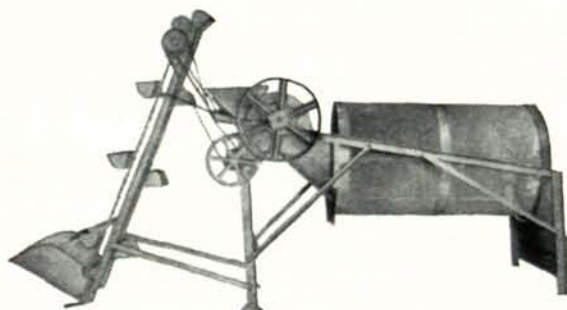


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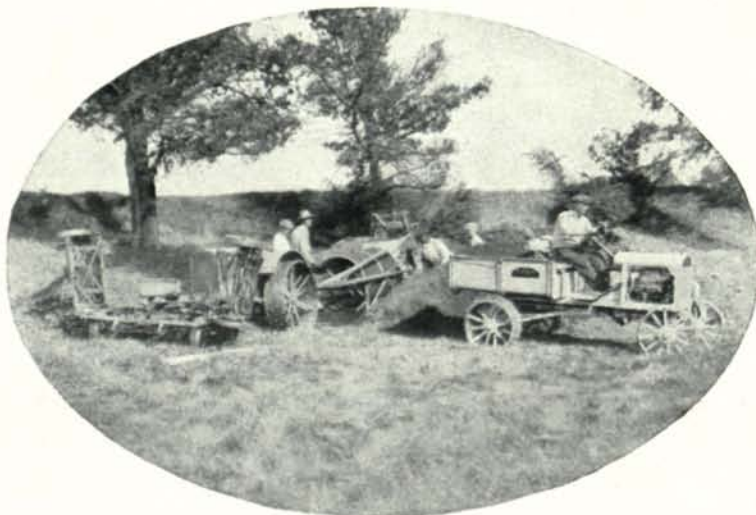
The only machine on the market that grinds and screens in one operation. Over five hundred of them are giving daily service with an average annual upkeep expense of less than \$4.00 per machine per year. Capacity—all that five men can shovel into it.



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## LOWEST UPKEEP EXPENSE

# The NATIONAL GREENKEEPER

Official Organ of The National Association of Greenkeepers of America

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VOLUME II.

No. 5

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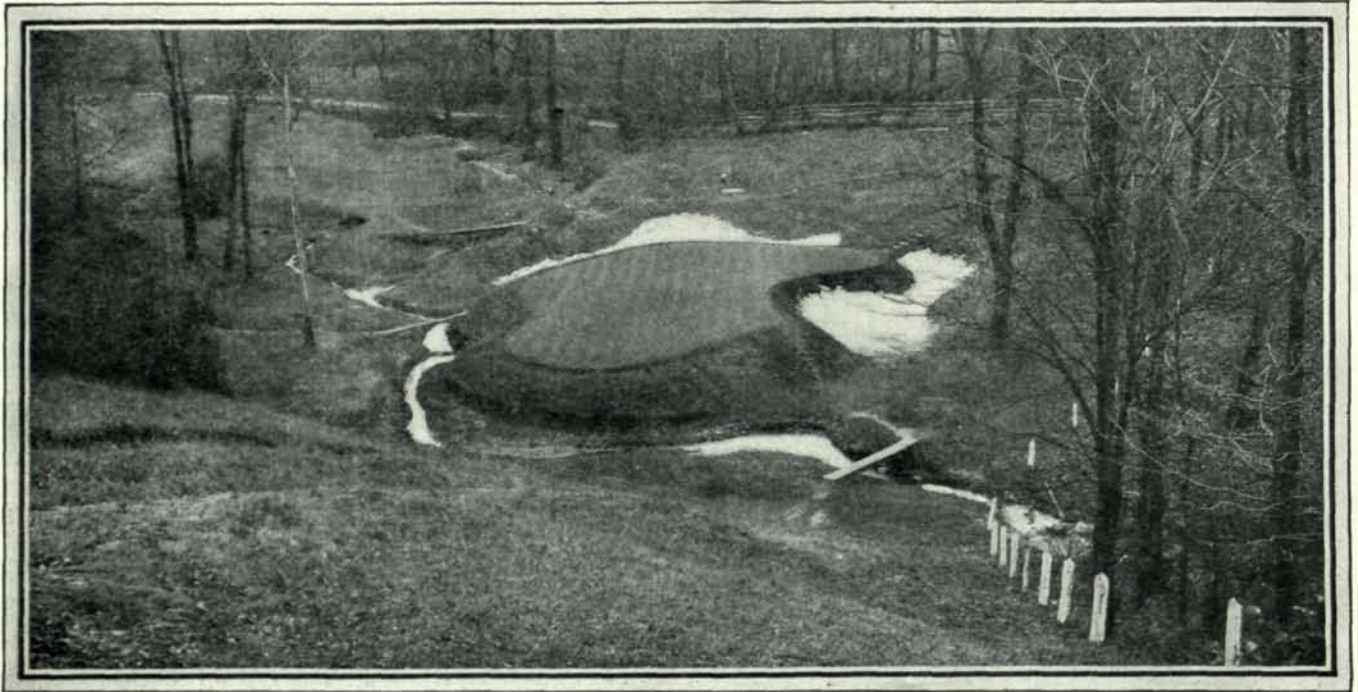
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Superintendent of Greens, Merion Cricket Club, Haverford, Pa., and a member of the Philadelphia Superintendents' Association.

