURSE DESIGN

##### Introduction

I would like to discuss with you today golf course design as it relates to the game of golf itself. Golf in this country is just over sixty years old. It was imported from Scotland along with the rules. Since that time, it has undergone a number of changes. The club where I have been for forty-six years; namely, the Essex County Club, was one of the original courses; and through the years we have observed a number of changes in design. Essex, itself, has been redesigned three times prior to 1918 and, since that time, has undergone a number of minor modifications. Through the years golf course architecture has reflected many of the changes that have taken place in the game itself, in the ball, in the increased skill of the players and in the growing popularity of the game.

##### Evolution of Design

Today's designs must take into consideration all types of golfers and not be adapted for just the skilled golfers. The original golf courses in this country were designed by amateurs and then by Scottish professionals. These early courses, which were built in the pasture and farm lands of the Northeast, encountered many stone walls. Rather than remove these walls, they were sodded on one side; and the depressions left by the removal of the sod were filled with sand.

Later, golf enthusiasts tried to duplicate famous holes found on Scottish courses. The National Golf Links at Shinnecock Hills, designed by Charles B. MacDonald, is a good example of

this. This concept was soon discarded, however, due to the expense in constructing similar holes on much different terrain. It was soon realized that it would prevent the development of ideas of golf course construction on American terrain. For example, oftentimes it is the natural features of the terrain which make the hole great and this is not entirely a matter of design.

Then, along came the change in the gutta percher ball to the rubber cored golf ball. This added twenty to thirty yards off the tee and made many of the existing courses too short--most of the 18-hole courses being under 6,000 yards at the time.

Between 1910 and 1920 there was an attempt to toughen up the golf courses by increasing the number of sand hazards and so called chocolate drops. In some cases this was done to the extreme, resulting in a lot of small pot traps which were not only expensive to maintain but also penalized a few unlucky individuals who happened to fall in that particular spot rather than penalizing the general trend of bad shots.

As the game became increasingly popular during the 20's, it resulted in the construction of a great number of golf courses. At the same time, many of the old courses were redesigned. The lengths were increased from 6,000 to 6,500. Pot traps, cross bunkers, punch bowl greens and chocolate drops were eliminated in many cases.

Since the late 20's, there have not been too many radical changes except for the enlargement of the greens and traps. Visibility of both the sand hazards and greens has improved.

#### Requirements Made by the Game on Architecture

Now, that brings us up to the present. Strictly, from the golfing standpoint, what should a golf course architect take into consideration? First, the game of golf, as we know it, has its charm since it allows a person to get out into the fresh air amongst the solitude of the countryside to get necessary exercise and mental and physical relaxation. Sufficient amount of land must be available to provide this atmosphere. Isolation of the course from the hum-drum, workaday world is a very valuable asset. The area should be self-contained without interrupting roads and other disquieting factors. Another advantage of sufficient area is that it will allow the architect greater latitude in routing the course.

It is very desirable to have two starting and two finishing points in proximity to the clubhouse. This will allow a person to play nine holes if he wishes and will also accomodate a greater number of golfers. It will facilitate tournament play by getting the matches off at two tees.

With sufficient area, the holes can be designed so that

there is a minimum of parallel holes and a minimum of westerly holes. It will also provide for sufficient spaces between the holes to promote that feeling of isolation, and along with that a factor of safety.

Another consideration must be the area devoted to the club-house, proposed parking spaces and other activities that the country club might want to develop. The trend today at many country clubs is to build swimming pools. At Essex our swimming pool will affect the area of the course itself. So, if possible, these future developments should be taken into consideration.

Now, as to par. It is a great advantage to rotate par so that a different sequence can be obtained. A monotonous repetition of the same par prevents the variety which is essential in maintaining interest in any activity. Ordinarily, on an 18-hole golf course we would have ten par 4's, four par 5's and four par 3's. However, this is not a hard and fast rule and must be used only as an ideal guide.

The golf holes themselves should be designed so that they will enhance the game as it exists. Each hole should present different problems and different challenges to the player and should not be mere repetitions of the same thing over and over again. If the teeing area is of sufficient size, it can alter the character of the hole. On par 3's large tees or alternate tees can present different problems to the golfer by just moving the tee markers.

Golf is primarily a game of accuracy in direction and distance; and if a golfer, whether he is a champion or an average golfer, meets these requirements, he should be rewarded for his efforts. It is my opinion that golfers should not be penalized before they even get to the tee. Therefore, I am opposed to elbow holes at 180 yards where the long golfer is forced to take an iron on a par 4 hole. Sharp elbows should also be avoided. On dogleg holes the width of the fairway should be considerably wider at the bend than on the straightaway so that both the long golfer and the short golfer is given a fair chance for his next shot. Special attention should be given to fairway traps on dogleg holes and should be designed in such a manner as to indicate the best direction a golfer should take. I do not believe that hazards should be placed at such a distance off the tee that it will penalize good shots by either the long or the short golfer.

