Course Conditions in the Northern Latitudes

An Address by C. A. Tregillus, Editor, Bulletin of the Green Section of the Royal Canadian Golf Association, at the Annual Meeting of the U. S. G. A.

Mr. Chairman, Ladies and Gentlemen: It was with great pleasure that I accepted the invitation to address the meeting of the Green Section of the United States Golf Association. The golfing interests of the whole world have watched with interest the organization and development of this Green Section, because it realized that it has a tremendous bearing upon the present enjoyment and the future success of this great game. And what better commendation could it enjoy than to know that this example is being followed by other countries in different quarters of the globe.

Looking back over its brief history, we see that an enormous amount has been already accomplished and a moment's thought upon this will bring to mind a conception of the still greater work that lies before it.

Much research work still remains to be done and a great deal of practical experience must be gathered and recorded before we can feel confident that we have brought the science of greenkeeping and course supervision to a par with other agricultural and horticultural endeavor.

The golfing public of the United States is unconsciously wielding a slow but certain influence over golf in Canada, owing to the numbers of Americans who visit us every year. During the motor touring season of 1926 a daily average of several hundred cars crossed the border daily with permits to tour in Canada for 30 days or six months. Since golf bags were very conspicuous on these cars, it is fair to assume that the majority of the visitors were golfers, and it is further probable that many of them might not have come if they could not have enjoyed the game while on vacation.

Golf courses are becoming a matter of civic pride among the towns that are strung along our main highways and are considered as important a municipal asset as good camping facilities, hotels, scenery, climate, and other features that entice the traveling public who are on pleasure bent.

Canada is well supplied with golf courses. It is safe to say that every town of 2,000 inhabitants or more has a golf course, some are rather primitive, but on the whole they will all provide the essentials for an enjoyable game.

The problems of turf production are very generally similar throughout the Dominion and those States that lie adjacent, or to be more specific, from let us say the 44th or 45th parallels of latitude northward to the limits of railway penetration.

Latitude really has not so great a bearing as might be expected at first thought, because we find that grasses which are frost hardy appear to stand extremes of climate unaffected by cold of itself; therefore, turf grasses that will thrive on the shores of Lake Erie can be depended upon for many hundreds of miles north of that line with proper care.

It is characteristic, however, of the temperate zone that the climate is subject to extreme changes of weather conditions (temperature and humidity).

The relation of oceans, lakes, plains, etc., which produce con-

tinental changes in climate have a far greater bearing upon our subject than our position between the Equator and the North Pole.

This somewhat relieves our worry, for, though we can not change the position of the sun or the length of time it shall shine, we can at least partially make up for conditions brought about by the physical features of the earth's surface such as aridity, alkalinity, soil texture, and so on.

Traveling westward from the Atlantic Seaboard over the hills of Vermont or the Valley of the St. Lawrence, past the Great Lakes region, across the prairies to the Rockies and the Pacific watershed, we encounter a succession of climates, ranging from both extremes in temperature and humidity, and from short growing seasons to almost continuous ones.

To produce and maintain turf suitable for golf so that courses from coast to coast may be favorably compared with each other and this with such a range of climate to contend with and manage satisfactorily appears, if one pauses to think, a superhuman task. But difficult as it may seem, such is our ambition and in a measure is being successfully attained.

There is still a good deal of work, both research and educational, to be done. What has been accomplished already is due to the close study of local condition of climate, soil and grass by zealous greenkeepers, professional and amateur, and by the latter I mean the Chairman of the Green Committee, whose heart is in his job, and not a little credit is due to this organization (Green Section) whose bulletins are eagerly read by and have been of immense value to clubs in every part of Canada.

In design and general features, such as turf, methods of maintenance and so on, there is little to distinguish the courses from those of this section of the country. The machinery in use is largely of United States manufacture, although some European equipment is found here and there.

Since irrigation is the key to successful permanent grass greens, year in and year out, in 90 percent of our courses, it is the general practice where lack of funds will not permit water systems in the dryer sections to use sand greens.

We are experimenting in the West, however, with some creeping prairie plants such as cudweed, which has been found to produce a fair putting surface where traffic is not heavy. A number of these were moderately successful before the vogue for sand greens came in.

In the East work has been done with the hope of producing non-irrigated creeping bent greens by laying a good sod of well matured bent. There has not been sufficient time yet to prove how it will stand up, though there are many natural native bent greens of many years standing that are all that can be desired as a putting surface.

Coming to permanent living greens where every attention can be shown, we find a number of fine turf grasses in use, all of which are giving satisfaction. If a survey of the larger courses in Canada had been made two years ago, we would have found a very general inclination towards red fescue as the predominating grass for first class greens. Creeping bent was talked about but not taken up except for an odd green here and there. Since then many greens of creeping bent have been vegitated, and the argument is well on between bent and fescue.

On the side of bent we have the choice of creeping bent or Rhode Island, and on the other New Zealand and European red fescue. Nearly every course has a nursery of creeping bent of an approved strain, sufficient in most cases to start converting their greens to this grass, but the question of which it shall be is not yet settled in the minds of many.

