

THE GOLF COURSE

A MONTHLY BULLETIN DEVOTED TO THE DISCUSSION OF MODERN METHODS AS APPLIED TO GOLF COURSE CONSTRUCTION AND UPKEEP

Our Old Course

By OBSERVER

BEFORE talking of latter-day pilgrimages in this series of mine or giving my observations of modern courses let me turn to the links provided by my home club twenty years ago. That course was not as good as a few, but it was far better than many. Let us concede that it was an average one and typical of American courses of that period. It consisted of nine holes, which I shall describe briefly. Certainly \$3,000 a year was devoted to its maintenance and improvement and this amount of money was considered abundant. Indeed it was all our organization could afford, for if I remember correctly the annual dues were \$40.00.

We flattered ourselves by believing that our putting greens were well turfed. Now I realize, after putting on really good greens, that ours were exceedingly crude and covered only with grass. In every instance they were featureless and not one stood up to the shot. Our teeing grounds were

tiny, box-like formations and the few bunkers resembled graves.

Our first hole could be driven with a mid-iron today, but then with the gutta-percha ball we slammed away with our beech drivers from the knob of one hill to that of another. Then another hillside teeing ground for Number Two, followed by a nondescript, half-blind approach to another hilltop.

The third really was our best hole, but I doubt if we appreciated it then. Today it would be a drive with an iron. Then it was a capital two shot hole, but nearly everyone required three to get there. Number Four was quite blind from the teeing ground, and although a creek crossed the front of the green, its terrors were trivial because everyone banged lustily away into a hillside which flanked the green and which caught all shots and obligingly rolled the ball back to the green. It may be remarked that this same hillside served to drain the surrounding highland on to the green itself, which al-

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R. O. SINCLAIRE, *Editor*

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Preparedness

THE Green Committee's Success in maintaining a golf course depends in a large measure upon preparedness. This year preparedness calls for more serious thought and action than ever before. There is a shortage of seeds and some varieties are unobtainable while others are likely to be soon exhausted. When we say that grass seed will probably increase in price we have told only half the story. It will also be scarce.

There is likewise a deficiency of certain chemicals which go to make up fertilizers. Great difficulty is being encountered because of freight congestion, which makes shipments exceptionally slow. All these conditions should be a warning to those who have in their charge the placing of orders for different supplies. Requirements for the coming season should be estimated and orders dispatched immediately. If you delay you may not get what you want and it will be difficult to accord you later the service awaiting you now.

Early planning and early ordering are this year imperative. Procrastination is almost certain to involve disappointment.

The importance, too, of purchasing your seeds from reliable dealers has never been more necessary. Your protection is the reputation of those houses which have for years guarded the quality of their products.

All implements should be carefully gone over now. It may be that some are broken and require repairing, or you may need new equipment this year. Be sure that everything necessary is on hand to begin the spring work as soon as Jack Frost permits. It should be remembered the best tools are the most economical in the long run. Cheap ones are inefficient and will not stand the wear and tear of necessary use.

PETERSON, SINCLAIRE & MILLER, Inc., take great pleasure in announcing that Mr. Carl H. Anderson will be associated with them on and after April 1st, 1917. We think all our readers who know Mr. Anderson personally will congratulate us on adding him to our Staff.

PROFESSIONALS and greenkeepers frequently request us to advise them where they can secure situations. We shall be glad to furnish the names of competent men.

The Cost of Golf Course Construction

(Continued from January)

VIII

THE PUTTING GREENS

THE construction of the putting greens is usually the most expensive item to be considered on the whole course. Good greens are always expensive, but if properly built in the beginning, they are more economical in the long run. A very good example of putting green construction is to be

"On top of the cinders was laid a 12" course, consisting of 50% best dirt taken from the green, 30% shredded raw horse manure and 20% sand. On top of this course was laid a 6" course of rich black earth, hauled from the bottom land along the river.