As to the traps around the greens and in the fairways, it is my opinion that they should be large enough to catch a trend of inaccurate shots. This will mean that you will have fewer traps, but they will be strategically placed to challenge all types of golfers. I do not believe that traps should be eliminated for the sake of maintenance costs. The trap shot is one of the skills of golf; and to eliminate all the traps from a

hole subtracts one of the skills of the game. Properly designed traps help to define the target which is the green and properly done gives aesthetic value to the picture.

All traps and greens should be visible to the player. Since they are a challenge, large areas in every trap should be visible from where golf shots are normally played. I do not approve of traps behind the green unless all the sand area is visible. I believe that much of the green surface should be visible from where approach shots are normally played. To me, one of the thrills of golf is to see the result of a well-played shot. To see your approach shot land on the green and roll toward the cup is one of the thrills that keeps people playing the game.

I think that you will see in the very near future more mechanized maintenance of traps which means that in the design provision must be made for access in and egress from trap areas. These traps should blend in with the natural terrain and trap mounds should not stick out like a sore thumb.

As to the size of the greens, it is my feeling that green sizes are determined by the strategy requirements of the hole, the contour of the green and the length of the average approach shot. I believe that these green sizes should range between 4,500 and 7,000 sq. ft. I think that in some cases there is a tendency to make green sizes too large which puts too much emphasis on putting skills and not enough emphasis on pitch shots. On every golf course there should be opportunity for a player to play pitch and run shots even though most of the pros today stick strictly to the pitch shot.

According to the rules of golf, there is no such thing as rough. There are only four divisions--tees, greens, hazards and through the green. However, roughs play an important part in delineating the holes and in punishing inaccurate shots. They should never be designed so that they provide a more advantageous shot to the green than does the fairway.

In closing, I would like to add this final word--that all golf course design must be consistent with the rules of golf, for the rules determine how the game is to be played.

Eugene F. Wogan  
Manchester, Massachusetts

#### THE RELATIONSHIP OF GOLF COURSE DESIGN TO MAINTENANCE COSTS

When I was asked to speak tonight (for not more than twenty minutes) on the relationship of golf course design to the cost of maintenance, I wondered how I could think up enough to say that would take that length of time. I jotted down a few notes and elaborated on them until I came up with a speech that lasted for several hours. So I threw away the notes and from

memory I think that I can make this talk last for ten minutes.

Golf course superintendents have many problems, but foremost is the problem of growing healthy turf. This however, is a problem in Agronomy, and is very slightly affected by the design of the course, although it is greatly affected by construction procedures, which is not the subject of this talk.

I should like to talk about those variations in design which affect the cost of golf course maintenance through their effect on the labor budget. In this connection, we should consider what the golf course designer can do to reduce cost in the following divisions of labor; mowing, equipment transportation, sand-trap maintenance, golfer pedestrian traffic, and golfer transportation through the use of electric golf-  
buggies.

Modern golf courses must be designed for machine maintenance. The high cost of hand labor makes this imperative. Golf course construction costs are no higher today than they were 30 years ago, because of the higher efficiency of construction equipment. Maintenance costs should be no higher than they were in that period, for the same quality of maintenance, because of better maintenance equipment, and better golf course designing to take advantage of this better equipment.

However, before this higher machinery efficiency can be realized, golf courses must be designed to use this equipment to the fullest extent. Of all the items that go to make up the golf course maintenance budget, the cost of mowing grass heads the list. So much has been written and said about the effect of design on mowing costs that I hesitate to add anything. Over 25 years ago I wrote a booklet on the subject, so it is not a new one.

To put it bluntly, there is no place on a modern well-designed golf course for scythes, sickles, hand-mowers, or in fact any power-mower smaller than that used on the putting greens. Modern design should envision the widest possible use of the largest possible power equipment.

Therefore present-day design should take into consideration the following desirable features.

Contours on putting greens should be such that a 22 inch putting green mower can be operated in any direction without scalping.

Greens should be large enough, and so contoured that there are many possible cup sites. Variation in greens putting surfaces should be secured by drainage hollows, not by raised mounds or ridges. It is easy to provide automatic drainage of these hollows, but impossible to provide automatic extra watering of such raised areas. They have to

be watered by hand, over and above normal greens watering, and this costs money.

Aprons on greens should be wide enough to allow for turning power green mowers without "scuffing", and to allow the use of riding Triplex mowers in mowing.

Banks of greens, tees and mounds should have long slopes so that they can be mowed with Triplex or gang-mowers.

Sand-traps should be so designed that gang-mowers or Triplex mowers can mow all the grass perimeter, leaving little to be trimmed with small machines. Capes, bays and islands may look pretty, but add nothing to the skill required of the golfer, and add tremendously to up-keep costs.

Tees should be very large, and where possible hug the ground, so that they can be mowed with gang-mowers. Where the contour of the ground makes it impossible to construct one large tee, two or three should be provided, built on this same principle. Four thousand square feet of teeing space per hole is not too much, and on par 3 holes, not enough. The area to be put in play each week, can be cut down with a power mower, while the rest of the tee area can be allowed to recover under fairway height mowing.