As a practical proposition, the creeping bent has easily proved its ability as a turf former from coast to coast. It is rugged, vigorous, and well adapted to the vagaries of our climate. Many native forms found adjacent to courses have made admirable putting surfaces. Its ability to squeeze out foreign plants, weeds and other grasses makes it a valuable ally of the greenkeeper.

On the other hand, we have strong advocates of fescue. Some have experimented with the bent, but consider that the other gives the better green. With them I have no quarrel for there are many points of excellence about a fescue turf that makes it the sward par excellence, where conditions are favorable.

We can grow good fescue greens in some parts of Canada. They might be temperamental and require more attention, and they are more costly to maintain, but there is no denying their beauty when well cared for. I could not but admire their wonderful, vivid hue, when I had an opportunity of comparing them closely with creeping bent greens during this past summer. There was not the bright shining and trim finish to bent that caught the eye as did the fescue. Many bent greens that I observed during the latter part of the summer went very much off color, but the putting was unaffected and the grass continued to grow, judging from the amount of clippings obtained, but the grass looked dull, almost shabby, while the fescue seemed unaffected. This characteristic caused some to rather criticize the bent.

As you perhaps know, we are out of the brown-patch belt, at least I have not seen any yet that has been authentically identified as such, but during hot humid periods I have noticed that the oppressive atmosphere affected the closely cut turf greens. Shaded and other secluded greens have to be very carefully watched to prevent serious injury, which in some cases involves the total collapse of the grass in round and irregular areas. Examination of plant and soil have shown no brown-patch organisms, but considerable algae growth, plainly the result of sodden conditions, resulting from insufficient air and drainage. With cooler weather and brisk winds, the grass soon regained its normal appearance, but the circumstance was distressing while it lasted. This season we had an abundance of moisture in Ontario from August until the close of the season, so much so that some courses were at no time dry under foot. In consequence, we had during the warmer spells enough of this trouble to cause many greens to lose their bloom, though not sufficient to cause alarm.

While one can not say that the bent was the only grass that suffered, it appeared to me that the fescues stood up the best except in secluded shady greens where it was hard to maintain any kind of turf.

It might appear from my remarks that I am championing fescue as a turf for greens against the bent. I do not wish to leave this impression, but only to say that we have some very excellent fescue swards, and in some sections it is quite likely they will remain in favor. Where a club has a fancy for this grass and does not mind

the extra expense, and a greenkeeper is employed who understands their treatment, I consider they are well worth the trouble.

The average golfer is not a "turf nut," as you would perhaps express the term. He is not interested in the economic or greenkeeping side of the game, and if he fancies a certain texture and appearance in the greens, we should, when practicable, cater to his wishes.

Greens of Rhode Island bent grasses are popular and are growing in popularity. It is a grass that does well with us, and since the seed is readily obtainable it is a simple manner to renovate a nondescript green by seeding in with Rhode Island bent.

While no one will argue against the creeping bent as a very desirable grass for putting, not all will be persuaded to put in a nursery which entails a certain amount of labor that is liable to be neglected.

For such the Rhode Island bent seed is more acceptable. We are working in a small way with the velvet bent to determine, if we can, whether there is a future for this grass as a straight and pure turf. This, the very finest of all turf formers, appears to be as diverse in forms as the creeping bent, and whether the strain we have secured will fill the bill, we do not as yet know.

In the colder sections of Ontario and on the prairies, attention has been paid of late years to white Dutch clover. This movement got under way really before these sections took up creeping bent as a serious consideration. It seemed like flying in the face of all tradition, but to hold a healthy stand of grass on the heavy gumbo clay usually found in these regions was impossible with the usual commercial mixtures. It became the practice to add a small proportion of white Dutch clover which appeared to do quite well, and the proportion has steadily grown until as much as 50 percent of the mixture used was clover, and very fine greens resulted. These are comparatively inexpensive and may well be used where creeping bent is thought to be out of the question.

For fairways and tees, Kentucky blue and fescue are used on most courses where desirable turf is looked for, with of course redtop. We have not gone to any extent in vegetating fairways to creeping bent, but we have on some of the older courses some fairways of the native creeping bent that are all that one could wish for.

Many smaller courses, or to be more correct, we should perhaps say the majority of small courses, have, wherever possible, developed the existing vegitation which is largely Canada blue. While not the equal of Kentucky bluegrass, it is quite serviceable.

It is generally supposed that as we travel northward the winters are more severe, and consequently the wintering of greens is a serious problem. It is true that we have some snappy cold in parts of Canada when the mercury almost recedes from view in our thermometers, but as I said before, I have seen little evidence where cold of itself has really been injurious, and considering that grass will grow naturally and thrive to the northern limits of civilization, it would seem logical that greens should be wintered over the average season without serious loss.