# MERION Saved Championship Course from Brown Patch



**I**N 1924, when preparing our course for the National Amateur Championship, we used Semesan to control a bad attack of brown patch and when the tournament day arrived the greens were in perfect condition. We still use Semesan for the same purpose, having found nothing better," wrote Mr. Joseph Valentine, Superintendent of Greens for the Merion Cricket Club, Haverford, Pa.

Merion's greens are famous. The twelfth hole of Merion's east course is considered an ideal seventh, rating 97.8 per cent. Green No. 6 of the west course,

reproduced above, is equally well known. Merion has had two National Amateur Championships, 1916 and 1924.

Merion is typical of the championship courses where Semesan is the standard brown patch preventive and control treatment. Such courses prefer not to experiment once an efficient method is found. The use of Semesan spells the end of the brown patch threat.

Write for a copy of the Semesan Brown Patch Booklet. Complete directions for brown patch preventive and control methods.

E. I. DU PONT DE NEMOURS & CO., Inc.

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WILMINGTON, DELAWARE

Our one-reel motion picture on brown patch control is now available for use in greenskeepers' meetings. Write us about it.



# SEMESAN

MAKES SEEDS HEALTHY

## Used Wherever Championships Are Played

*Official Organ of The National Association of Greenkeepers of America*

## Some Diseases of Turf Grasses

Scientific facts regarding plant pests most frequently found on our golf courses and how to identify them. Study of turf diseases just begun

By **DR. JOHN MONTEITH, Jr.**

Read before the second annual convention of the National Association of Greenkeepers of America at Detroit



*Dr. John Monteith, Jr.  
Pathologist, Research  
Committee U. S. G. A.  
Green Section*

**F**REQUENTLY we hear greenkeepers and members of Green committees speak of grass diseases as something amazingly new. They seem to regard them as pests recently invented with the sole purpose of adding to the worries of those men who struggle to keep turf in perfect playing condition throughout the season.

The subject of plant diseases may be new to many individuals but certainly the diseases themselves are not new. Not many years ago this subject was new to the majority of farmers, and one who talked of diseases of crops was looked upon with suspicion and often regarded as a fit subject for mental treatment. Diseases of crops, nevertheless, have been destructive for centuries and even in the Bible one finds references to "blights, blasts, rusts or mildews" of grain which were most likely due chiefly to plant diseases. The more recent great famine of Ireland has been attributed primarily to a single disease of potatoes.

The well-informed farmer of today, instead of attributing all losses to the "weather" or to a "bad season," has learned to distinguish the various pests affecting his crops and takes precautionary measures to prevent additional losses. The widespread use of sprays, seed treatments, resistant varieties, and other preventive measures on farms throughout the country is sufficient evidence that the modern farmer recognizes the importance of these pests and the feasibility of checking them by means of the various treatments.