Where Bermuda will thrive, parallel tees, one of Bermuda for summer play, and one of Bent for use during the balance of the year, might be a good idea.

Fairways can stand a lot of improvement as far as design is concerned. Mower manufacturers have designed equipment that can travel a lot faster than we can use them, because we have not given enough attention to smooth grading to allow for fast mowing. If you will drive your car down any fairway at 20 miles an hour, you will quickly realize the speed-up in mowing that well-graded fairways would make possible.

In summary, all contouring on a golf course should be done with the idea of expediting grass-cutting with the biggest possible equipment in the shortest length of time.

Old golf courses show a super abundance of sand-traps, most of them put in to make the course look pretty and tough, without much planning. Modern design uses sand-traps sparingly, and located to catch only the good players poor shots. Generally they are of generous size, and the use of power-raking equipment is a possibility.

One of the hidden factors in maintenance-cost can be called by the generic name of "transportation". This covers equipment transportation, the use of caddy-carts, electric golf-buggies and golfer pedestrian traffic. All have to be provided for in

a modern design.

It should be the duty of the golf course architect to select the most strategic location for the maintenance building, and provide radial roads from this point to all the tees and greens without crossing the playing area if possible, so that trucks and sprayers can reach their objective without delay.

In the design of greens, any obvious point of departure to the next tee should be avoided. With the growing use of caddy-carts, the wear and tear of turf is accentuated, and thought should be given to avoiding pin-pointing any specific easy way to approach or leave the green. To a minor degree, this applies to the approach to the next tee.

With the advent of the electric golf-buggy, whole new sets of problems arise. The golf course designer must now provide a safe mandatory parking place somewhere between the green and the next tee, so that players will not be forced to walk back into the line of play to pick up their vehicle.

On hilly courses, there is usually one easy obvious route up-hill, and if everybody uses it, in wet weather particularly, the result will be a rutted trail up each hole. My solution would be to bar non-walking golfers from the game, but the golfer pays the bills, and eventually we may have to put holes far enough apart to provide room for black-top paths up-hill between the holes, to accomodate these vehicles.

I have not discussed the effect of construction methods on the cost of maintenance, because that is not my subject, but I hope that the few hints I have been able to give on the relation between golf course design and the cost of up-keep will bring some of these problems more forcibly to your mind, and suggest ways that you can overcome them.

Alfred Tull  
New York City

#### THE INFLUENCE OF CONSTRUCTION UPON MAINTENANCE

As Doctor Roberts has stated, my part of this program deals with fairways, roughs, tees and traps. Points I would like to bring out can be summarized as follows with slides for further emphasis.

Clearing. Burying of trees, stumps or brush on or near playing areas creates a first class headache sooner or later for the superintendent. Although bulldozers can knock out trees and stumps in one operation a cleaner job is made, if the forest is dense, by cutting the trees and burning the brush. There is always the possibility too of selling the wood. Often I find that slashing and burning operations on large acreages are done most efficiently in winter months when there are seldom any fire restrictions.

Grading and Harrowing. Once the area has been graded with heavy equipment cultivation with huge bog harrows, cut lateral roots left after stumping and contours mounds and breaks in grade to make them easier to mow in future years. But a really large harrow is needed and seldom will an ordinary farm bog harrow do the job. I use the Rome Plow Company's Model T.M.R. 2030 weighing about 4 tons. A large bulldozer is needed to pull it.

Mechanical Raking. To remove small stones, debris, depressions and humps thorough mechanical raking is needed. To do a good job with a mechanical rake the operator must proceed as slowly as the tractor pulling it will run.

Soil Conditioning and Fertilizing of Fairways. When time permits a fertilized cover crop of cereal rye or buckwheat pays dividends on newly cleared land. And generally speaking our New England soils are benefited by an application of magnesium limestone. Prior to seeding with permanent grasses  $\frac{1}{2}$  ton of natural organic and  $\frac{1}{2}$  ton of complete fertilizer per acre help to promote a thick turf covering.

Seed. If early openings are expected and they nearly always are fairly heavy rates of seeding at 150 - 250 pounds per acre of bluegrass, fescue and bent mixtures are needed together with a fairly high percentage of domestic rye grass.

Tees. A legacy from the architect always appreciated by the superintendent is large tees particularly on par 3 holes. At the new Surprenant-National Course of Massachusetts at Bolton the smallest teeing surface we are building on any hole is 4000 square feet.

Traps. Drainage if of paramount importance and if we resort to flashing we must try to place the sand so that it will not wash too much. Hollowing the soil under the flash helps in this regard as does taking the flash to the top of the bunker so that there can be no accumulation of water above it.

Roughs. With the cost of golf balls on the high side more attention should be given to grading of certain roughs immediately adjoining the fairways. These can be prepared so that the superintendent can mow them to fairway height if he and his committee after consultation with the architect feel that this can be done without destroying the playing value and strategy of the hole.

Because much publicity has been given recently to par 3 golf courses, floodlit for night play, I would like to mention them briefly. They come in all shapes and sizes. Five short courses as follows with which I am familiar provide some idea of the different acreages and yardages involved.

