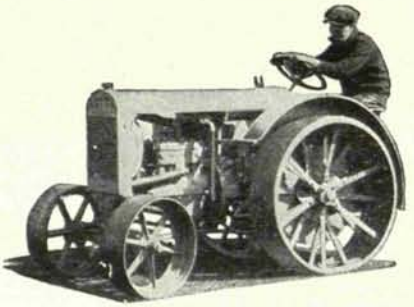
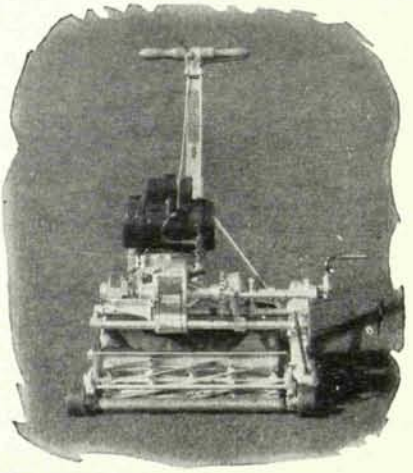
For every Grass Cutting Problem there's an Efficient TORO Mower

The Toro Standard Golf Tractor pushes five 30-inch Toro super mowers, cutting a twelve-foot swath, and will completely cut the average 6500-yard eighteen-hole golf course in sixteen hours.

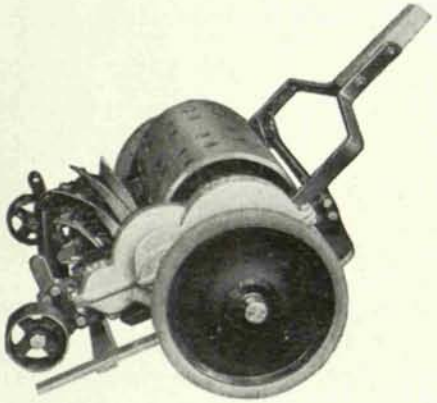


The Toro Universal Tractor has a wide range of usefulness in that it can be used for general utility work, such as construction, grading, stump pulling, hauling, mowing or any work that a tractor of this type is called upon to do.

The new Toro Junior Tractor equipped with a dump box, is a highly desirable tractor adapted to a wide range of work. The electrically welded steel body holds one full yard and makes it a convenient machine for all classes of hauling and general construction work on large areas of turf.



The Toro Power Putting Green Mower is 19¼-inch cut and is equipped with an eight-blade high speed reel and will cut creeping bent lawns or putting greens.



The Toro hand Putting Green Mower makes a 17½-inch cut. Equipped with 8-blade reel, rubber-tired transport truck, grass catcher and alemite grease gun. Today the Toro Greensmower is accepted as standard on 80% of the largest and best known clubs in this country.

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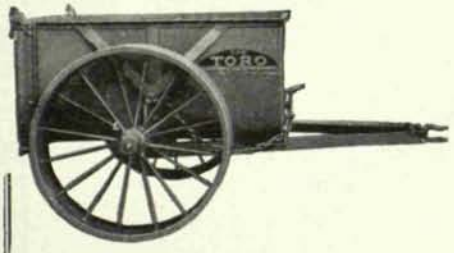
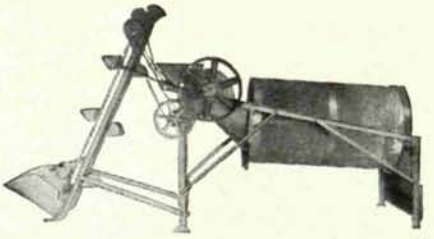


The Toro all steel electrically welded dump wagon has a capacity of one full yard and will dump clean without injury to the turf.



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Golf Course Construction from the Greenkeeper's Standpoint

By EDWARD B. DEARIE, Jr.

Noted Chicago Greenkeeper and Golf Course Architect

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All of which is true.

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Beginning with this issue Mr. Dearie starts his series on course construction telling in plain unadorned English what to do and how to do it in the most economical and efficient way. This series will save golf organizations hundreds of thousands of dollars now wasted or worse—thrown away.

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EDWARD B. DEARIE, JR.

has been one of Chicago's prominent greenkeepers for several years. He was formerly Secretary of the Mid-West Greenkeepers' Association and combines a wide study of golf course conditions with a wealth of practical knowledge on construction and maintenance problems.

