

Golfdom

The Business Journal of Golf

REG. U. S. PATENT OFFICE

Vol. 6

JULY, 1932

No. 7

War Against Usual Summer Turf Troubles Being Waged

By KENNETH WELTON

IN MOST FERTILE soils, the seed (spores and sclerotia) of the common turf diseases are found, and as putting greens become older and have been subjected to more or less frequent attacks of disease, more seed of the disease fungi are dropped in the soil ready to germinate and attack the grass plants when conditions become right. Small brown-patch may be expected during the spring growing days and on into the late fall, and during the warmer, humid days of the summer large brown-patch becomes virulent at times; in extremely warm and humid weather pythium may make its appearance.

There are some parts of the country not subject to long periods of heat and humidity in which turf diseases are of minor importance. Other sections of the country have less favorable climates in this respect and the greenkeeper in these districts must put up a continual fight to preserve his turf from these diseases. Last summer being exceptionally warm and humid over a large proportion of the country caused turf diseases to become more of a factor in certain sections than had previously been the case.

Proper soil conditions, correct watering and fertilizing practices, or any cultural methods which tend to make grass plants more mature and sturdy, help greatly in controlling turf diseases. There is, how-

LOTS of grass has grown since last year, and most of those who were charged with the responsibility of growing turf last summer have regained their confidence and feel better equipped than previously to coax the fine putting surfaces through another warm season. However, lest fading memories make too light of last year's turf ills, and for the benefit of some without last year's experience to guide them, it might be appropriate at this time to call attention to some of the points which cannot be disregarded in summer putting green maintenance. If greenkeepers are to keep putting-turf in the desired perfection called for these days, they must be prepared at this season to handle with some skill such problems as disease control, watering, fertilizing and Poa annua.

ever, no specific remedy or treatment which will make putting green turf immune from disease attacks for any prolonged period. Mercuric poisons are proven fungicides, and when used correctly may be expected to check the disease when applied and to have a protective effect until the strength of the solution in the soil becomes weakened through subsequent rains and watering. Calomel, less

soluble than bichloride of mercury, has a more lasting effect. It is a specific remedy for small brown-patch but is somewhat too slow acting for large brown-patch and hence either the pure bichloride of mercury or a mixture of about one-third bichloride and two-thirds calomel is used for this latter disease. Pythium is not controlled by any of the present fungicides but does not do so much damage on putting greens which are well drained and in which the turf is kept on the starved side.

Preventive Methods Popular.

Many greenkeepers are adopting preventive methods in disease control. They apply a mild fungicidal treatment every week or ten days even though no signs of disease are apparent. In such treatments only very light applications are necessary, for if disease should occur in spite of these preventive measures it never gets very far before a heavier treatment to check it may be applied. This method has many points of merit in districts where brown-patch is a regular and persistent summer visitor. In areas where cool nights, prolonged dry weather, or changeable summer weather is common and brown-patch is only occasionally active, it is probably more economical to wait until the disease becomes apparent on one or more greens and then to apply a fungicidal treatment to all greens. All mercuric fungicides have some carry-over and hence subsequent doses of fungicides may be made somewhat lighter. Sometimes injury on putting greens is caused by burning by the chemical but this must not be confused with the disease. Also it must be remembered that fungicides only destroy the disease organisms and will not miraculously change injured turf into healthy turf. Injured blades usually die and it is only new growth which will heal over the diseased areas. Failing to realize the difference between old diseased areas and new active infections sometimes leads to over-dosing putting greens with poisons and to unnecessary burning of the turf.

Care in Application.

Careful distribution of the chemical and subsequent watering when any but very mild treatments are applied is necessary if one would avoid chemical injury. It is also safer to apply chemicals in the evening. Burning is not so likely to occur if the cooler part of the day follows the treatment. Trampling of greens by players immediately following an application of chemicals sometimes causes burned areas

particularly around the cup where trampling is heaviest; this may be largely prevented if the greens are treated in late afternoon.

Insect Injury Common.

Insect injury to putting turf is common during the warmer months of the year. In areas invaded by the Japanese beetle it is necessary to treat the greens with lead arsenate. This arsenical poison in the soil quickly destroys all grubs, which pass the soil through their bodies. Last summer the sod webworm became a serious pest over a large part of the country and poison soil treatments proved ineffective. The answer was easy, since the larvae of the sod webworm moth feed on the grass blades and do not eat the soil. Spray treatments of lead arsenate, pyrethrum and kerosene emulsion have all proved effective, but these treatments must be applied properly. As the webworm cuts the blades close to the surface, greater control may be had by applying the poison in a fine spray under pressure, holding the spray nozzle so as to drive the spray well into the turf. Many sod webworm larvae are killed in the soil during extreme winter weather.