"The top dressing consisted of a 4"

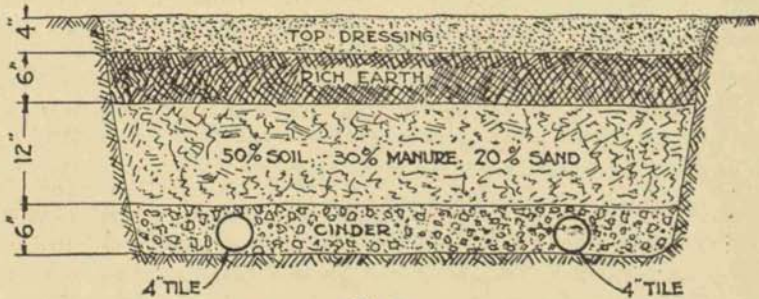


Fig. 1

found at the Scioto Country Club, of Columbus, Ohio. They are best described in the report of the committee as follows:

"When the excavation was started one of the first difficulties that developed was the nature of the soil excavated from the area within the bounds of the greens. It was found to be a very hard, stiff yellow clay, well mixed with gravel and boulders, and very deficient in organic matter.

"The ground was excavated to a depth of 24 inches, after which one or two main drains of 4" tile were laid, with laterals of 3" tile every fifteen feet. From four to six inches of cinders were then laid on the bottom of the excavation, covering the top of the

course, made of 50% rich black earth, 20% shredded raw horse manure and 30% sand.

"A sufficient quantity of agricultural lime was added to counteract the acidity of the soil.

"Figure 1 shows a cross section of a green built up in this manner.

"A systematic search was made for well rotted manure for the putting greens, particularly for the top dressing, but very little was obtained.

"The idea of mixing the sand, dirt and manure was to provide (a) satisfactory drainage by breaking up the stiff heavy clay, (b) providing easy means for the grass roots to go down into the sub-soil instead of spreading out near the surface, (c) to furnish an ample quantity of organic matter to

feed the grass roots for years to come and more efficiently to absorb and retain moisture. This was considered most important since it is obviously impossible to put humus into the body of a green after it is seeded.

"Many difficulties were encountered in making these mixtures satisfactory in every detail. After making many experiments the cheapest and most efficient way found was by shredding the raw manure and running the whole mixture through concrete mixers. All other methods approaching the economy of this one made the mixture much too rich in spots, with a corresponding lack of manure and sand in other places. The shredding operation consisted of running the raw manure through an ensilage cutter which cut the straw $\frac{1}{4}$ " to $2\frac{1}{2}$ ". One inch would probably represent the average length of the straw. Constant and careful sampling of the material as it came from the machines showed an intimate mixture of all components.

"In preparing the top dressing, the earth and manure were both run through one inch mesh screens, the principal object being to eliminate all pea-vine and other roots and stones which were found abundant in all of the available good soil. The nature of the pea-vine is such that once it is started it cannot be eliminated without grubbing out the roots, which would be impossible without destroying the green.

"While the top dressing was being laid, the greens were carefully contoured in the desired manner, provision being made in every case for adequate surface drainage.

"Before seeding, all weeds germinated from seeds in the soil and the manure were carefully pulled, after

which the green was well rolled and raked, and from four to five bushels of seed were carefully sown by hand.

"The putting green mixture, consisted of one-half Creeping Bent and one-half Red Fescue, was secured from Carters' Tested Seeds. After the seed was sown and well raked and rolled, with a light iron roller, about one-quarter inch of prepared Humus was spread over the top as a germinating layer, which was also lightly rolled. The edges of the green were built up to conform smoothly to the fairways, pits or mounds adjoining.

"Green No. 1 was seeded September 1st. Grass appeared on the 6th, and in three weeks it was mowed for the first time. In the meantime, it as well as the other greens were being systematically weeded, rolled and watered, as their needs required. Seeding of the other greens progressed rapidly, excepting for a few days' delay on account of rain, and all were completed September 25th.

"It is of more than ordinary interest to note the results obtained from the use of shredded raw horse manure. In the beginning it was felt that well rotted manure should be used, that being the recommendation of all authorities on putting green construction, but neither it nor rich earth containing a large percentage of organic matter being available, raw manure was decided upon, not, however, without some misgivings as to the outcome.

