

Greens Grief Shows Need of Revision in Architecture

By B. R. LEACH

MANY A GREENKEEPER here in the east awoke about two a. m. on a hot-as-the-hinges-of-hell August night last summer and listened to the big drops of a heavy thunder shower beating a tattoo on the tin roof—and then went back to the nocturnal bliss of pounding his ear. At the end of the following steaming day he found anywhere from one to eighteen of his greens “scalded” down the middles.

This so-called “scald” (one of my green-keeping acquaintances calls it the *Chinese rot*) is a very interesting subject for study by anyone engaged in the theory or practice of modern greenkeeping; in fact, the presence or absence of scald on greens may be taken as a pretty reliable indication of correct or incorrect greens construction and maintenance practice.

Early last September I spent an entire day examining a set of greens near New York of which 14 had scalded badly during the latter part of August. That they were a tragic and sorry spectacle goes without saying but I was more interested in noting the lessons one could learn by a modicum of close observation.

On all of these 14 greens the scalded areas were confined to the low, dished-in spots where surface drainage does not function rapidly or to those *ravine-like* areas into which the rainfall from both halves of the green flows—said ravine running from back to front of the green and down the middle, discharging the water from the green onto the approach. All other portions of the greens, which due to contouring were able to rid themselves quickly of the surface water during a rainfall, were free from scald and the grass was growing normally. One would be reasonably safe in concluding that at least one factor in the consideration of this scald problem was in this inter-relationship of excess rainfall or artificial watering and the contouring of the green.

Contours Neglected.

Many chapters have been written on this subject of greens contouring principally

by architects who write of contouring as it contributes to the game of golf via the putting route. The importance of contouring as it affects the maintenance problem has never to my knowledge received the degree of attention it deserves.

Hence, we find the country dotted with courses boasting the possession of a set of 18 “sporty” greens; a set of greens that are not so easy to putt on as they seem; 18-hole combinations of dished greens, terraced greens—one plateau above the other, grand canyon greens with a ravine down the middle, all designed to make putting a sporting proposition.

There can be no quarrel with this fundamental idea of sportiness in the designing and contouring of greens because it is and must be paramount. Nevertheless unless the designers of these sporty greens give a bit of thought to the problem of maintenance there will be occasions when such greens will go bad. They may travel along okay for years but the right combination of warm weather will tie them up in a knot with scald.

Terrace Green Drainage.

Such a possibility is entirely unnecessary since contouring to insure sportiness and contouring to insure immediate surface drainage can be readily combined. Not long ago I visited a club on Long Island and among the greens was one comprised of two terraces, the design and surface construction of which was sufficiently unique to merit close study.

On most of these terraced greens the upper terrace is contoured to the center so that all the water during a heavy rainfall converges to this point. From there it flows down to the lower terrace and runs down the middle where it meets the run off from the entire area of this lower terrace level and then flows onto the approach. To make matters worse there is often a low, dished-in spot in the front centers of these two terraces which holds back the water and prevents a clean, quick runoff. Such a green is very susceptible

to scald when weather conditions are just right.

The terraced green I speak of on this Long Island course was unique in that the upper terrace was so contoured that even with a very heavy rainfall the lower terrace got practically no surface water from the upper terrace. The excess surface water on the upper terrace all drained away rapidly by means of two sweetly contoured undercuts, one on each side of the green so that all the water drained away to the sides of the upper terrace instead of flowing down onto the lower terrace. The lower terrace in turn did not contour entirely to the center but was so arranged that the surface water had two mild channels by which to escape. Only the most flagrant mismanagement of such a green could produce scald because there is no portion of such a green where the soil condition necessary for the development of scald could readily be secured.

Avoid "Dead Spots"

In a nutshell, the main idea in building a scald-proof green is to contour the green so there are no "dead spots" where surface water can collect and can escape only by seepage into the soil; secondly, to contour so all the excess surface water does not converge and flow off in one relatively narrow channel. Terraced greens can be contoured as described above. Greens sloping from back to front and not terraced should be so contoured that a ravine down the center is avoided. So-called dish greens are the worst of the lot and with a low spot in the center they are hell; but much can be done to ease the situation by side cutting to reduce as far as possible the flow of surface water down the middle of the green.

