



NEWS LETTER

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JUNE MEETING*

JUNE

1932

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

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312 Mt. Pleasant St., Fall River, Mass.

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June, 1932

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HEATING LOAM FOR WEED CONTROL

With the advent of the present Chairman of the Greens Committee at Belmont Spring Country Club it was decided to investigate ways and means of heating loam used for topdressing to destroy the weed seeds.

While three years work has not produced a method entirely free from faults, very definite results on weed control have been demonstrated and the writer has become thoroughly converted to the practice of heating loam for weed control.

One of several troubles at Belmont Spring, four years ago, was that of weeds in the Greens. Probably Chickweed was the worst, at any rate that received the most publicity; however Plantain, Dandelion and Shepherds Purse were all too numerous. The looks of more than one Green after these three weeds had been dug out is still a vivid memory. The operation bordered on the heroic but the membership was most tolerant and bore with the new Greenkeeper, despite the fact that he had reduced some of the putting surfaces to shell torn terrain. As for the Chickweed, the high point in number of plugs in one Green alone would undoubtedly, if stated, set the writer up as a competitor of Baron Munchausen.

It was not difficult to determine that the chief source of weed infection was our top-dressing. Investigation of our loam brought to light that aside from this drawback it was ideal for our conditions. To work up any of our waste land into a compost of equally good physical condition as our purchased loam meant a long, slow, expensive program and when we had reached that point, we had no guarantee that our weed contamination would be any less,

for our waste land is full of Chickweed which is as resistant to destruction through cultivation as any weed we have, clover not excepted.

Chemical extermination did not nor does it now present a very happy solution. A cure which does not begin somewhere near the source of the trouble is, at best, a makeshift.

To arrive at this point took some time. Next ways and means for heating loam were investigated. Dry heating by piling loam over a fire, much as sand is dried, did not seem to fill the bill. Wood is usually used for fuel in this method and under our conditions the fuel cost would be prohibitive. Also our experience had not been too conclusive of its economical effectiveness. Labor costs are high and there seems to be too much chance for uneven heating unless closely supervised and checked through frequent temperature readings. Subsequent experience proved that a mass of loam is surprisingly resistant to heat and that it is almost impossible to heat it uniformly if there is any depth to it. It is also well known that dry heat is much less effective in destroying seeds than is moist heat. Dry heating was ruled out and we turned to steam which seemed the ideal medium for obtaining the desired results. No matter what method we looked into for getting steam into a given amount of loam our stumbling block was boiler costs. Our situation is such, both as to location and legality, that we cannot run a boiler which is not capable of passing the Massachusetts Standard, and three years ago a second hand boiler which would do this had a first cost that prohibited asking for an appropriation for the boiler alone, not considering the other items which would have run the installation cost well over \$1,000.

We believed that if the moisture content of loam was normal, a given amount of loam exposed to sufficient heat would generate steam which would percolate through the loam and destroy the weed seeds. To get this heat we decided to use oil as fuel. As there is always the possibility of saturating some of the loam with oil because of faulty combustion we had to apply the heat indirectly. Our set-up was a boiler plate box approximately three feet deep with a drop side for unloading and a slip cover. The capacity was one cubic yard. This box was put on a six inch fire brick wall with a wall of common brick

