What '31 Greenkeeping Taught Greensmen to Plan For '32

By KENNETH WELTON

EXPERIENCE is an especially dear teacher if her pupils don't care about learning. Turf troubles of 1931 were severe and expensive. Every greensman should heed the lessons of that post-graduate degree.

Kenneth Welton has made a practical summary of the 1931 lessons which may be applied in saving fortunes for the golf field in maintenance and repair charges over the next few years.

SAD EXPERIENCES of 1931 have indicated to many of those concerned with the maintenance of fine turf that some revision of cultural practices might well be considered. If the events of last season have served to put a few hitherto dogmatic individuals in more receptive state of mind the occurrences might well be considered a blessing in disguise. Many of those charged with the maintenance of turf are, at this time, frankly open-minded regarding the wisdom of past methods and are willing to give serious consideration to information or evidence gained last summer which might prove of value in the future.

There was a certain protection for everyone last year due to the large number of golf courses similarly affected with turf ailments. Golf club committees, slowly in some cases, realized that the season was exceptional and that most clubs were suffering from these ailments. The turf has long since been revived and the greenkeepers are once more in the good graces of the members. But many greenkeepers realize that they will be in very awkward if not serious position should their turf become badly injured another summer if it so happens that the turf on neighboring courses is not similarly affected.

Some greenkeepers can correct the factors responsible for last year's troubles without going beyond themselves; others, in self-protection, will have to induce their committees to make certain changes requiring additional funds or concessions. For these latter it is now opportune to call to the attention of their committees the need for these progressive changes before the ills of last season are forgotten.

Write Lessons of Last Season

Many greenkeepers know that certain putting greens need reconstruction, that drainage work is required, that a change of grass on the greens is called for, that new equipment is needed, that fertilizers, fungicides, or insecticides in large quantities are called for, or that some cultural practice in regard to fertilizing, mowing, watering or top-dressing which the committee has wrongfully insisted upon needs to be changed. If the greenkeeper can prove the need of reconstruction, new material, or change in cultural practice, and if after proving such need can not induce the committee to comply with his suggestions, he should go on record by submitting written recommendations to his chairman. If, after going on record, he is forced to act to the contrary and things go wrong he will find protection and satisfaction in referring to his written recommendations regarding the point in question. By the same token the greenkeeper should be fairly sure of his ground before placing himself on record regarding any policy.

With the foregoing statements in mind it may be constructive at this time to briefly review some of the outstanding lessons of 1931. It must, however, be acknowledged that in dealing with nature no hard and fast rules can be laid down and that after all the man on the job must depend upon his own judgment at the critical moment. But as indicated before, it is the man who has many lessons well learned and much worth-while information

Rebuilding a green. The turf has been removed and will be replaced after defective contours have been corrected and the workmen finish applying well-rotted manure to the area.

at his command who is most likely to do the right thing at the right time.

Some Rebuilding Required

Probably much poor turf of last season was due to poor soil conditions in the putting greens. Hard, impervious soil, layers of various materials, poorly drained subsoil, pocketed areas, and sharp mounds and ridges were all, or in part, common on poor greens. Such putting greens should be rebuilt. The turf should be removed and the topsoil scraped aside to be replaced later if architectural changes are called for. Ridges and mounds should be flattened and pocketed areas filled in. Tile drainage should be installed if necessary and a proper topsoil hauled onto the green or prepared on it, as the case may be. A uniform sandy loam soil to a depth of 6 or 8 inches is conceded to be ideal both for play on the green and maintenance of the turf. Sometimes existing soil on greens that does not function properly, due to layers of sand or peat which have been buried, can be put in good condition by cultivation to mix the soil into a uniform mass. Some soils have become packed because some inferior strain of grass has failed to maintain its growth during the season, or because some past cultural practice such as heavy rolling has destroyed its structure; such soils may need only cultivation to effect a marked improvement. A great deal of information regarding soil improvement on putting greens is available. The Bulletin of the United States Golf association Green Section of August, 1929 is chiefly concerned with the need for and methods of rebuilding putting greens.

