

How We Maintained Our

*A resume of experiences by America's most prominent greenkeepers.
Practical stories by practical men*

EDITOR'S NOTE:—Stories omitted in this issue will be published in the December number.

Brown Patch in New England

By JOSEPH O'GRADY, Greenkeeper

Country Club of New Bedford, North Dartmouth,
Mass.



JOSEPH O'GRADY

THE brown patch season is now over and all of its worries but it has left in its wake some beautiful pictures of destruction to keep its evil work still bright in the greenkeeper's memory. Re-seeding and resodding

is often necessary but at this time resodding is the best policy as it is getting too near the winter for seeding due to the sudden change in the weather. Resodding is able at this late date to withstand easily frost or snow better than seed.

There are a large number of the different brown patch controls on the market today as all of us greenkeepers know, but it is often a wise thing to study weather conditions before applying same. I have tried some of the various kinds and have found them very useful and a help to bring back the greens but don't forget that the weather is responsible for one hundred percent of the damage done by brown patch. In ninety percent of the cases the different chemicals are very useful but old Mother Nature is on the big side of it all. I know of one case of a greenkeeper friend of mine whose No. 9 green happens to be in front of his house. He has been on it all summer treating it like you would treat a chicken with a broken leg and he had finer and bigger brown patch on that particular green than any of the other seventeen.

Most of the boys in this section of New England got plenty of the disease this summer themselves and the ones that escaped it can call

Here is the letter Mr. John Morley wrote to the members of the National Association of Greenkeepers of America:

Youngstown, Ohio
October 1, 1929

FELLOW MEMBERS:

Well—another golf season is behind us. And what happened?

Did you get much brown patch and how did you come out with it? Were there any other diseases you had to fight?

Did you have more weeds than usual? We saw a lot of crab grass and chickweed due probably to the drought.

Were worms troublesome and what did you use to work them?

Have you done any new construction work this year that you could tell about?

These are all questions of interest to greenkeepers. Let's all tell briefly our experiences of the past season. It's helpful to one another and bespeaks the friendly spirit of our profession

The NATIONAL GREENKEEPER, our official organ, has agreed to collect, arrange and publish the answers.

Got down something and mail back in the enclosed return envelope before October 12.

Trusting you will do this and with best wishes, I am

Yours fraternally,
(Signed) John Morley
President.

themselves lucky, not experts. It certainly likes the different strains of bent. I have two greens that are mostly Southern German bent; they were formerly fescue and both of those got it very bad. I treated them every month beginning in May and it did not seem to stop it. When it came I used a spiked roller both ways and seeded them with German bent in compost, the results were good, but there will be some-

Golf Courses In 1929

*How various problems of construction and upkeep were solved.
told in their own language*

Further contributions will be welcome and should be mailed not later than November 10.

thing to be done on them in the spring before they are in good condition.

As to crabgrass I will say we got plenty of it this past season. Some of the boys used a rake on it and cut it close after raking it. I weed it out of my greens going over them twice. I had it so bad on one or two of the greens that there wasn't much to look at after they were weeded. I have no doubt but that the dry weather is responsible for the amount of crabgrass we got this season and I am living in hopes that we had ninety percent of it this past season. Watch for 1930; if we get plenty of rain we will only have the other ten percent. The big crabgrass is bad but the small crabgrass is worse.

There were plenty of worms this fall due probably to the dry weather all season. They did not bother me this summer but I got plenty of them this fall. I have tried Electric worm eradicator with good results as it certainly brings them up. I am bothered most on my fairways and I would like to know if any member has any suggestion to offer on taking worms out of fairways without great cost. I am using arsenate of lead but I am of the opinion that it kills the worms down below and that would make a banquet for ants. If so I would prefer the worms.

This is the time to do construction and fix all the traps, tees, fairways and greens and have a jump on the game in the spring.

Yours for bigger crabgrass and smaller brown patch in 1930. Face the bright side anyway.

Lecco Is Best

*By E. J. CLARE, Greenkeeper
West Boylston, Mass.*

I WAS not troubled with brown patch this year. I had lots of clover and chickweed and I attribute clover to excessive watering on account of drought this summer and

used sulphate of ammonia but did not seem to check same. But on two greens I used Lecco and I must say they are the best today; clover is very fine and not so noticeable and chickweed very scarce. In using Lecco I experimented by placing it on patches of chickweed and it eliminated it entirely.

This is a new course being built on very stony ground and very little soil. What soil there is is very thin and greens were all raised and I would say very hard to keep wet, but hope to get them good by topdressing and fertilizing.

I have used Sherwin-William's arsenate of lead for worm control and same seems to be doing the work, although not troubled with many. Used an average one pound to seven hundred and fifty sq. ft. per application, our greens being Washington bent.

For ants which I had a lot on some greens I used black leaf 40, one teaspoon to one-half pint of water placing in hole with oil can and it gave very good results, in fact nearly perfect as I only had to go over a few the second time.

How My New Greens Were Built

*By CARL J. COY, Greenkeeper,
Tippecanoe Lake Country Club, Leesburg, Indiana*

IN ANSWERING your request of the activities of my club I will give you a brief summary of the work and some of the things I have done.

I have eighteen greens of Washington bent, nine greens that are a year old and nine greens that I sowed this fall. On the first nine greens that are a year old I have had no trouble with weeds at all as I believe fall seeding is so much better. The weeds that do come up in the fall freeze out and by the time in spring that they start the grass is coming in so thick that they do not have a chance. I have had a little snow mold and also small brown patch. I gave them

an application about once a week with Nu-Green and have had very satisfactory results.

Have had more crab grass this year, especially in my grass greens than I have ever had before. The worms did not bother me very much as I brush or pole my greens every day during the playing season.

Here is the way I have handled my new greens that I put in a year ago. My greens are all very large and well undulated, tiled, and have a top of five inches peat and loam mixed and will average six thousand square feet; have two that have eight thousand square feet. On these greens before putting on stolons I worked into the top soil five pounds of arsenate of lead and five pounds of sulphate of ammonia to each thousand square feet. After the bent was started I followed up with one hundred pounds of Armour's fertilizer to a green and just before it froze up I topdressed them about one-half inch and in the spring they came out in fine shape.

The process that I went through at this time was raking lightly with bamboo rakes once a week and topdressing with fifty percent peat and fifty percent sand once a week and mowing every other day until the greens were covered over. My object in brushing was to get the bent standing on end so as to topdress full and level.

My greens were playable on Decoration Day, but don't think they were perfect as they were not; as you will not get a perfect putting surface in a day or a week, but I had a great many comments on how well my greens looked.

On the last nine holes I put in, I closed the second nine on the ninth day of September and in ten and one-half days I was through with seeding and my greens are all growing fine so that you are able to see the bent all over the greens. Of course they require a lot of watering and I do all of my watering in mid-day now on account of the cool weather and frosts.

I am now building a practice putting green and am lengthening one hole and building a tee, so you see I have had a very busy season as the better you can satisfy your members the better it is for you. I find that the better results you can show the more money the club will give you to use for maintenance. Our

budget was \$1200.00 and we are going to stay within the limit. I operate my course with eight men.