about four inches away from the sides of the box and closed in at the top. The drop side was not bricked in and the fire brick wall was vented to allow the heat to escape and run up around the sides of the box between it and the common brick. Heat was furnished by a Hauck Burner. This is an oversize blow torch which throws a 30 inch flame, generating 1800 degrees of heat, using either kerosene or furnace oil for fuel. The burner was set up to throw its flame through a 4 inch opening left in the fire brick into the chamber beneath the boiler plate box. In a surprisingly short time this chamber became a roaring inferno and apparently we had heat enough for all our needs. Until we learned to respect this heat, shoes, gloves and clothing would smoke and char when we stood too near the box for only a very short time. We went to work optimistically. Dry, moist or soaking wet, it made no difference, we could not get uniform heating through the loam. With the box full, half or quarter loaded the heat would travel unevenly. A spot would show 190 degrees and a few inches away the loam would not be hot enough to be uncomfortable to the bare hand. There was too much handling of loam, too much time lost standing around waiting for the loam to heat; in fact, our first attempt was most unsatisfactory, but not a total failure, for we learned that loam heated to 190 degrees with a normal amount of moisture in it before heating will be practically weed free. The test was of sufficient length to be conclusive. A box was divided in half, unheated loam in one side and heated loam in the other. This was set out of doors for three months, watched to see that it did not become too dry, and at the end of that time the difference in numbers and types of germinated weeds was so marked that those of us who had been skeptical up to this time were convinced that heating loam to kill weed seeds was of sufficient value to warrant further investigational work.

After taking stock of our first years work we found that we had convinced ourselves of the soundness of the practice and that we must work up some scheme of keeping a continuous flow of loam passing through indirect heat of sufficient temperature to do the job.

In 1931 we set up what is our fundamental principle. A continuous flow of loam heated uniformly to the necessary temperature, by indirect heat.

This set up is two sections of 10 inch cast iron pipe, 18 feet in total length. Inside this pipe is a 9 inch screw conveyor of the same length hung in three bearings, the whole being supported at the ends and in the middle, with a pitch of 10 to 12 inches. Probably the pitch is of little consequence as the screw conveyor is slung off center in the water pipe, leaving only enough clearance to keep the flanges of the conveyor from rubbing on the bottom. The center support is of the bridge type, allowing part of the Hauck burner flame to shoot through and acting also as a baffle forcing the upper part of the flame around the pipe. The upper end of the pipe is closed in with sheet metal with a hopper on top to facilitate loading. The cast iron pipe is bricked in for three-quarters of its length starting from the lower end. Better design of the upper support would permit bricking in of the pipe for its entire length but in order to set our Hauck burner in the proper position it was necessary to leave the upper part of the pipe unbricked. For a cover we salvaged boiler plate from our box of the previous year having it cut to the proper width.

Our screw conveyor is driven by a one and one-half horse power electric motor through a reduction gear, chain and sprockets. By changing the ratio of the sprockets the speed of the conveyor can readily be speeded up or slowed down.

The results from the first year of this set up were most satisfactory. Under normal conditions loam came through continuously and uniformly heated to 190 degrees, but when winds were strong or mid-day temperatures much below freezing there was considerable fluctuating in the temperature of the loam as it came from the discharge end of the pipe.

In 1932 we added another Hauck burner. Running one from the upper end, as before, and shooting the flame from the second one in the side about mid-way of the pipe. We were able to increase the speed of the conveyor appreciable, lowering labor costs and reducing the liability of jamming. Our heat jumped to a constant 200 degrees and we ran through some 70 cu. yds. at a not unreasonable cost.

The loam from this 1932 batch has had a very thorough testing. We have used nothing else in raising seedlings of annual flowering plants which we

grow for a cutting garden for the Club House. We have potted up several hundred plants in this loam in addition to the loam in the flats where the seed was germinated. Obviously conditions in the hot bed were as favorable for the germination of weed seeds in the loam as the planted seeds but we have germinated just two weed seeds, both clover, and not over six grass plants. The grasses are noted because after the loam is screened we cover it with hay to keep it from freezing before we run it through the heater. The upper layer of the loam must be filled with the seeds of wild grasses and the fact that we have so few grass plants germinate is still further proof of the effectiveness of the heating.

For our last top dressing of 1931 we were obliged to use unheated loam and the amount of Shepherds Purse present in all our Greens brings home once again the effectiveness of heating loam to destroy weed seeds.