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April
1930
Volume IV
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CHAPTER I—Selecting The Site

EVERY community in the United States with the slightest degree of civic pride should have at least one fine golf club to which it can point with pride. While the development of a golf course requires money, where is there an investment which pays such fine dividends in health and happiness?

A perfect site is one upon which, at a minimum of expense for construction and maintenance, it is possible to develop a golf course sufficiently notable to attract prominent golfers from all parts of the world, to entice them to leave their own favorite links and journey miles and miles just for the privilege of swinging a few strokes over its charmed landscape.

In moulding the hills and valleys and the contours of the surface of the land, Mother Nature instilled into all of her handiwork an element of beauty. In imitating her work, man's greatest problem as in all the arts, is in the avoidance of artificiality. Natural completed golf courses, however, have never been discovered. No matter how perfect the site or how picturesque the scenery some conditioning is always necessary before the first golfer can tee off.

If wishing would create perfect golf courses, there would be many more of them. Vision and cooperation are extremely necessary. Imagination is a very desirable asset in the promotion of country clubs but it is better judgment to be entirely practical in the selection of the site.

Fortunate is the club which has the foresight to organize before acquiring a site. The possibilities of developing a fine course usually are much better. However, as soon as it becomes known that any club is in the market for land, owners of property generally gather by legion and besiege the buying committee or officers, using all of their persuasive powers. Sometimes clubs are more influenced by high-pressure salesmanship than by facts. Then too, often details, such as terms, are permitted to obscure the real fundamentals.

While it is true that almost any tract of land from 120 to 180 acres in size can be transformed into a golf course if sufficient money is available, the cost of developing an unsatisfactory site—to say nothing of the cost of maintaining it—is prohibitive. However, if money is no object, then any piece of land may be utilized for a golf course. Seldom this is the case. In fact, the proportion of country clubs which suffer from a superabundance of funds is almost nil. Club treasurers,

who do not know how to spend the dues and revenues, may be numbered upon the fingers of an armless golfer.

Two Dollars Wasted

AN authority on golf course architecture once asserted that two dollars are wasted in golf course development for every dollar wisely spent. Probably this is an underestimate rather than an exaggeration. Much of this waste is due to attempts to develop unsatisfactory sites.

In all cases a golf course represents an investment. The size of this investment can be appreciated best by those who pay the bills. The creation of the course is only the first item of expense. The cost of maintenance is a continuing expense. The property cannot be neglected or it will quickly deteriorate. Soil elements need constant replenishment and the care of grass requires considerable attention. So, that, in a very short time, the cost of maintenance will far exceed the original cost of construction.

Experience is a very expensive teacher. After attempting to develop unsuitable sites, clubs have received very sad lessons. In some cases the cost of remodeling the course to give it championship appeal more than exceeded the original cost of construction. In other cases the cost of maintenance was quite excessive and beyond the means of the treasury.

The controlling factor in an investment of this type is not the first cost but the ultimate cost. A variation of a few hundred dollars an acre is insignificant when the probable total is concerned. Such eventual cost can only be explained by some one who is actually competent to pass judgment on the facts.

Ordinary Opinions Are Worthless

THE wisest procedure considering not only cost but also results, is to observe several appealing sites and then obtain competent advice before making the final decision. Ordinary opinions are worthless. By a process of elimination the most satisfactory site can quickly be selected. Such advice can only be obtained from men who are familiar with both the construction and maintenance angles of golf course development. Because a contractor is able to estimate the cost of moving a certain number of cubic yards of dirt, does not qualify him as a golf course architect; because a man is familiar with farming or horticulture problems, does not qualify him as a greenkeeper.

Raising turf is a specialty. It is possible for a greenkeeper to have a very poor knowledge of the cost of construction and it is possible for a golf course architect to have an inaccurate opinion of the cost of maintenance. However, the more competent the golf course architect, the more he knows about both subjects. To develop a course of even the most unpretentious type a golf course architect is necessary. The club, which makes use of his knowledge to the fullest extent, is wise. At no time can his advice be of more value than in the selection of the site or before the expenditure of any money.

While the ordinary architect can build the same type of house on almost any piece of property with very slight difference in cost, the golf course architect cannot create the same course upon any acreage for the same investment. The actual cost of the construction varies greatly and should be given due consideration. With one piece of land comparatively little excavating and filling in may be necessary while in another piece of property a prodigious amount of it may be absolutely essential.

