

real test of skill and an artistic landscape, providing both an irresistible attraction and a wholesome inspiration.

A golf links is not merely sufficient acreage for the playing of an increasingly popular game, more than that, it is a place for inspiration. Such inspiration should be obtained from the artistic beauty of the landscape. To visit a golf course should always be a pleasure, regardless of whether or not it is possible to tee-off.

Artificiality in the appearance of a course has a strong tendency to spoil the harmony of environment. Construction should be done so skillfully that the result will seem natural. To obtain this effect considerable experience and imagination are required.

Proper planning not only produces a more satisfactory course in shorter terms but it also reduces the cost of construction, because it enables all necessary work to be done at one time with efficient apparatus and under modern methods. Such foresight will always prove more economical.

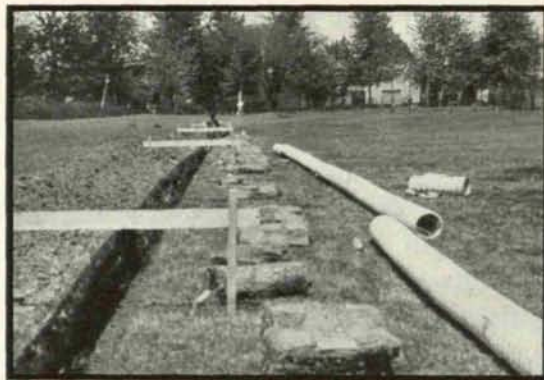
The more forethought before the commencement of actual construction work, the more accurate the estimate in regard to its probable cost. This knowledge is often quite an asset. How sad is the club which gets half thru a remodeling or construction program—only to run out of funds! Without adequate planning such work always costs more than estimated. A case, where the reverse might be true, could be classed as a miracle.

Clubhouse Site Is Major Consideration

THE selection of the site for the clubhouse is one of the first major considerations. As the play radiates from this point, it is necessary that its location should be definitely determined before the course is laid out. Even though a club may not desire to build a clubhouse at the outset, its ultimate location must be borne in mind. Many courses have been ruined, through no fault of the designer, because a change was made in the clubhouse site.

Frequently, the point at which the most traveled highway enters the grounds decides the approximate location. Are additional highways likely to be developed in the vicinity? If so, the clubhouse may eventually be at the back instead of the front of the property.

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The most suitable clubhouse site is usually obvious to the experienced observer. Sometimes a fortunate natural elevation makes an ideal location. However, before placing the clubhouse in the center of the property, careful consideration must be given to the possibility of its interfering with the best lay-out of the course. It must be remembered that it is desirable, in fact almost essential, to locate certain features of the country club near the clubhouse and that all of them take up considerable space.

Adequate parking provisions are necessary and wide roads, which may be kept free from congestion when the premises are crowded. An acre is required to park two hundred automobiles. Within a decade or two some of the more prosperous clubs may have their own flying fields.

The practice greens and the driving field should be located in the vicinity of the "pro" shop as they are usually under the control of the club professional. The former require about two acres and the latter about three acres. These auxiliaries may be made as at-

tractive as any other portion of the course. Altogether about twelve acres may be set aside in the vicinity of the clubhouse to advantage. The approaches and surroundings provide a marvelous opportunity for beautiful landscaping.

The basis on which a satisfactory course is designed, is complete and adequate knowledge of the existing conditions on the property. Topography of the surface, type of soil, and all natural features must be studied in detail.