Diseases of our food, fiber and even ornamental plants have been the subject of much scientific investigation during recent years and many of them are now well understood and readily controlled. Judging from the scant scientific information available on the diseases, as well as other problems, of pastures or fine turf it appears that agricultural scientists in gen-



*A Fairy Ring in a Pasture Showing the Fruitive Bodies (Mushrooms) of the Fungus Growing in a Circle 17 Feet in Diameter*

eral have regarded turf grasses as too unimportant to justify detailed study. The recent widespread development of golf and the demand for more scientific methods in golf course maintenance have developed an increased interest in applying modern agricultural principles to turf problems.

### Study of Turf Diseases Only Begun

**T**HE study of the diseases of grass and methods for their control has only begun. The purpose of this paper is not to give any information which is regarded as final, but merely to call attention to some diseases which are found most frequently on golf courses. The increasing number of requests from greenkeepers themselves for information as to disease problems show clearly that the well-informed greenkeeper of today is honestly endeavoring to use whatever scientific sources are available to help in the replacement of the "myth" of greenkeeping by scientific facts.

The numerous pests of golf turf may for convenience be placed in two classes; animals and plants. Among the animal pests are earthworms, grubs, insects and various rodents, including if you choose the violent-tempered player. Among the plant pests are the weeds and the lower forms of plant life, fungi and algae. It is this latter group which will be considered in this discussion, for the big majority of plant diseases are caused by fungi.

### Rusts and Smuts

**T**HE most destructive diseases of cereal crops are the rusts and smuts. Corn, wheat, oats and the like are closely related to turf grasses and it is therefore not strange that we find some of the diseases of these crops on turf. One frequently hears of heavy infestation of rust throughout our grain belt which may seriously affect the crop and thereby the grain market. Rust appears as circular or elongated spots on the stems and leaves of grain or grass. In certain stages these spots have a reddish color, resembling rust on iron, but at other times the spots are dark brown or black.

Smuts cause a swelling or distortion of the affected parts of the plant and when fully developed these enlargements break open and expose the mass of black, soot-like spores of the fungus. Probably every greenkeeper is familiar with the large swellings so commonly produced by the smut fungus on corn plants. On the turf grasses smut usually occurs as black elongated, streak-like injuries on leaves and stems.

Both the rusts and smuts cause some dwarfing of plants but are of greatest importance in the effect they exert in reducing yields of seed. Therefore although these diseases are frequently common on fairways and the rough they usually are of little importance on golf courses.

### Blue Grass Leaf Spot

**A**NOTHER disease common to cereals and turf grasses is that caused by a fungus called *Helminthosporium*. This disease occurs as irregular spots on the grass blade. It is found on many grasses, but is particularly noticeable on Kentucky bluegrass. At times bluegrass fairways turn brown and appear dried out when there is adequate moisture in the soil.

An examination of the plants in such cases frequently reveals the cause of this brown appearance to be due to the abundance of these dead spots on practically every leaf of grass. When one of these spots occurs across its base the entire upper part of the leaf is killed. When such spots are sufficiently numerous the turf loses its healthy green color and growth of the plants is checked.

### Powdery Mildew

**M**ILDEW is a fungus disease found on a great variety of plants. It appears as a white powdery growth on the surface of the leaf, particularly the under side. In severe cases the leaf looks as though it had been dusted with flour. It is perhaps best known on roses, lilacs and other ornamental plants, occurring especially in the fall when the leaves are all matured. This disease is frequently found on grass, more frequently in shaded places, but except under unusual conditions it causes little serious injury to turf.

### Slime Mold

**T**HERE is a fungus growth widespread on turf grasses which is worth mentioning, but which should perhaps not be regarded as a disease since it apparently causes little damage to the grass it grows on, except under unusual conditions. It is one of the so-called "slime-mold" fungi which grows up suddenly and covers patches of grass with a steel grey covering. After a day or two this fungus breaks up and liberates multitudes of black powdery spores. If the hand is rubbed across one of these patches the tiny spores will adhere to the skin like so much lamp black.