9 holes on  $2\frac{1}{2}$  acres - yardage 360  
18 holes on  $3\frac{1}{2}$  acres - yardage 580



18 holes on 7 acres - yardage 1000  
9 holes on 13 acres - yardage 1000  
9 holes on 18 acres - yardage 1450

Mrs. Dickinson (Prof's Mrs. Dickinson) once spoke to me of the possibility of par 3 layouts providing some sort of child care facilities. This was subsequently mentioned in Golfdom. And this splendid idea opens the game to young couples interested in outdoor activities but restricted because of the universal baby sitter problem.

The more I travel the more impressed I am with the numbers who know of Prof. Dickinson, the ten weeks winter school and the 2 year course for turfgrass managers. And all of us who see Dr. Eliot Roberts in action today at this conference are convinced that the University and Commonwealth are truly fortunate in obtaining his services to take over Prof's work. I feel too and know that Prof. and Eliot will be the first to agree with me that all of us engaged in golf course work have a friend at court in Dr. Bill Colby, Head of the Agronomy Department, who has done so much in recent years to perpetuate the University of Massachusetts' unique turfgrass courses and to initiate a sound research program.

Geoffrey S. Cornish  
South Amherst, Mass.

#### Snow Blue - Snow White

Our club has quite a slope on the first hole and has been used for several years as a Ski Slope in the winter. We have an old truck engine hooked up to a rope tow that extends the full length of the hill. The whole month of December was very cold last year but there was no snow. This condition continued into the first of the year. It was proposed that we cover the slope with artificial snow. So we gave it a try.

The Larchmont Engineering Co. of Lexington, Mass., was engaged to help us out. Two compressors were made ready. Pipe lines and sprinklers were assembled (5 in all with 5 sprinklers on each line). Each section was made up of dual lengths of one inch aluminum pipe about 20 feet long, and this was attached to a sprinkler by a hose connection on either side of the sprinkler. A hose with a shut off valve was placed at the end of each line which was used to blow back the lines when needed. On the slope there were two 3 inch lines running the full length of the hill. One was for water and one for air. These had valve take-offs about every 30 yds. Twenty-five feet of hose was attached to the parallel lines and hooked onto the main lines. The compressors were attached to one main line and water was piped through the other.

After warming up the compressors and putting air in the line we fed water into the system. Care was taken to leave

the valves of the end of the line cracked to help prevent freezing. Five men were used to place this equipment parallel to the slope of the hill and there after only 3 men were needed for operation.

The temperature has to be somewhere between 20 to 28 degrees to make snow so the thermometer was carefully watched. The water was sent through the sprinklers and then the air sent right after it. This broke up the water droplets into such minute particles that they formed snow in the air before they could hit the ground. By manipulating the position of the parallel lines up and down and back and forth on the hill we got enough snow for skiing in about 2 days. The snow can be made any color desired which gives us one up on mother nature. However, in terms of quantity she got the better of us before the end of the 1956 winter season.

On the basis of one years experience, the Superintendent that is busy enough with the routine winter jobs should think twice before getting involved with this. There are bugs in the set-up outlined above; its a lot of hard work and quite a gamble, but we had snow.

Leo Brown  
Commonwealth Country Club

#### Post Emergence Control of Crab Grass on Putting Green Turf (1956)

The area used for this experiment was the Velvet Bent Putting Green nursery of the Woodbridge Country Club. There were three chemicals used in the control: Sodium Arsenite, Disodium Monomethyl Arsenite, and Phenyl Murcuric Acetate.

The nursery was divided into three plots of 1000 square feet each, each plot receiving a different chemical. The plots were uniformly covered with crab grass plants, which at the beginning of treatment were in the two leaf stage.

The summary of the Disodium Monomethyl Arsenite will be left out of this report because of the faulty method of application (the use of too much water).

On the other two plots, treatment began on June 29 with Sodium Arsenite (90.67%) applied at 1/2 ounce per 1000 square feet in five gallons of water and P.M.A.S. (Phenyl Murcuric Acetate 10% solution) applied at the rate of one ounce per 1000 square feet in five gallons of water. The first treatment with Sodium Arsenite gave 30% control of crab grass in the area with medium discoloration of the turf. P.M.A.S. showed no appreciable effect on the crab grass.

In the second treatment given July 11, the rates were the same. Sodium Arsenite gave 50% control of crab grass with medium discoloration of the turf and P.M.A.S. again showed

negligible results.

It should be noted here that these plots were fertilized in the Spring but received no supplementary applications in the Summer except for half of the Sodium Arsenite plot, which received 1/3 pound of Nitrogen per 1000 square feet after the second treatment. Also very little artificial watering was given these plots during the year so that the turf was of low vigor during this experiment.

It was noticed that after the application of Nitrogen on half of the Sodium Arsenite plot, that this half of the plot recovered in five days after fertilization showing signs of greening up and offsetting the weakening effect of the Sodium Arsenite on the turf.

