"FOLLOW THE LEADER", BUT WHY?

Summary of Turf "Eras"

SHOWS NEED OF SCIENCE GUIDE

By Wendell P. Miller

IDEAL fairway, tee and putting green turf is rarely ever developed merely by letting nature take its course. The main effort in large scale turf production and maintenance is toward keeping the turf plants in the same stage of growth throughout the year—a procedure in direct opposition to nature—for nature has intended that her plants shall pass gradually through cycles, from the seedling and active vegetative stage, to seed production and maturity of the plants.

On this side of the water we have gone a long way from the original spirit of the game as it was played on Scottish heaths where every player expected, and even now still expects, to play the ball as it lies, whether the lie be good, bad, or on bare ground. Today, our players demand weedless fairways, perfect brassie lies, dry fairways in spring, and soft springy turf in August.

The Greenkeeper's Burden.

The demand for perfection is made on every greenkeeper regardless of whatever turf situation he has inherited from the golf course builder and previous committees, regardless of soil types, soil fertility, drainage, water supply and distribution, kinds of turf plants on the courts, or what not. Naturally, every greenkeeper has struggled to supply this demand and overcome the untoward conditions existing on his course.

This has resulted in various remedies, some of which, successful where originally tried, have swept through the land in cycles or waves of cure-alls or panaceas. Within recent memory we have enjoyed four or five of these cycles, a nice but expensive game of following the leader.

Some fifteen years ago most golf courses were white-washing their fairways and greens with lime and applying no fertilizer to replenish the plant food supply which was rapidly exhausted by the high rate of availability induced by the liming.

This paneacea proved a failure and it was decided that liming was the cause of all turf troubles, and especially the cause of weeds. About that time some experiments in Rhode Island showed that certain fine turf grasses thrived best in acid soils and that the weeds which usually accompanied these particular grasses did not thrive in acid soil.

This was widely advertised and the result was an epidemic of heavy applications of ammonium sulphate.

The Stolon Era.

A few years later the difficulties of securing pure seed of the bent family in practical quantities caused the discovery that pure strains of creeping bent could be propagated by stolons and in the next few years after this discovery thousands of putting greens were torn up and planted to stolons. The stolon cycle is lasting well but it has brought on difficulties in the form of brown patch, matting, high cost of maintenance, and difficulty of securing a uniform putting texture. Under the method of using German mixed bent seed, the weak strains and those susceptible to disease are gradually eliminated by natural causes, but when greens are planted with only one strain, the entire green is at the mercy of the fungi which attacks the particular strain. Where a particularly weak strain of bent is planted by the stolon method, the ultimate complete loss of the green turf is not unusual.

The Mercury Era.

In the five years from 1922 to 1927 stolon greens were planted in every State in the Union and to a considerable extent in Canada, with a result that the use of mercury compounds for the control of fungus diseases became the chief topic wherever turf problems were discussed. Stolon bent greens are particularly susceptible to disease and, of course, as long as we have these greens with us, the greenkeeper must carry in stock a supply of highly poisonous chemicals to combat

situations in which it is possible to lose an entire green in one or two days.

The Arsenate Cycle.

Several years ago the lead arsenate treatment arrived as the result of discoveries made in New Jersey that the lead arsenate treatment had other merits besides killing the grubs of the Japanese Beetle. This year, perhaps half of the clubs of the United States have used more or less lead arsenate for worms, grubs and weeds; and here again we have an increase in the cost of golf up-keep dictated by the relentless effort toward perfect conditioning.

Liming Returns.

The last plunge has been made this last season in the return to the use of hydrated lime or ground limestone on both fairways and greens, in the hope that its use will reduce brown-patch and other troubles; this trend has been accompanied by frequent expressions during the year that maybe we have been using too much fertilizer for the good of our golf course turf.

Irrigation.

Recently there has developed a pronounced trend toward fairway irrigation. There is no question as to the efficacy of fairway irrigation, but it is quite certain that fairway irrigation is not a cure-all and that the application of artificial irrigation to large turfed areas must be accompanied by careful attention both to fertilization, seeding and, of course, to drainage, which is prerequisite to irrigation. Unless fundamental conditions are favorable for artificial irrigation of the fairways and the factors mentioned have been properly cared for, the steady dosing of the fairways with water may produce weeds and clover instead of maintaining the proper turf plants.