This fungus is common on courses throughout the country and is especially noticeable on approaches or bunkers in the vicinity of greens.

# Large And Small Brown Patch



It is usually merely a superficial growth which although undoubtedly objectionable from the standpoint of appearance, ordinarily causes no actual damage to the grass and as soon as matured can be readily removed by using a little extra force in watering these patches.

### Brown-Patch

**S**INCE the two common types of brown-patch have been recently described in your magazine it is unnecessary at this time to give any detailed description.

Small brown-patch is known practically everywhere in this country and may occur at almost any time during the growing season. It is recognized as more or less definite spots of different sizes seldom exceeding the area covered by a silver dollar. The grass is killed in these spots and as it withers it turns the characteristic bleached, brown color. These spots may be so numerous that they join and thus destroy a large area of turf.

Large brown-patch, as the name implies, affects a much larger area than does the small brown-patch fungus. Frequently a single patch may be two feet or more in diameter. The affected grass blades are killed and as they wither and turn brown they give to the affected area the brown color so well known to most greenkeepers.

Around the border of these patches one frequently finds a darker ring where the fungus is still active and spreading out into the heretofore healthy grass. This dark border is usually referred to by greenkeepers as the "smoke-screen" and whenever it is apparent it indicates that the fungus is still active and spreading.

### Pythium—A New Brown-Patch

**A** TYPE of brown-patch which has received little attention so far is that produced by a fungus called Pythium. This fungus requires a high temperature and plenty of moisture for its development. It is not likely to be a common pest on our northern courses, but it occurs frequently on the Arlington Turf garden and will probably be found widely distributed on courses in that latitude or southward. It has probably been generally overlooked due to confusion with large brown-patch, the symptoms of which are somewhat similar.

Grass affected with Pythium turns a slightly different shade of brown than when affected with large brown-patch. This fungus usually kills every blade of grass within the affected area whereas in large brown-patch there is

usually a fairly large proportion of blades that escape uninjured. It is probable that much of the severe damage reported in the more southern regions as due to large brown-patch are in reality due to this more destructive fungus, Pythium. It is also probable that some of the failures to control large brown-patch by the ordinary means may be attributed to some confusion with this other disease. However, it will be necessary to study the subject more thoroughly before we can draw any general conclusions.

