



Here is a splendid example of tight, yet natural-looking trapping for a one-shot hole. The view is the third hole at Cypress Point, 170 yards.

Twenty Years of Greenkeeping Have Taught Me Plenty

By DR. ALISTER MACKENZIE

ABOUT 20 years ago the Greenkeepers Association of Britain was formed.

I gave them their first series of lectures which later were published in the first year book of the association, and subsequently formed the basis of a little book I wrote on golf architecture.

I have not given any lecture since those days so I thought it might be interesting to review the progress of greenkeeping since that period. I will therefore give some quotations from my former lectures and comment on them.

"A common mistake in greenkeeping is to imagine that because one form of treatment benefits one course it will necessarily benefit another.

"The greenkeeper should have sufficient

knowledge of chemistry and botany to be able to tell what form of treatment is most likely to benefit his particular greens.

"For example, the ordinary artificial manure sold by some seed merchants for golf courses consists of a mixture of three parts superphosphate of lime, one part each of sulphate of ammonia and sulphate of potash, and one-tenth of sulphate of iron. If no weeds are present the sulphate of iron may be omitted from the mixture; if daisies are present the sulphate of ammonia should be increased; if clover is present the sulphate of lime should be lessened in quantity; if the turf is sour, or if sorrel is present the sulphate of ammonia should be lessened and lime used as a separate dressing.

"Farmyard manure should not, as a rule, be used as a surface dressing on golf

courses, as it is much too likely to encourage weeds and worms.

"Something of the nature of Peruvian guano, fish guano, meat guano, malt culms, or dried blood, together with artificials, should be used in its place. If humus is necessary it may be added in the form of peat moss litter, minced seaweed, etc., and the box should seldom be used on the mowing machines.

"It must be borne in mind that the turf required on a golf course is entirely different from that required from a farming point of view."

Some Errors Persist

Some of these mistakes are equally applicable today. Errors in greenkeeping not infrequently arise from a misconception of what is required for a golf course.

Agricultural experts, green-committees and greenkeepers often make the mistake of treating turf for playing fields on similar lines to that required for feeding cattle. Even Doctors Piper and Oakley, who did so much to put greenkeeping on a scientific basis in their earlier experiments, as is evidenced by their book, made this mistake.

The truth is that golf courses and other playing fields require grasses with a thick, matted root growth and dwarf leaf growth—grasses that require little mowing and provide a firm, springy carpet that is a pleasure to walk on.

On the other hand, from an agricultural point of view the most desirable grasses have a small root growth and a large succulent top growth. The former grasses grow naturally on virgin soil, preferably of a sour, sandy or peaty nature, whereas agricultural grasses require a rich, sweet soil of an alkaline reaction.

It is an easy matter by means of lime, basic slag or alkaline fertilizers to convert soil which is producing the finest golfing turf into that which is favorable to the growth of rich, succulent agricultural grasses, clover and weeds, but it is amazingly difficult to reverse the process.

On scores of occasions I have known magnificent golfing turf ruined by the expenditure of a few dollars on alkaline fertilizers. An alkaline condition of the soil also encourages worms and their resultant evils.

To restore the finer golfing grasses which have been destroyed by injudicious use, requires years of labor and the expenditure of thousands of dollars in weed and worm killers, nitrogenous fertilizers, top-dressings and seeds.

Most golf clubs have enough money to destroy existing turf but few, if any, have sufficient to restore it again.

Alwoodley an Example

Twenty-six years ago I was the founder and architect of the Alwoodley golf course. For twenty years the course was kept up by five men or less and the greens and fairways were considered unequalled in England. The grasses on the fairways were of a slow growing variety.

In the early stages of the existence of the course, part of the land consisted of rich agricultural grasses, daisies and weeds which have gradually disappeared and been replaced by dwarf golfing grasses. This has been due to constant mowing and leaving the grass on to nourish the soil.

