

THE GOLF COURSE

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

The Cost of Golf Course Construction

I

INTRODUCTION

IT is unfortunate that there is such a dearth of accurate figures from which it would be possible to predict in advance the approximate cost of constructing a golf course. Although millions have been spent in constructing new courses in the past few years, there has been no attempt to make the cost figures available for the guidance of new enterprises. In fact, the very nature of the work being carried out has militated against this. Golf courses are for the most part private enterprises conducted principally for the pleasure or benefit derived from the game. In most cases, where there has been a limit on the expenditure of money, it has been of no special concern to officials where the money went just so long as inspection of the accounts did not disclose any waste and so long as the total did not exceed the amount of money available. The money available being the only matter to keep in mind, the necessity for a careful analysis of the costs did not appear very strong, even though in nearly all manufacturing plants this is necessary in order to keep the total cost down to the lowest possible point. It has usually not been thought of, or if it was, the accurate keeping of unit cost seemed to be too much trouble, or

as perhaps more often the case, was beyond the abilities of those in charge.

It is not the intention to convey the impression that it would be possible to take the figures obtained by any one club, or those from any group of clubs, and immediately sit down and figure the exact cost of a new golf course. While this would be a very desirable thing to be able to do, the conditions which obtain in each locality would make a figure found in this manner very inaccurate. There are so many things which affect the cost of construction that it is doubtful if there will ever be any figures which can be used in this way. Such factors as the supply, quality and cost of labor, the soil, the weather, the particular seed used, the amount and kinds of fertilizers and soil-building agents such as humus and manure, the length of the course, the amount of clearing to be done, these and many others will always play a most important part in the cost of any course. In fact, about the only costs which can be accurately figured in advance are the services of the architect, and the seed and fertilizers necessary.

However, the experience of a large number of clubs will enable the construction of tables showing the standard

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costs of unit operations. For example, it is not likely that there will be much variation in the cost of excavating a cubic yard of soil in constructing a bunker, nor will there be much variation in the cost of hauling this yard of soil for say half a mile over average roads. Also, the cost of seeding an acre should be approximately constant all over the country, and so on down through the large number of separate operations which compose the complete work. If it were not for some such basis as this it would certainly not be possible for a concern to contract to build a cellar, for example, at a given price and still be sure of some profit. Contractors learn by experience just what it will cost to do work of this sort, and while the construction of a golf course is much more complicated, it is easy to see that if we used standardized figures, properly corrected for the labor rate prevailing in the vicinity, and the total cost figured by this way adjusted very carefully for the probable effects of local conditions (soil, weather, etc.) we would have an estimate which would have some foundation in fact and which would not be a haphazard guess as is the case with the vast majority of estimates for golf courses.

II

After this preliminary survey of the subject, we are prepared to dig into the details a little more deeply. Obviously, after a decision is reached to go ahead with a new golf course, the first necessity is the land. The first consideration is an inspection of the available sites, and while accessibility is most important, it is also necessary to consider the configuration of the ground. Here is the first place where the services of a competent and experienced golf architect are absolutely essential. To pass upon the qualifications of a tract of land for a golf course is seldom possible for one who does not make it a business. The architect should be

the very best and even though his services are very expensive it is poor economy to use any other. It will not do to engage a man who has made a success in laying out one course in a locality where he may have been for years and where he has had the advantage of the utmost familiarity with local conditions. In the new place where conditions are altogether different only luck will save the amateur from adding thousands of dollars to the expense of building the course. His inspection and report, which will take into account many factors which cause expense, such as soil conditions, distance from freight stations from which the materials required will have to be hauled, etc., will enable the new club to select the most suitable site. After this question has been decided the architect will sometimes spend several days going over the property and fixing each of its features in his mind. Then the course will be laid out in such a manner as to obtain the best possible balance between the lay-out and the money necessary to construct it. Often a change of a few yards one way or the other will save thousands of dollars to the club, and for this reason, if for no other, an experienced man is required.

The cost of having a competent golf architect pass on the land and see the job through from start to finish will seldom run under \$1,000 and will frequently go to \$1,500 or more, depending partly on the length of time when his personal supervision is required. These figures may seem excessive to some but they are by no means the top prices which have been paid on isolated occasions, but are fees which are paid day in and day out and the men who earn these amounts are always swamped with work. It is a lucky club which can obtain their services for even a few days without waiting their turn for weeks.

The cost of the architect's services is of course an overhead expense which should not be at once charged against the cost of the course but which should be allowed to rest until the work is finished. It is also a charge which

should not affect the unit costs which are to be obtained as the work goes on.

The next item is that of general supervision. A man should be secured who is competent to manage the entire work. He should have charge of purchasing the materials which are required, paying the labor, keeping the costs, etc., and it is not absolutely essential that previous experience in golf course construction be had. A first class engineer or superintendent will usually give entire satisfaction, providing he is willing to carry out his instructions to the letter without interfering in parts of the work about which he knows nothing. He should be the type of man who will call in expert assistance when necessary, especially in connection with the actual production of the turf, and who will place the responsibility for these special portions of the work absolutely upon a man who has had long experience. Of course, once in a while a club may run across a manager who can take charge of everything, but it is probably better when one man does not have to take the responsibility of every little detail.

