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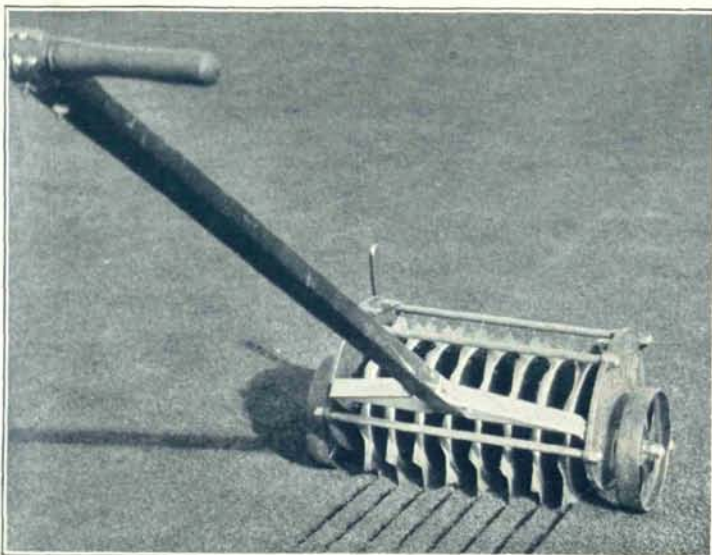
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GENERAL VIEW OF PART OF CRESTMONT SHOWING HEAVILY TRAPPED
NO. 11 GREEN ON RIGHT. NO. 18 FAIRWAY ON LEFT.



NO. 1—476-YARD HOLE—PAR 5—CRESTMONT GOLF CLUB. A GOOD TEST,
AS IT IS HEAVILY TRAPPED. NO. 10 GREEN IS SEEN ON RIGHT.

The Battle of 1931

A resume of what the greenkeepers fought for and won. A season
of unusual climatic conditions

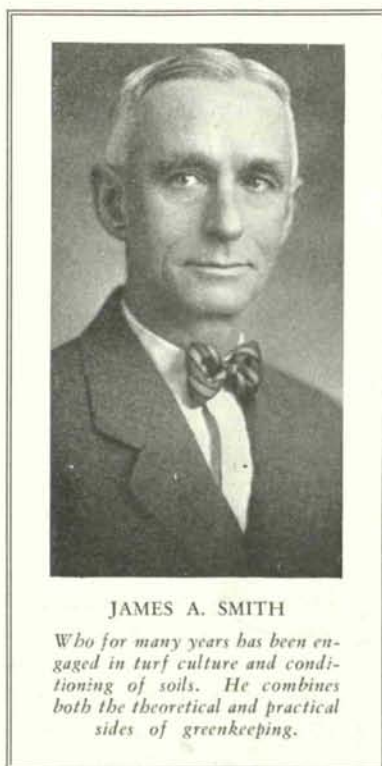
By JAMES A. SMITH

THE season of 1931 will always be remembered by those who have been responsible for the maintenance of turf upon golf greens. The brunt of the fight has naturally fallen upon the greenkeepers and that they were ready and could stand punishment has been satisfactorily proven. Heat and humidity seemed constant during the nights of the past summer and while these conditions existed their work received their constant attention.

Such climatic conditions brought on trouble with which they were familiar. The symptoms were at once recognized, the remedy was known and the trouble was quickly under control. There never was any doubt of the outcome because now the better class of greenkeepers are men educated for this or any similar type of battle.

This year even the fairways required scientific attention. The trouble was new to most of them but they knew where and how to get the information they needed in this emergency. With a suggestion as to proper treatment, they were familiar with the method of application, of the proper medication and where treatments could be applied, results were entirely successful.

The greenkeepers have won what appears to have been their first great battle, by their eagerness to educate themselves.



Will they get all the credit they so richly deserve for this fight? Ten years ago the fight would have been lost as quickly as it started.

That the greenkeeper is now an educated, thinking man is evidenced by the following reasons which have been given by them for their trouble this year. Sit down in the shade of the tool house with one of them and you will be surprised to learn how clearly he is thinking.