### Little Known About Ring Brown-Patch

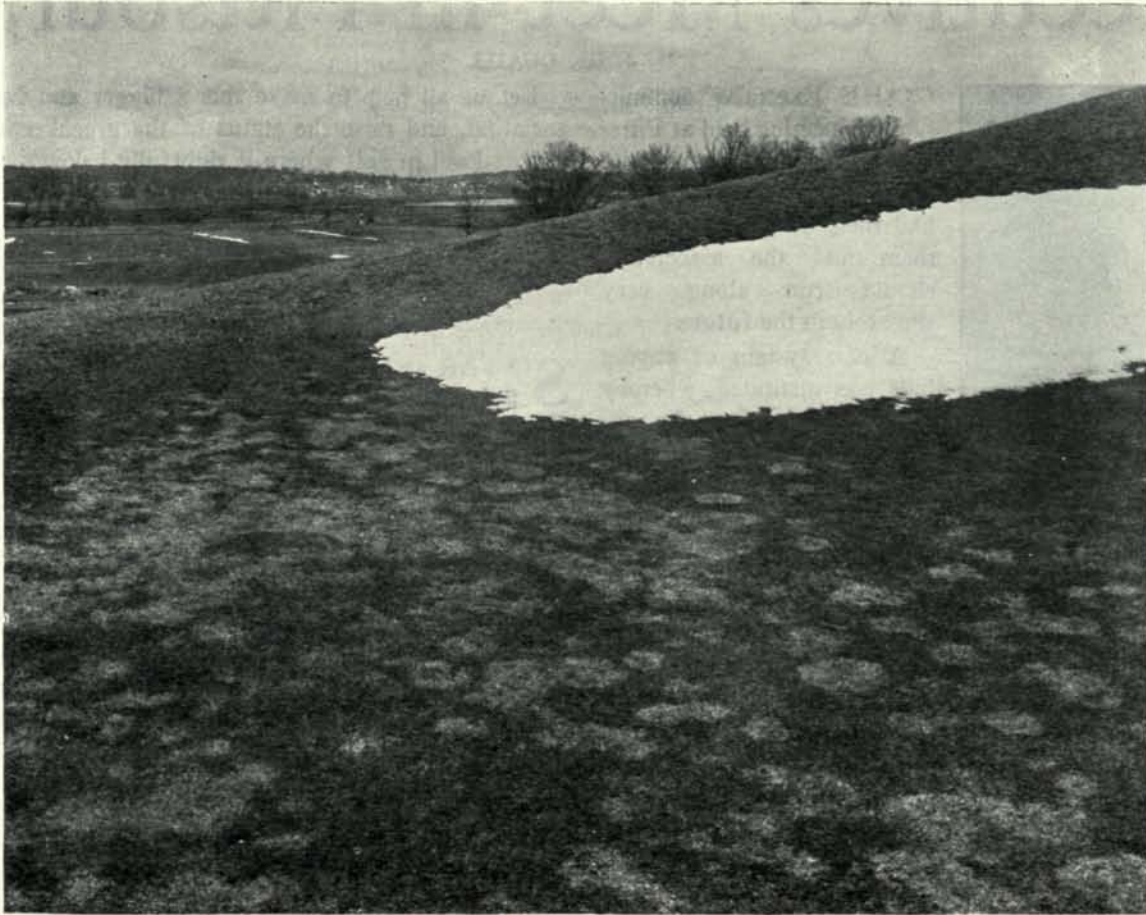
**T**HERE is another type of disease which is usually referred to as large brown-patch but which apparently is due to some other fungus. It occurs on greens as rings which in some aspects resemble small fairy rings. They behave like large brown-patch in many respects but the grass in the center is not affected. This injury is reported as common in New England, several mid-western sections and in California. No one has studied this type of brown-patch carefully and until it has received more critical attention we are unable to furnish much information concerning it. All indications lead one to believe it is caused by a different fungus than that producing either large or small brown-patch.

### Snow-Mold

**S**NOW-MOLD is another fungus of the brown-patch type which has recently been recognized as a serious disease of golf turf. Much of the so-called winter injury reported on northern golf-courses can undoubtedly be attributed to attacks by snow-mold. This fungus thrives at a much lower temperature than is favorable for growth of most plants.

A covering of melting snow provides the conditions of low temperature and excessive moisture suitable for development of this fungus and therefore it has been usually associated with snow and has for that reason been called "snow-mold". Many have been confused by this common name. It should be remembered that this fungus is not dependent upon snow except in the indirect way of providing proper temperature and moisture.

This disease has been observed repeatedly on turf which had not been covered with snow. In such cases, however, it developed during periods of thaws when light showers, heavy fog and cloudy weather maintained sufficient moisture on the turf for growth of the fungus for days at a time.



*Snow-Mold Injury Becoming Evident on the Turf as the Covering of Snow Melts Away*

### Fairy Rings

**F**AIRY rings are frequently found on golf courses, especially on old fairways. These rings are produced by several different fungi which have grown from a center and spread out into new soil each year until the circle is perhaps 20 or 30 feet in diameter. Frequently these rings start from an old decaying stump or pile of manure in which the fungi make their initial growth. At times this fungus growth may be killed in a portion of the circle and the rest may continue to develop. In such cases instead of a complete ring one finds a crescent-shaped outline on the turf.

The grass is often killed where the fungus is growing but just at the border of the dead ring the grass is usually a darker green and more vigorous. At certain times mushrooms may suddenly appear along the entire circle. These mushrooms are the fruiting bodies of the fungus and their sudden appearance in olden days were associated with fairies; hence the name "fairy ring". On most courses these

rings are not serious problems for only a small area of turf is affected. When they occur on greens they are always objectionable.

### Algae

**O**N GREENS which are low and poorly drained, or even on well drained soil during wet weather, one frequently finds a green scum over the turf. It is especially noticeable where turf is thin or where it has been injured by diseases or chemicals. After a short dry period this scum turns dark and dries out to form a tough paper-like sheet. In severe cases the grass beneath this covering is smothered and the putting surface is ruined.