This is the first letter I have ever written to the National Greenkeeper and if any fellow-greenkeeper has any criticism to offer I will be very glad to hear it. I hope to see you at the National Convention at Louisville.

Red Top for Winter Greens

*By HUGH C. MOORE, Pro-Greenkeeper
Saint Simons Island, Georgia*



HUGH C. MOORE

I AM not bothered much with brown patch. I have a light touch of it each winter in my red top which I use for winter greens. I use 1 lb. of Semesan to 50 gallons of water, fifty gallons to each 1,000 square feet. On some greens I sprinkle in various places with a watering pot and have splendid results.

I've had a considerable lot of weeds. Most all new courses do. For the greens and

tees I keep one man after weeds and crab grass also using Carbon Bi-Sulphide with a funnel to kill the Porto Rican Cricket Mole and for these moles on the fairways I use lead arsenate.

Have put in twenty seven new traps in the past four months. I will revet these traps this coming winter to keep the face from crumbling in after heavy rains. I also built one new green and this work was a very tedious job owing to the fact that I couldn't use a sod cutter, I had to take the sod off of the old green by hand and replace it the same way owing to condition of sandy soil. This kind of soil is very hard to maintain good turf especially through the fairways. You also have to be very careful when you fertilize because if you should get a hard rain right after, more than likely the fertilizer would be washed below the roots.

In the past six months I have built a very picturesque lake, leaving a beautiful oak on a little island in the center of the lake. We also have four swans which add to the beauty of this lake. At one time this was an alligator pond and nearby was a place for dipping cattle. So you will see that a beauty spot can be made from an unsightly muddy pond. The dirt taken from this lake was used to build a very pretty practice green at a very small cost. I used a drag line for this work.

I am also top-dressing, fertilizing and putting in my winter seed using 200 lbs. of Milorganite to each green. My winter greens will be red top which I've had wonderful results with in the past two winters.

Caring for Municipal Courses

*By A. G. MCKAY, Greenkeeper
Louisville, Kentucky*

I HAVE charge of three golf courses here, Cherokee, Shawnee and Crescent Hills and have forty-five greens under my care. The brown patch has been very light here this year, I suppose owing to the dry season. I have had a great deal of crab grass on the Cherokee course in the greens that are in bluegrass, but not bothered with it very much on the bent greens.

Worms were bad on the Crescent Hills course during August and September, mostly grubs. I gave the greens a liberal dose of arsenate of lead about thirty pounds to a green and they have disappeared.

I have done a lot of new work this year, as Shawnee is a new course. I laid a complete water line and also built eighteen new greens and planted them to Washington bent. I have also built a great many traps, as Shawnee is a flat course, but I believe a very interesting one as it lays along the river. We also built a nice new clubhouse which was opened about the end of June and we have used temporary greens all summer.

The play has been heavy; some days we had over three hundred players. Next year I expect Shawnee to be the most popular municipal course around Louisville and I trust you will take time to look over Shawnee when at the Convention. I also hope to make your acquaintance there.

I have also built six new greens at Cherokee and one at Crescent Hills. At Cherokee I have twelve greens in bent and have other six to remodel and plant to bent next year as the funds would not permit me to build more this year. So I have built twenty-five new greens and laid a pipe line which I consider enough new work for one year along with looking after the other greens and courses.

Our dues are very cheap here. We charge for women and boys during week days twenty-five cents up to twelve noon and fifty cents a day for men. On Saturdays, Sundays and holidays fifty cents a round or one dollar a day for everyone. We also sell tickets for the year at twenty dollars each which entitles the holder to the use of the three courses.

We have taken in \$31,000 this year which is the most that the courses have ever taken in in Louisville. I expect a bigger year next year as Shawnee will be in good condition. I was appointed supervisor of the city courses a year past and my aim is to improve and make them better.

While writing I will tell you something about myself. I am Scotch and came to America seven years ago and held positions as professional for over two years, then I went in for building golf courses and built two in Rhode Island, from there I went to Audubon, here in Kentucky and from there to the city work. I have been in Louisville three years and hope to be many more. I learned greenkeeping and pro business in Scotland, in Aberdeen where the Jews starve to death.

Uses Very Little Fungicide

*By ALEX MCWHINNIE, Greenkeeper
Morrison Country Club, Morrison, Ill.*

ONE year ago we were reading and talking of the year just closing (1928), as being a brown patch year. Very few greens escaped it. The attacks were so severe and came with such frequency that it seemed at times that the use of fungicides was a waste of money.

If the weather conditions during the year just closing (1929), had been as unfavorable as in 1928, then those of us who took our greens through this year in good shape would know with more certainty whether the re-

sult was due to our efforts, or whether it was because of better weather conditions.

During 1928 our greens suffered severely from large brown patch, while this year we did not have any damage whatever, although the attacks at times were just as bad, and the weather off and on just as unfavorable. The well-known smoke ring was in evidence many times, but no loss of turf resulted.

We used very little fungicide. In early July and in mid-September we treated our greens to correct a "small brown patch" condition with Calo-Clor mixed with Milorganite as directed with splendid results. Our greens were fertilized throughout the year with Milorganite and at no time did we use more than fifty pounds to five thousand square feet of green, and topdressed with top soil and sharp sand in equal parts. No compost was used.

A steady healthy growth was maintained and while they did not have the thick tangled density that the dub likes to pitch to, they did have enough bite to hold a well played shot, and they were true to putt on.

Of this I am satisfied. A green that can be kept at a density so that the greatest number of plants can get the full benefit of the sun will be healthy. Whereas a green of over density where the plants overlap and tangle cannot possibly be healthy. On such a green many of the plants do not get the sunshine, there being very little or no transparency to a blade of grass.

Omaha Is O. K.

*By OSCAR JOHNSON, Greenkeeper
Happy Hollow Club, Omaha, Neb.*

MY EXPERIENCE with my greens this summer has been very interesting. I have not been bothered much with brown patch this season as I always use preventive fungicides, such as corrosive sublimate and calomel. I did not have any other diseases to fight.

I did not have very many weeds or worms this season and I am sure this was due chiefly to the form of dope I used, namely arsenate of lead.

I have done some construction work this fall. Have reconstructed two greens, planting

Washington bent stolons in each one. I am still working on two other greens, which I am going to sod with Washington bent from my own nursery as I figure it is too late for stolons to be planted in this locality now and am in hopes that they will be in shape for the opening of next season.

Semesan Eliminates Brown Patch

*By J. O. CAMPBELL, Greenkeeper
Wethersfield Country Club, Wethersfield, Conn.*

I HAD only one slight attack of brown patch. I used two pounds of Semesan to one hundred gallons of water which covered approximately six thousand feet of turf. This eliminated the disease.

Yes, my greens were somewhat weedy this season. They were mostly dandelion, plantain, chickweed and crab grass. More chickweed than anything else. I did not spend any extra money weeding outside of the price of arsenate of lead which I used for chickweed and crab grass.

We had some trouble with worms in the spring, but after using two pounds of arsenate of lead to each one thousand feet of putting surface we saw very little sign of worms until October 1. We are having some trouble with them at the present time but have not proved very troublesome yet.