Also, the cost of maintenance on different sites would vary greatly. Some land, which might seem very fertile to the ordinary observer, might not be suitable to the growing of turf at all. With definite information as to the probable cost of constructing and maintaining a golf course on a certain site, judgment may be used more freely. If the estimated cost is either excessive or beyond the means of those interested, it is often wiser to abandon the proposed site and seek a new one. If the property has already been acquired, this may seem like a hardship but it does not necessarily involve a loss. In any case, it is more economical to pocket a loss on an unsuitable site rather than to attempt to develop it.

What is a Good Site?

WHAT is a good golf course site? This is a perplexing question if the expense is left out of the picture. One definition of a satisfactory site is, any land of sufficient acreage,

upon which anyone with enough vision can create a pleasant golf course.

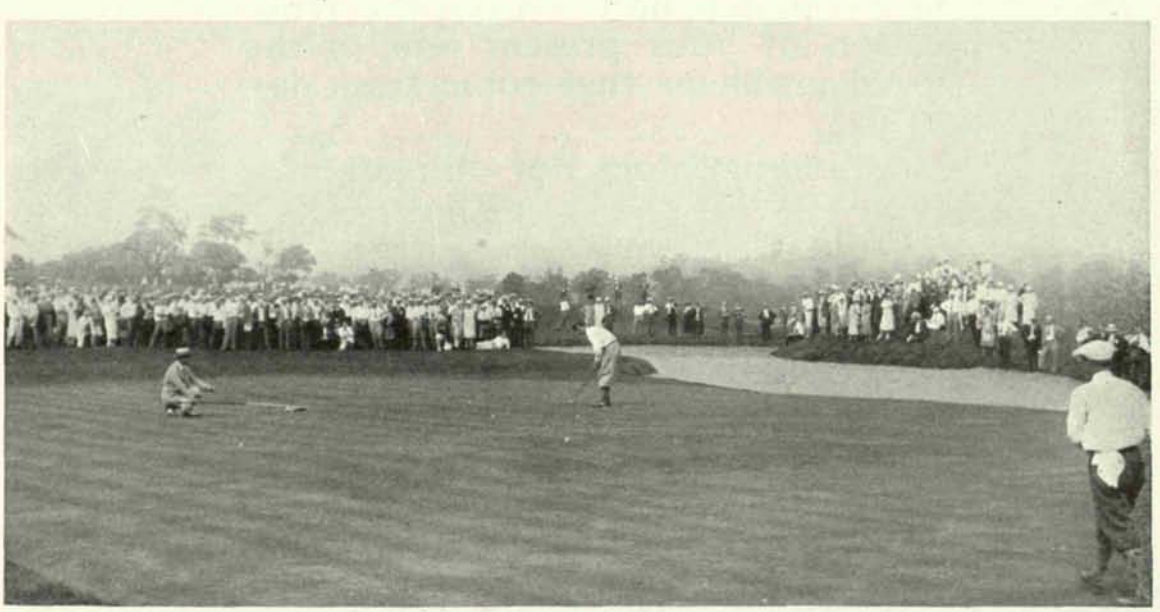
The game of golf, as all know, originated across the sea and it is to England and Scotland that golf will always owe a debt of gratitude. The links of Britain have been the scene of more championship contests than any other area of similar size in the world. Within a district scarcely larger than New England, fine courses are scattered with profusion. Such names as St. Andrews, Muirfield, Prestiwick, Sandwich, Westward Ho, Hoylake and Deal are laden with golfing history. These notable courses are all by the seashore.

Seaside courses, swept by varying breezes, fascinate the golfer because they test his skill. The shifting winds enlarge the sporting element of chance. Many a championship has been decided by a puff of wind. There is a certain lure about the sea which causes busy men to listen to the waves, forget their troubles and turn to golf.

Naturally, the first fine courses in this country were patterned after those abroad. National Golf Links and Lido Country Club, Long Island, Pebble Beach and Cypress Point, California, and Olympic Golf Club, San Francisco are all seashore courses. These are all close to the beaches and high tide comes within a comparatively short distance. The Sea View Country Club has a fine course at Atlantic City and Boca Raton Country Club has another masterpiece at Del Rey, Florida. The bluffs at Palo Verde and Lajolla, California, also contain fine courses.

The real problem in the development of seaside courses has been to properly condition the soil. Sand, which forms the basis for beach property, is generally quite deficient in the necessary humus. Thus, soil bacteria must be supplied before turf can be grown satisfactorily. The land usually is covered with top soil which makes conditioning expensive.