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Correct Soil Deficiencies

At the time of reconditioning putting green topsoil, any mineral deficiencies should be corrected. Some soils on putting greens are very low in lime. The deficiency might have been present in the original soil or might have been induced by the use of sulphate of ammonia over a period of years. If sulphate of ammonia has been used and lime in some form has not been added the chances are lime is deficient. Phosphorus is sometimes deficient in putting green soils. In any case it is advisable to add an abundant supply of phosphorus during construction since it aids materially in developing strong plants with a good root system. A certain amount of nitrogen is called for at construction time, especially if peat moss, peat, or humus has been added. A more satisfactory catch has been obtained when some available nitrogen has been supplied when using these materials. It is also well to saturate the soil thoroughly before planting to satisfy the affinity of such organic materials for moisture. Nitrogen may be supplied in either the organic or inorganic form, although a certain

amount of inorganic nitrogen is adadvisable. If the soil is of sufficiently good texture and structure that it does not require cultivation, minerals such as lime, phosphorus and potash may be introduced into it through the turf by application of the above, followed by spiking, forking, or disking the turf with special equipment designed for this purpose.

Players' Demands at Fault

The sooner the golfers of the country learn that summer conditions are at times extremely hard on fine putting green turf and in consequence do not demand perfect turf at that season the easier the greenkeepers' lot will be. Putting green turf is being maintained under unnatural conditions, and to force the growth on the greens to make them beautiful during the extreme summer weather is to court disaster. It is good practice to force grass in the early spring and in the fall, except in districts subject to snow mold, in order to procure a solid uniform turf and to crowd out weeds and objectionable grasses, but only very light applications of soluble, nitrogenous fertilizers should be used just previous to and during the summer months.

Putting greens which have been ruined by heavy applications of organic fertilizers in the late spring and during the summer have been observed time and time again. The present accepted reason for injury from organic fertilizers during the hot summer weather is that the rate of decomposition of the organic materials in the turf cannot be controlled. If a considerable amount of nitrogen is suddenly released due to rapid decomposition caused by hot weather, a great deal of lush growth is induced at the very time when a tougher and more mature growth is required.

Organic fertilizers may well be applied in the early spring and in the fall. Apart from the benefits of organic fertilizers applied in the fall, further advantage may be expected due to the fact that some plant food will be carried over to influence the growth in the early spring. It is a common practice to use large quantities of well-rotted manure and mushroom soil either alone or mixed with soil for topdressing purposes. These materials are not considered as concentrated organic fertilizers, but when large amounts are used their plant food value is considerable. This plant food is slowly available and is often forgotten until it becomes evident by suddenly becoming available in the summer. Compost or material in which manure or mushroom soil is mixed can be used to advantage in early spring and fall, but during the late spring and summer it is safer to supply nitrogen in the soluble inorganic forms. By using inorganic fertilizers the nitrogen supply, and hence the growth of the grass, can be easily controlled.

Top-dressing Texture

Decay of roots adds considerable organic matter to the soil. In a healthy green, the amount added in this way is usually sufficient to keep up the organic content below the surface. It is usually necessary however, to mix considerable organic material with most soils before using them for top-dressing purposes in order that the top-dressing may be of proper texture. It is also important to add organic matter in top-dressing to keep up the organic content in the surface. Such materials as peat or humus are frequently used in top-dressing during the late spring and summer, as they are comparatively inert and slowly release the plant food they contain. When such materials are used in top-dressing the necessary nitrogen can be applied in light applications of soluble nitrogenous fertilizers. An occasional application of some good complete mixed fertilizer should be made to keep up the phosphorus and potash supply.