In the third treatment made on July 19, Sodium Arsenite was left out so that the unfertilized half of the plot could regain vigor, which it did within twelve days after the second treatment. The P.M.A.S. rate was stepped up to 1½ ounce per 1000 square feet in five gallons of water and showed 90% control of crab grass with no discoloration of the turf.

In the final treatment given on July 30, Sodium Arsenite was applied at previous rates and severe discoloration of the turf was noted. P.M.A.S. was again given at the 1½ ounce rate per 1000 square feet and slight discoloration of the turf was noted. Turf discolorations on the last treatments were probably due to the very low moisture content of the soil at this time.

The last percentages were taken three weeks after the last applications and showed 70% control of crab grass in the Sodium Arsenite plot and 99% control of crab grass in the P.M.A.S. plot. Previous percentages of control were taken one week after treatments.

In conclusion, it must be remembered that the comparison of these chemicals in this experiment were under one set of conditions and that under other conditions, variables may cause a difference in the effect of the chemicals.

William Dest  
Woodbridge Country Club

### Third Generation in Greenkeeping

The Siasconset Golf Club situated at the eastern tip of Nantucket Island was started in 1894 by a group from Detroit who spent their summer vacations on the Island. This group headed by Mr. John Grout chose as their golf site two parcels of land for their 18 hole course, one large plot owned by Mr. Levi Starbuck Coffin and called Plainfield and a smaller plot called Bloomingdale which was owned by the Crosby family.

This smaller plot had a large colonial house and barn which were used as a Club house and Machinery shed.

All social activities centered around this club for over 30 years. This group continued until 1910 when the Crosby interests were sold to partners, a Mr. Galvin and a Mr. Mitchell who operated the course as a business venture. It was during this era that a Pro named Mike Brady on Sept. 4, 1917 made the 6th and 13th holes in one stroke each, a feat that was to stand in the United States for 32 years.

In 1929 the Galvin and Mitchell interests were sold to Mr. Henry Coffin, Sr. who continued the Club but reduced it to 9 holes until 1942 when it was closed for the war years. The course was then leased by Henry Coffin, Jr. in 1946 remodeled and re-opened in 1947 as a 9 hole course. It is now owned and operated by Henry Coffin, Jr. as Greenkeeper and Manager with Henry Coffin 3rd as assistant greenkeeper. Henry Coffin 3rd is majoring in Agrostology at the Stockbridge School.

Henry Coffin 3rd  
Siasconset Golf Club

#### Hand Greens Mowers

Today with almost all power equipment used on golf courses, the hand greens mower has become a thing of the past. There are, however, some courses that realize the value of hand mowing on greens.

Hand mowers when properly adjusted and well sharpened will do a much neater job and do less damage to the turf than the power mower. This is often true because with the power machine the operator has a tendency to mow too rapidly. The faster the mower is run the more chance there is to over-lap too much or leave ridges and uncut areas. Also turning with a power mower may cause more damage to the turf by the twisting of the drum than when the hand mower is used. The operator is much less likely to scalp the edge of the apron by using a hand machine.

On rolling greens the hand mower has a big advantage. The mower may be lifted slightly when coming to high knolls in the green and this helps prevent scalping. Another advantage here is the width of cut on hand mowers, usually less than that of power machines. The greater width of cut the more chance there is to leave ridges on the rolling turf areas.

The compaction problem is believed to be greater with power mowers than with hand mowers. This is not so much because of the greater weight but from the vibration of the machine. Vibration is effective in settling and compacting the soil particles.

The maintenance of hand mowers is far less time consuming than that of the power machine, because of the periodic overhauls required for the engine. Since there is no engine on the hand mower, there is less likelihood of getting oil or grease spots on the turf.

Of course, if hand mowers are to be used, someone must push them and this requires labor which is not easy to find. It also requires a little more time for greens mowing. Where a course has the personnel and time required and the hand mowers, the use of this equipment has shown to good advantage in maintaining quality turf.

W.E. Edlund

### Equipment

What is equipment? To most people it means the machinery or tools that are used in a particular field of endeavor.

According to the definition in the dictionary it stands for:

1. Anything used in or provided for equipping.
2. Act of equipping.
3. State of being equipped.
4. A persons knowledge and skill necessary for a task.

To my way of thinking number four is the most important part of this grouping.

The duties of a golf course superintendent are very diversified and they require a high degree of skill, necessitating a deep knowledge of agronomy, botany, entomology, landscape architecture and kindred subjects; he has to be a civil engineer to do his own surveying as to course design, drainage systems etc., he has to be a hydraulics engineer so he can plan and install water systems, he has to be a carpenter, mason, plumber, electrician, automotive mechanic, etc., he has to be a business man to keep records and run the course efficiently, in fact he has to be a jack of all trades and master of all.

Albert Allen

Kernwood Country Club

Pelham Country Club vs. New England Thruway

When engineers construct one of Americas' super highways, it doesn't matter in the least, to them, if that highway upsets a golf course. Especially a course that had lent itself to some of histories' famed golf matches of the twentieth century.

