

Rebuilding and Resodding of Putting Greens and Tees

By JOS. WILLIAMSON, *Greenkeeper*
Crescent Athletic-Hamilton Club, Huntington, L. I.

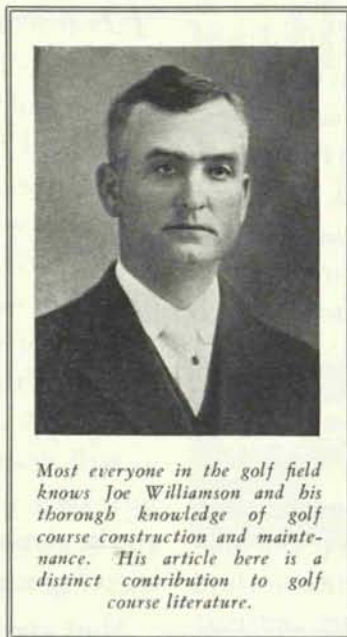
Read at the 6th Annual Educational Conference of the National Association of Greenkeepers of America, held at New York City, January 19-22.

THE subject which it is my pleasure to speak upon at this gathering of greenkeepers in convention is of great importance inasmuch as it is of interest to everyone present. It is "The Rebuilding and ReSodding of Putting Greens and Tees." This work is a task which necessitates a deal of thought and preparation by the greenkeeper before he starts the job of rebuilding. First, he should know the past history of the old green and why it did not function properly. He should satisfy himself that he knows the reason of its failure so that he may profit by the mistakes made in the old green.

There can be and are many and various reasons why a putting green goes wrong and fails to give the results and satisfaction which are naturally expected, after it has been in use for a time and why it does not thrive as it should, causing the greenkeeper much concern and worry. For it is not always the methods used in its care which are to blame for its decline; but more often than not it is the faulty construction which is the cause of the whole trouble, and, more likely than not, the lack of proper drainage.

PUTTING GREENS TOO HURRIEDLY BUILT

MANY of you know of putting greens which have been hurriedly built and thrown together with any and all kinds of clay and soils regardless of its make-up or quality as a proper composition equal to the requirements which are absolutely essential and necessary in the soil elements for the growing of putting green grasses, which are expected to grow and continue to thrive in the best condition for a long time after it is once a putting green. In this case it is too late to remedy the faults



Most everyone in the golf field knows Joe Williamson and his thorough knowledge of golf course construction and maintenance. His article here is a distinct contribution to golf course literature.

of construction after it has been sodded, seeded, or stolonized. So the rebuilding which has become necessary should be given much thought and the mistakes made in the old green rectified in the new.

It is the opinion of many qualified to speak on this subject that the life of a putting green is far over-estimated and that we expect entirely too much from the soil under the sod, for it becomes worn out and dead long before we are willing to admit that the trouble of a bad green lies in the soil itself. When we stop to consider what a green goes through during the

years of its use and what we have done to it, it is only reasonable to admit that its life is gone and we must renew the soil which has become worn out, poisoned, and lifeless. So under these conditions it is only natural that after a few years the old green should be torn up and rebuilt.

SOIL SHOULD BE GIVEN FIRST THOUGHT

WHEN this is to be done it is only proper that the soil should be given first thought, that it will be of such quality and content that the grasses will grow and thrive mostly from the soil itself rather than by the everlasting purging with the use of commercial fertilizers and patent manures that have taken the place of the old compost pile which was in the past and is today the most satisfactory to the well being of any putting green.

I do not know of any reason why the soil of today should be any different for the growing of good grasses than that of years ago, but I am quite sure that it is far better to know that you have a good, fertile and porous soil than to depend upon concentrated manures and fertilizers and get fooled in the end.