In this connection it is remarkable how few greenkeepers realize that the best fertilizers for the finer grasses is grass. When the Alwoodley course was constructed, although I had some slight knowledge of chemistry, I knew little about the science of agriculture or even botany. I felt instinctively, however, or was it perhaps by observation of Moorland, public commons, or links land that when grass was treated by agriculturalists the turf invariably became unsuitable for playing fields. I therefore determined to resist any attempts by the green committee or greenkeeper to fertilize Alwoodley unless there were some definite reasons for doing so.

On several occasions attempts were made by some member of the club who owned a farm or garden to persuade us to use lime, basic slag, kinit or some alkaline fertilizer, but up to the present time we have successfully resisted them.

It is important that greenkeepers realize the fundamental principal of successful greenkeeping is the recognition of the fact that the finest golfing grasses flourish on rather poor soil and that harm is done by over-fertilizing.

If Good, It Stays Good

It is true that owing to the fact that grass cuttings are continually being removed from the greens, some compost or other fertilizer is necessary to replace their loss, but provided there is already a good carpet of turf seeding is rarely required on fairways. Getting that good carpet is the difficult task. It is not even necessary that the fairways should consist entirely of grasses. There should be a freedom from clover, daisies, plantains,

dandelions and other weeds, but others such as yarrow, chickweed, pearlwort, moss and in Britain patches of closely cut heather make excellent fairways. It is also more pleasing to the eye to have varying shades of green instead of one uniform tint.

It is possible to have too high a degree of perfection.

I remember many years ago at Sunningdale, a fussy, oily individual coming up to Harry Colt and saying: "I really must congratulate you, Mr. Colt, on your fairways, they are perfect." Colt, who objected to this type of man, answered somewhat testily: "I don't agree with you at all." "Why not, Mr. Colt?" he said. "The lies are too damned good," was his reply.

Answer to Some Complaints

There is a certain amount of truth in this. If we never had a bad lie we are not likely to appreciate a good one, and moreover the ability to play from a bad lie differentiates between a good player and a bad one. I might incidentally remark that bad lies also differentiate between good and bad sportsmen.

In in the old days in Scotland the best golf courses were kept by the rabbits. When these courses became popular and attracted English and American visitors, they sometimes deteriorated in proportion to the additional amount of money expended on them.

One of the first principles in greenkeeping is never to expend a penny on a golf course unless you are absolutely certain that the money expended is going to do good and not harm to the course.

Similar principles apply to any new construction work on a golf course. No new hazards should ever be added to a golf course unless you are satisfied that they are going to make the course more interesting and more exciting.

In my lectures of twenty years ago I pointed out that on most golf courses there are far too many bunkers and that the only object of bunkers is to make golf courses more interesting, in other words, more popular. Since then, I am more convinced than ever that no bunker should be constructed unless one is convinced it will make a course more pleasurable.

For example, on Bobby Jones' new course, the Augusta National, I had originally planned 36 bunkers. I took my map to Bobby, who thoroughly agrees with my ideas, and I suggested to him that some of the bunkers had no meaning and might

be eliminated. We reduced them to 22 and yet Bobby Jones thinks we have made the most interesting test of golf in America.

Suggest Permanent Committees

It would be wise for every club to have a permanent green-committee. The history of most clubs is that new green-committeemen are appointed who make a lot of mistakes and just as they are beginning to learn from experience of their mistakes they are replaced by fresh members who make still greater ones.

On the other hand, some of the clubs I have been associated with have, in their early stages, passed a resolution that no changes will be made to the course except on the advice of the original architect or one of equal reputation and as a result these courses have continued to improve year by year.