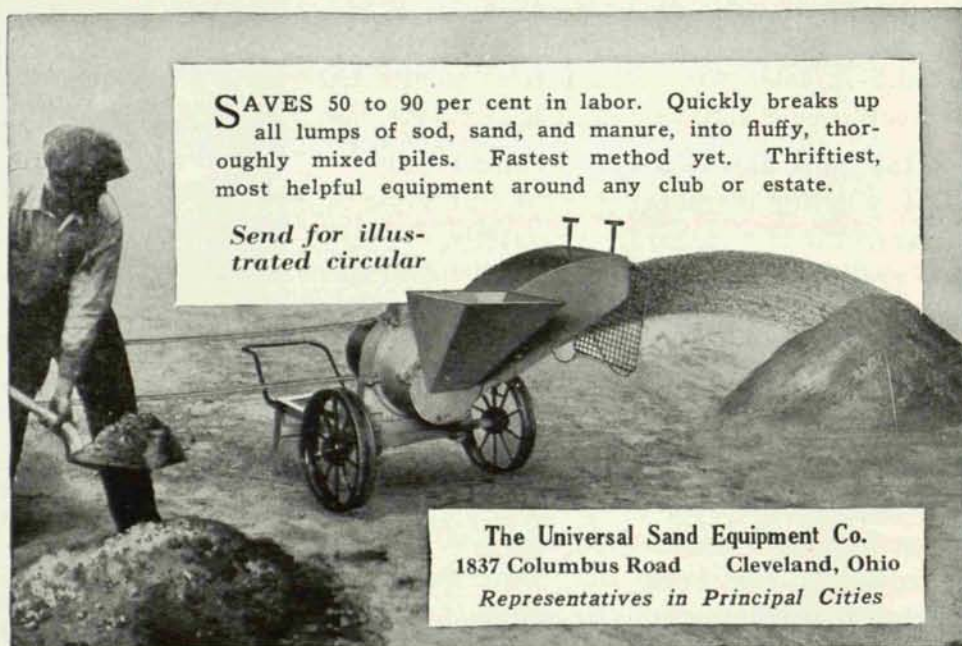
An aerial photograph of the property, if obtainable at reasonable cost, is often desirable. While this would show the contours of the surface and its features, it would not indicate the exact degrees of elevation and depression of the high and low spots. However, such a photograph might often be referred to with advantage by the architect and frequently provide him with inspiration.

Topographical Survey is Needed

ONE of the best means of obtaining the necessary knowledge of the site—if not the very best way—is through the medium of a topographical survey, followed by the making

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of a topographical map. Usually, the topography of the surface is shown on this by lines indicating every two-foot change of level on flat land and every five-foot change of level on hilly land.

The property is carefully surveyed in 400-foot cross sections coordinated numerically and alphabetically in order to provide reference points for the triangulation of tees, angles and greens while contours are taken in stadia to show ground levels. Features of the land, such as wooded areas or lakes and streams, and fence lines or the location of existing structures may be plotted in as much detail as desired. To the person experienced in golf course architecture such a map is as vivid as a picture and far more useful.

A soil chart of the property, also, is extremely valuable. Analyses should be made of the types of surface soil and their existence plotted upon a map of the land. Wherever possible analysis should be made of the subsoils at various depths within reason at strategic points. Such information will be found invaluable not only for the preparation of the

land for the growth of turf but also for the solution of irrigation and drainage problems.

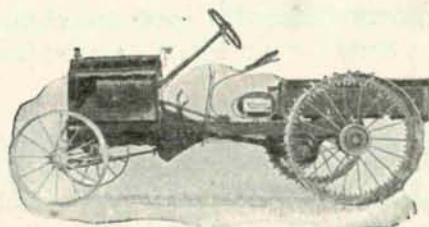
Greens Laid Out First

WHILE the game of golf is played from tee to green, the course is laid out from green to tee because the green area is larger and more important. While the green itself is not more than about 150 feet square, the accompanying traps are always designed at the same time to effect economies of construction and the combination green-trap area usually requires from 10,000 to 20,000 square feet. To make the putt more interesting the surface of the green should not all be level but warped and each green should possess its own originality.