As a rule, the first thing necessary to do is to clear portions of the land from trees, etc. Here co-operation is necessary between the architect and an expert in clearing. By working along together it may often be deemed best to slightly alter the plans in order to get around some special difficulty and thereby save considerable money to the club without interfering in the least with the quality of the lay-out. The architect may be depended upon to take these facts into consideration but in any case a thorough understanding with the man who will take charge of the clearing will help considerably.

The cost of clearing the land will of course not be constant at all points. Some portions will perhaps be densely wooded, while others will contain merely undergrowth or nothing at all. However, with labor at about \$2.00 per day, the cost of clearing an acre of ground will run from \$50 to \$175 or \$200, or more in isolated instances. As a rule, clearing may be figured at

about \$150 without danger of going far wrong. In many cases, where the timber is worth anything at all, a local man will take the contract to clear the desired portions of the course and take his pay in the wood removed. If the club wishes to do the clearing itself, some of the wood can nearly always be disposed of in one way or another. Even the small saplings can usually be sold and thus be made to bring back a part of the cost of removing them. A careful investigation by the manager will always disclose some means of selling the wood, and much money can be saved in this way. The railroads are usually in the market for certain classes of wood for mine-props, ties, etc.; excelsior and barrel factories will use their share, and so on. In rare instances a club might be able to make an actual profit on their clearing.

The next operation is the drainage. This should be turned over to experts whose recommendations should be followed absolutely. If properly done in the first place, even at great expense, the club will save a large amount of money in future years and will also save the annoyance of putting the course out of play while the ravages of some heavy storm is repaired. Correct drainage is essential if good turf is to be had and the putting greens will require special attention. As an example of what follows when abnormal weather conditions overtax the drainage system, the experience of the Scioto Country Club may be studied with profit. During the summer when this course was under construction, the weather was wetter than for many years past. In addition to the natural inconvenience resulting from this state of affairs, great trouble was experienced from excessively heavy downpours. These resulted in washing out to a greater or less extent all the putting greens and fairways, and in certain cases the damage was so great that it was only repaired at enormous expense, due to hauling in large quantities of earth to fill the washed out places and to the extensive enlargements of the drainage system, which were made nec-

essary in order to avoid a repetition of the trouble in the future. It is estimated that the cost of constructing the course was increased by at least \$15,000. It was necessary to put in drains of extra size, and in one fairway a 24 inch storm sewer was built to handle the water.

This is of course in many ways an extreme instance and the club can hardly be blamed for not foreseeing the extraordinary weather condition which would have to be faced. Nevertheless, the lesson which is taught by this experience is an important one and one which should be taken carefully into consideration in order to reduce the risk of a similar occurrence elsewhere.

(To be continued).

Grass Diseases

(Continued from the October Issue)

Epiclloe Typhina, known as *reed mace*, *red muff*, etc., is a parasitic fungus found in summer growing on the base or stalks of many grasses growing in damp places. I have found specimens of *cocksfoot*, *Timothy*, and especially *tall oat grass* with this characteristic parasite in various eastern counties, but have not seen it growing on *agrostis*, which is said by authorities to be its commonest host plant. It grows in the form of a muff surrounding the stem usually above the node or joint, and is white at first, then turns orange or purple, when it is in the *conidia* or spore-bearing stage. Although it is practically harmless, it is as well to cut the grass before the fungus turns orange-colored.

IV.—FUNGUS GROWTHS

The second division consists of those diseases set up by poisonous conditions of the soil, the commonest example being the fairy ring. These are caused by various fungi, the commonest being *Marasmius oreades*, but *Lycoperdon perlatum* and *Stropharia squamosa* are two other species often observed. The *mycelium* of these fungi feed to a certain extent on the roots of the grass, and the *mycelium* sets up a kind of

fermentation in the soil, rotting the roots so that the grass dies off in patches or is at least considerably weakened. As it is difficult to dig out the rings, it is best to apply a solution of sulphate of iron (one pound to one and a half gallons of water) starting from the outside of the green ring. A second solution at half strength may be applied fourteen days later, three applications generally being sufficient. The ground should first of all be pricked over with a fork before watering, and it is best to do it in the evening if the weather is hot or dry. The other fungi, *Tricholoma* and *Lycoperdon*, are more troublesome on light soils where the *mycelium* spreads out in an irregular net work, causing the turf to look very unsightly. It is generally due to decaying roots of trees or hedges that have been cut down on the site of the lawn or green.

I must class in this division the Clover Mildew, *Peronosporum trifoliorum*. This is not a grass disease, as it only attacks clovers and other leguminous plants; but when it does, it sets up a decay which spreads to the grasses, and for this reason it should be checked where noticed. It can be distinguished by the under surface of the clover leaves becoming covered with a dense dingy and lilac-colored mildew. The leaves turn yellow and then rot off. The disease spreads rapidly outwards in rings if the weather is warm and moist, but a spell of frost or dry bright weather will generally check it. A particularly bad case came under my notice at Cobham, where one of the most beautiful lawns I have seen was made unsightly a few years ago by the clover being attacked by this mildew. It was checked, however, by mowing the turf very closely and applying a weak solution of liver of sulphur followed by muriate of potash. Besides clover mildew, there are other mildews which attack plants in turf, such as *Peronosporum calotheca*, which is common on *Spurrey*, *Sherardia*, *Serastium*, etc. None of these diseases actually attack grass, but they make the turf unsightly and