"It was feared that the raw manure could not be well mixed with the other materials in the green; that there would be a rank growth of weeds and foreign grasses, due to the ungerminated seed contained therein, and that there was danger of it heating, thus killing the tender roots of the grass after seeding.

"The shredding of the manure caused it to mix evenly throughout the body of the green. In this respect better results were secured than in the case of the well rotted manure, which was used in the top dressing on three of the greens. There seemed to be no

difference in the number of weeds that had to be pulled from the greens before seeding, and there was certainly no heating effect noticeable, although this point was carefully watched. The thorough mixing with sand and earth is undoubtedly responsible for this result.

"In the case of two greens, seeded early, a fine and complete covering of grass, free from weeds, sufficient to allow putting on it, was grown in sixty days.

"The cost of building a green according to these specifications being of considerable interest, and our figures being undoubtedly high in comparison with what might reasonably be ex-

pected, with average weather conditions, the following table has been made up and is considered to be a fairly accurate estimate of what this cost would have been.

"As a basis, the cost of building greens Nos. 12 and 15 have been averaged. These greens were not affected by washouts and the soil, while wet and hard to handle, was fairly comparable with normal conditions. These two greens, taken together, represent within one-half yard the average of all of the greens, viz.: 34 yards in diameter. The length of haul too is very near the average distance.

The following items of cost are here given:

Cost of Materials

| KIND | QUANTITY | PRICE | UNLOADING | HAULING | TOTAL |
|------------------------|--------------|------------|-----------|---------|----------|
| Cinders | 150 yds. | \$10.70 | | | |
| | | 30.45 frt. | \$5.70 | \$34.05 | \$80.90 |
| Sand | 90 yds. | 30.25 | | | |
| | | 89.55 frt. | 6.30 | 34.30 | 160.40 |
| Manure | 110 yds. | 33.00 | | | |
| | | 24.75 frt. | 6.00 | 15.40 | 79.15 |
| Haul earth from river. | 200 yds. | | | | 84.00 |
| Lime | 5 yds. | 4.05 | | 1.00 | 5.05 |
| Humus | | 23.11 | | | |
| | | 10.38 frt. | | 3.63 | 37.12 |
| Tile | 39 rods | 9.00 | .50 | .50 | 10.00 |
| Mixers | rental, etc. | | | | 18.56 |
| Seed | | 37.77 | | | |
| | | .48 frt. | | | 38.25 |
| | | | | | \$518.43 |

Cost of Labor

| | |
|---|----------|
| Excavation | \$110.24 |
| Shred manure | 39.16 |
| Lay tile and cinders | 24.40 |
| 12" Course | 114.15 |
| Top dressing and contouring | 80.31 |
| Seeding | 6.57 |
| Disc and harrow | 2.23 |
| Direct supervision | 5.83 |
| Move shredder | .25 |
| Wedding | .89 |
| Proportion of General Expense, including all overhead charges | 123.05 |

(To be Continued)

\$507.08 \$1,020.51

Nitrate of Soda

IT is well known to every one interested in plant life that the three most important elements of plant food are nitrogen, phosphoric acid and potash—and of these the one most usually lacking in the soil is nitrogen.

Soil without nitrogen is barren. It often happens in connection with the maintenance and upkeep of a golf course that it is necessary or advisable to apply some quick-acting manure to stimulate the growth of the grasses, perhaps to throw off some plant disease or fungi, or to produce a healthy, strong, thick growth to withstand expected severe weather conditions or heavy wear and tear.

There are many varieties of nitrogenous fertilizers, all of which are valuable as containing more or less nitrogen in some form or another, but nitrate of soda stands out by itself in one particular, viz., that it is the only one at present available on any large scale in which the nitrogen is in the form of "nitrates" and as such immediately "available," that is to say, in such form that the plant can absorb it within a few days of its application.

