

## Building a Nine-Hole Course for Four Thousand Dollars.

By Maynard M. Metcalf

In 1897 the Oberlin Golf Club,<sup>1</sup> without formal organization, began play on a rented pasture of 30 acres without specially constructed putting greens. Some seeding and fertilizing of putting greens was done in succeeding years, but no general construction work was undertaken until the fall of 1922. For several years one of the members of the club had studied the problem of layout and construction of a new course, having visited and taken extensive notes upon more than forty courses, where he found many suggestions applicable to the conditions at Oberlin. The Board of Stewards of the club was induced to inspect different pieces of land around Oberlin with a view to finding the best available location. Price, natural fitness, and accessibility finally led to recommending the purchase of part (18 acres) of the original pasture which had been long in use for the course, and to this was added adjacent land as follows: Ten acres loaned without cost by Oberlin College; 6 acres loaned without cost by a railroad; 2½ acres rented from a railroad company. Thus 36½ acres were acquired, of which only 18 have been purchased. About half the course lies within the village limits. It is appropriately located (as some scoffers think) just short of the cemetery. A creek, and three small drainage channels converted into ditches, cross the course and give variety of contours and hazards of much value. A dozen fine trees in the rough emphasize fairway boundaries. And two fine pieces of woods at the edge of the course add to its beauty, especially by their spring and fall coloring.

In the spring of 1922 complete plans for a 9-hole course upon the land described were presented to the club and the following fall were unanimously approved. The one who planned the course was elected to have charge of building it. A period of ten working months was required to complete the construction work, during eight months of this period the work being under the daily supervision of the club member in charge of the construction. We now<sup>2</sup> have a 2,900-yard 9-hole course, built and seeded, and ready for play as soon as the greens and seeded fairways have completed their next spring's growth. We hope and believe that, though short, it will be as good a 9-hole course as there is in Ohio. It gives as good variety of play, calling for as many types of shot, both for distance and manner of play, as can well be had in 9 holes. The course has the advantage of lying adjacent to sufficient land of suitable contours to allow extension to 18 holes should this in time become desirable.

Before construction was started, the plans, in final form, were submitted on paper to several professionals of known good judgment. One professional went over the ground, plans in hand; and another good golfer who for many years had been chairman of the green committee of one of the best two courses in the State, went over the plans in detail upon the ground. After receiving full approval of the original plans from all these consultants, work was started in October, 1922, immediately after the club's authorization was given.

<sup>1</sup>The Oberlin club is one of the oldest, perhaps the oldest, golf club in Ohio. Its grounds have been used for golf longer than any other grounds in the State.

<sup>2</sup>October, 1923. An unusually favorable spring and summer have produced good turf on both greens and fairways.

Plans for the new course were made solely with reference to the land and its contours, none of the old greens or tees being used in the new course. It fortunately happened, however, that all but two of the old greens and all but one of the old tees could continue in use while the new course was under construction. Two temporary greens and one tee had to be provided.

The work done was approximately as follows: about 10 acres of new fairway prepared and seeded;  $\frac{1}{2}$ -acre of woods cleared; 9 new greens built, with reseeded fairway (plowed and graded) around each green; 7 tees built where special construction was necessary; 4,435 feet of water pipe laid; 900 linear feet of ridges built, and these and 5 tees sodded; 3,600 feet of tile laid; 2,000 feet of wire fence erected. In the course of the work, 1,200 to 1,400 cubic yards of earth were moved, 124 yards being hauled by wagon about half a mile and the balance being moved by scraper an average distance of about 75 feet.

The cost of this work was as follows:

Total labor.....	\$2,336.58
Water pipe and fittings (2-inch mains with $1\frac{1}{2}$ -inch, 1-inch, and $\frac{3}{4}$ -inch side lines).....	796.95
Seed .....	451.13
Manure .....	241.75
Chemical fertilizer .....	9.50
Tile .....	78.18
Fence material .....	20.79
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	\$3,934.88