A Changing Art.

These cycles or general application of cures and remedies have been mentioned to show that while the growing of golf course turf is an old art, that it is also a changing art.

A given treatment seldom shows identical results on two different golf courses because conditions of soil, climate and other numerous factors are seldom the same. Further, a given treatment frequently does not show the same results on all of the areas of a single golf course. But very few clubs have the personnel, the money, or the patience to do the experimenting that is necessary under trial-and-error methods to find out what program will produce and maintain the maximum quality of turf at minimum of cost. These same clubs which perhaps could not be induced to do any experimenting deliberately, nevertheless, carry on, from year to year, large experimental operations, not realizing that their turf program is based on opinions rather than

facts and hence is experimental in its entirety.

The establishment of experimental turf gardens in the larger centers of golf, under the control of trained scientists, is helping to answer the question of what constitutes proper turf mainfenance procedure more accurately than this question has ever been answered. But how can the golf course located even twenty miles from the experimental plots be sure that it is proceeding wisely in using over the entire course the methods that appear to show results on 10x10 plots in the test garden?

The answer to a large extent lies in knowing how definitely all of the facts about the particular soil and grasses and comparing them with the same definite facts obtained from the experimental plots or from other courses where positive results have been obtained under *known* similarity of conditions.

Nowhere in the literature of golf course maintenance has there appeared specific or authoritative programs giving the treatment which is necessary for the course located on the sand dunes as compared to the course located on clay soil or the grasses, fertilizers, fungus control methods, irrigation and other remedies to all alike, with a result that most of these methods are incorrect when applied to particular situations and with the definite result that most clubs have difficulty in securing any material improvement from year to year.

We know of but few clubs which have a definite history of past treatments, and analyses of the factors which control the turf growth for each individual green, tee and fairway. Practically every club treats all of its greens alike and all of its fairways alike, and it is not uncommon to find two golf courses situated on entirely unlike soils using exactly the same methods and wondering why the results are not the same.

Wide Soil Variations.

To show how widely the soil conditions vary between putting greens on a single course, and why, for instance, the use of lime on all eighteen greens of this course might prove injurious, the following analyses of soils on the greens of Sunset Ridge C. C. Club is given:

Sample	% Nitrogen	Available phosphorus	% Organic matter	Reaction P. H.
Green No. 1...	0.23	High	4.6	7.3
Green No. 2...	0.30	High	6.0	6.9
Green No. 3...	0.34	Medium	6.8	7.3
Green No. 4...	0.25	High	5.0	7.0
Green No. 5...	0.29	High	6.8	6.9
Green No. 6...	0.25	High	4.9	7.0
Green No. 7...	0.19	Medium	3.9	6.9
Green No. 8...	0.23	Low	4.7	6.9
Green No. 9...	0.24	Low	4.9	7.2
Green No. 10..	0.24	High	4.8	7.0
Green No. 11..	0.24	Medium	4.9	7.3
Green No. 12..	0.18	High	3.6	7.2
Green No. 13..	0.25	High	6.0	6.9
Green No. 14..	0.20	High	4.0	7.2
Green No. 15..	0.26	High	5.2	7.4
Green No. 16..	0.24	Medium	4.9	7.2
Green No. 17..	0.19	High	3.8	7.0
Green No. 18..	0.24	High	4.9	7.3

These analyses were made by Professor George McClure, soil technologist at Ohio State University, from accurately collected composite samples taken by him of the top-soil of each green.

The above soil survey also included mechanical analyses of the top-soils and subsoils on all of the greens, which threw considerable light on the drainage characteristics and the water-holding capacity of each green. While the top-soil on all of the greens was classed as sandy loam, there was still a considerable difference in texture between the different greens, which was enough to account for the difference in rapidity of drainage and water requirements, and in the varying putting qualities of the greens.

What the Survey Showed.