Pelham Country Club was originally built with the Boston Post Road running parallel to its first hole; through the center

of the course the New York New Haven and Hartford Railroad, situated on a high-banked tressel, runs its daily schedules. Running parellel to the railroad is the New England Thruway (a six-laned, concrete, highway) which will speed many people from New York to Boston or from Boston to New York in unbelievable time.

This highway upset a few holes and necessitated re-designing and re-construction of several others. Yet, in spite of this new construction, some of the drastic changes that were made have become pictures of golf course perfection. Larger greens have been built with long, rolling, contours and irregular shapes; blending out and around into their surrounding areas. Particular emphasis has been put into the extension of greens, giving the player more putting surface. Above all, each new hole, and many of the old holes are being re-designed so that each acquires an individual character. With irregular-shaped putting surfaces, gradual sloping mounds, and general renovation of eye-sore spots, a great appealing change has already overcome Pelham Country Club.

Along with two recently constructed greens, many different varieties of trees have been planted to separate fairways and tees. Effort was made to place these trees in locations similar to their natural habitats. A staggered informal planting was also used, creating many picturesque sights of mixed varieties of evergreens and deciduous trees. Yet, there are still many more to be planted.

This job is being handled by a man who possesses many talents, extra-ordinary for a golf course superintendent. Steve Kristof (Stockbridge '47) title of superintendent, yet his imaginative and constructive insights are related more to golf course architecture than anything else. Kristof's hard work and ingenuity has already produced surprising results. A golf course will eventually be produced that has a symphony of quality and is a test of golfing ability; a sure-fire drawing card for some of the countries top golf tourneys.

Joseph J. Camberato

#### Should Junior Memberships be Allowed

Junior memberships should be allowed in every club. They help start some young people off on the right foot by playing golf with the adults and associating with them. There are a number of other good reasons also. There are many young people who have a great talent for playing golf. Many who take up golf can't afford to pay greensfees every time they play. Not playing leads into a slump. Many of the kids today might eventually become pros if they had a chance to play on a golf course more often. Any club should be able to arrange a reasonable price for a junior member.

If a club can have a family membership, why not a junior membership. Young teenagers aren't the only ones that dig up a golf course. In my five years around a Country Club, I've seen more older men hack up the course than young fellows. I've caddied at Merrimack Valley Country Club for two and a half years. The past two I've been a member. When I caddied I had an average game of about 95. Now that I am a member I've improved my game 20 strokes--I shoot in the seventies, and have a handicap of 8. How many other fellows of my age, (17) could be an eight handicapper or lower if they only could get the chance I got.

Take this into consideration and ask yourself what reasonable answer you can give yourself in not wanting young teenagers in your club. Maybe they could be allowed certain days to play. If you want your club to build good golfers, you should start them off young.