We have done some new construction work this year. We built five new greens late last fall. Finished them this spring. Planted about April 17th with Metropolitan bent stolons. In my topdressing I used forty pounds arsenate of lead, twenty pounds of sulphate of ammonia, one hundred pounds of tankage and one hundred and twenty-five pounds of Milorganite. This was thoroughly mixed with very fine sandy loam and spread about one inch deep on each green before our stolons were put down. The same mixture was used to cover the stolons.

Now I will tell you some of the grief I experienced with this new work. I planted two greens twice and three greens five times. I would plant them one day and it rained so hard in the night that it washed practically all the stolons off. Next morning with my men

I would pick up stolons and replace and top-dress in. It eventually stopped raining and I have never planted greens which grew so well and developed so fast.

This has been a bad year on new greens as well as old, but a perfect year for weeds. I turned the greens in for play August 15. They were filled in beautifully. I weeded these greens once only and at the present time there are no weeds of any kind.

After the stolons had stayed put for a week or ten days and had started to turn green the chairman of the Green committee called me and said he had never seen anything so remarkable. He had expected to spend \$125.00 on each green again for new stolons.

Corrosive for Worms

By JOSEPH FOEGER, *Greenkeeper*

Ozaukee Country Club, Thiensville, Wisconsin

IN ANSWER to your letter of October 1, I wish to tell you of my experiences of the past season. We had some brown patch and used Nu-Green to treat some but was not very successful; so used Semesan instead with very good results. I think too much sulphate of ammonia is often the cause of brown patch. It makes the grass grow too quickly and so is too soft to withstand the brown patch.

We had no crab grass and hardly any chick-

weed this year. Our greens were covered with same just a few years ago. Have been using arsenate of lead for the last two years. I am not using it as strong as recommended, only about ten pounds to the average green using a power sprayer. This also takes care of the worm situation.

Am enclosing a picture that I took three years ago when I used some corrosive sublimate to treat the worms. You can see at a glance how thick they were. Before using arsenate the worm casts were so thick you could not walk on the greens without stepping on some.

We built six new tees, two bunkers, rebuilt five bunkers, all of this being done with the regular crew of fourteen men. Also had a lot of extra work getting things in shape for the Western Open Tournament which was held August 21 to 24 with the greatest success.

Snow Mold at Winnipeg

By A. W. CREED

St. Charles Country Club, Winnipeg, Manitoba

BEING a Charter member of the N. G. A. of America, I want to congratulate the capable body of officers for the business-like and efficient manner in which the Association is being carried on and I am sure the results obtained so far in such a short space of time are a credit to their organizing ability.

Am now situated quite a distance from my fellow greenkeepers whom I knew personally when in Detroit, being assistant to the well-known greenkeeper Mr. H. E. Shave of Oakland Hills Country Club, leaving there to take up the position as head greenkeeper here in Winnipeg.

Conditions here are much more severe in the Spring than in the East, many of our *Poa Annua* greens being entirely destitute of grass until the temperature hovers around the sixty mark and that means about the middle of May. Our Bent greens stand the Winter fairly well. We are gradually turning all our *Poa Annua* greens into Bent.

I have constructed and planted four greens to Bent last year, and one this year. Last year I got forty bags of stolons from one of our well



WORMS ON THE OZAUKEE GREENS

This photo was taken after corrosive sublimate had been used

known greenkeepers of Detroit, who I see, advertises in our Magazine and it sure has made us a dandy green, there being very little grain to it. Our other Bents having to be raked both ways in the growing season three times and mowed close from which they soon recover; also have our No. 4 in Cocoos or Seaside Bent, which I consider has given us the least trouble of any of our greens and the best service, there being no grain, the color good and the putting perfectly true, even in the driest season of which this year has been a record.

Our course is nearly surrounded by the Assiniboine river and comprises 247 acres, beautifully wooded with fine elms and with a polo field on the same property. We water our greens from 6 to 9 in the morning thus helping them through the day's play, which is always heavy, having around 900 members.

The green constructed this year was our 14th, the old green being quite flat and cut out of the prairie. We built this up with about 600 loads of earth (Gumbo) with 4 inches of compost on the surface, graded and bunkered it, put on Washington Bent sod from our nursery of which we have two acres, and from start of building green to playing the same was twenty-three days. I can assure you the members were highly delighted.

Last year our club bought 57 acres of well wooded land adjoining our present course and we are at the present time constructing a new 9-hole course, the architect being Dr. McKenzie, Drainage Engineer Mr. Wendell Miller with Mr. Ben Zink and Mr. J. Fleming as associates to carry out their plans.

On our 18-hole course we employ 14 men with one assistant during the season, also two tractors, 1½ ton truck, one team and incidentally we swear by the Toro mowers both for greens and fairways.

My greatest worry is snow-mold in the Spring when the snow melts, leaving a coat of slime over the greens in patches. I have washed these off, brushed them with steel brooms, but this slime or fungus still kills the green wherever it has been. I am trying out Mercury C. S. this fall to try and overcome this. If any of our fellow greenkeepers have

a remedy for this shall be glad to hear from them. Should any of you land up here in the winter-time a warm welcome awaits.

In conclusion, our club is officered by men of experience in club affairs. Our president Mr. C. Joyce, who is also our Chairman of green committee, and our Hon. Secretary Mr. C. W. Jackson are very enthusiastic in giving assistance whenever required. I also have the hearty co-operation of all our officers and members and our aim is to make St. Charles Country Club golf course the finest in Western Canada.

Hope to meet you in Louisville.

Maine Reports

By SAM BARBAROSSA, *Greenkeeper*
Portland, Maine

THIS summer I had very little trouble with brown patch, but I used Semesan on the greens. Starting on the first of July I applied it every two weeks until the middle of August.

I had some weeds on my greens this year but not more than usual. I think the weeds come from the topdressing I put on four or five times during the year.

In the beginning of the spring I had some trouble with worms but I used Carter worm killer once in the spring and once in the fall and that killed the worms. I put one hundred pounds to a thousand square feet.

Lots of Work at Moundsville

By CHARLES S. KESSELRING, *Greenkeeper*
Moundsville Country Club, Moundsville, West Va.

I HAVE been negligent in writing my experiences to your valuable paper, but the fact is I have been so busy. I moved to Moundsville, March 16, 1929 and took up my work at the Moundsville Country Club, March 18.

First, the machinery had to be all overhauled and was in very bad condition, and the course was badly run down. It is a nine-hole course but I only had two men to keep the work going up until the first of August when one man was laid off and I only have had one since that time. The busy season has slackened up since that time and I think I

can give you a little description of my work.

As for brown patch I had very little of that. I used plenty of topdressing which is all I did for it and that took care of it. I said topdress because I just used top soil and not compost with manure. In fact that is all I have used for compost all season, but have used it often. I have topdressed five times this season and my greens have had a splendid green color all summer and I have been short of water.