From the topographical map and inspection of the property twenty or thirty possible green sites should be noted tentatively. Attention must be given to the question of possible invisibility and the likelihood that a player might be obliged to face the west and the dazzling setting sun. The relative advantage of each green site should be carefully considered. By the process of elimination the best eighteen of



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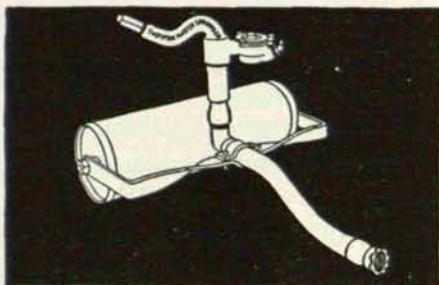
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them may be chosen. The reasonableness of this judgment often decides whether or not the lay-out will be satisfactory.

After the suggested green sites have been indicated upon the map and marked roughly upon the land, one of the most puzzling problems of the whole design is presented. That is the routing of the holes. It is an accepted custom to place the first and tenth tees in the vicinity of the clubhouse, which is thus made the radiating point of the design. Wherever possible it is desirable to place the third tee near the clubhouse, also for convenience to players and galleries of extra-hole matches. Too often such contests end at the other end of the course from the locker room.

Yardage Varies From 6200 to 7000 Yards

THE average course yardage varies from approximately 6200 to 7000 yards. This must be divided among 18 holes. The distance between holes varies between 130 and 575 yards. In general practice many courses have found the following combinations of holes satisfactory.

First nine, three long two-shot holes and three short two-shot holes, two one-shot holes and one three-shot hole.

Second nine, four long two-shot holes and two short two-shot holes, one three shot hole and two one-shot holes.

No definite rules should ever specify the distance between holes in sequence or the actual combinations of shots necessary. To standardize golf would be to spoil it. Diversity is one of the charms of the game.

There are two contrary opinions in regard to the relative importance of the first and last halves of the course. Some golfers maintain that the hardest test should come on the first nine while the player is fresh and that the second nine should be easier and a reward for having overcome the first half of the course. Others believe that the game should become progressively more difficult. This latter attitude seems more becoming to real sportsmen.

The more attractive championship courses have no two shots alike because of differences of terrain or conditions, and are laid out so as to call for the use of driver, brassie, spoon, driving iron, mid-iron, mashie iron, mashie, niblic, spade mashie and putter—in fact, every club in the bag. Parallel shots are not desirable

but to enable every shot to be made over different topography makes more acreage necessary.

No two shots should be in direct line as a matter of safety. Holes should be balanced for interest and the utmost attention should be paid to originality as this is one of the features of the game. All of these factors must be carefully considered in the routing of the holes.

Only through experience is the golf course architect able to pass judgment upon the relative importance of undeveloped green sites. When the sequence of the holes has been decided, the distance between them should be "chained off" over the undulating surface of the ground so that it may be checked under probable conditions of play.

The tee sites may now be determined. Their irregular outlined level surfaces should be about 45 feet wide by from 60 to 90 feet long. Formerly it was the custom to terrace these up but they were found too difficult to maintain properly.

Bearing in mind the shots from tee to angle and from angle to green, the fairways may be marked out. The average size of these is about three acres and the average width is from 150 to 180 feet. Care should be taken to see that they are not unnecessarily wide and consequently too expensive to maintain.

Bunkers and Hazards

CONTRARY to the opinion held by many, the real purpose of bunkers and hazards is not so much to penalize the player as to orient or direct the line of play and call forth great shots. The number of them depends upon the terrain. Advantage is always taken wherever possible of natural features, otherwise they must be created at appropriate places. A few courses have a great many; others have few which may require more skill to play.

Deep traps should never be placed on the drive; they belong on the second shot to the hole. Great judgment is required in the placing of traps and bunkers and the architect should thoroughly understand the game of golf.