CONDITIONS WHICH FACED THE GREENKEEPERS

1. Poorly drained greens or those in poorest physical condition suffered most. These are not properly aerated and hold stagnant water often too near the surface. The physical inability of many soils to provide properly digested nourishment is apparent even when supplied with normally, proper feedings because of this lack of aeration.
2. Too closely cut foliage or foliage destroyed by over-medication did not provide sufficient evaporation from the turf to bring up the feedings which might have been prepared for them in the soil below.
3. A few with but a limited knowledge of proper dosage, grew panicky and promptly murdered their greens with poison too freely administered. But few of these greens have as yet fully recovered.
4. Watering at night during the very hot

What A Hot Summer We Had!!

Wet vs. Dry

By M. E. FARNHAM

SUPERINTENDENT OF GOLF
COURSES

Philadelphia Country Club

THE above title which strikes me as very much to the point when summer conditions are discussed may attract attention if nothing else I have to say does. I think the aspect I have in mind will be easier to reach agreement on than that more frequently before the public.

When members of a club return after their vacations knowing that the rainfall has been abundant, even to excess, they seem to feel that those in charge of golf courses must have been having more or less of a vacation too. I find myself expressing the opinion, rather frequently, that I would rather have drought conditions to contend with than periods of excess precipitation and extreme humidity.

Given the rather doubtful drainage of present on greens, a heavy downpour, followed by bright, hot sun and heavy play—result, for want of a better name, "Scald." In addition, such conditions make fertilizers, especially those organic in nature break down very rapidly, giving the grass too much food, resulting in vigorous soft growth extremely susceptible to attacks of disease and severe injury thereby.

Over-watering may well bring about similar results. Over-watering can be prevented but when the water comes from the

Editor's Note



IN LINE with the policy of the National Association of Greenkeepers of America, Colonel John Morley, president of the association, recently sent out his annual letter to greenkeepers throughout the United States and Canada requesting them to report conditions as they found them this season just past. It is a privilege to print for the benefit of those engaged in turf culture a condensed report from the most experienced greenkeepers from all parts of the country. What they say will be helpful to everyone concerned, because their opinions are based upon practical experience as

contrasted with text-book theory.

We quote extracts from Colonel Morley's letter and also print his questionnaire in full. Colonel Morley says:

"We have been through a hard season, hardly any of us has been immune from turf troubles due to the hot weather and drought.

"Golfers generally do not understand how we try to cope with unusual conditions and they are daily asking questions, not in a spirit of criticism but because they want to know and help us in any way they can.

"It seems to me to be our duty to tell the members of our clubs through our official organ, the NATIONAL GREENKEEPER, something about the problems we had to solve in the season of 1931.

"Will you please, therefore, send our magazine a short account of what nature handed you and what you did along the lines of the enclosed questionnaire."

QUESTIONNAIRE FOR THE NATIONAL GREENKEEPER

Prepared by COLONEL JOHN MORLEY, *President,*
National Association of Greenkeepers of America

- 1.—Did your turf become infested with webworm? If so, what treatment did you apply, and what results if any did you observe?
- 2.—Was your turf affected with large or small brown patch? If not and you did not use any mercury compounds as a preventative, what methods did you use in the way of fertilization?
- 3.—Do you omit using organic fertilizers during the summer months?
- 4.—Do you think that over-feeding or over-watering hastens fungus diseases?
- 5.—Have you observed various diseases on greens that have been dried out for the lack of water and appear to receive plenty of air?

skies what can one do. Keep your soil as open as possible and look to the drainage. Soil as well as surface are my only thoughts on the question.

Brown patch and Philadelphia seem to be synonymous. As a result one more routine operation is added to those necessary to keep the course in shape. There is nothing mysterious about the "patch"

question. The fungus, in one form or another, is around all the time and when conditions are right it becomes parasitic on our beautiful turf and the beauty disappears.

I have been very successful with applications of 1/3 bi-chloride and 2/3 calomel, 2 ounces per 1000 square feet, mixed with screened soil and broadcast once

Here's What the Greenkeepers Say

every 2 or 3 weeks. If the grass is dry we do not hesitate to treat regardless of temperature.