Fungicide Delay Costly

So much has been written about the control of fungus diseases, such as large and small brown-patch, that it hardly seems necessary to dwell upon this subject at any length. It is sufficient to point out that no cultural system that does not include the use of fungicides has yet been discovered that can be counted upon to keep greens free of brown-patch year in and year out. And, regarding fungicides, none have yet been discovered that will control brown-patch better than the mercuric fungicides now in common use.

Last season the delay in applying sufficient fungicide was responsible for the injury to much turf. There should be no delay in treating all the putting greens on the course at the first signs of disease. At times when brown-patch is working overtime the greenkeeper should also work overtime, keeping ahead with his treatments. If treatments are required frequently the dose should be considerably reduced and more stress laid upon the fre-

quency of application, for by so doing the danger from burning is much reduced. If possible, applications of fungicide should be made in the late afternoon in order that the greens will not be subject to the heat of the day and to the trampling of hundreds of players immediately after the treatment has been applied.

Pythium a Weather Problem.

The present fungicides are only slightly effective, if at all, against pythium. Any cultural treatment which tends to reduce the humidity on the green is helpful. Also, grass which is allowed to harden off is less susceptible than tender, lush grass. Controlling of water and fertilizer is at present the only safe way to prevent serious injury from this fungus. Pythium is active only during conditions of exceptional heat and humidity, so that in ordinary summers it is not noticeable on most northern golf courses.

Poisoning the soil with lead arsenate is a well-known treatment for the control of insects such as grubs and worms which pass the soil through their bodies. The sod webworm, however, which did so much damage last year, has different habits and poison soil treatments did not give satisfactory control in many cases. The sod webworm does not eat soil but feeds on the surface, cutting off grass blades close to the soil. In order to control this pest effectively the poison should be kept on the grass blades. The blades should be thoroughly coated to the ground and some poisons, such as lead arsenate, are best applied in solution. If the solution is applied in the form of a fine spray, under pressure, the nozzle may be pointed to the ground so that the spray will penetrate deep into the turf.

Over-watering Is Vicious Circle.

Watering of putting greens is the bug-a-boo of most greenkeepers. First of all, players demand putting greens soft enough to hold almost any kind of a dubbed shot. Greenkeepers in some cases are forced through their committees to pour water almost continually on the greens even though they know such treatment will sooner or later ruin the turf. Over-watering proves to be a vicious circle; the greens with hard packed soil require more water to soften them, and the more the soil is kept saturated and played upon the more puddling it receives and the harder the greens will become if allowed to become dry. Putting greens that require water for the sole purpose of keeping them soft should be rebuilt and a sandy loam high in organic matter provided as top-soil. Extreme mounds, ridges, and slopes should be avoided, as these divert the water to the parts of the green upon which the cup is most often placed, and hence, although it may be impossible to keep the mounds wet enough, the lower areas are saturated most of the time.

Apart from the fact that grass plants can not maintain a satisfactory root system in puddled soil, plants are further injured by the exclusion of air from their roots. Grass plants require a supply of oxygen in the soil, and if the pore space is reduced to a minimum by puddling and if what little pore space is left is continually filled with free water, the oxygen supply is cut off, with disastrous results. The answer to the watering question is good porous soil containing sufficient organic matter to retain water by absorption and adequate under-drainage to get rid of excess water.

Free water quickly leaches out of porous soils, drawing pure air after it into the spaces between the soil particles. These particles retain a film of water from which the roots can draw. Also, roots are able to grow to a greater depth in such soils and hence have better contact with the supply of water well below the surface. This contact with the more constant supply of water below the surface is favorable to the deeper-rooted turf since under certain weather conditions the evaporation is so great that the soil at the immediate surface will become dry shortly after being watered.

Correcting Nappy Greens.