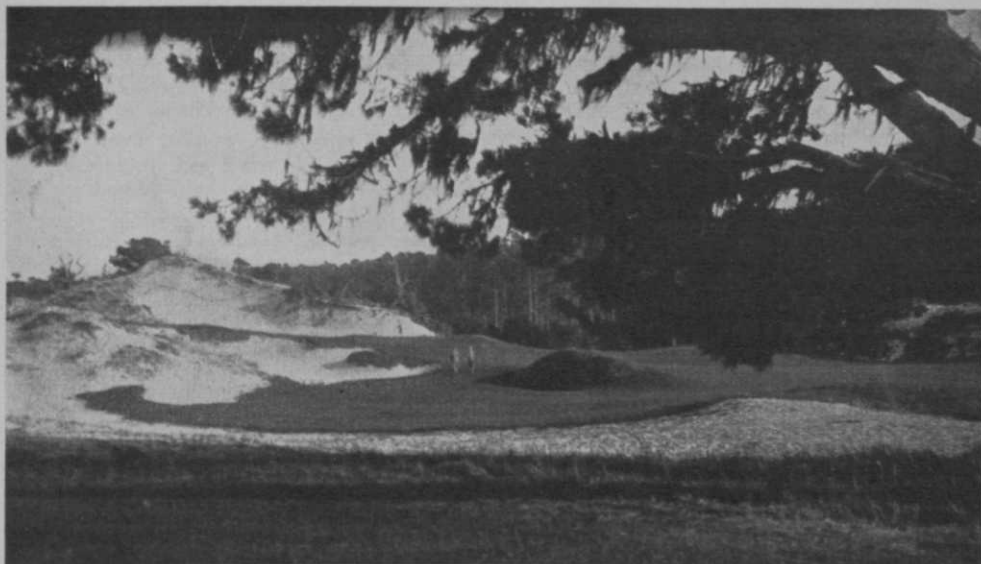
Only a short time ago I was playing a course owned by perhaps the richest club in Northern California. Extensive alterations were being made to it on the advice of the local professional. If these alterations had been made from the point of view of annoying and harassing the average member of the club they would have been most effective but from the standpoint of interest it would have been better if the money expended had been thrown into the sea.

If a course on real links land comes into your hands, leave well alone and do not make any alterations except after the most careful consideration and expert advice.

One cannot emphasize too frequently the importance of leaving God's gifts alone.

The researches of the advisory Green Section of the USGA have simplified to an amazing extent the problems of greenkeeping but the Green Section would be the first to admit that greenkeeping is a subject which is still in its infancy and that the Section is continually learning through its mistakes, varied experience and scientific research.

I have already stated that at first mistakes were made of treating golf turf on similar lines to that required for feeding cattle. Views have changed and it is now recognized that it is essential to treat golfing turf with fertilizers which tend to create an acidity in the soil. The result of this treatment was to produce turf consisting of delicate dwarf grasses and more remarkable still to create a soil in which daisies, plantains, clover and many other



The approach and green of Cypress Point's ninth hole, as seen from the left of the fairway. An interesting example of picturesque hazards blended with golf's requirements.

obnoxious weed seeds refused to germinate. The Green Section, if my memory is right, went so far as to advocate as high a degree of acidity as pH 4.5 and stated time after time that lime was poison to grasses required for golf.

Because of the increase of brown patch and other diseases owing to greater acidity of the soil the Green Section has again changed its view and is now advocating the use of lime. I am not casting any reflection on the Green Section but am simply relating this as an example of the difficult problems with which we have to deal.

Scientific research and the experience we have gained from our mistakes is the only way we shall solve these problems so that the more money provided for the Green Section to continue its researches the sooner we shall arrive at the truth of the matter.

Greenkeeping World-Wide Study

The Green Section should be allowed sufficient money not only to conduct experimental stations in different parts of America but also to enable them to study and play courses all over the world.

If the members of the Green Section had the opportunity of playing and absorbing the spirit of golf on some of the old classical courses such as St. Andrews, Scotland, it would do much to enable them

to view the requirements of the game in true perspective.

They would find, for example, that the treatment of the approaches is almost as important as that of the greens and that one of the most fascinating shots, if not the most fascinating, is the run-up approach we get so frequently on old seaside courses like St. Andrews.