When we seem to have things pretty well in hand something like this webworm comes along. I have not been bothered much on either of our courses and feel that perhaps the fact that our turf is all pretty well poisoned may be an explanation.

Florida Speaks

By O. SPROULE BAKER, *Greenkeeper
Boca Raton Club, Boca Raton, Florida*

1.—WEBWORMS started about July 1. Sprayed arsenate of lead (under pressure of 300 lbs.), into turf forty pounds per green, eight thousand square feet in one hundred and fifty gallons of water. Control not complete. Tried Red Arrow oil of Pyrethrum extract spray one to four hundred which brought them (and with wire worms, ear wigs, bugs and beetles) to the surface stunning them but not a kill to the webworms, all others killed.

By finding the webworms again active next few hours we again sprayed Red Arrow to bring them to the surface and then sprayed them with "Cyanogas," a dust mixed six pounds to one hundred and fifty gallons of water and added forty pounds arsenate of lead to eight thousand square feet. The kill was one hundred percent with not any damage to the turf, other than that which had been done by the sod webworms.

A week later a light shot of sulphate of ammonia, five pounds per thousand square feet. Care should be given not to use either the dust or sulphate of ammonia too close together as the base of carrier of the gas is hydrated lime. (Calcium cyanide dust (Ca Cn) 2) (40 to 50% Calcium cyanide).

Also the "gas" sprayed on the greens where etiolation of plants (yellow spots) is caused by scurvy scale (a soft bodied sucking insect) which most all of us in the past have been passing off as a "Scald" of some kind. We worked this out during this past year by cutting a plug and putting under a strong glass for examination finding the roots infested with the small grayish white scale which we looked up and found to be scurvy scale.

It is also controlled with the usual brown patch dose of one ounce corrosive sublimate, two ounces of calomel per thousand square feet after two or three applications—lime sulphur (32 degrees Baume). Spray one gallon to one hundred and fifty water also is good control if the spray is forced into the mat of grass. It will not burn at the above rate. The reaction of the lime sulphur in the soil is too gypsum, and will leach out. Have found this scale as deep in the roots as two inches. Think I have made a discovery of helpful importance to our brother greenkeepers in this. If so, I am happy to pass it on to you all.

2-A—No brown patch this summer on these Bermuda greens, but did use the corrosive and calomel, one and two ounces respectively per one thousand square feet as a preventative to prepare for seeding to Kentucky bluegrass this next month.

2-B—The mercury compounds with sulphate of ammonia applied in dry form, five pounds per and three times during summer.

3—No; made two applications, each of Milorganite of fifty pounds per thousand square feet about two months apart and top-dressed over the material.

4—Over-feeding is not good at one dose, rather small amounts and often during the season when play is on. (We are closed from April to December,



SCENE ON THE GOLF COURSE AT BOCA RATON, FLORIDA

but maintenance is intensively pursued the entire year with all its vexing problems in this part of the world. Rain? about 17 inches over Labor Day! Drouth all summer).

5—No, we have not, as we keep enough moisture and by using peat moss in the top-dressings obtain good air pore space.

Toronto Hit by Hot Weather

By WM. J. SANSOM, *Greenkeeper*
Toronto Golf Club, Toronto, Ont.

HAVING received questionnaire for our NATIONAL GREENKEEPER, prepared by our worthy President, Colonel John Morley, I feel that it is our duty to try and tell the members of our clubs through our NATIONAL GREENKEEPER journal something about the problems we have had to deal with this season of 1931.

It undoubtedly has been a very hard season on turf grasses. Due to the very hot, humid weather and drought we have had very few courses, I venture to say, but what have had their own troubles—brown patch, scald and the webworm. Golfers as a rule do not know or understand how their greenkeepers try to cope with these unusual conditions.

No doubt there will appear in the NATIONAL GREENKEEPER some very interesting and educational articles of what Nature has handed to us this season if we will only write our own observations and our methods of treatment.

On looking over my records for this season for watering alone, fairways, tees and greens, starting on the 9th day of May and continuing up to the present time of writing, the 17th day of September, with no prospect of a let up in sight as yet. The latter part of June became very hot. On the 17th day of July we had a severe thunder storm with a temperature ranging from 85 to 100 degrees. Immediately after the storm, we discontinued watering until the 23rd and also four days in August from the 10th to 14th—surely a record season for watering.