Trouble is frequently experienced with creeping bent greens which become nappy and spongy although they are regularly closely cut. The habit of growth of this type of grass allows it to form a dense heavy turf upon which the mower may ride. When the turf has developed into a spongy mat unfit for putting, the practice of some is to cover it with a heavy top-dressing. A continuation of such treatment in time ruins the putting surface of such greens. This mat also keeps the new growth from proper contact with the soil below and causes trouble, particularly in the summer. Greenkeepers are finding that brushing and raking delays the formation of this mat. When in spite of such treatment the green becomes nappy, it should be severely raked and cut closely in order to remove the mat

of stolon growth before the top-dressing is applied. This keeps the putting surface close to the soil where it belongs and a considerable saving is effected since less top-dressing is required throughout the season.

It should be noted that greenkeepers on many golf courses throughout the country would profit by having the foresight to maintain a turf nursery and a soil bed. It is comparatively simple to repair damaged areas and to replace weedy turf on the green if good turf for this purpose is immediately available. Large amounts of soil are used annually on putting greens and this soil often carries millions of weed seeds. Soil of a good mechanical nature can generally be prepared on the club property by hauling in materials to mix with the existing soil and by growing and turning under green manure crops. The soil bed can also be frequently cultivated and in time rendered comparatively free from weed seeds.

Preliminary Program Announced for Managers' Convention

FINAL DETAILS of the program for the Club Managers' Association of America national convention, to be held at the Hotel Warwick, Philadelphia, February 18-20, have not yet been announced, but the preliminary program, as released by Joseph B. Uhler, general chairman of the convention committee, indicates that this year's meeting will be on a par in interesting features with those of former years.

Managers attending the convention will register at the Warwick on Thursday morning, February 18, and after luncheon will gather in two groups, the country club managers assembling in one room while the city club managers get together in another, to discuss their own particular problems. An informal dance and supper has been arranged for the entertainment of the assembled delegates at the Penn Athletic club that evening.

Opening meeting of the convention proper is scheduled for 10 o'clock Friday, February 19, when addresses of welcome will be delivered by Joseph B. Uhler, president of the Club Managers' Association of Philadelphia, and by J. Hampton Moore, mayor of Philadelphia. Convention business will occupy the afternoon and a theatre party has been arranged for the evening, followed by a sea food supper and informal dance at the Penn Athletic club.

Outstanding speaker of the Saturday morning session will be Dean McClellan of the Wharton School, University of Pennsylvania. The subject of his speech has not yet been announced. Saturday after noon will see the final session of the convention, with business completed, officers elected, and the next convention city decided upon. There will be a formal dinner-dance and entertainment at the Penn Athletic club that evening.

Wives of members attending the convention will be well taken care of during the three days of the meeting. On Thursday they will be taken on a sight-seeing trip and shopping tour around Philadelphia; on Friday, a bridge party has been scheduled for them at the Penn A. C.; and on Saturday a tug boat has been scheduled to take the ladies for an interesting afternoon of sight-seeing on the Delaware River.

The usual arrangements have been made with all railroads entering Philadelphia to extend convention rates to those attending the convention, whereby the delegates, by securing proper credentials at the time they purchase their tickets will be entitled to half rate fare for their return journey.

Committees actively working for the success of this year's meeting are:

Convention Committee—Joseph B. Uhler, general chairman; W. F. Homiller, vice-chairman.

Registration—H. A. Lewis, national secretary, assisted by Luis Weil, local secretary.

Reception—John A. Rogers, chairman; William P. Barry, Oscar Mathes, M. N. Rittenhouse, James F. Bohen, H. E. Seymour, Anthony S. Werner, Louis Kamp.

Hotel Accommodations — Eugene Carl, chairman; Charles E. Roy, George C. Beck, A. D. Bolly, Frank Firestone.

Entertainment — William F. Homiller, chairman; W. P. Rathel, J. H. Cook, Joseph B. Uhler, Albert Bachman, A. D. Bolly, Luis Weil.

Railroad Accommodations — Luis Weil, chairman; Adolph Richter, Thomas H. Keevil, Joseph B. Uhler.