For our first year we ran the conveyor in plain bearings, but this last year we fitted it with roller bearings. The upper one served both as an annular and thrust bearing. We believe this to be important, for under operation there is a heavy thrust load on the conveyor which if not properly taken up, causes undue wear and cuts into the efficiency of operation materially. The middle bearing, much to our surprise, gave us no trouble. We were unable to secure any definite recommendations on a special bearing to fit this condition so put on an ordinary annular bearing which ran unoiled in a known temperature of 400 degrees and when examined this Spring was in very good shape. When the machine is set up next Fall we shall put in a new bearing, the expense for this being much less than to run the old bearing and perhaps have it fail in the middle of the work.

Jamming may happen for two reasons. Rocks occasionally get in, but with the speeding up of the conveyor we found that what few rocks did get in were run through without any serious jamming. Loading the conveyor too heavily will also make it jam. Experience soon teaches the proper loading speed and our second year took care of this also without any real difficulties.

The speed at which the conveyor can be run depends basically on the amount of heat inside the cast iron pipe. What heat is actually needed inside the pipe

to kill the seeds we do not know, neither do we know just how long the loam should be in passing through the heat. We do know that we have 400 degrees minimum heat in the hottest part and that the loam flows through in approximately two minutes, coming out at 200 degrees. There is still considerable study to be made of the three factors, speed, heat and time of flow to bring them into the most efficient correlation.

Our weakest point is that our set up is not permanent. Our loam shed is small with one side open. Seventy-five cubic yards of loam are put in, screened through a power screen and then out conveyor heater set up just inside the open side of the shed. After the loam has been run through we must tear down the set up to get our loam out easily. Our construction consequently is much lighter than is desirable. Our motor and reduction unit must be taken up at the end of each day's work, causing us some minor trouble in keeping it in perfect alignment. This coming year with our past experience to work from, we may be able to correct some of these minor weaknesses and improve upon the efficiency of the machine as a whole.

Undoubtedly by now many readers have condemned the practice of heating loam because, "It does something injurious to it."

The field of micro-biology is not one in which we even attempt to enter, being satisfied to leave that to men who have studied and trained for that particular field of science. We are content to depend on their opinion, which is, that if heating is injurious to soil bacteria it is of little consequence for the soil of the golf course is teeming with micro-organisms which will immediately correct a sterile condition of the heated loam, if such a condition does exist. Practically speaking, we have germinated a wide variety of annual flowering plants and have grown them along for two months or more in nothing but heat treated loam. The resulting plants are strong, healthy and vigorous. We are, therefore, convinced that heating loam, at least as we are doing it, has done nothing more to the loam than kill the weed seeds that were in it.

I have purposely omitted figures on labor costs and cost of building a conveyor heater. We have these figures, but as our original material was for the most part second hand, the figures are

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of little practical use to anyone. Our labor costs are not secret but it is our observation that maintenance figures when put before the public are wrongly applied and analyzed and so do harm rather than help. That this is so is a sad observation on the mental processes of us all; however I am straying from the point.

We do not believe that anything new or revolutionary has been instituted: if this report of our experiences is of help to anyone we are more than satisfied. We are not interested in debating the pros and cons of heat treating loam as a maintenance operation. We do believe, unreservedly, that for our conditions at Belmont Spring Country Club we are rendering a distinct service to the Club through this maintenance operation, the cost of which is more than justified. We admit that the efficiency of the machine can be improved upon, but we do not claim perfection for it.

The evolution of this practice and the development of our conveyor heater is in no sense the result of individual work. We are indebted, in particular, to the following; The Hacck Manufacturing Co., Mr. Harold Robie of Bellamy,

Robie and Sargent who would have liked to build us a drag link conveyor but told us that our principle was sound and to stick to it; Mr. Malcolm S. Cate of the engineering department of the Hood Rubber Co., for much practical advice; Mr. Duncan Sherk for his friendly criticism; Mr. J. F. Buel who helped us, materially, in adapting the various parts into one workable unit; Mr. Osborn Bezanson of the Merrimac Chemical Co., for assistance in locating much of the material used, and, of course, none of this work could have come to pass without the co-operation, confidence and encouragement of Mr. F. D. Sherk, Chairman of the Greens Committee of Belmont Spring Country Club.