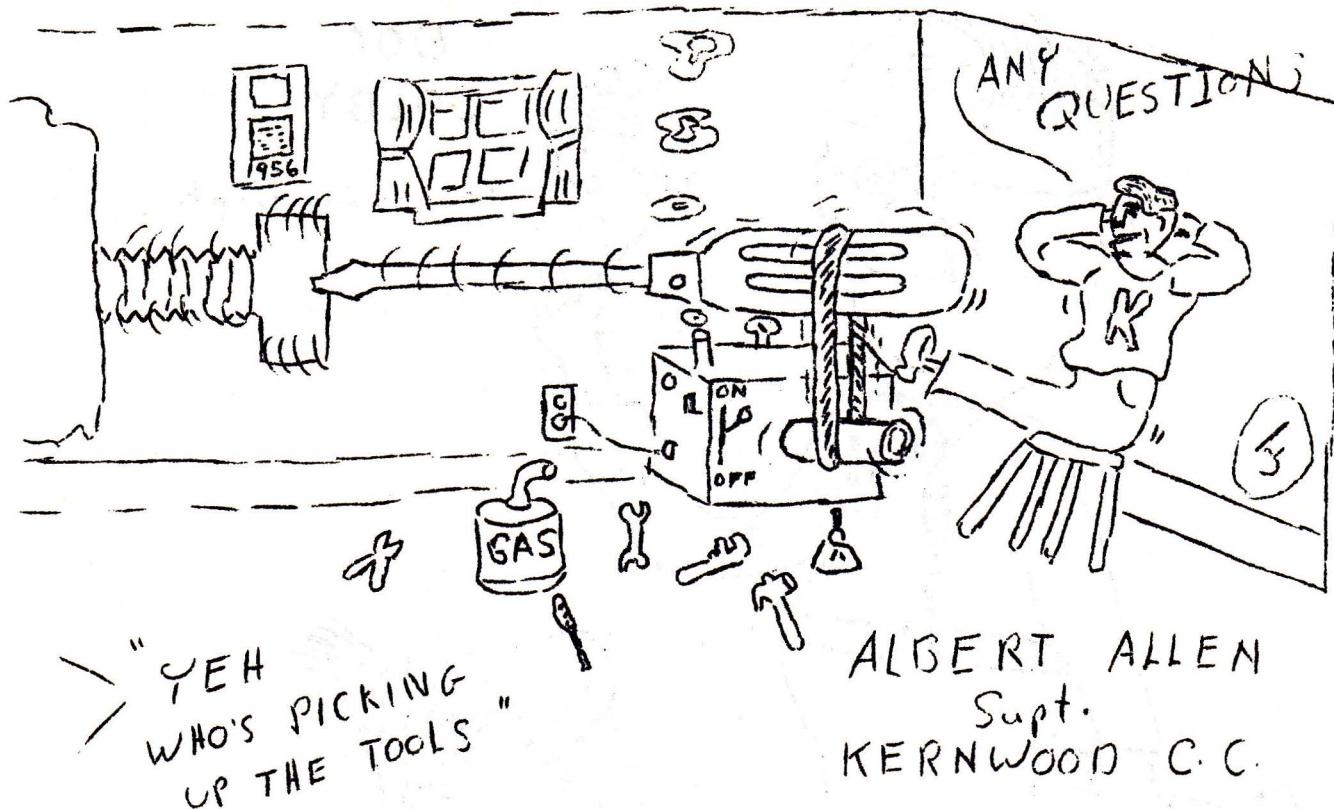
Ronnie Kirkman

#### Meet the Staff

For those who live too far from the University to stop in for a visit and for those who are interested in knowing if "so and so" is still on the faculty, we have included this section designed to refresh your memory and make informal introductions to the staff.

Lester Allen, known throughout New England as the Superintendents' superintendent, has just completed his fourth year as a member of the Winter School faculty where he has been in charge of equipment and shop courses and has lectured on practical greenkeeping. Allen entered the profession at the Kernwood Country Club in 1929 under the tenure of Robert A. Mitchell and after working his way up through the ranks became Kernwoods' Superintendent in 1945. His course is known as a showplace among New England golf courses and is where Mitchell developed the Kernwood strain of velvet bent. Kernwood is also well known for its deluxe shop. These facilities were designed by Mr. Allen and many of the gadgets and special tools installed in it are his unpatented inventions.

Thanks to Allens' contacts in the equipment industry, most of the leading brand names are on hand for demonstration at the Winter School. Mr. Allen has supplied that very essential contact between the academic staff and the experienced professional which makes the Massachusetts course more than a theoretical study and keeps us all down to earth.



Turf specialist Eliot C. Roberts came to the University of Massachusetts in 1953 from Rutgers in New Brunswick, N.J. Since then he has become right hand man to Professor Dickinson in the Turf schools which operate within the Agronomy department. His enthusiasm and background for turf research has added much towards making the University Turf course outstanding in the United States.

"We know a lot about how to grow grass", Doc. Roberts often says, "but not nearly enough about how grass grows". His objective is to combine the large body of practical knowledge that exists in the greenkeeping profession with the latest research information on soil-plant relationships (plant physiology). At the present time he is conducting research projects with fine turf grasses under the influences of liquid fertilizer materials and various amounts of soil moisture. Beside research Roberts lectures to Stockbridge and Winter School students in Agrostology and has been responsible for the increased emphasis placed on extra curricular functions of students while on campus. Since adapting Massachusetts as his home state Dr. Roberts has given radio talks and lectures to civic and industrial groups and has given papers at nationally known turf conferences. He received his B.S. at the University of Rhode Island and M.S. and Ph.D. at Rutgers University.

Head of the Agronomy department William G. Colby has been



DOC  
COLBY

Agronomy Dept.



DOC  
ROBERTS

Agronomy Dept.



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one of those responsible through the years for the development of the program in fine turf at Massachusetts. We, the Class of 1956, want to give the greatest thanks possible to a most likable and enthusiastic Doc Colby. Thanks to his "easy to know" and "friendly" way of teaching we will go forth much better acquainted with the elements of soils and fertilizers. To listen to and tactfully answer questions from all twenty-five class members in a laboratory session is more than a full time job in itself. We will always remember his hearty laughter and quick wit that even stopped the Sergeant from North Carolina. Dr. Colby has been in Massachusetts for better than twenty years and is well qualified to discuss the many types of soil problems that confront the golf course superintendent. He is a graduate of the University of Illinois and holds M.S. and Ph. D. degrees from Rutgers University.

### Turf Club News

This September, the Turf Management Club went into its second year as a recognized organization at the University of Massachusetts. Officers elected for the year were; Jack Homan, re-elected president, Bruce Silven, elected vice president, John G. Moore, elected secretary-treasurer and Elliot C. Roberts to be faculty advisor again.

The Turf Management Club this year has a good group of members to aid in the establishment of the club and to promote its work on a high standard. The club has the highest member dues of any club on the campus of the University of Massachusetts. These high dues were approved by the members of the club to help this year in developing its work. The first project will be to put out our publication, "Turf Clippings". This publication is to be sent to our past club members and graduates of the two year course in Turf Management and the Winter School and all interested fellow superintendents and turf specialists. This will be the second publication to be put out by the club.

This year's editor is Ron Kirby who will be assisted by Bruce Silven. The staff includes Tom Curran, Circulation; Bob Moran and Joe Camberato, to take care of the cover of the publication; and George Christie and John Petrautis as co-business editors.