The soil here is sandy and as for weeds—or rather fall grass I have had my share and more. The bunkers around the greens were not kept trimmed last season and that let the seed spread on the greens. Due to all this course condition and shortage of help I have worked early and late and my course isn't in a number one condition yet, but have only been able to keep it in fair playing condition.

I haven't been troubled with worm casts. When I came here the Green committee stated they were troubled with them last season and with my first composting I used four pounds arsenate of lead to each one thousand square feet then, and one pound to each one thousand square feet with each topdressing after that one. I have had some ants to contend with but couldn't get time to fight them, but hope to get ahead of them another season.

Nu-Green—1½ lbs. to 50 Gallons Water

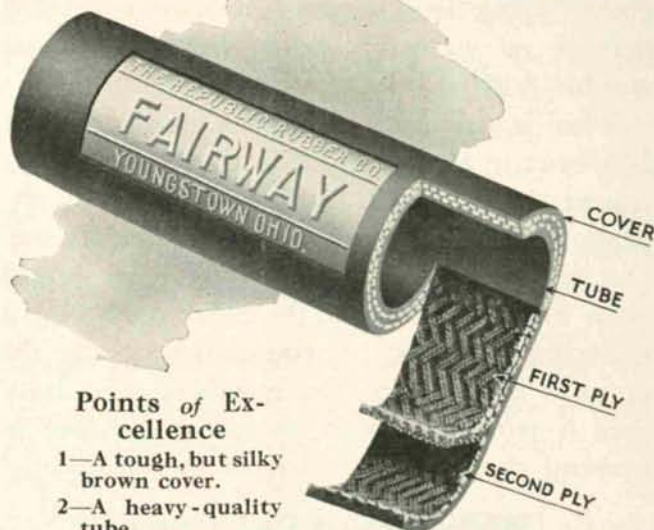
By WM. MAYNE, Greenkeeper

North Western Golf Course, Morton Grove, Ill.

OUR course forms part of the Forest Preserve of Cook county, and the greens are placed with a natural setting with trees near the greens, therefore not getting too much sunlight. The result is that during the humid weather of July and August it is a perfect breeding ground for brown patch fungus.

Our Numbers 1, 2, 4, 8, 9, 11, 12, 15, 16 and 18 greens were attacked all on the same day. I stopped all other work and got the spray going, giving the whole eighteen greens a good drenching with Nu-Green at the rate of one and one-half pounds to fifty gallons of water. The following day the affected greens were given a light topdressing with sulphate of ammonia added at the rate of ten pounds to the

FAIRWAY Water Hose



Points of Excellence

- 1—A tough, but silky brown cover.
- 2—A heavy-quality tube.
- 3—Two plies of double strand braided threads.

Ask for a sample and see for yourself how good Fairways is

HIGH quality and exceptional utility in products of Republic are made possible at comparatively lower prices because of an economical and direct distributing system. The Industrial Supply Distributor operates as a warehouse system to meet your particular needs. He operates as our distributing and selling system. Time, money and effort are thus saved to the consumer and to numerous manufacturers. This saving means better quality for Republic products. Use Republic Distributors for better mechanical rubber goods.

THE REPUBLIC RUBBER CO.
Youngstown, Ohio



BELTING - HOSE - PACKING - MOLDED GOODS - LATHE CUT GOODS

yard of compost and within one week all trace of brown patch had disappeared.

Every two weeks I continued to spray the greens using two pounds Nu-Green to fifty gallons of water, I never had any more trouble with it.

This is my first experience in the use of Milorganite as a fertilizer and if for no other reason than the rich dark green color it imparts to the grass I am a booster for its use. Our greens and approaches which were treated with Milorganite make the other parts of the fairways look sick. I would like to have the opinion of some of the members who have used it with regards to its ammonia value in keeping clover and chickweed in check.

Heavy Mowers Pack Greens

By FRANK W. ERMER, Greenkeeper
Ridgewood Country Club, Cleveland

JUST a few lines to let you know how we fared with Brown Patch and things in general at Ridgewood Country Club, Cleveland, Ohio, this past season.

Our course is one of 18 holes. All the greens are Metropolitan bent as near as I can

judge them myself and from what the majority of the turf experts have to say. The course is open to the public from about March 15 to December 1.

I have had no Brown Patch this season or the past three seasons, which I give Corrosive Sublimate credit for. This I apply in small quantities once a week and also get out early enough to whip the cobwebs and dew off the greens before the sun gets at them. By using this chemical regularly I have not been troubled with any worm casts.

Our greens must be mowed early every day so as not to interfere with the play and get off as quickly as possible, so to do this we tried a couple of mowers that were very much heavier than the ones we formerly used. I soon saw that during the wet growing season that the turf was getting thinner and the soil more packed on account of the steady rolling and packing day after day. I decided to go back to the old light mowers and as I did this the greens sure showed plenty of signs of sponginess and a much thicker growth of turf.

The greens that showed the most signs of thinning and baking were the greens that had the least amount of tile in them and no matter how much water I gave them they would still have that hard crust. These greens do not need rolling day after day as they have had most of this season because we have had as high as 600 players go over the course in one day, so I think with this amount of players the greens get plenty of rolling from their feet.

Outside of the greens packing as they never did before everything went along lovely, so it goes to show you the first hundred years are always the hardest.

Forking for Brown Patch

By W. A. BOSTIC, Greenkeeper

Biltmore Forest Country Club, Asheville, N. C.

NOT as much brown patch showed up this year as usual, but we had some large brown patch or Drum Head. For this forking was tried, and was very successful. We took spading forks and punctured the infected spots. Before the holes closed the spots were dressed with leaf mold, using one-fourth to one-third sand, rubbing in as much of the

THE "LARK"

Sprinkles Evenly from center to outside circumference on Any pressure.



The "Lark" Sprinkles Evenly

125 ft. on 50 lbs. pressure—90 ft. on 35 lbs. pressure
100 ft. on 40 lbs. pressure—80 ft. on 25 lbs. pressure
60 ft. on 15 lbs. pressure.

Pressure Readings at the Sprinkler

The New Rotor Control Valve controls the speed of the Rotor and the quality of its spray under varying pressures. It eliminates those smoky sprays that are often lost in the breeze. It prevents excessive wear of the Rotor bearing.

The Self-Flushing Screen keeps all sediment away from the Rotor, preventing any clogging. All sediment passes out through the larger Main Stream Nozzle.

L. R. NELSON MFG. CO., PEORIA, ILL.

mixture as possible, then watering same. As a rule, good results were shown within three days.

Not much Dollar Patch showed up until September. For this, Calo-Clor was used with good results. We did not have as much crabgrass in the greens as there was last summer, but the fairways were almost all crab grass during the summer. Now blue grass is showing up fine. Crab grass was taken out of the greens by hand.

Vermol Worm Remover is used when worms are troublesome.

A green is being rebuilt now and we expect to plant it in Metropolitan next week.

No Brown Patch at Winnetka

By JOHN M. COUTRE, *Greenkeeper*
Indian Hills Country Club, Winnetka, Ill.

THIS was the most successful season I have had in the control of brown patch.