Charles W. Parker.

RHODE ISLAND FIELD DAY

The third annual Greenkeepers Field Day was held at the Rhode Island State College and Experiment Station on May 23, 1932.

Following registration, those present visited the experimental plots, where Dr. T. E. Odland and Prof. H. F. A. North explained the various plots and experiments being conducted on them. The old lawn plots, established in 1905, are still of much interest. Various new experiments with compost, the effect of different soil reactions on newly seeded R. I. Bent, arsenate of lead, etc. are also of interest.

On the golf green plats, the plats of Yorkshire velvet, B. P. I. 14276, and Kernwood velvet attracted much attention, as probably the best plats at this time. Two series of seed production plats show that Rhode Island is a seed producing region, and that the experiment station is trying to help those who grow grass for seed production.

Following lunch, Director B. E. Gilbert of the Experiment Station presided at the Grass and Turf Conference. President Raymond G. Bressler of Rhode Island State College welcomed the visitors to the campus, and announced that the College would offer a five day Short Course for greenkeepers this coming Winter, probably in February. He read a sample program for approval.

Other speakers were R. Wallace Peckham for the Rhode Island Greenkeepers Association, Dean Adams of the

College, Melvin Brightman in behalf of the seed testing department of the R. I. Dept. of Agriculture, and Frank H. Wilson, Jr. who brought greetings from the Greenkeepers Club of New England.

The main address was presented by Dr. Howard B. Sprague of the New Jersey Agricultural Experiment Station. Dr. Sprague spoke on "Soil Conditions and Plant Growth". He pointed out that this subject is not a single one nor is it easy to understand. It will be some years before we understand soil conditions. Practically everything we do to grass is effective through the soil; therefore it is very important.

Get best system of management to manage soil to get best results. We look for sources of information—what is the best combination of soil conditions to best grow grass?

Dr. Sprague pointed out the differences between the soil in eastern United States, originally natural forests, and the western soil, natural grass land. The textures are similar, most obvious difference is in color, black soil in west, color due to organic matter, distributed further down in soil. Also differences in structure, east fairly light on surface, down some inches denser in structure; in west, more or less same structure all the way down, with good drainage. East soil is usually acid, prairie soil neutral. Eastern soils are more deficient in plant food, poor in phosphorus, also lime; the natural supply of potash is lower. Our soils are not naturally suited for grass production. The conditions in West are maybe not ideal, but they show the trend.

Experiments show that most grass roots are confined to the first inch, with a substantial development down to five inches, a little to seven inches. Grasses produce a new root system every year, starting when grass becomes green. The old roots are dying, begin to decompose, conditions must be right in soil for root development.

Any accumulation of organic matter tends to lose its capacity for holding water, especially material not decomposed.

How far should we go in changing soil textures? On fairways, we sometimes must take them as they come, except on sandy fairways, where they can be topdressed with clay soils. On greens, ideal is toward sandy loam. This is most likely to give best results. We cannot hope to get the organic matter con-

tent same as prairie soils, but we should increase the organic matter content on greens. Bent grasses, even though tolerant of acidity, probably do best on soils not more acid than 5.5 pH. On strongly acid soils the danger of injury to grasses is greatest.

It is wise to provide nitrogen in several forms; the solution of problem of supplying nitrogen is a compromise by supplying all forms, nitrate, ammonia, and organic N.

Dr. Sprague showed and explained several charts picturing results of various experiments conducted by him in New Jersey. One experiment on the effect of adding organic matter to soil on water holding capacity and growth of grass" showed that all materials used increased the water holding capacity from untreated soil, and also increased the top growth of grass, in both sandy and clay soils. The more thoroughly material has been decomposed, the better source for soil improvement. Layers of organics are very undesirable; if we can produce a blend of these materials in soil, improvement will show. Peat moss is better composted unless it can be kept wet while decomposing.