For the past ten years or since the introduction of the bent grasses which are now in general use throughout the country, there seems to have crept into the minds of many that the soil of a putting green is of little importance and that the bents would grow in any old clay if you kept it well watered and used plenty of fertilizer of this and that which has flooded the market for this purpose and which has been used to the extent and cost of many greenkeepers' jobs, and which has killed more putting greens by overdoing than anything else, regardless of the drainage. I believe this fertilization has been carried on to a degree that the poor greenkeeper was at his wit's end and could not figure out how it all came about that this and that green went bad, became toxic and compact, and would not respond only to brown patch—which reminds me of the poem "only God can make a tree," but I honestly believe that the devil himself had a lot to do with the making of some of our putting greens.

The soil should be composed of a mixture of about one-third good, loamy, fibrous top soil, one-third sharp sand which will not pack, and one-third humus such as old rotted stable manure and peat moss or leaf mould with a little wood ashes thoroughly mixed so that the entire top soil of the green is about the same composition. This will assure a good friable condition which will accept water, light, and air and which will be of a texture that the bents especially will thrive in, besides being porous enough for good, quick drainage which is most important to keep a green in good condition at all times.

Having made sure that you are satisfied with the soil which is to be used in the new green, let us take

up the condition of the subsoil. If it is of heavy clay which is generally the case, I would suggest plowing it up and mixing in a few loads of clean fine cinders or common sand to break it up a little. Then give it a good, rough grading that will be something like the contour of the surface of the green when finished.

DRAINAGE CONTROLS LIFE OF GREEN

DRAINING is the next job to be done and it is of vital importance, for upon the drainage depends the life and success of the green whether you have a good soil for the top or not. If the green is not well drained, the life of the soil cannot last long and very soon will turn toxic, soggy, and compact and a sure victim to the ravages of brown patch. Very often this work is much neglected, poorly done, or not done at all; and it is impossible to expect a good grass growth on a hard compact soil which is caused by the lack of proper drainage. A green should be so well drained that the water from the rains or sprinklers will have quick access through the soil and be carried off before the soil can become waterlogged or soggy.

Most greens as a rule are built sloping slightly to the approach, and in this case the drains should be laid crosswise of the green, the trenches dug about eighteen or twenty inches deep at the start with a gradual fall to the main which would be on one side of the green, falling to the lowest corner and the most convenient outlet. The trenches should be on an average of twelve to fifteen feet apart and either three or four-inch drain tile used and placed close together in a straight line making connections to the main with tees which are made for this purpose, and should be back-filled with one and one-half inch crushed rock to within ten or twelve inches of the finished surface of the top soil.

After the drains have been filled with the rock, the sub-soil should be rough-graded between the drain trenches and sloped a little from the center to the line of tile, taking care that there are no low pockets lying between the drains in the subsoil. However, I would suggest not to cover the rock with the subsoil, but to leave it open and let it be covered with the top soil when you are filling the surface. This will give perfect drainage of the subsoil to the trenches, and the top soil on the rock will assure a complete porosity from the finished surface to the drains below. If this system is carried

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out in the new green, I am certain the biggest part of your worries will be over and the dreaded brown patch less troublesome.

FILLING IN OF THE TOP SOIL

NEXT is the filling in of the top soil. This is done by wheelbarrows on plank boards, taking care that the grade of the subsoil or the rock in the trenches is not disturbed by the dumping of the soil. If a good, straight line is kept while the soil is being placed, it will give the man who is doing the leveling and grading a better chance to see the depth of his fill and enable him to do a better job of surfacing than he would if this work were being done in a hurried or careless manner.

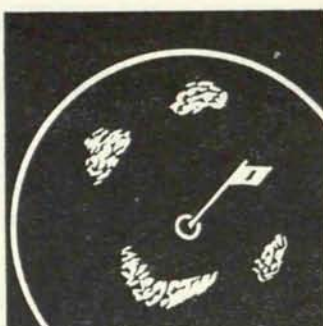
After the fill with the top soil has been finished and a fairly good grade given to the surface it should be given a thorough treading down both ways with the feet close together, to make it settle, and firm the top ready to be raked and graded smoothly for the sodding. Treading the soil, which is an old-fashioned method and which is still the best I know of, not only settles and firms the top, but also helps to break up the lumps which would be troublesome to the men doing the raking.