The popularity of golf increased by such prodigious bounds, however, that the possibility of creating satisfactory courses inland was soon considered. Topography selected for the first links away from the shore was of a gentle rolling nature. Fine examples of such types of courses are Olympia Fields Country Club, Matteson, Illinois; Merion Cricket Country Club, Ardmore, Pennsylvania; Braeburn Country Club, Braeburn, Massachusettes; and the Minikahda Club, Minneapolis. Owing to existence of natural contours of the ground, which not only formed perplexing hazards and bunkers but also assisted drainage, the problem of construction was much simplified.



THE 14TH GREEN AT THE OAKMONT COUNTRY CLUB

This picture was taken during the National Amateur Championship which was played at Pittsburgh in 1925. Roland MacKenzie of Washington is putting

Golf is Popular Everywhere

THE game of golf is liked equally well by those who live on prairies and in flat sections of the country, where rolling land is not convenient. It was not long since ambitious plans were made to put steam shovels and tractors to work and actually build golf courses, removing dirt at one place and replacing it at another place so that the whole would result in a pleasing landscape. Such requirements test the imagination and skill of the golf course architect. To be satisfactory the moulded environment must seem natural—and not artificial. Twin Orchards Country Club and Bryn Mawr Country Club, in the Chicago district, Topeka Country Club and Dallas Country Club all have courses built artificially—but which do not look "artificial."

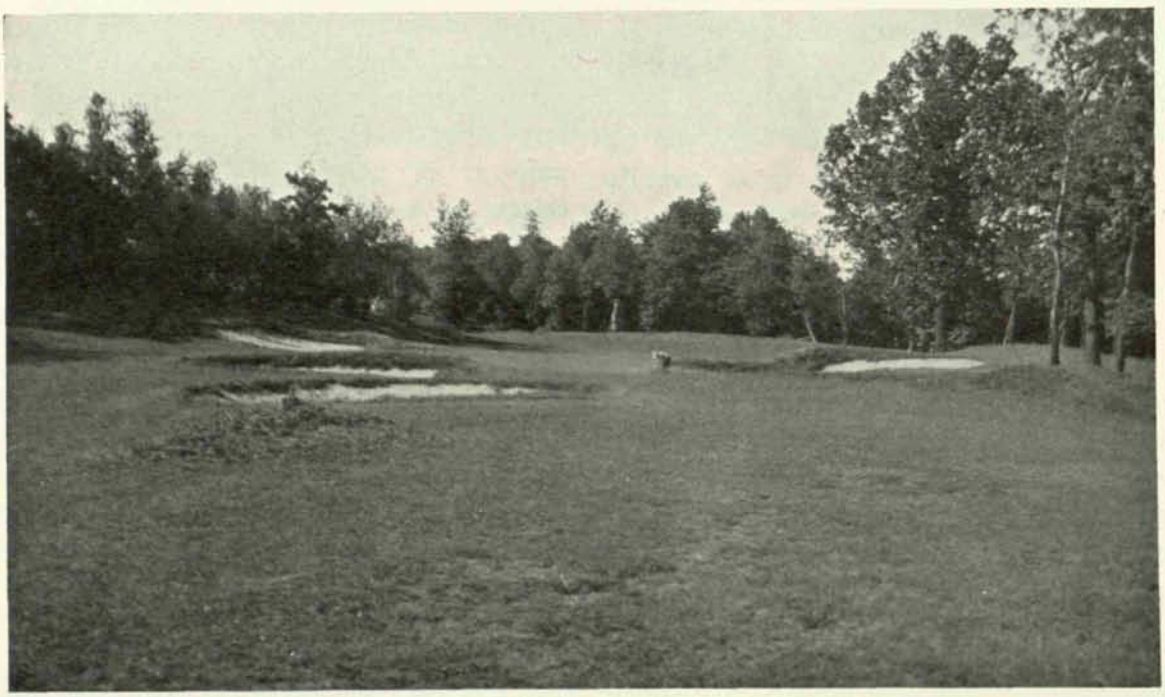
The next step was the development of hillside golf courses. Flintridge Country Club, Pasadena, was one of the first examples. It was followed by the fine Ojai Golf Club at Santa Barbara. Oakland Hills Country Club has a pleasant hillside course at Detroit while the Field Club has another one at Pittsburgh.