Following a short question period, the annual meeting of the Rhode Island Greenkeepers Association was held, with President Peckham presiding. The following officers were elected: Pres., Lawrence Hay of Agawam Hunt; V. Pres., Thomas Galvin of Rhode Island C. C.; Sec., Woodworth Bradley; Treas., Martin Greene of Wannamoisett.

Exhibits and demonstrations of sprinklers, putting green mowers, hand and power, lawn mowers, and other small equipment completed the day's program.

This third Field Day was blessed with fine weather, after the two previous had plenty of rain.

The cooperation between the State College and Experiment Station staffs and the greenkeepers of the State is a fine thing for golf in Rhode Island.

Prof. John B. Smith tested many soil samples during the day.

Dean Adams brought out the three rules for a successful public speaker—to stand up, speak up, and shut up!

We wonder where this "world's worst golf course" is, on which all the staff play. It shouldn't be in Rhode Island!

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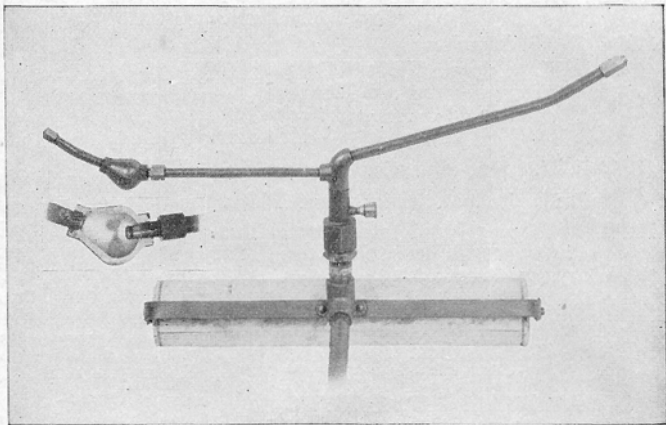
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MASS. STATE COLLEGE LAWN DAY

Your attention is called to the program for the annual Lawn Day at the Massachusetts State College at Amherst.

Tuesday, July 26

LAWN DAY

Room 20, Stockbridge Hall

10:00 A. M. Why a good lawn, and how I find them about the state.

A. N. Davis M.S.C.

11:00 A. M. Experiences in turf growing.
L. S. Dickinson, M.S.C.

12:15 Luncheon.

1:45 P. M. Lawn soils.

Professor George McClure,
Soil Technologist,
Ohio State University.

3:00 P. M. For Question answering.

3:30 P. M. Inspection of Turf Plots.

NOTE: If weather is stormy an illustrated lecture will be substituted for the plot inspection.

All who are interested in turf growing should plan to visit the exhibition in Room 20, Stockbridge Hall.

AGAWAM HUNT NEWS

The Agawam Hunt, one of the oldest golf courses in the State of Rhode Island, has reached the stage where it is so well established that few changes can be made in the natural layout from year to year. Yet we have never passed up the opportunity to make minor improvements whenever there is a chance to better the present layout.

This year we have added a few more traps and altered some of our greens. The third fairway received first attention; nearly an acre of sod was lifted in order to eliminate casual water which remained there a day or two after a heavy rain. The fairway was regraded and all the low spots filled, resodded, and topdressed. The brook in front of the 4th green has been filled in, and the contour of the sloping green built up so as to afford a better approach shot. The sixth fairway was topdressed and seeded. Being on high ground, we have put in a water supply. The 17th and 18th have had same treatment with water supply.

At present we are topdressing our greens for the second time this season with compost. We have added to our equipment a power screen, which is a great help; also a five gang mower has been changed to a seven gang by adding two units. The greens are cut by power mowers, this being the third season, and are a success.

Lawrence Hay, Greenkeeper.