The centers of the 9 greens, which are about 50 feet in diameter, are of creeping bent, which was planted with stolons. We expect the creeping bent to spread outward and thus enlarge the bent portions of the greens each year. Around these bent greens are wide areas graded and newly seeded with Kentucky bluegrass and redtop. The old fairways are mostly of bluegrass; those newly seeded, of Kentucky bluegrass and redtop. The creeping bent nursery cost only about \$41.50, of which \$32 was for labor and the balance for fertilizer, the stock for planting being given to us by the Inverness Club, of Toledo. We purchased our water pipe at wholesale prices (\$940 worth for \$613.78), and all fittings, hose, and sprinklers also at a reduction. The fence material cost little, as we used mostly posts from our own cleared woods, and abandoned telegraph wire from the railroad lines alongside the course. We are using 1-inch-mesh chicken wire to keep balls and players off newly-planted ground, and this wire will later be used to keep badly-hooked balls out of bad ground in two places where balls would otherwise be lost. Our tee boxes<sup>1</sup> are terra cotta chimney-flue linings, 8 by 12 inches in cross-section. Our three manure pits<sup>2</sup> for collecting manure water, instead of being made of concrete are dug in hard clay at very little expense. Our water pipe is laid but one plow furrow deep, and drains to five low points, where unions are disconnected each winter. Where possible our tees are but well-fertilized areas of fairway. Our tee boxes, manure pits, pipe laying, and fairway tees are better and less expensive than the ordinary kinds. With all this economy we have not sacrificed value for cheapness.

<sup>1</sup>Described on page 261, October, 1923, Bulletin.

<sup>2</sup>Described on page 275, November, 1923, Bulletin.

The total cost of the course is \$8,000, of which \$4,000 is for the 18 acres of land purchased and a like amount for construction.

The construction costs are of interest. Advance estimates made by experts from the plans and inspection of the ground, varied from \$12,000 to \$19,000. The member in charge of the work estimated \$3,000 or less. The \$1,000 excess over his estimate was occasioned by rising cost of labor over 1922 wages (\$426.46), additional work undertaken (\$267.14), and unfavorable seasonal conditions for turf growing and for the growth of stolons in the bent nursery, necessitating reparing and reseeding 8 acres of fairway (\$383.84) and cleaning harvested stolons from clover which got a start of the bent in the nursery (\$180.00), these items involving a total expenditure of \$1,257.44. April and May were unprecedentedly cold and dry, so that grass seeded the fall before had not made sufficient growth to withstand the hot days late in June and in July.

For this work, correctly estimated in advance by the club member in charge at \$3,000 or less, advance estimates by experts after study of the plans and the land, were, as above stated, from \$12,000 to \$19,000, and if the work had been done by contract some such sum would have been the cost. Why such discrepancy? Here lies the chief point of this article. We did the work under our own supervision. The club member in charge of the construction was on the job every day when work was going on except during July and August, and the work during those months was chiefly clearing woods and putting up fences. A number of the members worked with the laborers, especially on the stolon nursery and in planting the greens. The water pipe was laid by common labor under the direction of the member in charge. The fellowship in labor created a good feeling among the workmen that led to honest work, and the close and constant supervision prevented any of the work having to be done over again.

So far as yet detected, only two mistakes were made, one in a bit of grading, necessitating tiling, regrading, and replanting  $\frac{1}{8}$  of one green, and the other in placing the tiling of one green too near the surface. This latter work was done during the summer when there was no supervision, and the error was not discovered until after the green had been planted; it has been allowed to stand, with what final result remains to be seen.

It is, of course, risky business to lay out a course without the services of an architect. Notwithstanding the fact that in our case the results are said to be good, the writer would not recommend the practice. Such good results as have been obtained are probably due to the thorough inspection in advance, by the one who directed the work, of all sorts of courses, and to several years of planning by him with reference to our own course. Building without a contractor, or at least without a foreman experienced in such work, is also risky. It would not be successful unless the one in charge had studied the theoretical side of golf course construction and had studied courses that exemplify both good and bad construction. And, by the way, some of the most noted courses show some of the worst examples of bad construction. The one who had charge of the Oberlin work would not have undertaken it had there not been available advice from the Green Section of the United States Golf Association through its BULLETIN and through its officers in person.

Let me repeat. Cooperation of the membership in the actual labor of construction, and daily supervision by the one in charge, mean a saving of a large portion of the ordinary expenses, by promoting a good spirit among the workmen and forestalling costly mistakes.

Another important point is, that keeping initiation fee and annual dues low makes the course in effect almost a public course, so that it is easy to get material at cost and to secure cooperation of all those who can be of any help.

Nothing has yet been said about a club house. Oberlin has none, and does not plan to have one of the ordinary sort. Her course is so near the center of town, and in this college town there are so many social organizations, that a golf club house of the usual sort is not required. There is under consideration a plan to secure a house that will serve as the greenkeeper's residence and will provide the club members with two locker rooms with showers, a lounging room, and a porch, and that will permit, if desired, the selling of soft drinks and light lunches by the greenkeeper's wife. The total cost of this to the club would not exceed \$5,000, and under one scheme probably only \$2,500. Oberlin wants golf, and not a private hotel with an annual deficit saddled upon the players. If we get a club house it will be very modest and will pay for its upkeep through the rent the greenkeeper will pay.