In all our nineteen greens there has not been a single spot of brown patch. I have tried various ways of controlling the disease and my only and most successful method is to soak my greens good once a week, preferably at night, and on the following day I give the greens a shot of Semesan. I was not bothered with any other diseases at all.

My greens were very clean this season. I did not have any crab grass or chickweed. I had a little clover in several greens but controlled it with very little trouble. After several applications of sulphate of ammonia the clover has disappeared greatly.

I was not troubled with worms at all this season. I believe the cleanliness of our greens was due greatly to our applications of arsenate of lead. When we reconstruct a green we apply arsenate of lead under the sod.

I have reconstructed our sixteenth green which contains approximately eight thousand square feet. I have raised the green from ground level to a height of six feet in the back and one foot in the front. For fill I used all the clay I had on hand; on top of this I put pit sand, and the last eighteen inches I used the best black soil I could get. After the sod was lifted we moved it from the nursery to the green and laid it in seven and one-half

hours. I think that was very fast time. The green was finished Wednesday and was used for play on Saturday. In all the green was out of play for only eighteen days.

Thanks to Mr. Leach

By ARTHUR STEPHEN, *Greenkeeper*
Erie Downs, Ontario, Canada

JUST some of my experiences since I went to this club eighteen months ago. When I went there I had everything in my greens except what was supposed to be in them. I had patches of chickweed about four feet square and all the crab grass I think there was in this part of the country, weeds and worms by the bushels, under drainage troubles, and all the rest.

This year they are much improved; no brown patch and very little crab grass. Just a few weeds (nothing to speak about), and no worms. This is the fifth of October and I have a beautiful color in my greens thanks to charcoal.

And for all the rest of my troubles that I had a year ago such as worms, crab grass,

"Out with you CHICKWEED!"

GREENS like soft velvet — approaches that are a pleasure to "shoot" from — these are possible to any golf course when the scrubby patches of Chickweed are destroyed by PURFECK CHICKWEED ELIMINATOR. No more need for hand-pulling, patching, or digging. Just *spray on* PURFECK and you won't have long to wait for results. Remember — PURFECK may be applied even when the ground is entirely frozen. See your dealer or use coupon.



Send
for a
trial
can!

ADALINE CHEMICAL CO.

8 Laurel Pl., Upper Montclair, N. J.

I enclose \$1.00 for which please send me prepaid one quart can Purfack Chickweed Eliminator.

Name _____

Street _____

City _____

State _____

clover and weeds I have to thank Mr. Leach and I did so at the meeting of the United States Green Section at Arlington Turf Gardens at Washington on the 19th of August for that great chemical substance he helped the greenkeepers with (better known as arsenate of lead.) I used one-half ton of it this year and I have sent my order for one ton for next year for my greens only. And I want to tell you this—the Poa Annua on my Number 18 was just as healthy as ever but it sure does set the chickweed and crab grass back and worms will give you no trouble.

Well on our trip to Washington the best greens I saw, including the turf gardens, was a course laid out by Emil Loeffler and that course was the Wildwood Country club at Pittsburgh. It has greens seeded to Cocos bent. I was very glad to see that Emil Loeffler was appointed our new treasurer for he is a fine treasurer when you call on him at his course.

No Topdressing After August

By JOSEPH BALL, Greenkeeper

Chartiers Heights Country Club, Crafton, Pa.

KNOWING my inability as a writer I hope you will excuse my crude way of explaining myself as you have already covered every field in problems of greenkeeping. I see those articles from men who have been through the schools of hard knocks. I myself have not been in greenkeeping very long but I am an oldtimer in the field of agriculture and fertilizing and when very young I studied soils and their uses to mankind which came in very useful to me in my greenkeeping.

I hope my brother greenkeepers don't for one moment think I am giving them advice on greenkeeping. Oh! no. What I say here is only plain talk and full of criticism. Very few members who play on a course think how hard a greenkeeper is trying to improve the course under great difficulty of weather conditions. Here on Chartier Heights we are scarcely ever without wind so we have to mix our seed with soil and broadcast by hand. My men are quite experts at that now and I get good results.

This has been a very dry season, almost

**Grass Seed
Fertilizers
Seeders
Discers
Greens Equipment
Toro Equipment
Grounds Equipment
Rollers**

When in Chicago visit our show room where you will see the largest display of equipment in the country. A Postal will bring our 1929 catalog.

J. Oliver Johnson, Inc.

World's largest golf course equipment house

Morgan Huron Superior Sts.

CHICAGO, ILL.

© Reg. JOJ Inc. 1928

the whole summer, at Chartier Heights and water up here none too plentiful. We did not have any brown patch, weeds very few. Those we had were kept down by a boy at thirty cents per hour. He also looks after ball washers and towels and many other small jobs.

Crab grass a little. My greens came out last winter without any sign of winter kill. They are cut every day and still in good condition. I am now getting ready to slide them into winter with their usual fertilizing of bone meal which works slow but is sure to stand with you.

I don't believe in topdressing after August, except newly seeded greens. Let Nature help you a little here. To topdress after August is only causing you a lot of trouble in the spring. It would take too long for me to explain the reason in this article as I only want to talk on what we are doing at Chartiers Heights Country club.

This summer we built a new green to supplant Number 11. This was a very difficult green to build as we encountered rock in the

second ploughing and entailed a fill of ten feet on the lower side. And to supplant this we swung a trap sixteen feet wide on the outside to catch a ball that might drift over the green at that particular side. We sowed the green with Cocoos bent August 10, cut the same September 2nd and today it is a thing of beauty. We also tore up Number 14 green, graded and seeded with Cocoos bent. Tore up Number 9 green and reseeded with Cocoos bent.

This fall we are discing all fairways, seeding, liming and manuring the same. These are only a few of the things we accomplished this season. They have proved a marvelous improvement on the course.

The District linksmen who play over the course have recommended it in glowing terms of praise and come for more golf. We are situated on the second highest point in Allegheny County and a real beauty spot and a beautiful clubhouse to house the visitors when they come to play golf.

Put-in-Bay in Fine Shape

By ALEX F. MILLER, Greenkeeper
Put-in-Bay Golf Club, Put-in-Bay, O.



ALEX F. MILLER

I HAVE had no brown patch and am happy to say I never have had any. Whether this is good luck or good management I don't know. I have my own opinion about what causes brown patch and others have their opinions, so I don't care to express mine as I may be wrong.

I had no more weeds than I expected. Had some crab grass on three of the greens and some chickweed.

I have some worms but not enough to bother with. Would

use corrosive sublimate if I want to get them out of the green.

Planting Stolons in Alberta

By TOM K. MCCLENAHAN, Greenkeeper
Mayfair Golf and Country Club, Edmonton,
Alberta, Canada

WE BUILT one new green this season and planted it with Washington bent. It was planted August 9, and one week later we cut it with 16-inch roller green mowers. Learning from mistakes made the previous year, we had a perfect putting surface right from the start. After grading was finished we hauled in enough screened compost to put four inches over the entire green, then the stolons were laid carefully and rolled; three men using steel mats covered the rolled stolons. Soil was put on the mats and squared over them with a board; in this way all the stolons were covered with the same amount of soil. The previous year we covered too deep or not deep enough.