NEW JERSEY FIELD DAY

You are cordially invited to attend a field-day program devoted entirely to turf culture, at the New Jersey State Agricultural Experiment Station on Monday, June 20, 1932. The meeting is sponsored jointly by The New Jersey State Golf Association, The New Jersey State Greenkeepers Association, and the State Agricultural Experiment Station. It is expected that a large number of persons interested in producing and maintaining turf on lawns, golf courses, parks, etc., will be present.

The program will begin at 3 P. M. (Daylight Saving Time) on the experimental turf plots of the Agronomy Department at the College Farm, New Brunswick. Each of the several hundred plots will be labeled, and visitors may draw their own conclusions as to the effects of the various treatments and conditions. A discussion of the field experiments will be conducted during the afternoon.

At 6 P. M. the group will adjourn to the Hotel Woodrow Wilson where dinner will be served at a cost of \$1.50 per plate. A short evening program of talks on turf culture and a discussion of turf problems will follow.

The July meeting will be held at the Tedesco Country Club, Swampscott, Mass. on July 11th.

To retain their standing, those who have not paid their dues for 1932 should do so this month. Send dues to the Treasurer, Frank H. Wilson, Jr., Charles River Country Club, Newton Centre, Mass.

Two new practice traps have recently been built at Braeburn Country Club.

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Great Barrington, Mass.

MORE ABOUT BROWN PATCH

By C. W. Hazlett, Bel-Air C. C.

Reprinted from the Pacific Greenkeeper

The following is in answer to a number of questions asked of the Association president in regard to a very popular subject.

Your Letter with its many interesting angles and suggestions in regard to old man Brown Patch received and would say no as to him being carried around on players' shoes, or at least not likely. He only thrives when the temperature is just right, and it does not seem at all probable that the players would go to the trouble of accommodating the old boy to that extent. And even if the players did pack it around on their brogues, there seems to be nothing that can be done about the matter; they have to get from course to course and from green to green, and the pest could be carried by bare feet as easily as not. The same thing applies to it being carried around on the mowers; the greens must be cut in the least amount of time, without benefit of fumigation. Possibly the idea is to carry around a bucket of hot suds to wash the machines every time a brown patch is seen. There are a lot of hokus pokus ideas floating around about this subject and I think it a waste of time to investigate many of them. Of course it is well to give all the evidence the once over.

Since no one yet has demonstrated satisfactorily what the disease is all about, let us mark up a few facts against the old boy that we have seen come to pass and that we know are true. When the weather is cold and windy he doesn't come around, neither does he leave his cave during nice warm growing weather. But let the temperature rise to about 80 or 90 degrees with the air still and a little fog or haze lingering on the horizon, and he sneaks in and bites where you aren't looking. Ordinarily the change can be very gradual, barely enough to be noticed. But if you look closely, you don't have to have very good eyes to see a few of the familiar spots on some of your finest turf. From my own observations I would say that it comes when there is least circulation of air, and it attacks the closest clipped grass the hardest. It seems to settle down just as a heavy gas would do

when there is very little circulation. It doesn't seem to be particular in its preference for high or low, and wet or dry spots. Night seems to be the time when the villain gets in his deadliest work, and he is particularly dangerous to a shaded green, but I would say that this last is due to the fact that the turf has not as much chance to recuperate in the sun's rays as does that on an open green. We know that brown patch and humidity hand in hand, and, because humidity is caused by the presence of atmospheric vapor under certain conditions, I cannot help but associate brown patch with something in a gaseous form that becomes active when conditions of temperature and atmosphere are just right, conditions which allow a thin fog to settle down. Of course the fog and changes of temperature are all that my senses were able to record. Humidity and the presence of gases associated with the disease do not always register to one not equipped with delicate instruments.