All of which is interesting but nevertheless does not greatly aid the greenkeeper in charge of 18 greens, 14 of which may be relatively lousy as regards their surface contouring and any one of them are apt to go bad on him during a spell of slimy weather. How can a greenkeeper handle such a set of greens so as to reduce the possibilities of scald to the minimum?

In order to consider this side of the problem in an adequate fashion it is again necessary to mention the flow of excess surface water as it escapes from the surface of the green. This water itself does not cause scald. It has nothing whatever to do directly with the occurrence of scald, it is simply an indirect contribut-

LEACH SAYS:

"... all portions of greens able to rid themselves quickly of surface water during a rainfall were free from scald."

"... green contouring to insure sportiness and contouring to insure immediate surface drainage can be readily combined."

"... scald results from an excess of water, organics, inorganics, heat and humidity at a given spot on a green."

"... with plenty of spare sod on hand, a case of scald is not such a dire calamity."

ing agent to the formation of scald. If excess water alone were involved in this problem the worst condition of affairs that could develop on the low spots or ravines would be a sogginess of the soil with a tendency to thin, unhealthy turf at those points. More than this is required to produce a case of scald.

Excess Water Loaded with Trouble.

In support of this statement let us follow the drops of water as they fall onto a green during a heavy rainfall until they come together in a thin sheet of water and flow off the lower portions of the green. As long as the soil of the green is capable of soaking up this rainfall everything is o. k. but as soon as the soil becomes saturated with water and can no longer take up the rain as it falls the excess water begins to seek its level and flows down to the lower portions of the green. Let the rainfall be heavy and of sufficient duration and what happens? The excess water (generally spoken of as the *run-off*) ceases to be simply water. It changes to a mixture of water and everything on the surface of the soil which is capable of floating or suspension in water.

Consequently when this run-off reaches the lower portion of the green it is carrying a heavy load of fine silt, particles of organic material such as manure, humus, etc., and wherever the rapid flow of this run-off has a tendency to be checked the water, at these points, dumps its load. So that, as a second step in this consideration of the causes of scald, we have this debris which the run-off drops on spots where surface drainage is retarded.

Wonders never cease however, because this silt and particles of organic matter also *carry a load* which contributes to the causation of scald in a badly drained area of a green. The fine silt and organic matter is loaded to the gun-wales with nitrogen, phosphates and potash to say nothing of mercury compounds, all of which may have been applied to the greens during the practice of the routine maintenance.

Under the circumstances we have arrived at the point in this discussion where we may say that a badly drained spot in a green following a heavy rainfall will be carrying an excess of water, silt, organic matter, nitrates, phosphates, and potash as well as mercury compounds. Whether these latter have anything to do with scald I cannot say, although I have my doubts.

What Causes Scald.

But even this combination of three factors is not sufficient to cause scald. One other factor is essential, a match to light the fire, in the shape of a spell of hot, humid weather. Therefore, the four factors essential for the causation of scald on a given spot on the green are:

1. An excess of soil water.
2. An excess of organic matter.
3. An excess of nitrates and other fertilizing materials.
4. An excess of heat and humidity.

With all four excesses present, rapid chemical decomposition in the surface soil results in the quick release of too much soluble plant food and the grass on these spots scalds just as though you had applied hot water. Scald throughout apparently results from the presence of too much of everything at a given spot. I have never known it to happen where the surface drainage was right except in those rare instances where those in charge of the greens had thrown discretion to the winds and applied slathers of fertilizer and what not to the turf during the hotter portion of the year.

Since scald is a condition arising from excess it is fairly obvious that the best course to pursue in avoiding scald is to avoid excess in maintenance. We cannot always avoid an excess of water nor of heat and humidity. The other two contributing factors can be very largely controlled. Topdressing greens susceptible to scald during June, July and August with a mixture rich in organic matter is a ques-

tionable procedure, since heavy showers flood this organic matter into the low spots. Organic fertilizers can also be well avoided during these three months for the same reason. If the greens go off color apply soluble nitrogen, preferably in solution in water or if applied dry thoroughly watered in, so that later the low spots will not get an overdose due to a heavy shower.

Repairing Scalded Areas.

I have seen cases of scald when the damage was not severe, snap out of it if the weather turned cool immediately following an attack. The sod would be painfully thin at these spots but nevertheless you could get by until seeding time.