Watering the newly planted stolons also gave us lots of trouble. If one man did the job he would drag the hose over the green and

THE PERFECT GOLF COURSE SPRINKLER
COVERS GREASED AREA
THAN ANY OTHER TYPE

SHOCK CHAMBER
INSIDE REACTION DRIVE
INSIDE REACTION NOZZLE
ONLY ONE MOVING PART
NO METAL BEARINGS
NO PACKING
NO LEAKS
PERFECT DISTRIBUTION
INSIDE REACTION NOZZLE
POSITIVE SLOW DRIVE

GOLF KING No. 6

SPRINKLERS SNAP VALVES

The Preference for
BUCKNER SPRINKLERS
AND SELF CLOSING VALVES

wherever golf is played is born out of recognition by leading greens men of their definitely superior performance over a period of many years.

BUCKNER MANUFACTURING CO.
FRESNO, CALIFORNIA

*(Pioneers in Golf Course Irrigation. Originators of
Hoseless System)*

Do You Want Fine Healthy Greens Next Year?

Prepare them now with a fall topdressing of

WINDRIFT Hardwood Humus

A car of 20 tons—enough to topdress all your greens—will cost you only \$135.00 f. o. b. Carey, Ohio.

Humus is absolutely necessary for clay or sandy soils. Holds moisture—helps bacterial action, induces root growth.

Wire our expense—will ship at once.

The Ohio Humus Products Company
Box 95 London, Ohio

JAMES A. SMITH, President

pull out quite a lot of stolons. After a lot of hard thinking I decided to run a temporary water line all around the green. There were six stand pipes with the hose on this water line. Then by moving from stand pipe to stand pipe this green could be watered without the hose ever touching the green. I may add that we were repaid for any extra work by the way this green came out, three weeks after planting we had a perfect green.

Up to last year our greens were hard hit both with winter kill and snow mold. During the 1928 season we cut down on sulphate of ammonia and stopped watering the first week in September and all our greens came through the winter in dandy shape.

Did you ever notice in the late fall when there is heavy frost if the rim of a green is dried out the frost doesn't touch it. But if the grass is green and freezes and you put your foot on it it turns black and usually dies; yet you can walk over the dried out edge without leaving a mark. That's why I like the green to dry out before the snow comes.

In return for the many useful hints I have

received from the magazine I hope some of this will be of use to someone. I wish you could see the greenkeeper's position here in Western Canada. I have been here nine years and a different chairman every year. Each chairman promises everything in the way of new equipment but the following spring you have to start all over again with a new chairman and the old equipment.

Now I want some advice. Our fourth green is shaded, drainage is not too good. On one side (shady side), every year about one month after we stop watering small damp spots appear. On these spots which are usually about one-inch in diameter the grass rots right down to the roots and in the spring the green is covered with small bare spots. Could you please advise?

With very best wishes to yourself and the association.

Arsenate Drives Away Skunks

By SANDERS BEDFORD, Greenkeeper
Massena Country Club, Massena, N. Y.

WE ARE a new club up here at Massena, N. Y. as this is only our fourth season so you all well know what one is up against at a new club. Even so, we have had a very good season considering the amount of dry weather.

Our water hole, which is a small bay on the St. Lawrence river, was surrounded by water this year due to the exceptionally high water so we had to anchor two large scows across for the players to get to the green. This also compelled us to raise the roadway from the green to the next tee.

We had very little brown patch, I think this was because we had a goodly supply of Nu-Green on hand. We were not troubled with grubs this year either. I took care of those fellows last fall and this spring with lots of arsenate of lead.

Two years ago the grubs got in the back of our Number 6 green and to make matters worse the skunks made a raid on it too. I put arsenate of lead on and washed it in, I think I got the skunks as well as the grubs as they have never been around again.

I did not have as many weeds this year as last. Thanks to sulphate of ammonia and

arsenate of lead my weeds and chickweed will soon be a thing of the past.

I have had no trouble with worms this season. I am afraid I must put this down to arsenate of lead and sulphate of ammonia again. One day last fall I was experimenting on the front of Number 7 green for weeds. This green I had extended out some ten or fifteen feet and the weeds were pretty thick, so I put on sulphate of ammonia stronger than strong and the worms would come to the top of the green and burst. Try it somebody.

We have done a little constructing work this fall, built two twenty by thirty-foot tees and two smaller ones for the ladies. We also built a large bank around the back of Number 4 green with mounds on the top. Our intentions are to mow to the top of bank with the greens mower. I also built a large practice putting green this spring and it certainly is beautiful now.

We have a large quantity of well rotted manure we are putting on some of our fairways this fall. We are using Milorganite and charcoal with our topdressing this fall and please don't forget that arsenate of lead.

I am in luck for the 1930 Greenkeepers' Convention for our members have given a substantial sum of money so as I will be able to attend it. Good luck to the National Association of Greenkeepers and long live the "NATIONAL GREENKEEPER"; it's a great tonic every month.

Electric Eradicator Gives Results

By FRED W. SHERWOOD, *Greenkeeper*

The Birmingham Golf Club, Birmingham, Mich.

I AM pleased to relate that up to the present I have not seen the slightest sign of brown patch on our mixed grass greens or on our bent greens at Birmingham. Considering the dry weather our greens have been in excellent condition all season.

We certainly had some crab grass but as fast as it grew had men to weed it out, generally treating the green with sulphate of ammonia after each weeding.

Worms were very scarce, no doubt being very deep in the ground owing to the continued dry weather. I use Electric worm

Budd Quick Change Mower Blades



WILL NOT FREEZE
FOUR CUTTING EDGES

Reduces
Friction-
Saves
Wear

The blade that's mowing the country. Less than six months on the market and giving satisfactory service in twenty-four states.

If your jobber can't supply you, write for descriptive price list.

BUDD MANUFACTURING COMPANY
Ravenna, Ohio P. O. Box F.

killer with very gratifying results.

We are doing quite a lot of constructing and changing the lay-out of the course. When finished it will be of championship calibre. Eleven new greens are being built, new traps, fairways and tees as well, this together with the drainage system and the laying of water pipes, felling trees and leveling mounds, filling up of holes and all that goes with it even to constructing a golf course, keeps us busy. When completed will give you fuller details in every way. The club is also building a new clubhouse costing \$130,000.

I am always willing to add my little contribution to the "NATIONAL GREENKEEPER" and if the boys get any pleasure out of it, I am happy.

All's Well at Southington

By DICK DECKERT, *Greenkeeper*

Southington Country Club, Southington, Conn.

ANOTHER season is gone, but I have had a good year even with the dry spell against me. All the members of the Southington Country club and visitors were well satisfied with my course, especially my

Prevent Worm Casts-- Safeguard Your Greens

Use the time-tested, efficient

ELECTRIC
WORM
ERADICATOR

Brings up worms where they can be swept up, instead of causing them to decay in the soil. Acts as a preventive of "brown patch." Stimulates turf growth. Only one or two applications in season required. Write for particulars and prices.

Reade Manufacturing Company
195 Hoboken Ave. Jersey City, N. J.

greens. It seems they were better than other years.