This green scum is made up of a heavy growth of fine microscopic plants known as algae. These plants are found in practically every stagnant pool and at times are a serious nuisance on larger bodies of water. They thrive only in the presence of abundant moisture and therefore excessive watering, rains, cloudy weather and poor drainage all contribute to encourage growth of this green scum.



# Executives Meet in Pittsburgh

By JOHN QUAILL



JOHN QUAILL  
New N. A. G. A. Sec'y

THE Executive committee meeting held at Pittsburgh on April 8 was quite a success. The new officers had their duties assigned to them and the association should run along very smoothly in the future.

A new system of paying bills was instituted, whereby each warrant must be approved and signed by three officers before it can be paid. A modern voucher system was recommended and adopted.

## Send Dues to Secretary

All dues should be sent direct to the secretary, so that proper entries can be made and an accurate record kept and the member receive credit promptly.

## Golf Show a Success

The recent Golf Show was quite a success and put the association in good financial standing. We can show our appreciation to the exhibitors by purchasing our needs and requirements from them. We are indebted to them for some very fine exhibitions and demonstrations, and we want them to exhibit again next year at Buffalo.

We expect to again hold a golf show in conjunction with our convention and want to make this a bigger and better show. We will have more space and the proper facilities for handling any equipment. With larger space we can show tractors, sprayers, rough mowers and the larger equipment along with the smaller. We expect to have many more manufacturers and dealers with us and by patronizing the ones who have already helped us out we will get the rest of the manufacturers in.

## Brown-Patch Control Contest

Do not forget the brown-patch contest conducted by the NATIONAL GREENKEEPER. Every member is invited to write his experiences on this dread disease—both on control and preventive measures. The prize of \$50.00 will come in handy to most anyone, and the judges who have been appointed will be fair and unbiased in their decision. Get your article in before May 1, so it can be published and we can derive the good from the information contained therein before the brown-patch season really starts.

## Ask Your Neighbor to Join

Do not forget to ask your neighbor greenkeeper if he belongs to the association. If he does not and is eligible, write to any officer for application blanks and sign him up right away.

Let us all help to make this a bigger and better association, and raise the status of the greenkeepers to a higher level in golf where it rightfully belongs.

## Blow Your Horn, Greenkeeper

By CHESTER L. SMITH

Golf Editor, *The Cleveland Press*

SO FAR as I can learn, the *Cleveland Press* was the first newspaper in the country to send its golf writer on an out-of-town assignment to report an event such as the recent convention of the National Greenkeepers' Association.

I happened to be the man sent.

Heretofore, greenkeeping has been as far divorced from the mind of the average golfer as locomotive building is from landscape gardening. And from my acquaintance with a great number of golf writers I can attest that they, too, know very little concerning the close relationship that exists between the man who makes the courses playable and the man who plays them.

Being in ignorance of the problems the greenkeeper has to face and the effect on the game of golf itself of their correct solution, the golf writer naturally lets the whole thing strictly alone.

However, I came away from the Detroit meeting convinced that one of the big jobs the greenkeeper has to do today is to educate the writer to a better knowledge of the importance to the sport the association bears. Once that is done, this information will be passed along to the club member, who depends on the newspaper for 90 per cent of his day-to-day "dope."

As an example, let me cite my own experience. I have been writing more or less golf for nearly 10 years, but it was not until I came to Cleveland last fall and became acquainted with some of the men who have been making a study of greenkeeping that the care of the course ever appealed to me as something in which I was more than casually concerned.

I tackled the thing with some misgivings, wondering when I printed the first story whether it wasn't a waste of valuable newspaper space. It was not long, however, until ordinary, run-of-mine golfers began telling me that they had found the articles interesting and worth more to them than they had ever imagined.

This led me to the conclusion that the only reason the greenkeepers haven't been given due attention is because they have never presented their case in a way understandable to the club member.

I would suggest to district associations that they get in touch with golf writers, acquaint them with their profession and make it a point to furnish them with any good non-technical angles that may make good reading.