After making a preliminary lay-out of the course, the problem of irrigation and drainage must be considered carefully as these are subjects of the utmost importance. In giving

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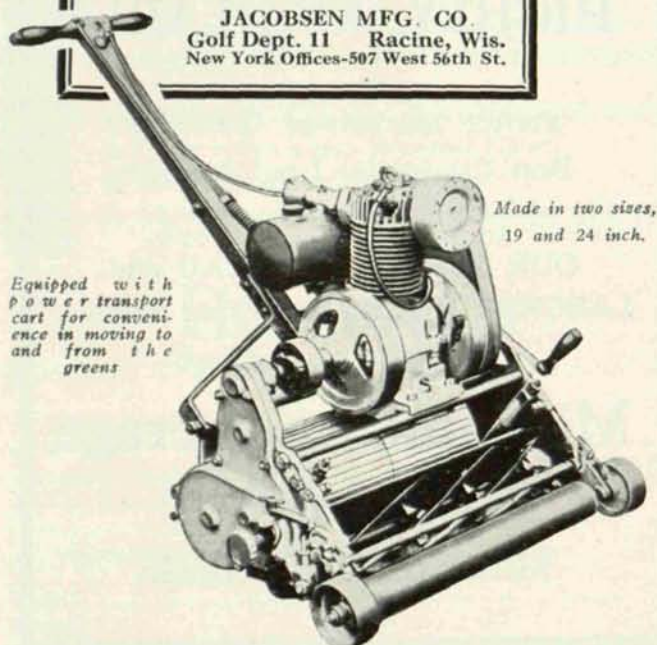
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Made in two sizes,
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them attention both the soil chart and the topographical map will be found of the greatest value.

Traps, pits and bunkers must slope to one end and drain properly. Many clubs are now sprinkling fairways as well as greens and tees and the possible expansion of the irrigation system must be borne in mind. Often it will be found that practical economies can be affected in drainage and irrigation thru slight modification of the preliminary design.

Developing Greens Most Exacting

THE development of the green sites is one of the most exacting phases of golf course architecture. Each green area is surveyed in 20-foot cross sections and attention is paid to all surface contours. Sometimes as many as a hundred stakes are necessary to properly mark each green for preliminary grading. Negligence in such details is likely to spoil the possibility of the green.

Master plans submitted to the club for approval will indicate the locations of greens, tees, fairways, bunkers, traps, pits, hazards, lagoons, lakes and streams and the characteristics of each. The location of irrigation and drainage lines will also be shown. Note will be made of the actual yardages between holes. Specifications will estimate the quantity of dirt to be moved, the amount of land to be cleared or drained, and other facts of importance to the club treasury.

The principles of engineering are being applied more and more to golf course design and construction. Hasty ill-considered plans are anything but economical. Properly prepared plans and specifications are not only an investment but also a protection. Blue prints of the master plan may easily be submitted to various contractors for bids. Such a wise practice is a protection against the misuse of judgment.

Championship courses are the result of the most careful planning, usually requiring more time than the actual construction. Very seldom is any remodeling necessary. Patchwork effects may be eliminated by designing the course carefully as a whole and giving adequate consideration to the various factors which make for perfection.



JOHN QUAIL SAYS:

SPRINGTIME seems to be here again. The northern boys are writing in and telling about getting busy on their courses and the southern boys tell us the tourist trade is moving north. If the bad weather keeps up in the north the tourists will be going south again.

Hugh Moore of Sea Island, Georgia, says they have a lot of rain down there and the big job is keeping down weeds.

Even though he is busy keeping down weeds, he is not too busy to send in some applications for new members. He says he is going to cover the south with applications "Like the dew covers Dixie".

Wouldn't it be great if every member took this same attitude and covered his own district in a like manner. Just think what could be accomplished.

Joe Mayo from way out west has also been busy and has put applications in the hands of all non-members on the Pacific coast. The ocean air must have something to do with it as both of these boys are in charge of courses bordering on the oceans.

Have you a local organization in your district? If not, why not? Get a few of the boys together and organize. You will be surprised to find out how much good you can get out of a meeting of your own bunch.