An approach of this kind cannot be made successfully if there is a defined margin between the approach and the green, or if the approaches and greens are kept so soggy with water that no other shot is possible except an inartistic pitch. They also would find that not only is a complete sward of grass on the fairways unnecessary but not even desirable. Certain weeds and mosses make excellent fairways and there is great beauty in scarlet pimpernels and other dwarf flowers. Even bunches of the white flowers of the despised chickweed make a beautiful setting to the edge of bunkers.

I have an old friend who is perhaps the greatest authority on public parks in America, who is frequently expressing his preference for grass that is green. The best golfing grasses vary in color, they may be red, brown, blue, dark green, light green, yellow, or at times even grey or white. A golf course that consists entirely of one shade of green would be merely ugly. There is great charm and beauty in

the varying shades of color of a golf course.

Twenty years ago I stated that muddy golf courses were largely due to insufficient drainage and that the cheapest method in clay soil was mole drainage. Since that time I have modified my views and now consider that drainage will not entirely cure mud and that it is essential to worm muddy fairways.

In California there is not much trouble in this respect, but in Britain and eastern America worming is often essential and by modern methods can be done as cheaply as \$10 an acre. Further investigation and experience has on the whole confirmed my views on fertilizers expressed so many years ago.

Injudicious use of sulphate of ammonia or any other fertilizer, not only may cause irreparable damage to a course but in any case will require some other chemical to neutralize its ill effects.

In this respect the treatment of golf courses is similar to that of human beings. The best physicians are those who only prescribe poisonous drugs after the most careful consideration.

Dr. MacKenzie's article will be continued in an early issue.

GRASS TRAVELS FAST

Green Section's Shipment to South Wales Arrives in Good Condition

IN ITS efforts to assist American golf courses, the Green Section of the USGA is in close touch with other turf research bodies throughout the world and exchanges seeds and stolons with them.

Work of this kind is seriously handicapped by difficulties in transporting sods so they will arrive in condition to propagate. Particularly in exchanging specimens with Australian golf course authorities has the Green Section met with problems connected with storage facilities, lack of light, time in shipment and heat.

Earlier this year the Green Section dispatched a sample of velvet bent turf with care and speed that established a record. The sample was rushed from the Green Section's Midwest turf garden to the United States Department of Agriculture Bureau of Plant Quarantine at San Francisco.

There the container was opened and

placed on the roof on the north side of the building where the temperature was approximately that of the vegetable cool room of the SS *Monterey* in which the sod later was shipped to Australia.

The sod was kept at San Francisco a week without showing any indication of extensive new growth, and looked in excellent condition when it was shipped to the Director of the Botanical Garden at Sydney. In accordance with instructions from headquarters of the Matson Steamship line, the chief officer of the *Monterey* saw that the sample received proper care during transportation.

At Sydney, the sod plugs were planted as the Green Section suggested and immediately made healthy growth, according to A. M. G. Woodie, asst. agrostologist of the New South Wales Department of Agriculture. Shipments of Metropolitan and Washington bent previously sent by the Green Section to New South Wales developed sufficiently to supply golf clubs with stolons for their own propagation purposes. Further information from R. J. Withycombe, secretary of the New South Wales Golf Council to the Green Section stated that two of the velvet bent samples received (Kernwood's strain and No. 14,276) look particularly promising.

The New South Wales government and golf officials enthusiastically expressed their pleasure with the manner in which the Green Section supplied the samples in condition for healthy growth.

In reciprocating, the New South Wales Department of Agriculture has sent the USGA Green Section samples of grasses which it is hoped will arrive in condition for propagation and test in the United States. One of these grasses, *digitaria didactyla*, is believed to have great possibilities for fairways and perhaps for greens in the southern part of the United States.

If this grass does work out well in the south this solitary incident of Green Section world-wide activity in behalf of American golf will have justified far more than the expense of Green Section's operations during the entire history of that organization.

DON'T forget the turf nursery needs weeding periodically even more than the greens do, since you want the turf used in patching to be as healthy and dense as possible.