Now we are ready to resod the green with the sod which was taken and reserved from the old green or is to be supplied from the sod nursery. In cutting the sod I will explain the method I was taught in my apprenticeship and which I have continued to use up to the present time.

TOOLS USED FOR CUTTING SOD

THE tools used for this work are a good, stout chalk line about one hundred feet long wrapped on thin iron rods twelve inches long with sharpened points, two twelve-inch sticks, an edging knife and a sod-lifter or sod-knife. To start the work of cutting, first stretch the chalk line out to the desired length at the edge of the plot to be stripped, keeping it as square as possible to the outside line of the section which will be at right angles to the stretched line. The sod is to be cut three feet long by one foot wide, which is the most convenient size to handle. Start marking out on the near side of the line with the edging knife from left to right, cutting about two inches deep, and taking care not to move the line with the blade.

Stand a little back and to the right of the edger continuously cutting until you reach the end of the



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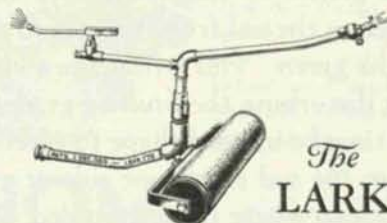
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stretched line. This position will enable you to see and keep close to the line and will give you better control over the blade while cutting. This will make the cut slightly bevelled and it is more easily done this way than by trying to stand straight up over the line. The sticks now come into use to measure the width of the next cut at either end, so move the line for another cut using the sticks as a guide for the width from the first cut made and continue until you have all marked out into feet. Then change the line and place it at right angles to the first cut made and you are ready to cut the sod into one-yard lengths.

A good yard stick is a notch on the handle of the edger three feet from the bottom of the blade. Again cut from left to right until the job is completed. Try to keep the line square across the feet marks; it makes a better job laying the sod if it is cut square and fits snugly.

CUTTING SOD IS A TASK

CUTTING or lifting the sod is a task not all men are able to do with the precision and care a really fine job calls for. It takes quite a little practice to cut sod to an even thickness of about three-fourths of an inch which is about right for a new green, and when evenly rolled up is better to handle while laying it down again.

To cut the sod the cutter should start again from left to right, and the man rolling it should take the cut sod from right to left of the cutter. This keeps all the sod in proper place for laying and the bevels will fit tightly together scarcely showing a joint after they are laid on the green. But if the man reverses the rolling at different times from left to right of the man cutting, you will find that, owing to the bevels in marking them out, they will not fit as closely and tightly together as they would if they had all been rolled up from right to left.

To sod the green properly it is a good policy to have plenty of long boards to stand on also for wheeling the sod from the pile to the men laying it on the green. This will make a clean job and prevent disturbing the finished grade which should at this time be in good shape to receive the sod. Start to lay the sod along one side or end of the green nearest to where the sod is piled, and if the outside where you commence is irregular in shape, stretch a line from one end to the other, say from the back

to the front of the green, so that you will have the first row perfectly straight. The short bends on the outside of the line can be finished later.

Take the sod with the lap on top and start to lay it along the line from left to right to the far end of the green. Then remove the line as you now have a line of sod to guide the remainder of the laying. When the first row is down place boards on the top of it all the way through, this for the men laying the sod to stand on, and continue row for row moving the boards forward as the rows proceed. This will pack the sod after it is laid and keep it smooth while the work is going on; otherwise you will have quite a job rolling and tamping to get the footmarks out when the sodding is finished.

It is not necessary that you complete each individual row of sod before you start another; several rows can be laid at the same time after you have the first line down. But insist that the men keep on the boards while laying. The runways of the men wheeling should be moved from time to time at different angles so that it will not pack the sod too much in the same place before moving the boards.

ROLLING AND TOP DRESSING FINISHES JOB

WHEN the sodding has been completed in this manner, the surface should be gone over carefully and any loose pieces of sod dropped in the progress of the work picked up to patch any places which may have been missed while laying the sod. After this the green is ready for rolling and the high spots carefully tamped down. A light top-dressing of good compost should now be spread evenly and well rubbed in with a flexible steel mat or other tool for this purpose.