If you have a local organization, won't you be kind enough to send in a list of the officers. We would be glad to know the officers and their addresses as we feel we can keep in closer touch with the greenkeepers that way. There are many things come up that will be particu-

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larly interesting to certain sections and we want to be sure to let you know about it.

If you need application blanks for new members, write to any of the officers or to L. M. Evans, Mt. Airy, Philadelphia, Pa., Joe Mayo, Pebble Beach, Calif., Hugh C. Moore, Box 53, St. Simon's Island, Ga., or to H. Hawkins, Port Credit, Ontario, Canada. Anyone of these will be glad to take care of you.

Lew Evans, that little bundle of energy from Philadelphia, has his heart set on a thousand members by the next convention. None of us want to see Lew with a broken heart, so let's help him out and get some new ones.

Don't forget your dues. Your dues are due so do it while the doing's good. Send them to the Secretary and he will send you a nice new card and put your name on the good standing list.

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Canadian Golf Association Recognizes Greenkeeper

BY J. H. EVANS
Golf Editor, Toronto Globe

THE Royal Canadian Golf association has recognized the efforts of the Ontario Greenkeepers' association which has functioned for several years with little recognition, hoping to assist the clubs of the Province with their problems.

Recognition was conceded by Vice-President W. H. Plant, of the association, when he appeared before the annual meeting of the Ontario Golf association, held in the National Club, Toronto, to urge the provincial association to accept a generous offer placed before them by the Federal Government.

In connection with the offer Mr. Plant referred to the work being done by the Greenkeepers' association, to the abortive effort on the part of the R. C. G. A. to maintain a Green section with one official endeavoring to serve 400 clubs scattered from the Atlantic to the Pacific, and to the fact that the organized greenkeeper was looking for leadership from the governing body.

Government to Establish Plots

THE Federal Government is prepared, Mr. Plant told the gathering, to establish experimental plots in Toronto, Winnipeg and Montreal, to provide all necessary seed and fertilizer, and to appropriate funds to pay the labor costs associated with their maintenance provided the golfers of the Dominion will furnish the land. The government is prepared to undertake the responsibility of issuing bulletins to golf clubs of Canada monthly on the results of experiments.

"The Royal Canadian Golf association some years ago endeavored to successfully promote a green section," explained Mr. Plant. "It secured funds through a one day tournament the first year, while the next year there was no response of sufficient proportions to provide the finances. The lack of interest on the part of the clubs was due to the fact that the lone official was unable to give much time to each club.

"The Royal Canadian Golf association believes that a green section is the function of the provincial body. As a consequence the subject was discussed with the Federal Government with the result that its Deputy Minister of Agriculture has met our proposals. The department claims it has been doing considerable work and golf clubs appear to be unwilling to avail themselves of the results of the experiments. The plots would be located in large centers where greenkeepers could visit them. The greenkeeper is asking for leadership on turf culture. We should provide it."

An aspect of the situation was revealed by Mr. Plant when he explained that farmers of Prince Edward Island were producing seed and that if the golf clubs of the Dominion would assist themselves they could also assist the government in developing a market for Canadian seed.

Stanley Thompson, golf architect, suggested that the association avail itself of the offer and that land close to the Royal York course be used for the experimental plot. Mr. Thompson stated it was pitiful to visit the smaller clubs of Ontario and study the methods being used on turf culture. He believed every effort should be made to encourage their development.

President L. M. Wood, agreed that the Ontario association was lagging behind in the study of turf. He advised the association to consider the advisability of supplying clubs of the Province with assistance and believe that all would welcome the establishment of a green section. He urged the 1930 board of directors to give the subject prompt and early consideration.

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Morley Announces Meeting

Announcement has been made by Colonel John Morley that the summer meeting of the Executive committee of the National Association of Greenkeepers of America, will be held in Toronto, Monday and Tuesday, June 23-24. Invitation for this meeting was received from President W. J. Sansom of the Ontario Greenkeepers Association, who will give a banquet for the visitors and also take them to visit the golf clubs in the Toronto district. At this time also the American Seed Trade convention will be held in Toronto.