Only two of the greens contained an adequate supply of nitrogen, while twelve greens had sufficient available phosphorus. Five of the greens were just slightly acid, four were neutral in reaction and nine were fairly alkaline. Prior to the survey the opinion was positive that the greens were being maintained in an acid condition. However, at the time of the survey, clover and chickweed were present in large quantities on five of the greens which proved to be particularly alkaline.

As a result of this particular survey, this course has been able to make material improvement in its fairways and greens and has been able to eliminate the chickweed and most of the clover from the greens. These improvements in the turf have been secured on a very tight clay soil—there being a number of different kinds of soil on this course—without irrigation of the fairways and where there is not any too much drainage.

The soil survey is the fundamental basis for a continuing program of turf development. When the program is started on the basis of definite knowledge of existing conditions, the old urge to try every new fertilizer or panacea, and to keep in step

with every new fad and cycle, is completely eliminated.

The turf program based upon the soil and turf survey deals effectively with the question of what turf plants are best suited to the property, what fertilizers and chemicals are needed, and when, where, and how much of each, what drainage steps are necessary, what weed-eradication methods will prove successful, how proper top-dressings are to be combined, to what extent irrigation is necessary, and what the results of irrigation will be. In fact the proper turf program outlines the procedure for three to five years, thus removing all guess work from a large number of golf course operations.

Arming the Greenkeeper.

The greenkeeper who is armed with a complete knowledge of all of the factors he is dealing with is able to dispense with opinions and deal in terms of facts. The greenkeeper in this position is able to anticipate his difficulties and forestall them with proper methods. He is able to carry on the development of his turf under a definite continuous program which outlines in advance what the requirements are and how to deal with every factor.

Golf clubs which are operating under definite turf programs are able to keep down the high cost of up-keep and at the same time secure definite, positive results from all their efforts devoted to the development of the turf.

Club Managers Plan New York Convention

IT is expected that the report of the standardized accounting committee will be one of the features of the annual convention of the Club Managers' Association of America which is to be held at Hotel Astor, New York, November 12-13.

This committee has the job of working out a system that can be adopted with modifications by any club and permit a close watch and comparison of operations. It took the Hotel Managers' association five years to work out the standardized system of accounts now so generally and profitably in use in that field so the task undertaken by the Club Managers' organization is by no means a small one. The managers' convention will be held while the Hotel Exposition is on, November 11-16, so the visiting managers will have an opportunity to inspect and study the exhibits of hotel equipment suitable for club operations.

The convention program is being handled by the Metropolitan Club Managers' association and the Association of Club Managers of the City of New York. John L. Keenaghan, Beach Point club, is chairman of the convention committee of the New York managers' group and William Norcross, Garden City C. C., chairman of the Metropolitan's committee. These committees, working together, have decided upon the following program:

Monday, November 11th

Hotel Exposition opens. Grand Central Palace.

1:00 P. M. Luncheon to visiting Hotel men, Hotel Pennsylvania, courtesy Hotels Statler Co., Inc. Registration—Booth No. 462, Hotel Exposition.

Tuesday, November 12th

9:00 A. M. Registration—Foyer Convention Hall. Hotel Astor.
11:14 A. M. Convention called to order, Frank H. Murray, President.
11:30 A. M. Reading of minutes of last meeting.
Appointment of Special Committees.
1:00 P. M. Buffet Luncheon. Hotel Astor.
2:00 P. M. Meeting called to order. Address.
3:00 P. M. Discussion of General Business.
8:00 P. M. Theater and Supper Party.

Wednesday, November 13th

10:00 A. M. Group Meetings.
(a) Town Clubs.
(b) Country Clubs.

GENERAL CONVENTION SESSION

11:00 A. M. Meeting called to order. Addresses, subjects and speakers to be announced.
12:00 M. Buffet Luncheon. Hotel Astor.
1:00 P. M. Meeting called to order.
Shop Talks.
2:00 P. M. Election of Officers.
Selection of meeting place for next convention.
3.00 P. M. Open Forum.
8:00 P. M. Dinner and Dance. Hotel Astor.

Thursday, November 14th

Luncheon and Golf, Winged Foot C. C., the scene of the last National Open Championship. Courtesy of William Austin, Manager.