Hillside courses are somewhat interesting to play because it is necessary to allow for gravity with each stroke. Maintenance often presents some perplexing problems. Heavy rains have a tendency to wash the best top soil away and a great deal of attention must be given to drainage. Trees help to retain the black soil so desirable for fertility.

From the hills to the mountains was only a jump with seven-league boots and now there are a number of excellent mountain golf links. Among them may be mentioned courses at Denver, Colorado, Mt. Tamalpais, California, Bretton Woods, New Hampshire, and White Sulphur Springs, West Virginia. While mountain courses are scenic, it is somewhat expensive to build and maintain them. The cost of clearing the land and blasting huge boulders and large stumps is quite an item. Ledges of rock sometimes interfere with the original cultivation of the land. Almost invariably the best top soil has been washed down into the lowlands.

Meanwhile, courses were being laid out in the canyons of California, one of the features of the Golden State. Shut in by over-hanging cliffs and steep barren hillsides these are peculiarly beautiful and the green of the turf contrasts well with the yellow of the adjacent soil. Although it is difficult to design and construct a canyon course, excellent results have been obtained by the Belleaire and Riviera Country Clubs at Beverly Hills and El Caballero Country Club, Van Nuys.

The heat in shut-in canyons is often un-



11TH HOLE AT GLEN OAKS, GREAT NECK, L. I.

This beautiful Long Island course has long been considered a model of architecture

healthy for turf and encourages fungus diseases. Soil, which has been washed down from the higher country, is usually excellent. The natural slope of the land provides satisfactory drainage but adequate irrigation is a real problem because the rainy season is short and the dry season is long.

Sand Dunes Offer Best Topography

TWO of the finest golf courses in United States—Pine Valley Country Club, Clementon, New Jersey, and Cypress Point Country Club, Del Monte, California—have been laid out on a type of topography which seems especially adapted to golf—the sand dunes. The long sweeping contours of the surface of the ground show some of Nature's best harmony. This type of country lends itself well to artistic development.

The latest form of golf course construction is the building of links upon artificial topography, or land which did not exist until it had been reclaimed. Two courses, occupied by the Atlantic City Country Club and the Sea View Country Club, have been reclaimed from the Atlantic along the Jersey coastline. In the South a huge championship course has just been completed for the Indian River Country Club at Miami, while Lido on Long Island was entirely made by dredging Great South Bay. A new reclaimed-land course is now almost ready for sowing in Lincoln Park, Chicago. After the land has been filled in by hydraulic dredging, the construction of these courses is no different from that involved on regular flat land. However, it is usually necessary to cover the surface with good top soil.

In recalling the various types of courses in this country, located as they are on such widely different kinds of topography, it is apparent to the observer that golf course construction has taken many strides forward during the past few years. With seaside courses, inland courses, hill and mountain courses and entirely artificial courses it is foolish to say that any type of land is utterly unsuited to golf course development. While splendid links have been laid out on flat and definitely sloping terrain, the cost of construction is usually much greater than it would have been on a gentle rolling surface. In the final analysis the amount of money available determines whether or not a satisfactory course may be built on a certain site.

Consideration of the topography leads to a consideration of one of the most important factors involved in turf maintenance, i. e. satisfactory soil. This is of the utmost importance. It cannot be overestimated. Light sandy loam is ideal for bents and blue grass. Lack of necessary humus and organic matter is a serious defect. Farm land, which has not been properly nourished, is likely to be exhausted. Analyses of samples of soil from various portions of the course is strongly advocated before the land is acquired. These tests usually will be made by the state college of agriculture or the country farm adviser. Inspection of the soil by a competent authority is highly advisable.

Problem of Drainage Important

THE problem of drainage is important from several standpoints. Stagnant water not only inconveniences the golfer but affects the physical composition of the soil and hinders grass growth. The danger of having the best soil washed away must be guarded against. Without proper drainage most golf courses would be mediocre.

An adequate supply of water is very important. Almost no country clubs now dare depend entirely upon rainfall. Some of them rely altogether upon irrigation. The actual amount of water needed to irrigate a golf course in general cannot be foretold. However, an estimate of the amount of water needed for any specific course can be made where the lay of the land is known and the average rainfall and temperature may be predicted. Sufficient water is essential. If this is to be secured from pipe lines owned by some municipality, there is always the possibility that it may not be available in large enough quantities during hot weather when needed most.

Necessary depth regulates the cost of wells. In some states too much water may not be pumped from underground streams as this interferes with the rights of others.