Atmospheric conditions being matters over which we have no control let us accept them as they come, and put the greens in favorable condition to ward off any dangers that may be present. Excessive water to keep the temperature down will not do, because the soil, if of a heavy nature, will pack and algalia will develop, thus putting the green in very poor condition to overcome anything. The sun and air must be allowed a chance to put in their good work, and this they cannot do if the turf is kept loaded with water. It is better to spike the greens and put in enough sand, peat, and soil so that the turf in the region of the roots will be of such a texture as to retain moisture; then the sun and air can do some good work. Of course there are extremes. The top must be kept a little moist; if allowed to get dry, no condition below would be of any help. This spiking and topdressing by all means should be done in cool growing weather. If, after getting the green in good growing condition by the right application of nitrogen, potash and phosphoric, you are still subject to brown patch, you will find that a green in this condition will respond very readily to treatments of mercury-chlorine compounds. It is stated that these ingredients, being deadly poisons, kill soil bacteria. I personally do not give a tinker's cuss if they do. If the greens are in a healthy condition they will overcome these ill effects to a great extent, and in the fall

more bacteria can be added. The average golfer will never know that anything has been added or taken away, having enjoyed good golfing conditions throughout the summer.

In the season when brown patch is most prevalent and it makes its appearance on two or more greens at the same time, do not err on the side of economy. For those greens which do not have it or have only a slight attack I would say cut down a little below the average full dosage. But if they have it in any noticeable amount, don't kid yourself, give it to them quick. When you analyze the whole mess and weigh the benefits of good greens for twelve months of the year against a summertime of questionable putting, it does not seem that \$20 a year for the average green for brown patch medicine is prohibitive, does it? Especially not when you are giving old man brown patch a kick in the slats. All these other preliminaries such as topdressing to get the soil into the right texture for a healthy turf should be performed under any conditions and should not be charged directly to the cost of handling brown patch. I would say that if the time is right for adding ammonium sulphate, mix this with the mercury treatment and water and you will get good results. The wet method seems to work best for me. It takes about 20 minutes for two men to treat a green.

JUNE MEETING

The June meeting was held at the Oyster Harbors Club, Osterville, Mass., on June 6th. Some fifty members and guests were present and enjoyed playing the very testing layout, scene of this year's State Open. Gross winners of the 18 hole medal tournament were:

Michael McDonough, Oyster Harbors—40-47-87.

James McCormack, Unicorn—48-40-88.

Net winners were:

Tom Galvin, Rhode Island—94-18-76.

Wm. McBride, Nashua—97-18-79.

H. B. Cottelle, Barrington—101-20-81.

Mr. A. B. Hopkins, formerly Turf Specialist for the Armour Fertilizer Company, is now with Goulard & Olena, Inc. of New York City.

There recently reached our desk the very fine year-book of the Highland Country Club, Attleboro, Mass. This book gives a list of the club events planned for this season, and results of the main club tournaments the past season. A list of the members is included, as is also several of the important by-laws of the club. This book is of special interest in that it shows that one club at least of the smaller clubs actually plans ahead for the whole season. We believe that this idea could be copied with profit by many other clubs whose tournaments are now being run in rather slipshod manner.

A new practice putting green had recently been opened at the Highland Country Club, Attleboro, Mass.

A new practice fairway is under construction at the Oyster Harbors Country Club.

The Board of Directors held a well attended meeting on May 20, with President McCormack at Unicorn.

The new Providence Municipal Course opened on May 1st with an attendance of 178 in pouring rain. Everett Pyle, greenkeeper in charge, reports crowds of over four hundred each Sunday since opening, with 422 as high mark to date.

Frank Wilson reports two new tees built this past month at Charles River, the third, 60 by 20 width, and the twelveth, 70 by 25' width.

R. L. Mitchell is now located at the Edison Country Club, Schenectady, N. Y. as greenkeeper, and W. F. Mitchell at Lake Sunapee Country Club, New London, N. H. as greenkeeper. With Samuel and Henry also working on golf courses this Summer, it seems that Robert of Kernwood and his greenkeeping family could have an association all their own!

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