Greenkeepers Possess Invaluable Knowledge

OFFICIAL recognition of the greenkeeper means that at an early date his advice will be sought on a green section. Gordon Cassels, another prominent golfer, pointed out that course superintendents employed by the older clubs possessed an invaluable fund of knowledge which was essential. He stated that all the greenkeeper desired was to be taken into conference and to be accorded a recognition in proportion to his efforts.

The green section in Ontario and other sections of Canada will become an actuality when golfers give evidence of their good faith by setting aside insignificant portions of their valuable holdings as experimental plots.

Canadian Notes

Courses throughout eastern Canada and on the Prairies have suffered through a backward spring and only when warm rains have drenched them will their greenkeepers be able to determine to what extent turf has been killed through frost. Rain and snow have saved the West from the effects of a drought, while recent showers in Ontario and Quebec with some warm weather have helped materially in reducing the proportions of problems which appeared to be presenting themselves.

What happened in eastern Canada was a drought in October and November followed by severe frosts and the immediate appearance of snow with the result that grass was killed off to some extent. In February greens on some courses enabled golfers to play under almost midsummer conditions. This mild weather of the late winter was followed by cold weather. While on some of the better known tests, there is substantial growth, yet elsewhere there is every evidence of the destruction of grass.

Vice-president Sansom of the National association has suggested June 24-27 as the date of the visit of the association's executive to Toronto. During the same period the American Seed association is holding its annual convention in the Royal York hotel. Mr. Sansom states that local greenkeepers will extend Canadian hospitality to Colonel Morley and his associates when they visit Toronto.

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ELECTRIC WORM ERADICATOR

Noer Talks To Greenkeepers

THE April 9th meeting of the Midwest Greenkeepers Association was well attended. The meeting was held at the Great Northern Hotel, Chicago, and was the last indoor meeting to be held until next fall.

Mr. O. J. Noer was the speaker of the evening and as usual proved very capable. His subject was "Soils". Mr. Noer pointed out that the knowledge and handling of soils was not as well understood as it should be, and as the soil is the fundamental in securing good crops or turf, as the case may be, it is essential that great care be taken to have a soil fitted for that crop you desire to grow.

Mr. Noer stated that he believed that if the club hired a greenkeeper along with the course architect, a great deal of money and trouble would be saved by the club.

Mr. R. N. Johnson, general supt. of The Medinah Country club extended privileges of using his club for our next meeting, April 28. Midwest members who desire to play golf can have the choice of three courses.

A. L. Brandon, Sec'y

New England Notes

By LLEWELLYN L. DERBY

F. J. Sievers, director of the Massachusetts Agricultural College experiment station, in a talk before the Greenkeepers Club of New England at their meeting in Boston Monday April 7, promised the cooperation of his station in the solution of greenkeeping problems that are brought to attention and are within its province.

Prof. Lawrence S. Dickinson of M. A. C., director of the well-known school for greenkeepers at Amherst during the winter months, is now engaged in visiting courses within a radius of 300 miles at the rate of two per week. The requests for inspection and advice from

the M. A. C. expert on turf culture continue to come in and bid fair to keep occupied for many weeks to come.



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Golf Notes

The directors of the Owensboro (Ky.) Country Club have decided to install a water system connecting with all tees and greens, thus preparing the way eventually for grass greens. The committee in charge includes Jesse Owen, chairman, C. E. Curry and R. S. Triplett.

The Earlville Golf Club has been incorporated at Earlville, Ill., and land has been acquired to build a nine hole course. While the new club is private it is planned to make it a community affair on certain occasions.

Lansing (Mich.) city council recently decided to take over the Inter-City nine hole golf course. This will make three municipal courses for Lansing, the other two being Groesbeck and Red Cedar.

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