Sulphate of ammonia is the most concentrated of all nitrogen fertilizers, usually containing no less than 20 per cent. of nitrogen, while nitrate of soda will average about 15.6 per cent. It is the "by-product" from many manufacturing processes, abundantly produced in the manufacture of bone charcoal, illuminating gas or coke. Before the nitrogen in this compound, however, is available, it must be acted upon in the soil by nitric acid ferments, and unless the soil is acid free or sweet the results will be very unsatisfactory.

In other words, sulphate of ammonia

should not be used where there is any suspicion that the soil may be sour, and we often find such is the case on many of our golf courses, especially on heavy clay wet soils.

Sulphate of ammonia and lime should never be mixed. The lime must be applied to the ground, first say in the Fall season, and then the sulphate of ammonia applied the following season and its action will be fairly rapid.

Both in the case of sulphate of ammonia and nitrate of soda they should not be used at the rate of over 150 pounds per acre, or better still two and one-half pounds per 100 square yards and applied mixed with some compost or sifted loam, and during dry weather watered in. The Spring of the year is the best time for the fertilizers, although they can be used sparingly during the season, but not in the late Fall. Remember that nitrate of soda is very quick in action and must be only used with discretion. It will last only one season, and as it only supplies one element of plant food, nitrogen, it must not be relied upon alone.

A complete artificial fertilizer rich in nitrogen is always the safest of the chemical manures to get in the habit of using in conjunction with stable and farmyard manure composts or humus.

To a Broken Club

Old Club, 'tis pity you and I must part,
 And be no more companions on the
 field;
 For you were fashioned with a master's
 art,
 And worthy for a champion to wield.

How gladly did my eager finger grip
 Your trusty shaft, so strong and
 sinewy,

And felt that, from your rounded toe
to tip,
No better club e'er swept the sandy
tee!

How often did the ball, well driven, fly
Afar, straight toward the distant,
guarded green

Upon the trim and yielding turf to lie,
And there to await the brassie's im-
pact clean!

The sturdy shaft of yours for years
withstood

Unnumbered tests through which we
both have passed;

For your firm-ribbed and well-seasoned
wood

All weaker growths was destined to
outlast.

But sadly shattered is your boasted
strength;

Unskilful was the blow that did the
deed;

Now rent asunder is your slender
length;

For you no more will golf's white ball
be teed.

Farewell, old friend! No careless hand
shall cast

Your broken form upon the kindling
pile,

To lie with base, ignoble blocks at last,
That would your gloss immaculate
defile.

No unkempt kitchen wench with greasy
hand

Shall split you into splinters for her
need

And, thoughtless, throw you on the
burning brand,

In sooty stove her frying flames to
feed.

The ample hearth shall be your funeral
pyre,

My own familiar hand shall lay you
there,

Upon the genial, glowing, household
fire,

That cheers and warms the circle
gathered there.

Truing a Green

IT appears the universal method of
Green Truing today, whether by
sand or compost, is to have the material
broadcast with a shovel, then as
evenly distributed as possible with the
back of a rake.

It requires considerable experience
to broadcast sand or compost upon the
greens accurately enough to secure an
even distribution. It also requires con-
siderable experience to true a green
with a rake.

We have found on numerous courses
that the truing of the Greens was left
to one man, and should he resign his
position it would be a hard matter to
fill the vacancy, owing to the inabil-
ity of securing a man skillful enough
to broadcast the material accurately
enough to produce a perfectly true
green. After numerous experiments in
green truing, the most practical method,
and one which does not require skilled
labor, is by the use of a fair sized Cocoa
Door Mat. The mat should not be less
than 3' x 4' long. To the center of the
narrow end fasten a rope. After ap-
plying the truing material, place it
upon the ground bristle side down, and
weight the mat down with a good size
sod. Drag and cross drag the mat over
the green until it is true. By using
this method, the dressing will be per-
fectly distributed, and when the opera-
tion has been completed the surface will
be perfectly true.