This, I think about completes the work of rebuilding the putting green, but I would suggest that any places scarred, torn up, or which have been disturbed in the progress of the work, be taken care of before you call it a finished job. Leave the outside and surroundings as clean as the green itself—then you have something which will speak for itself when completed.

TEES REQUIRE CARE TOO

WHILE the rebuilding and resodding of tees does not call for the same exactness and care in the making as does a putting green, still there is no reason

whatever that this work should be slighted and carelessly done at any time. Although you do not have to be quite so particular about the soil, it does not mean that you should not use a little care and thought in its building, for a good-looking and nicely kept tee is very pleasing to those who appreciate good workmanship. So the building or rebuilding of your tees should receive as much thought and interest in the making as will be in keeping with the rest of a first-class golf course.

Many players like a tee somewhat elevated while others prefer playing from tees built on the natural ground. But this, of course, must be governed according to the lay of the ground out in front. A tee built on the natural ground is much preferred if the elevation is such that it will drain itself after heavy rains and also preferable from the standpoint of upkeep cost, as they can be mowed with the tractor machines at less cost than those elevated with steep slopes all around them.

If the tee is to be built on the natural ground, a few lines of drain tile placed fifteen or eighteen feet apart through the playing area will greatly help to keep it in much better shape, especially after a heavy rain, and the grading should be done so that the natural drainage of the surface will be to the back of the tee instead of to the front.

Drainage towards the front is a bad fault to be found on many courses where this work has been done in a hurry or where insufficient allowance has been made for the settling of the soil before it was sodded, with the results that the surface is cuppy and holds water and the players are complaining of having a down hill lie, which should never be the case with a tee shot. A slight rise to the front on all tees is preferred by the players and should be remembered when building a tee.

When building a tee which is to be elevated, the height would have to be regulated according to its location and more especially to the lay of the ground in the line of play out in front and so that the rising slope of the fairway can be carried without interference by an ordinary well-played shot. A little good judgment is necessary in this case, as there is no hard and fast rule to regulate the height of an elevated tee.

I would like to say that whatever the height of your tee is going to be either in the front or on the

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sides, do not build it with slopes so steep that the players will have to climb up steps to get on and take a jump to get off instead of a nice long slope up which they can walk easily. This condition is often found on many courses where the tees have been thrown up without regard to how it looks when finished or to the players' convenience. This kind of tee-building is very poor and shows slovenly construction work and should never be tolerated.

GOOD-SIZED TEE IS PREFERABLE

A GOOD-SIZED tee is always preferable—one which will be large enough to allow at least two or three changes of the markers across its width. I would consider a good tee to be around twenty-five or thirty feet wide and from forty to sixty feet long or even more, providing of course that there is plenty of room and funds are sufficient to allow for this. A good large tee which is roomy enough for the constant changing of the markers soon pays for itself as it is more easily kept and much less repair work needs to be done to it than is the case with a small dinky tee which is always torn up, worn out, and unsightly at best.

I have always made it a practice when building

elevated tees whether they be single or in a series of step formation one behind the other (which is often to be found on some good courses) to keep the surface level from side to side and to elevate the front from the back sufficiently that it will be self draining under all conditions. A fall of one foot in twenty-five feet of length gives a nice grade and makes a good-looking appearance when the slopes are well carried out. This elevation on the surface not only sheds the heavy rains quickly, but also makes a comfortable stance for the players.

Another thing to be remembered is building the tee with the sides parallel to the fairway as nearly as possible, and the front square across the outside lines. To do this stretch a long line through the center of the tee and down to the approximate center of the fairway where the first tee shot would land; then stretch another line across the front of the tee and square the two lines where they cross in the middle. This will give you a true line up. The square of a tee to the line of play has often been questioned and criticized by players, many of whom blame the direction and the position which the tee faces for bad tee shots.

When the height of the tee has been determined and the stakes set to govern the outside lines of the surface, other stakes should be set to mark the bottom of the slopes all around. And at this time I would like to suggest for the convenience of the players and the economy in upkeep, besides the more pleasing effect it will give, that these slopes have not more than twenty-two and a half degree pitch or less from the playing surface until they reach the natural ground. Of course this cannot always be done, but where it can I am sure it makes a very desirable and pleasing tee from all angles.