Here are the answers to the questions that you asked: Brown patch did not bother me this year only on my Number 2 green. On that I had it twice at two different times. I used Semesan. I have had no other diseases.

For weeds I have not had as many as some years, but have quite some clover, and chickweed. I am now taking out clover and chickweed and putting in new turf from the nursery.

I have not had any trouble with worms this season. For this I give credit to arsenate of lead. I have used it for the past three seasons.

The only new work I am doing this fall is putting a few more traps near some of the greens, and am also fixing over some of the tees.

Members Pleased With New Greens

By R. C. CHAPLIN, *Greenkeeper*
Acacia Country Club, LaGrange, Illinois

YES, we had some small and large brown patch and also some huge brown. The only treatment I used was to fork the places affected with a common four-tined fork and then treat with Nu-Green or Semesan according to instructions. This so-called huge brown patch seems to be too much sand and doesn't hold the moisture. By adding some leaf mold or humus of some sort I haven't had much trouble.

In regard to weeds we always have plenty of them. I have had lots of crab grass this year but not much chickweed. I don't think the chickweed was due to drought because about the only place we have chickweed is on some of our greens but the crab grass I think is due to the drought.

Worms didn't bother us much this year except this fall they were quite bad on some of the greens and the only thing we did was to brush them off with a mechanical brush. We were intending to use mowrah meal but it got too late.

We have rebuilt two greens completely and have a fine job this far. We used all of our own stolons and I must say they were very fine. They are the Washington strain creeping bent. These two greens are nearly three

**REFINED
GRASS SEED
AND
COMPLETE EQUIPMENT
FOR
GOLF COURSES**

Send for Catalog and Grass Seed Price List

Distributors
Worthington Mowing Equipment
Nu-Green Semesan

AMERICAN SEED COMPANY
DETROIT, MICH.

"Quality Grass Seed for a Quarter Century"

times the size they were, making nearly nine thousand square feet each. I have also reconstructed two tees which I dare say are nearly three times their former size. These new tees and greens have made a great hit with our members. Everyone seems to be well satisfied.

We are also having good luck with our fairways; they are in fine shape considering the dry fall we have had. It has been so dry it was impossible to seed so we are intending to seed in the spring and fertilize at same time.

Calomel and Water

By D. C. BUNKER, *Pro-greenkeeper*
Galesburg Public Course, Galesburg, Ill.

YOUR questionnaire I had to answer because you can't read my letter after I get through.

1. Did I have brown patch?

I generally can tell when it is coming two or three days ahead and call out my old fashioned fire department and put it out before it gets started. I use barrels for mixing calomel and water using sprinkler pots with which to apply it and a hand nozzle to wash it in with. I find it is faster than anything I can afford to get. One man changes barrels and mixes up the solution in barrels; two men put it on with sprinklers and four men follow up and wet greens down. I can do all eighteen greens in four hours and I have 55,000 square feet of green surface to go over, so my greens are not so small either.

2. Weeds.

I hire two special boys during June, July, and August to dig out all crab grass. It only gets a chance to look up and they get it—they cover all greens nearly every day. Dan-

delions we will always have but by the time they get the size of a quarter we have them stuck with a sickle. Everyday in the spring my greens mowers get over all their greens and stick them and they only get started. I find that if you keep your compost free from weeds (I always have two years ahead made), ninety-nine percent of your weed troubles never develop. I think any golf course where weeds get ahead in is the fault of the greenkeeper provided the club will give him money to hire help with.

Angle worms are a good thing on any green, provided you only let them work one week in the spring and one week in the fall then stop them dead with corrosive, at least that is the way I do, but the big night crawlers (I don't have any), are dreadful and the only way to stop them is with the use of arsenate of lead. The Soangetaha Country club here has twenty acres of them and don't have money to arsenate the twenty acres but keep them off the greens.

4. New Work.

I am always changing something—trap Number 11 this fall.

Arsenate of Lead for Worms

By HAROLD STODOLA, *Greenkeeper*
Keller Club, St. Paul, Minn.

HERE are a few facts about our golf course. It is owned by Ramsey County and is having its first season of play. The greens are Seaside bent, seeded. Arsenate of lead has taken care of worms and weeds. We are plugging the approaches with Metropolitan Bent. We are strong users of compost.

Our experience with bent tees has proven that bluegrass tees are better.

We have had no brown patch but what had

THE PEERLESS MOWER SHARPENER

The Peerless Lawnmower Sharpener is a wonderful but simple invention that sharpens all makes of Power and Hand Lawnmowers, scientifically—quickly—perfectly; does the work as nothing else can. It grinds a perfect bevel and clearance—no more hard-running mowers—no more pulling and tearing of turf. Operated by 1-3 H. P. Motor—attach it to your lamp socket.

Special Grinding Wheel Attachment for sharpening grass shears, sickles, scythes, axes, etc. Skate Sharpener attachment sharpens all makes of skates—including hockey. Earns money all the year 'round. Will save its cost the first season. Write for Catalog and list of users.



Hundreds of Golf Clubs large and small, now use the Peerless Lawnmower Sharpener.

The Fate-Root-Heath Co.
925 BELL STREET
PLYMOUTH OHIO

Guaranteed

Washington Strain

CREEPING BENT STOLONS

From Our Own

Nursery

Write, phone or wire for prices



snow mold this spring. We are going to combat it with Calomel in the last topdressing this fall.

We have changed two flat greens to scalloped greens by lifting the sod from the edges, rolling it back, filling underneath, and rolling the sod back again. The results have been quick and satisfactory.

It is my good fortune to have a golf course architect for Green-chairman.

Busy Times at Lawsonia

By SAMUEL MITCHELL, *Greenkeeper*
Lawson Country Club, Green Lake, Wisconsin

THIS is my first year on this particular position and in this part of the country.

It is a little different from the climatic and soil conditions in my former home, Salem, Mass., and I find I still have plenty to learn.

Here at Lawsonia we have two 18-hole courses. One at completion of construction this fall and one an old established course. I have had an opportunity not only to study the maintenance problem but have also picked up considerable valuable experience in the construction work.

I have devoted nearly all of my time to this new course since July 1 at which time the newly planted greens and tees were turned over to my supervision with the architects, Langford and Moreau acting as conferees over the work. The greens and tees are planted with creeping bent stolons from the Robert F. Leesley Grass Co. at Riverside, Illinois. We have this Leesley strain on the greens and their Riverside, a little coarser strain on the tees. The greens and tees have all come through in fine shape and are now ready to play.

MILORGANITE

THE IDEAL TURF FERTILIZER

For further information address

SEWERAGE COMMISSION

508 Market Street

Milwaukee, Wis.

Our watering system includes fairways but even with it running twenty-four hours a day we were unable to keep up with the drought as well as I would have liked. However, I have been able to pull the stuff through well enough so that plans are now to open the course, May 30, 1930.