Adult moths were particularly active laying their eggs in the greens last season, and as this past winter was an unusually mild one we may expect a recurrence of sod webworm injury on putting greens over a large section of the country unless natural parasites have been extremely active. Greenkeepers would be well advised to become familiar with the type of injury of this pest (at a certain stage the activities of the webworm cause injury often mistaken for small brown-patch), and be prepared to apply adequate treatments if the injury becomes noticeable.

Rational Watering Pays

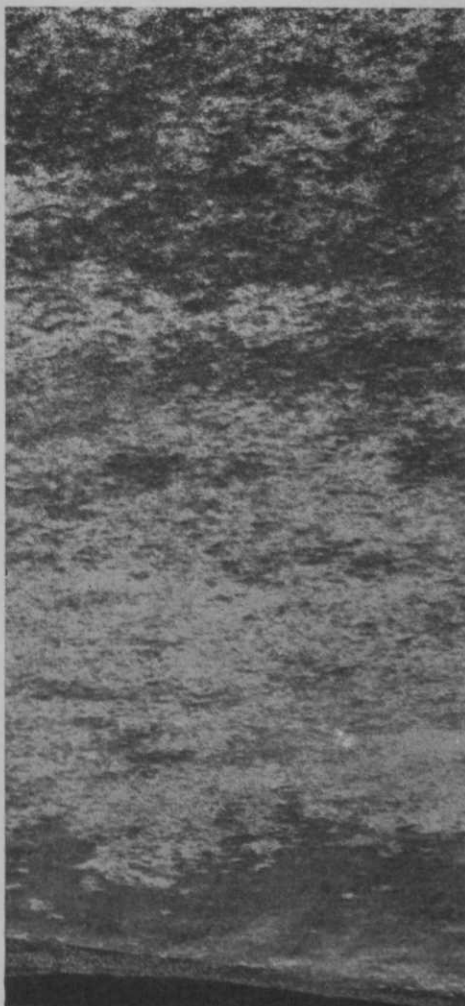
Giving the turf the water it needs and no more is perhaps the greatest problem confronting the greenkeeper each summer. He is first of all handicapped by the weather factor over which he has in most cases no control. If the putting greens have been improperly constructed and as a consequence have poor top soil, poor drainage, extreme slopes and mounds in the putting surface, and sharp edges or ridges, his job is made much more difficult. When putting greens are improperly constructed each green becomes a separate problem. Then, too, the greenkeeper is up against the unasked-for advice of almost every playing member. Most golfers feel

by some inborn instinct that what a putting green needs more than anything is lots of water. If the greens become off color or browned areas from any cause show up, the cry is that the greenkeeper is not giving the greens enough water. Frequently the browned areas which they claim are due to lack of water are caused from too much water. Then there is the constant demand for water on the greens for the purpose of making the greens soft enough to hold all shots. The subject has been well covered in the *Bulletin* of the USGA Green Section, February, 1932.

The putting greens soil should be porous enough to absorb a great deal of water at one time and be drained well enough to eliminate excess water. There should be no spots so high that they dry out too quickly and no pocketed areas into which water seeps. The problem will always be difficult till greens are built to receive heavy watering required at certain times. Frequent superficial watering is bound to lead to trouble; in packed soils the wet surface layer increases the difficulty the air has in reaching roots—grass plants will not remain healthy long without oxygen in the soil.

Don't Schedule Watering

Frequent superficial watering tends to create a shallow root system, thus increasing the necessity for frequent watering. When putting greens need water they should be watered until the moisture penetrates 5 or 6 ins. at least into the soil, and they should not be watered again until they show real signs of lack of moisture. If thorough but infrequent watering is practiced from spring on, roots will grow deeper and turf will suffer little injury even if the surface becomes dry for a day or so. A great deal of trouble on putting greens is due to the common practice of figuring out a watering schedule by which greens are watered every day, unless it rains. With such a system greens are frequently watered when the water is harmful. Some greens require water oftener than others, due to their construction, and due to the same cause some areas of some greens require more water than other areas. A better method of attending to the watering is to have no regular watering schedule but to have the equipment and an organized greens force, so that one or more greens can be watered at almost any time during the day or night. This system no doubt puts more work on the greenkeeper's shoulders in so far as watering



Section of a putting green, showing pythium damage, on bent grass. This particular strain of bent has been claimed to be immune to pythium

is concerned, but he will find things will balance in his favor for he will have less trouble from disease and scald, associated with overwatering. It is well to remember that poor turf caused by underwatering comes back quickly, but poor turf caused from overwatering may never recover.

The Poa Annua Problem.