A word with regard to our financing may perhaps be of interest. We get our course for \$8,000 for land and construction. We have 400 shares of authorized stock, par value \$25 each. Of these we have sold 150, which will bring in \$3,750 when all partial payments are made. Beginning with 1924, it is possible that a premium will be charged, which will likely advance from year to year as the condition of the course improves. Before long it will probably cost \$50 to get into the club. Admission to the club costs one share of stock. Previous to 1917 annual dues were \$15, and the membership was small. That year the dues were lowered to \$10, and since then the membership has increased sevenfold, but not chiefly on account of low dues. Next year dues will probably be \$15 plus war tax, and thereafter \$20 plus war tax. On the latter basis our annual income and expenses should be as follows:

Income	Expenses
125 active members @ \$20.....\$2,500	Greenkeeper (8 months).....\$1,000
35 associate members (family, but not over 21 years) @ \$10 350	Helper ..... 300
25 junior members (children of members, under 15 years, restricted privileges) @ \$10... 250	Manure ..... 100
35 transient members (non-resi- dent, mostly students, 3 months, no stock) @ \$10..... 350	Gas, oil and repairs..... 250
Day players (introduced) @ \$1 100	Water ..... 65
House rent (greenkeeper's)..... 200	Interest (land contract at 4 per cent to purchase and bank debt at 6 per cent in 4 years) 396
Benefit entertainment..... 100	Taxes ..... 50
	Incidentals ..... 200
	\$2,361
\$3,850	

With the surplus of \$1,489 here indicated we could pay at least \$1,000 a year on our indebtedness.

We believe that without an ordinary club house we can supply good golf on a thoroughly well-kept first-class 9-hole course, to 200

or more persons, at an annual expense of not more than the fees named above for each class of players. If Britain can give good golf on 18-hole courses for five or six guineas, we can give it in Oberlin on a 9-hole course for twenty dollars.

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### The Use of Bromcresol Purple in Testing Soil for Acidity

It has long been known that soils noticeably acid in character will produce good turf of bent, fescue, and certain other grasses, and at the same time will be unfavorable for the invasion of commonly troublesome turf weeds. This fact has frequently been brought to the attention of readers of THE BULLETIN, particularly in the discussion of means of controlling chickweed, white clover, and crab grass in bent greens. For the production of the desirable degree of soil acidity and at the same time providing suitable fertilizer for thin turf, the use of ammonium sulfate has been recommended. The question has at once arisen, How can one tell whether he is making progress in the acidifying of his soil for the discouragement of the growth of weeds?

To a chemist this is an easy problem, but not so to a greenkeeper. We are indebted to Dr. Edgar T. Wherry, of the Bureau of Chemistry, United States Department of Agriculture, for the working out of the following simple method by which soil may easily be tested for the desirable degree of acidity, by the use of bromcresol purple, a dye which may readily be secured through any dealer in chemicals.

First get one ounce of a 1 per cent solution of bromcresol purple. Then obtain some distilled water and wash thoroughly in it all of the utensils which will be used in the test until they are free from lime or other alkalis. The presence of alkalis on the utensils will necessarily lead to erroneous results in the testing of your soil sample for acidity. In place of distilled water, clean rain water will answer very well. Hard water should be used in no case, on account of the mineral salts it contains.

Place about one-half ounce of the soil to be tested, in a wide-mouth bottle or small jar, and to this add about two ounces of the distilled water or clean rain water. Mix the soil and the water thoroughly, by shaking or stirring, care being first taken to wash thoroughly the jar and the stirring utensil in the distilled water or rain water. Let the mixture settle for several hours. With a medicine dropper or small glass tube, which likewise has first been washed, withdraw five or ten drops of the clearest portion of the watery extract, and place these drops on a white dish after it has likewise been cleansed.

With the medicine dropper or glass tube add some of the solution of bromcresol purple to the watery extract in the dish, a small drop at a time, mixing after each addition, until the liquid becomes distinctly colored. The addition of large amounts of solution must be carefully avoided.

If the mixture of soil extract and the solution of the bromcresol purple assumes a purple or dull brownish color, the acidity of your soil is not great enough to keep your bent greens free from weeds. Applications of ammonium sulfate to the soil should then be resorted