When the fill is being made on an elevated tee either by the scraper or dump wagons a better job will be accomplished if it is spread while dumping in layers of six or eight inches deep, keeping the top levelled off a little as the dumping takes place. This will help to pack and settle the fill by running over it until the next layer is placed. This method makes a cleaner job and assures a quick settling on a deep fill.

After the fill has been finished and the rough grading done, a layer of fairly good top soil should be spread evenly over the surface and well trodden down. It is then ready to be raked smooth for the

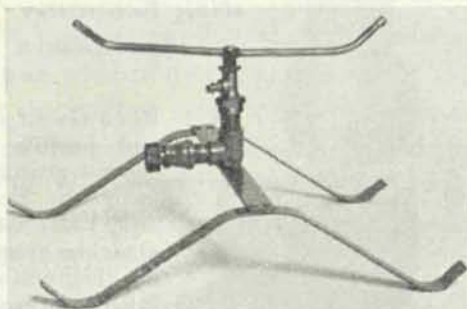
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sod laying, and should be done in the same manner as in sodding a green. The men both laying and wheeling the sod should use boards for it saves a lot of work after the sodding is finished. It is best to lay the sod lengthwise on the tee to within one foot of the outer edges on the top.

You will find that by leaving this one foot all around a better connection can be made when sodding the slopes, so that the sod will have a better hold than it would have if joined exactly at the edge of the flat surface on top. In this way it also assists in shedding a heavy rain and is not so likely to break away from the top and settle as it would be if connected at the edge or top of the slope. After it is well rolled and the high places tamped down to a smooth surface, I think you will have a tee you will be well pleased with and one which will be a credit to your golf course.

Golf Tournaments

- May 30-June 2**—British Women's Championship at the Staunton Golf Club (Staunton, England).
- June 6**—Sectional Qualifying rounds for U. S. Open (courses to be announced).
- June 6-10**—British Open Championship at the Princes' Course, Sandwich (England).
- June 8-11**—Metropolitan Golf Association Amateur Championship at the Plainfield (N. J.) Country Club.
- June 23-25**—United States Golf Association Open Championship at the Fresh Meadow Country Club (Flushing, L. I.).
- June 27-July 2**—Intercollegiate Championship at the Cascade Golf Club (Hot Springs, Va.).
- July 4-9**—West Virginia State Golf Association Amateur Championship at the Greenbrier Golf Club.
- July 7-9**—Royal Canadian Golf Association Open Championship at the Ottawa Hunt and Country Club.
- July 11-16**—Ohio State Golf Association Amateur Championship at the Portage Country Club (Akron).
- July 14-16**—Metropolitan Golf Association Open Championship at the Lido Golf Club.
- July 19-24**—United States Golf Association Public Links Championship at the Cherokee Park course (Louisville, Ky.).
- August 4-7**—New York State Golf Association Amateur Championship at the Niagara Falls Country Club.
- August 8-13**—Royal Canadian Golf Association Amateur Championship at the Lambton Golf and Country Club (Toronto).
- August 16**—Preliminary Sectional Elimination Rounds for the U. S. Amateur Championship (Courses to be announced).
- September 12-17**—United States Golf Association Amateur Championship at the Baltimore Country Club (Entries close July 26).
- September 25-October 1**—United States Golf Association Women's Championship at the Salem Country Club (Salem, Mass.).

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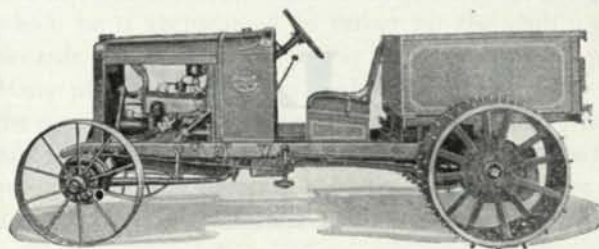
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