The old rich compost pile is disappearing. There is a growing scarcity of manure for the pile, it was costly to prepare, and it usually was full of weed seeds, including clover and *poa annua*. But it served a purpose that is now wanting in

some fertilizer programs. Compost made from old sods, clippings, manure and rich sedimentary soil contained large quantities of minerals which turf plants require. It is a proven fact that heavy nitrogenous fertilizing is necessary in order to keep heavy pure turf on putting greens, but experimental work is making it more apparent each year that we must not allow the supply of certain minerals to run short. The mineral elements are not rapidly depleted in the soil as nitrogen is, so it is not necessary to supply them as frequently as nitrogen or in as large quantities.

There seems to be a real need for greenkeepers to look at fertilizers from the standpoint of what plant food elements they contain, what form the elements are in, and in what proportion, instead of looking at fertilizers as if each one is a mystery until it is tried, and as if by the constant trying of new ones they may some day hit on the perfect one. *If a perfect fertilizer appears to have been found it may only be perfect for a time because it happens to contain in large enough quantities the element the grass has been in need of.* Later on some other element not contained in that fertilizer may become deficient. It is not intended to intimate that there are a large number of elements that the plant may need seriously. As a matter of fact, the soil is pretty well supplied with traces of a great number of elements, but the elements which the plants use in large quantities may be counted on one hand.

Poa Annua Takes Command.

In spite of its name, there is considerable evidence that annual bluegrass (*poa annua*) is biennial or even perennial in some putting greens. Even though it is admirably fitted to replant itself from seed each year, still the uniform appearance of solid areas of this grass in many greens from season to season indicates that some of the plants may live for more than one season. However, *poa annua* is able to seed profusely at intervals through most of the year, and because it is able to develop seed heads so close to the soil that even close mowing can not entirely eliminate them, there is some question whether this intermittent seeding would not be sufficient to maintain a continual growth of new plants and thus preserve solid areas with little change without the necessity of the plant being biennial or perennial in habit.

Whatever its habits are, this grass is

able to make headway in any kind of turf, and if it is not checked at the start in new greens it may soon make up a large percentage of the turf in the greens. *Poa annua* has wide distribution, being found growing profusely in Alaska and in Georgia and at all points east and west between these northern and southern extremes in North America. Most soil used on putting greens will contain some *Poa annua* seed unless the soil has been made free of weed and grass seeds by fallowing. Top-dressing material on many courses contain *Poa annua* seed. Often high areas around the putting greens contain it; some of the seed which it produces so prolifically are sure to find their way to the putting green by surface wash. *Poa annua* sticks to players' shoes on damp days and it may be carried by the wind. It is no wonder therefore that this grass is found in putting greens on most golf courses in the United States.

Poa annua makes beautiful turf during the spring and fall in spite of its profuse production of seed heads, and in the northern and middle west states it usually grows throughout the summer with no undue loss. In the Middle Atlantic states, and southward *Poa annua* is very troublesome every summer on putting greens since it does not survive the long periods of extreme heat and humidity to which this part of the country is subjected. As a rule it dies slowly, giving the bent grasses an opportunity to fill in as it dies. But if it dies too quickly the greens may be ruined for long periods. Greenkeepers in these areas are hence always alert to do everything possible to keep the *Poa annua* from making a sudden exit.

Poa Annua Loss Means Woe.

Last summer many golf committees were brought face to face with the sad truth that "four out of five have it" and that they were included. *Poa annua* made itself noticeable last summer by its absence. Over large areas of the country it turned a sickly yellow or brown and quit growing during the latter part of June. A deluge of watering, fungicidal treatments and fertilizing only made the sick *Poa annua* sicker still. Greenkeepers on courses in which it previously gave little trouble except for occasional periods when, on a seeding rampage, it made the greens rough and patchy, were at a loss to account for its behavior. The facts are that a sudden turn of the weather in late June brought exceptional heat and humidity to



Ninth green at Beverly Shores C. C., Michigan City, Ind., where Tri-State (Indiana, Illinois, Michigan) Open will be held July 11-12. Prize money will be \$2,500. Players in the 1931 inaugural Tri-State tourney commended the course. Fred Peterson is greenkeeper and Macdonald and Maddox were architects and builders.

parts of the country usually immune from such weather. The heat and humidity continued above the average and hence the fickle nature of *Poa annua* was brought home to many for the first time.

There is now a question in the minds of many as to what can be done about it. There is little cause for undue alarm. According to the average weather conditions there is little likelihood of another such summer for some time. The *Poa* came back, as it always does, from the millions of seeds it has deposited in the greens, and is likely to go through this summer without undue loss. However, it is well for every greenkeeper to remember the 1931 season so that he does not unintentionally aggravate *Poa annua* trouble if such weather conditions again occur. If it were desired to get rid of it on the greens it would mean removing the old sod and replanting, and the newly planted greens would then have to be weeded continually for a season or two to keep what *Poa* came up from going to seed. The top-dressing used would have to be free of *Poa annua* seed and the greens would have to be protected from wash from higher elevations in which the grass was growing. Once a bent putting green is free and receives only clean top-dressing material, a little weeding each spring and fall is sufficient to keep the *Poa* out. However, once sufficient *Poa annua* is allowed to go to seed in the green it would be money wasted to try to eliminate it by weeding.