Renovating the Greens

AS soon as the frost is out of the ground, roll and cross roll the grass with a two or three hundred pound roller, until the surface is true as possible. Then rake and cross rake the turf, thus causing the grass to stand up. Cut with a sharp mower, but do not cut too close.

Perforate the turf with a perforating tamper. If there is not one on hand, it can be made from a piece of two-inch plank 18" square, filling the plank with 20 penny nails, which may be driven in 1½" apart. It might be advisable to purchase a wood-drill, the diameter of which should be slightly smaller than a 20 penny nail. The nails can be driven through the already drilled holes, thus eliminating the chance of splitting the board. Back up the heads of the nails with a piece of 1" or 1½" board, which will prevent

them from being forced out of place. Fasten a vertical handle in the same manner as on an ordinary tamper.

After driving the tamper into the turf bear slightly to the left and right, then front and back, and withdraw. The spikes thus exert a slight lifting action on the turf permitting free percolation and promoting irrigation. Should the greens be sour, give them a dressing of pulverized Limestone, at rate of 1 to 1½ ounces to the square yard, then water in. Allow same to remain undisturbed for several days.

In purchasing Limestone, one should be careful to purchase material that carries a guarantee of not less than 90% of pure carbonate. Should you desire to use Hydrated or Air Slacked lime, half the above quantity will be sufficient.

Give the Greens a ¼" dressing of a suitable compost. If the turf is ex-


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well raked in, will greatly aid in bringing greens to a proper condition, and prevent their burning out during the periods of drought.

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ceedingly poor, it is advisable to incorporate into the compost artificial grass manure, using 2 ounces of the latter to every superficial square yard.

After applying the compost, rake and cross rake it into the turf, until it has almost disappeared, then seed in the usual manner.

Our Old Course

(Continued from Page 13)

ways was a spot where weeds held high revel.

To the fifth teeing ground we had to climb a short, but steep hillside for the privilege of driving to the next, then down the hill again and up another. The drive was quite blind and it made but little difference where one drove for the green opened up to any approach from any plate. The sixth drive also was blind and if the player was unfortunate enough to hit out anything much longer than a full mid-iron the ball rolled down a gully and was rather sure always to find a poisonous, hanging lie. Then up the hill again to the green. Briefly, Number Six was a two mid-iron hole, but two shots of any description were likely to get it unless the drive had been particularly good. Number Seven was blind as a bat, too,—a drive and a short approach with slopes carrying all surface water to the green where flourished nearly as many weeds as on the fourth. Number Eight was another hole which could be gained by two shots of any description and barring a public road, over which we drove, there were no hazards. The Ninth today would be a half-iron, but with a pronounced hill on the left and in the rear we were accustomed to go after it with the wood with no

fear of going too far on account of the hill, which carried all surface wash and weed seeds to the green exactly as in the two other instances already mentioned. In brief, the builders of courses in those days, always some professional player, delighted to stick the greens in basins, or if a hilltop was selected a whale-back formation usually figured. I well remember how our course was laid out, almost over night. As a matter of fact it took one whole afternoon with the green committee with their arms filled with stakes, running breathlessly after the pro, who from time to time would stop and direct the driving of a stake for a teeing ground or a green. No thought was given to the extent of the fairways for it was an unheard of thing in those days to deviate from the straight and wide path.

As my thoughts turn to that old course of ours I have to smile for actually on occasions it fostered fond hopes in my breast. One day I played around with a professional, who endeavored to give me a handicap of half a stroke a hole. It happened that he was not putting any too well and I ran down three or four very long ones, which naturally I attributed to a deft touch and the superior quality of the green. I was hitting my drive straight, about 160 yards or so, and keeping out of trouble for there was none to get into, unless one made a miserable fozzle. My opponent was out-driving me, but that made but little difference for if he had only a mashie approach the wide open greens allowed me to be there with him with a mid-iron. On the ninth hole he played a beautifully controlled iron to the green, but I was with him after slapping a full drive into the hillside, knowing perfectly well that it

would roll back to the green. After the last hole had been played I was amazed to find myself on even terms with him without a handicap and at once I became exalted and for days the thoughts of this marvelous feat persisted in buzzing through my head prompting me to travel far in search of new fields to conquer.