Our first speaker this fall was Professor Markuson, irrigation expert. Other speakers of the same caliber will follow to give information on the different phases of work pertaining to the golf game and the golf course. Other meetings planned will feature movies and slides giving a clearer understanding of our future work whether it is as a golf course superintendent, in golf course construction, or in the sales field having to do with golf course needs.

This year, for the first time in 30 years, there will be

no Winter School for Turf Managers. Our club will miss the Winter School contact as they add much to the success of the club activities during the time they attend school here. We are all hoping that the Winter School will be back next year, and are actively supporting its reinstatement by keeping a file of letters from persons interested in the future of the short course. We would like to hear from you.

Finally, I think that we should mention that the Turf Club this year has a variety of states represented by its membership. States represented this year are Connecticut, New York, New Hampshire, New Jersey, Rhode Island, and Massachusetts. Next year we are hoping that students from even more states will be joining us in our experiences here at the University of Massachusetts.

John Moore

#### Chairman-Superintendent Relationship

The relationship between the Chairman of the Green Committee and the Superintendent should be as between gentlemen who have equal respect for the ability required to fill each position. They are a part of the management of a big business, one in the promotion department and the other in the production department. Each is an expert in his field.

L.S. Dickinson

#### Letter to Dean Sieling from New England Golf Course Superintendent's Association

January 11, 1957

Dear Dr. Sieling:

It was with a heavy heart that the notice of the cancellation of the Winter School in Turf Management was received by the Golf Course Superintendent's Association of New England.

We need not explain to you the need of such a school or the international prestige it has attained or that according to the United States Chamber of Commerce golf is the number one recreational sport in the nation.

When we first heard the news that the course would not be held this winter, we thought there must be some mistake as you had assured a representative group of turf men that with the arrival of Dr. Roberts the Winter School would certainly be continued.

However, on Monday, January 7th a group from the Golf Course Superintendent's Association met at the Waltham Field Station

with Dr. Colby, Dr. Roberts and the Director of the Field Station, Dr. Havis, and discussed further plans of the Winter School.

This discussion brought out the fact that staff and room facilities made it impossible to hold the Winter School in 1957. It was also brought out that the School would certainly be reinstated in 1958.

This news was very heartening but in the light of past events we are wondering if there is some point we have missed which might help you in re-establishing and continuing the Winter School at Amherst.

As a stop-gap, the Golf Course Superintendent's Association of N.E. having been assured of complete co-operation by Drs. Colby, Roberts and Havis are planning to hold a two day refresher course in turf management at the Waltham Field Station, March 4 and 5, 1957.

A committee of three: Arthur E. Anderson, superintendent of the Brae Burn Country Club, Albert Allen, superintendent of the Kernwood Country Club and Philip I. Cassidy, Superintendent of the Weston Golf Club was appointed to inform you of our discussion and plans for the immediate future.

On Monday, January 14, we are meeting with Dr. Havis to set up a tentative program for this two day course. We hope Dr. Colby and/or Dr. Roberts can attend. The meeting is scheduled for 2 p.m.

We hope to be able to call on you for assistance in obtaining speakers.

We also wish to extend an invitation to the students at the University who are majoring in turf to attend any part or all of this program.

Please feel free to use this letter in any way you feel will help emphasize the importance of continuing the Winter School in Turf Management.

Sincerely yours,

Philip I. Cassidy  
for the committee

Associate Members of Stockbridge Turf Management Club

This publication is put out by the Turf Management Club and most of the work is done by club members. However, there are many expenses. These are covered by contributions from those interested in turf work. The Turf Management Club would like to thank the following for their contributions. They should

know that, without their help, this publication could not have been made available. Thank you.

Paul F. Barnicle  
Norman S. Barnes  
Thomas R. Bowen  
Clapper Corporation  
Samuel M. Clapper  
W.A. Cleary Corporation  
Edward N. Coy  
E.A. Cronin  
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Kayem Ovian  
V. Lewis Payson  
Bruce Pickering  
Thomas G. Rohan  
Donald E. Ross  
Jack Schneiderman  
John E. Vrona

Membership Application Form for Turf Management Club

Associate membership is open to all alumni of the Stockbridge Turf Major, all undergraduates and alumni of the Winter School for Turf Managers and all persons, golf courses or concerns interested in the Turf program at the University of Massachusetts.

Dues shall consist of a fee consistent with the cost of publishing and distributing the booklet "Turf Clippings". It was voted that this should be one dollar for a 2 year subscription. Receipt of dues entitles the sender to a membership card, a copy of each issue of "Turf Clippings" (at present this will be considered an annual publication) and the registration of name and address on the club's list of those interested in the University's turf program.

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Enclosed please find one dollar (\$1) for Associate membership in the Stockbridge Turf Management Club. It is understood that this qualifies me for the club benefits outlined above.

Name \_\_\_\_\_

Business or Club address \_\_\_\_\_

Home address \_\_\_\_\_

Enclosed is an article or letter which may be used in your publication "Turf Clippings".