However, when the scald is severe practically everything passes out on the affected spots. Many a greenkeeper loses his customary sound judgment under such trying circumstances and makes matters worse by doctoring the affected spots with everything under the sun from powdered charcoal to ground tobacco. The more dope you put on the worse the spot becomes. Lay off all the medicine and try to get the soil of the scalded area free from sog-giness. Forking with the tines of a manure fork helps. In fact, anything to get rid of the excess water is helpful.

Seeding such scalded area is a tough and uncertain proposition, especially if the rainfall is plentiful, because the very condition which has caused the scald also proves too much for the tender grass seedlings and they have a tendency to die due to excess soil water and plant food.

Any greenkeeper managing a set of tricky greens susceptible to scald can best protect himself and his job by developing a sufficient area of spare sod maintained just the same as the greens. With plenty of surplus sod on hand a case of scald is not such a dire calamity since the affected spots can be cut out, recontoured as much as possible so as to insure a quick runoff and then resodded with healthy sod. This gets the green back into play and keeps the members from climbing up on the greenkeeper's neck. In resodding these spots it pays to take out several inches of soil as well as the dead sod and replace with fresh soil before applying the new sod as the soil directly under the dead sod is frequently heavy with soluble plant food, often to such a degree that the healthy sod fails to take hold.

All these measures are of course simply palliatives, a means of getting by for the

time being, although many a greenkeeper has to put up with such conditions year after year. Any green with a pronounced tendency to scald had best be remodeled with one eye on sporty putting and the other on surface drainage.

Silver Lining to Trouble.

The past summer, according to all accounts, has been pretty tough for greens and greenkeepers—and a very good thing it has been tough. The welfare of the greenkeeping profession demands that at least one year in each five be real tough, so tough that budget-shaving golf clubs won't get the idea that an ex-railroad section hand can run the course without any trouble. Other things being equal, the tougher a greenkeeper's job looks the more jack he can demand for his services. Let greenkeeping become too easy and greenkeepers will be working for 40 cents an hour.

In this connection I pass on to you a crack made by Bruce Barton, one of the highest paid lads in the writing racket:

"Never complain," says Barton, "about your problems. They are responsible for the greater part of your income. Whenever I think I am having a tough time I remember that jobs with no worries carry small pay. It's because I have larger worries that I draw a larger income."

Michiganders Put Pep in Annual Greens Meeting

MEMBERS OF the Western Michigan Greenkeepers' association, headed by President M. F. Webber of Lansing, and the Detroit and Border Cities Greenkeepers' organization, marshalled by their chief, Herb Shave of Oakland Hills, assembled at the Country Club of Lansing for the liveliest joint business session and tournament the groups ever held. Almost 100 men were in attendance. Al Sherwood won the golf championship. Andy Peck, Battle Creek supt., started more than 70 players around the perfectly groomed course that Henry Chisholm had ready to defy the divoteers. Eight prizes put up by the association, equipment houses and Lansing business men, encouraged some smart competition.

Competition was not so close when the boys sat down to pack away the luncheon with the Country Club as host. John Phelps went around a championship plate

in seven under par with a knife and fork to beat out Floyd Hammond, runner-up, by six biscuits and the greater part of a cow's carcass. The greenkeepers paid high tribute to the manner in which the club's manager and chef teamed with their pal Chisholm in making the Lansing plant a model of operation.

Each of the Michigan sections meets every two weeks in its own territory and



H. E. Shave



M. F. Webber

the annual tournament is the windup of the outdoor season. In December the course superintendents gather at Lansing for the short course at Michigan state college.

The associations hope to have all eligible greenkeepers in the state as members and will welcome inquiries regarding membership from greenkeepers or from clubs that would like to have their men and courses profit from the benefits of membership. M. F. Webber, pres. of the western group, is supt. of the 45 holes of Lansing municipal golf, and may be addressed Route 5, Box A, Lansing, Mich. Herbert E. Shave, pres. of the Detroit and Border Cities group, is supt. at Oakland Hills and may be reached at the club, Birmingham, Mich.

The associations cordially invite every greenkeeper to attend their meetings. The organization officials also would like to hear from course superintendent association officials in other states with information about any ideas that have been found especially helpful in putting on well attended and practically valuable meetings.

Professor Mallar of the Michigan State college, W. B. Matthews, supt. of Grand Rapids Masonic C. C., and Herb Shave spoke at the noon business conference.

Motion pictures of the tournament were taken by the Ideal Power Lawn Mower Co., and will be shown at one of the short course sessions this winter.