Our courses around the Toronto District suffered most from scald although there was some brown patch reported, I have to admit that I did not see any brown patch until after treatment and the turf had recovered. But I did see plenty of badly scalded greens.

I was fortunate in not having brown patch or scald on any of my greens. But I did have scald on two fairways, No. 1 and No. 18. These fairways are pretty well enclosed with trees with very little

air circulation and a soil that is very sandy and which gets very hot. The two fairways mentioned looked very beautiful up till the third week in July. The turf being quite 30 per cent of *Poa Annua* took the scald very badly with the result that I have very little *Poa Annua* left in those fairways. I have let Nature take its course and have not used any special treatment.

Personally, I am of the opinion that over-feeding and over-watering does help fungus diseases. The only explanation that I can give for escaping both brown patch or scald on my greens was due to the fact that I was at that time using the Del Monte rake for my greens very freely and also making sure my greens were being very thoroughly poled with bamboo each morning.

My watering was done at night, starting at 9 o'clock and finishing at 6 o'clock. We get our water supply from the creek having no storage tank and pump direct to the greens and fairways. Therefore our water from the creek is always quite warm in comparison to the township water used by many of the clubs.

I believe there can be too much dope used in the way of fertilizers and chemicals for the production of a good healthy turf. Not so much, perhaps, the use but rather the abuse that tells the tale. When we consider and enumerate the list of fertilizers, inorganic, organic, humus and mushroom soil that is on the market it is a very easy matter to err on what we use. I have always stuck to the practice of not using any organic fertilizer during the hot summer months to set up or cause any fermentation. At the same time I am a firm believer in organic provided it is used in early spring or in the fall of the year—around the middle of September for fall and April for spring use.

Nature does her best for turf when the nights are cool with a normal rainfall. In the spring and fall nitrogen from an organic source is slowly released to feed the growing turf.

I can truthfully say that we have never had a case of brown patch and have never spent a cent of money on any chemicals for a preventative. I am old-fashioned enough to still depend on using a good compost for topdressing, believing that by building up a healthy soil we can produce a healthy turf.

I believe in aerating greens by a thorough raking occasionally, using a good two or three-year-old

compost two or three times through the growing season, enriched by an inorganic fertilizer, about a 5-12-2. The grass then gets a steady diet of natural food and is able to ward off most diseases through just being healthy. I use a little of Sulphate of Ammonia, mostly in liquid form, taking care not to promote too lush a growth to withstand a sudden spell of hot weather.

Pay strict attention to the watering of greens, not to create a water-logged condition. It does not harm a green to get a little on the dry side occasionally as its natural nitrogen is a valuable stimulant when used on soils in good condition but it should not be used entirely as a fertilizer. There is a great temptation on the part of a greenkeeper to use a little more which may prove detrimental to the grass and favorable to the various diseases.

A great deal of trouble is caused by inexperienced Green committees who have not the necessary knowledge themselves and are oftentimes carried away by high-pressure salesmen, who have this or that to sell that will make grass grow on a billiard ball. Club officials should get in closer touch with their greenkeepers and together work out a system to install for fertilization and not pay so much attention to what the high-pressure salesmen have to say. By doing so there would be less trouble.

Place confidence in your greenkeeper as by doing so you will accomplish what you set out to do, for in greenkeeping as in other things it is much easier to keep right than to make right.

Webworm Hits Detroit

By HIRAM F. GODWIN

Redford Golf Course, Detroit, Mich.

REFERRING to your questionnaire, the webworm or cutworm was quite destructive in places. I do not believe they destroyed greens so much, as most of these were arsenated for angle worms, but on lawns, whole areas were eaten off. Five pounds of lead arsenate applied either dry or in solution seemed to give full control.

Brown patch has not been particularly evident this season. Mercuric chloride or Semesan seemed to give full protection.

An occasional light dressing of Ammonium Sulphate along with a compost containing humus is the only fertilizing I use during the warm months of the year. My opinion is that over-feeding or over-watering does not necessarily affect the fungus, but it does get the grass in a soft condition, which makes the grass more subject to fungus attacks.