From observation I have come to the conclusion that the most cheaply run courses, those where no money is spent to prepare them for winter, and without even a water supply or a very primitive one, come through on the average most successfully. From that I deduce

that, given half a chance, nature will pull the greens through the winter without much artificial assistance.

The mulching of greens with straw, manure and other materials is not followed to any great extent, and the only places where it can be done without risk of injury is in the region of steady extreme cold; and I very much doubt if it is worth the trouble.

There are many courses that place boughs and brush over the greens to hold the snow and so prevent either drying out in the case of wind-swept locations, or the awakening of life processes during the mid-winter warm spells in sunny corners. Brush covered greens will commence growing a couple of weeks or so sooner in the spring, but I doubt whether it is wise procedure or worth the expense, except perhaps in the particular cases I have mentioned.

The best precautions we find against fall, winter or spring injury as the result of climatic conditions, is to provide ample surface drainage so that water can run off easily during the thaws and to encourage as much top growth as can be permitted in the fall.

I think it is a mistake to try to keep the grass green and verdant until the last possible moment. It is better far to observe the way that turf will, under natural conditions, harden off in preparation for the dormant season, and endeavor, as far as we may, to adopt similar methods in our system.

We have noticed in recent years the spreading of a spring injury resulting from a fungous growth that occurs when the snows are melting off the greens in the early spring. For want of a better common name, we term them "spring webs" on account of the cobwebby nature of the mycelium. It was only this last spring that we got a good development in laboratory in order that it might be more closely observed. It was characteristic that a few hours' sunshine would cause the webs to disappear.

The club at Grand Mere, Quebec, observed that where the webs were allowed to remain undisturbed the turf beneath suffered, but if the web was broken up, no serious injury followed. This entailed a survey of the course every morning during the days of likely development. This was not always successful unless a gang of men were employed on days of most active development. Samples of diseased turf were taken, but no development occurred in the laboratory where the sod was placed in moisture chambers and in ordinary room temperature.

This spring, however, Mr. Weight of the Seed Branch at Toronto secured an excellent development of the fungus by placing turves in low temperature germinators where it grew rapidly and later produced sclerotia or hard cased masses of tissues which might be called a resting stage and will carry the germ of life over unsatisfactory conditions of moisture and heat.

So far we have not been able to germinate these sclerotia in order that they might produce fruiting bodies.

All the material we gathered we have turned over to the Ontario plant pathologist who is working on it so that before another season we may be more fully informed regarding it. We have tried various treatments, but as yet have not arrived at definite remedies. As I mentioned a moment ago, at Grand Mere the webs are broken up or raked over, but this has given only temporary relief.

At another Quebec course, the greenkeeper sprayed the affected

parts with a sulphur wash which cleaned it up quite effectively, and as nearly as I could learn it was much reduced if it appeared at all the following year.

This last fall one of the Ontario clubs, which is badly affected, treated an affected green with the organic mercury with the hope of arresting growth as soon as it commences in the spring, as it seems to grow under the snow. From the data already collected, the only stage at which this fungus is at all sensitive is when it is forming the webby, cottony, masses. These are so delicate that when transferred to a warm room from cool chambers where the temperature is around 40 degrees, it melts down like ice cream. The critical period for the development is during the general thaw in the spring with warm days and cool nights when the mercury hovers around freezing point. Excessive moisture, coupled with low temperature and darkness, will make it very active.

Such are the main features of course maintenance as touch the range of latitudes northward.

The successful greenkeeper, be he amateur or professional, in these days of high efficiency and superb golf grounds, is the man who can make himself familiar with climatic conditions of his immediate locality as they affect the growth of grass. He must be familiar with the texture of the soils he has to work with, and ascertain the chemical and physical requirements to bring them to the maximum fertility suitable to his purpose.

With this knowledge and ability to use it wisely and capacity to watch for and combat the inroads of disease and pests, he is truly worthy of a fellowship in that noble profession known as the Art and Science of Greenkeeping.

Weeding

By Sherrill Sherman, Yahnundasis Golf Club, Utica, N. Y.

When we speak of weeding it is primarily as it applies to putting greens, for there are but few clubs in the country where budget for the green committee is great enough to allow the weeding of tees, approaches, and fairgreens. Of course such an arrangement would be ideal but too good to be true and almost too high a standard at which to aim.

It is generally conceded that good putting surfaces mean at least, and maybe more, than 50 percent of the value of a course, at least from the standpoint of satisfaction and pleasure of the average player. For as a rule the average player, if he plays at all regularly, is reasonably proficient on the greens and the truer the greens the lower he can score, for it is there that he can the most easily save strokes rather than through the play to the green where distance and hazards penalize his mistakes more greatly.

Weeding is an every day job, an every week job, an every month job, an all season job, an every year job. Yet a weeding program, properly planned and carried out, means lessened rather than increased work in the future but is never finished. It is of vital importance in having really first-class greens as grass of one variety and uniformity unquestionably produces truer and better putting surfaces, if properly cared for. Care and thought must be given the problems of producing such turf. In using the word "weeding" I