Had I not held the renowned Mac-Mashie to an even game? But it never once occurred to me that a misfit course had brought me to his level, rather than my own skill. Bitter experience was to teach me this in after years and when courses began to improve, in great humility I began to see things in a different light.

Now the course which I have described is no more. The encroachments of a large city demanded that it be given up as a playground and cellars were dug where we first started to work with our niblicks. But the type was common enough in those days and a surprisingly large number of similar types exist today. And, unthinkable as it may be, some courses actually are being built today along the same lines. In the old days such construction was excusable, for golf was a comparative child in America then and green committees knew no more than players generally. But in these enlightened times it makes the true golfer gnash his teeth to observe the planning and building of such monstrosities and then listen to the all-satisfied, complacent observation or advertisement: "We have the best course in the country!"

What rot! The best courses of the country are as numerous as the grandfather's clocks which were unloaded from the Mayflower.

Since becoming a keen observer, I take delight in playing over as many strange courses as possible. Last year I visited a certain town, almost a city it was, but I shall not tell you where, and I give you my word that our old course would have put it to shame. Quite recently the committee had built some mounds and I nearly laughed my head off when I saw them. They strongly reminded me of a display in a confectioner's window and to make matters worse they had been built not less than thirty yards from the place where real mound work should have been attempted. Where the modern golf constructor may puzzle over the question of a few feet in his placement of hazards, or obstructions, thirty yards surely must bring a smile to the face of even a phlegmatic observer.

So much for the courses of yesterday. Let them rest in peace! Next month I shall endeavor to give you some observations, which have been noted after playing around some of the best known courses of the present day.

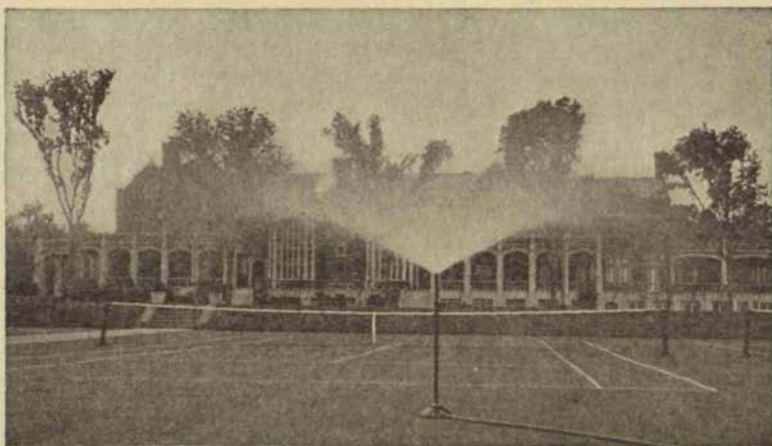
IT would be an excellent idea if at every tournament the club would erect a small tent close by the home green and then appoint a committee of three to occupy it in relays. As an act of mercy each should be stone deaf. Their only duty would consist of sitting there patiently, with countenance expressing extreme sympathy, while the players who desired to review their matches told of their tribulations. At the finish of the narrative they should simply say, "Tough luck," and administer the chloroform.

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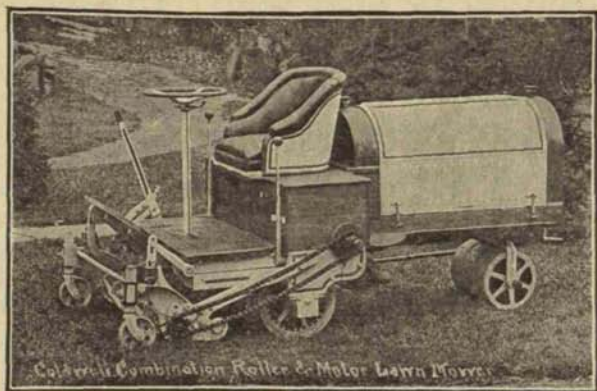
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