I have observed this summer several going to decided extremes in withholding water and fertilizer, much to the detriment of their greens. I consider the soil should be kept moist enough at all times so that the roots can replenish the plant-food removed in the cuttings and I like to keep sufficient available nitrogen in the soil for the plant.

Fifth question: My experience has been that if greens are properly watered, fertilized and top-dressed that no spiking or other tearing up of the turf is ever required.



LAWRENCE HUBER
*Wyandot Golf Club,
Worthington, Ohio.*



HIRAM F. GODWIN
*Redford Golf Course,
Detroit, Mich.*



W. J. SANSOM
*Toronto Golf Club,
Canada*

Rain and Heat Proved Enemies

By JOSEPH BALL, *Greenkeeper*
Chartiers Heights Country Club, Crafton, Pa.

I AM at a loss how best to answer your questionnaire.

This has been a very trying year for greenkeepers. Grass could not be controlled under the adverse conditions of weather. Rain and heat were the enemies of good turf this summer.

I do really think that over-feeding and over-watering may have a tendency to encourage brown patch. The moment the sun shines in spring we are all rarin' to go. We use rich composts and fertilizers of high nitrogen content before the grass has had time to recover from its winter sleep. Now most of us topdress and fertilize in the fall. What becomes of this; it remains dormant in the ground until climatic conditions in the spring start bacteria life again.

Many of us never think of this and the results of too hasty topdressing in the spring produce a fast growth of succulent grass, soft and spongy and susceptible to brown patch.

It's the boast of many greenkeepers of twenty catches of clippings early in spring. It would be much better three or four in spring and twenty in July.

I have had brown patch, both large and small, and mostly controlled by lime. My greens are in pretty fair condition just now and will only recover fully after the first frost.

Webworm In Iowa

By C. R. FRAZEE, *Greenkeeper*
Hyperion Field Club, Grimes, Iowa

ANSWERING yours of the 8th, my turf became badly infected with webworm this summer. However, after treating it with arsenate of lead, following up with a treatment of Paris Green I found Mr. Webworm pretty well under control. Two days later I fertilized three of my greens with Vigoro, the other fifteen with sulphate of ammonia. My greens are badly scarred but coming along nicely again. Having no sod I will re-stolon the larger areas this week. The small places will cover themselves.

I used no organic fertilizers during the summer months. Over-feeding and over-watering seem to

encourage fungus diseases. I have never observed diseases on greens that appear to receive plenty of air.

I have had very little brown patch, large or small. This quickly disappeared after a treatment of Nu-Green.

Boyd One Of Lucky Ones

By J. B. BOYD, *Greenkeeper*
Sunset Ridge Country Club, Winnetka, Ill.

IN ANSWER to the questionnaire sent out by Colonel Morley, President, may I submit the following from my experiences:

I guess I am one of the lucky ones this season, for this reason: I have had no serious trouble, whatever, and am still "hammering the old ivory" for such good luck, and living in hopes that it continues.

First of all, it has been one of the hardest years I have ever experienced in my greenkeeping. I have had no trouble with the webworm, but did have some with the army cutworm like I used to have in the good, old farm days. I treated them, or rather fed them some poisoned wheat bran. They seemed to like to eat it, and soon disappeared.

A few large brown patch showed up, which I believe were due to watering after dark with a sprinkler. After giving my greens a good spiking I changed my method to early morning watering by hand and the patch disappeared.

The following is what I consider one of the most important things to remember about good greenkeeping:

Watch greens very closely for brown patch. By using some mercury compound this summer as a preventative rather than a cure I was able to keep ahead of it. I shall continue to do this same thing in the future. As a consequence I was blessed this summer with very little trouble of this nature, and I thoroughly believe that if this method is consistently kept up it will eliminate same in the future.

About organic fertilizer, I have used very little of it since the middle of May. Sulphate of ammonia mixed with a little mercury compound sprayed on I have found to be conducive of the best results.

I find it best not to use very much organic fertilizer during the summer months. During the spring, however, I use it freely. My experience in 1930 taught me this.

Further, I am confident that overfeeding of the