On the old course I used arsenate of lead at the rate of three pounds to one thousand square feet of putting green area. We mixed this in with the first topdressing. This put the worms out of the fight for the summer but had no effect on the chickweed or at least none that I could notice. We made two applications, another about September 1, as soon as worm casts began to show up again and had no more trouble. In the past crab grass has been quite a menace here but we started early and stayed late with our weeding, and had it pretty well subdued all season.

Most of the greens had a heavy attack of snow mold early in the spring. The only noticeable effect was a little slow starting of the bent but no damage. We were also visited with about three attacks of large brown patch that dissolved the greens but they soon recovered without any outside help.

I have been interested in the articles by greenkeepers about their experiences in your magazine. One thing that I regret is that we have no local organization here nearer than the Chicago association which is a little far to attend. Someone up in this part of the country ought to get busy, perhaps the time will be soon. I enjoyed the Show at Buffalo very much last year and hope to get to Louisville this February.

HUBBARD NURSERIES

CREEPING BENT STOLONS

Washington and Metropolitan Strains

Pure, free of weeds, and of one season's growth

DR. AMOS F. HUBBARD, N. Kingsville, Ohio

How To Kill Plantain

By G. F. JACOB, Greenkeeper

Stanton Heights Golf Club, Pittsburgh, Penna.

IN ANSWERING Mr. John Morley's questions I will say I had very little brown patch this year and treated it with Semesan successfully. I had no other diseases to bother with.

Worms I had plenty and I get them with Mowrah Meal. I had more weeds in my fairways than ever before, especially plantain and I would be very thankful to find out the best way to get rid of it.

Nu-Green Cures Brown Patch

By OTTO SCHAEEL, Greenkeeper

Wausau Country Club, Schofield, Wis.

WE HAD considerable brown patch but treated it immediately with Nu-Green which gave favorable results. We had considerable trouble with crab grass in our greens but pulled it all out by hand.

We put in a new eighteen hole putting green with Flossmoor stolons and it is coming along in good shape. We also enlarged several of our tees.

About Cocoos Bent

By M. D. LAMOREAUX, Greenkeeper

Kirtland Country Club, Willoughby, Ohio

Due to the fact that we have received so many requests for information as to what beneficial results we have achieved from introducing Cocoos seed into our Washington bent greens, I want to take this opportunity to pass this information on to fellow members of the N. A. G. A.

For the information of those who have had no experience with Cocoos, it is the finest growing strain of

Speedy and easy adjustment for grinding are two of the distinctive features of the Hardinge Lawn Mower Sharpener

Write For Illustration—Particulars—Price

HENRY H. DOTY

Distributor

1133 Newport Ave.

Chicago, Illinois

any of the bents. It grows upright without the nap or stringy condition which all of the stolon-planted bents will develop; it is even more hardy than any of the strains which are in common use for putting greens today and it does not need as much maintenance care to keep it in the pink of condition. By this I mean that it will thrive on half as much fertilizer and only needs a small amount of water to keep it in the condition for putting green use.

When we planted our greens to Washington bent stolons in 1922 our troubles started, for while they developed beautifully the first year they soon became fluffy with a decided grain on the slopes. We tried brushing with a wire bristle street broom and then top-dressing with a sandy loam, which did very well as a temporary relief but the fluff and grain would soon develop again.

After giving the matter a great deal of thought, we decided that, if we could get a fine grass to mix evenly with the bent, we might get the perfect putting surface which we are all striving for. We proceeded to give the slopes the usual treatment of a stiff brushing and top-dressing, and then on some of them we introduced different seed. We used redtop, bluegrass, and all of the good fescues. The seed came up and certainly made a wonderful putting surface, but as soon as the bent began to grow vigorously it ran out all of the seedlings.

It was at this time that Professor Lyman Carrier came to pay Kirtland club a visit and after looking our experiments over told us that, if we would try the Cocos seed, he thought it would stand an equal chance to compete with the Washington bent and might possibly run out the old grass. After trying it out in the nursery we introduced it into seven of our greens, which were in the worst condition. We certainly were pleased with the results. The first greens were seeded with Cocos in the spring of 1927 and, after playing on them that season, our members were so pleased that they insisted that we give other greens the same treatment.

So in the fall of 1927 we brushed all of the greens and, after top-dressing each with one and three-quarters yards of sandy loam, we applied the Cocos seed at the rate of three pounds per thousand square feet. We also applied the same amount with our spring top-dressing in 1928.

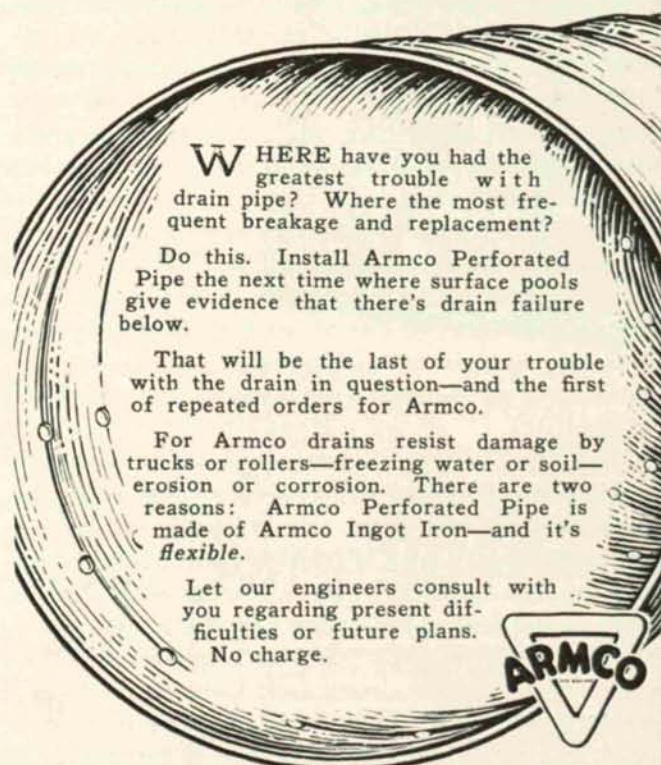
This grass is now running out the Washington bent to such an extent that we have fourteen greens which run from seventy-five to nearly one hundred per cent solid Cocos bent.

On the other four greens I will brush up the Washington stolons on the spots where the Cocos is not well established and will sow seed on these spots on top of our fall top-dressing, which I now plan for September 16. I would prefer to do this work the first or second week in September but tournaments prevent me from doing so.



Make this Test--

Prove the lasting qualities of flexible subdrainage for yourself



WHERE have you had the greatest trouble with drain pipe? Where the most frequent breakage and replacement?

Do this. Install Armco Perforated Pipe the next time where surface pools give evidence that there's drain failure below.

That will be the last of your trouble with the drain in question—and the first of repeated orders for Armco.

For Armco drains resist damage by trucks or rollers—freezing water or soil—erosion or corrosion. There are two reasons: Armco Perforated Pipe is made of Armco Ingot Iron—and it's flexible.

Let our engineers consult with you regarding present difficulties or future plans. No charge.



Armco Culvert Mfrs. Association

Middletown, Ohio

Armco culverts and drains are manufactured from the Armco Ingot Iron of The American Rolling Mill Company and always bear its brand.

ARMCO

perforated

PIPE