Those who have babied *Poa annua* through the summer each year have learned that it requires careful watering and fertilizing in hot weather. It can be forced to the limit during spring and fall and will make one of the best putting turfs that can be desired. While it is being forced with heavy nitrogen feeding, it turns a beautiful dark green and grows too fast to mature and cause much trouble by producing seed heads profusely. However, as the warm weather comes on it should be fed very sparingly. It is a shallow-rooted grass and hence needs more watering than the deeper rooted bent grasses. But as in the case of bent grass, the soil around the roots can not be kept saturated for prolonged periods.

Everything should be done on *Poa annua* greens to loosen up the topsoil and by guarded and infrequent watering during the spring and early summer to encourage it to develop as deep and abundant a root system as is possible. The soil should not be allowed to get too acid for the best growth of *Poa annua* and a regular spring application of a complete mixed fertilizer will improve its root system and make the plants stronger during the summer. *Poa annua* responds to nitrate of soda better than to other soluble nitrogen fertilizers and an occasional application will usually improve it. Most greenkeepers will only use this fertilizer in extreme cases, however, as they do not like to encourage *Poa* at the expense of bent grass which does

not seem to thrive with continued nitrate of soda feeding. When *Poa annua* is allowed to grow slowly and to become more mature as is recommended during the summer, it may make the putting greens bumpy due to the profusion of stiff seed heads. This trouble can be overcome to a great extent by cutting the greens twice a day if necessary and by brushing the greens occasionally before cutting to stand up the seed heads in order that the mower will remove a greater percentage of them.

Green Section Summer Meets to Be Locally Financed

LOCAL MEETINGS, formerly held in many sections at the expense of the Green Section of the USGA, this year will be conducted at the expense of local golf associations or groups of clubs in the same districts. Technical representatives of the Green Section will attend when expenses are paid by groups sponsoring the meetings. Necessity of continuing important research work of the Section despite a reduced budget is reason for change in the procedure.

These summer local meetings have been highly important to the advance in maintenance practice and have been held at most of the Green Section experimental plots in the country. Details of the new arrangement are available from the Green Section of the USGA at Washington and it is highly advisable that local districts make arrangements for their meetings without delay as considerable new and timely information is prepared for release at the summer meetings.

200 Attend New Jersey Field Day, June 20

MORE THAN 200 green-chairmen, greenkeepers and others interested in fine turf culture attended the field day program conducted at the New Jersey agricultural experiment station on June 20. The meeting was sponsored by N. J. State Golf Assn., N. J. State Greenkeepers Assn., and the state agricultural experiment station.

Program began at 3 p. m. on the experimental turf plots of the agronomy department at the college farm, New Brunswick. Each of the several hundred plots were carefully labeled, permitting inspection of the turf experiments. During the

afternoon a discussion of the field experiments was conducted by Dr. H. B. Sprague, agronomist of the N. J. experiment station, and his associates.

Particular interest was shown in the effects of different types of nitrogenous fertilizers; the influence of lime and phosphorous in connection with nitrogen for bent grass turf; the relative value of specific grasses for putting greens; investigations on fertilizers for fairways; and improvement of soils by the addition of organic matter. Exhibits displaying the effect of different systems of feeding bent grass under controlled conditions in pot experiments, the response of *Poa annua* to various types of fertilizers, and the ability of different sources of organic matter to retain nitrogen compounds in spite of leaching, aroused considerable discussion.

At 6 p. m. dinner was served, followed by a program of talks on turf problems. The relative value of sulphate of ammonia and nitrate of soda, and the proper use of these fertilizers was considered in some detail in the light of critical experiments conducted during the past year and a half at the experiment station.

Robert F. Arnott, chairman of the Green Section of the N. J. G. A., officiated and short addresses were delivered by John Anderson, N. J. G. A., M. E. Farnham, Philadelphia Assn. of Golf Course Supts., and John B. Mackie of the Metropolitan P. G. A.

SAND GREENS of the Henryetta (Okla.) C. C. have considerable reputation locally as being close to the ultimate in non-grass putting surfaces. B. A. Troutman, the secretary of the club, writes GOLFDOM a few hints on how they get their greens in such fine condition. He says:

"We have found that common river sand screened through a six mesh screen is the best material for our greens. After the sand is screened it is well mixed with crude oil before it is placed on the putting surface. The oil keeps weeds and grass from growing and makes the sand lie close to the bed of the green. Not enough oil is added to cause sand to stick to the ball nor to create any discomfort to the players by getting their hands dirty.

"Greens are smoothed daily with a board or carpet drag and after each rain the sand is scratched up with a blunt pointed rake and allowed to dry, after which it is smoothed down again."