

architect on a selected site, aggregating a cost of \$50,000 for eighteen holes, and a fellow architect, on the same site, submitting a \$150,000 operation.

The late Seth Raynor made a practice of modeling classic holes of notable courses for his ensemble, and cost of installation was of minor importance; consequently, in this instance grading is the dominating cost factor.

Therefore, we believe grading is the pivotal point on which swings the variation of construction costs.

The volume of material to be moved in grading and the distance to be hauled are the determining factors reflected in the ultimate cost of golf construction.

Have we Constants and Variables in considering cost factors?

CONSTANTS—

1. *Course Yardage*—We assume that in a major course routing the yardage may vary from 6,200 to 6,800 yards; however, this variation should occasion no particular untoward additional costs.

2. *Drainage*—Reviewing costs on twenty operations, \$15,000 is the average; therefore, a thousand dollars more or less is of minor consequence, unless one were to eliminate the operation entirely.

3. *Irrigation*—Eliminating the possible fairway irrigation, the quantity and size of pipe required to deliver 20 G. P. M. at each green would not vary costs appreciably. The only consideration of moment here would be the quality of pipe employed. We have a choice of five grades of pipe, approximating about 20 per cent variation in costs, as follows: Black Steel, Galvanized Steel, Black Iron, Galvanized Iron and (over 3-inch size) Cast Iron.

There would be an additional cost if buried below frost line, and in the event of caking, a Barber-Green machine would have to be used for cutting bell holes.

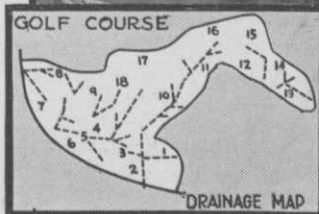
4. *Pump and Motor*—This averages deep-well or reservoir equipment.

5. *Fertility*—This item on courses of merit averages about the same.

6. *Seeding*—The fairway areas average the same. The only question would be the pounds per acre specifications. Some plant at the rate of 100 lbs., 150 lbs. and 200 lbs. on a \$30,000 maximum course expenditure. This, then, would be an item of serious consideration, as would be the type of seed employed. However, the proportional difference on amount and cost of seed between a \$30,000 and \$130,000 course is of no serious consequence.

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ASSOCIATION**

Middletown, Ohio



At Broadmoor, Colorado Springs, where this year's Trans-Mississippi was played, one of the country's big jobs of building a course on imported soil was done.

7. *Greens Seeding or Planting*—Average about the same regardless of total cost involved.

8. *Preparing for Planting*—The actual farm methods employed cost the same.

VARIABLES—

1. *Clearing*—The amount of woods to clear and type of trees. The amount of stone and gravel may have a considerable bearing on ultimate costs.

2. *Top-soil*—Frequently, where stone has been moved or great sand areas are involved, considerable expense has been engaged in moving top-soil.

3. *Water*—Dam construction for the impounding of water for irrigation or scenic effects often requires considerable investment.

4. *Soil-erosion*—Terracing or revetting to aid in soil erosion control may affect the final costs to a major degree.

5. *Grading*—Finally we have, as the item of major consequence, grading—an item requiring mature consideration. The cost of grading tees, traps and greens, to say nothing of the possibilities of fairway and ravine fills, is the great expense problem and one definitely affiliated with the individual design of the architect employed.

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The belief that two to three years are required to produce good fairways is wrong.

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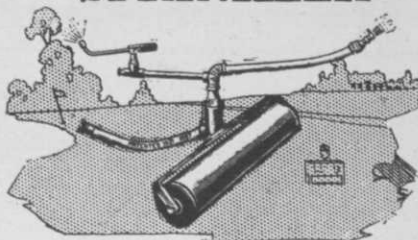
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Saving and Service Tips in Club Cooking

RANGES and other cooking equipment must be kept in good condition. The cost of operation mounts up and efficiency decreases as old age comes on, unless care has been the watch-word, says J. L. Dahl in the *Managers' Bulletin*. Care means cleanliness, periodic inspection, replacement of worn and broken parts, repairing of leaks, tightening of connections.

Following is a list of ways of reducing gas and electric fuel bills. Do not use the large burners on your range when smaller burners will do, do not light burners until you have food already to go on the fire, do not allow burners to remain lighted when not in use, do not purchase from strangers so-called gas saving devices without first asking your gas company whether they are of value, do not heat a kettle full of water when you only want a quart, do not use the ovens of your range for storage of food, this rusts the oven.

Do not keep a full flame under a container when water has reached the boiling point. Turn down the flame or set utensils under smaller simmer burners. Do not turn off cock at gas meter. This does not save gas. It lessens the pressure and interferes with good service. Do not use the burners if they pop or make a noise on lighting. Have your gas company adjust them. Whenever possible use the smaller size burners instead of the large ones.

Turn out the gas and electricity in the event there is an interval when it is not needed. Keep burners of gas range clean by washing them in boiling water and soda at least once a month and have them dry before using. This will save gas.

Use the oven for its fullest capacity for baking, use triple sauce pans set over one burner. Cook three vegetables in the course of cooking one. Ordinary sauce pans will cook only one vegetable at a time. A long yellow smokey gas flame is very wasteful. A small blue flame is much hotter and requires less gas. If your burners give a yellow flame have your company adjust them. If you are having trouble with your appliances or with your service remember that your gas or electric companies are the proper places to register complaint. Fuel bills can be reduced by doing as much cooking as possible when ranges are heated to capacity. Try and use every inch of space on top of the stove and in the oven.

FROM LEACH'S MAIL-BAG

Sir: (1) What affect does ammonium nitrate have on greens and how should the material be applied? Does ammonium nitrate act as a fertilizer and will it stimulate the growth of bent grass and have a tendency to stunt the growth of dandelions, and weeds?

(2) We have some bent grass planted from creeping bent seed and some greens of stolon. We notice considerable clover in our stolon greens. What can we do to exterminate this clover?

C. O. S. (Mich.).

Answer

Sir: Ammonium nitrate, while a very desirable fertilizer, is not available commercially due to its comparatively high cost. Would suggest you use ammonium sulfate which is readily available for use as a fertilizer and cheap in price. It can be applied to turf either in solution in water or dry, mixed with the topdressing. The material is a source of nitrogen and can therefore be classed as a fertilizer. It will markedly stimulate growth of grass but its weed-controlling ability is questionable.

There is no known method of exterminating clover from greens, except the arduous one of cutting it out with a knife.

After reading your letter and the various questions included it is fairly obvious that you have had a limited experience with the maintenance of fine turf. Would suggest that you be exceedingly careful in your operations; in fact, your best bet would be to secure the services of a seasoned greenkeeper and let him run the course while you manage the club.

B. R. Leach.

WHY not establish a golf library at your club? The game has produced several hundred volumes on instruction, a dozen or so on course construction and maintenance, as many novels with golf as a central theme, and innumerable annuals, handbooks and theses. The bargain tables of almost any bookshop will include two or three out-of-print books on golf to be picked up at surprisingly bargain prices.

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Wherever golf is played, Buckners are supreme. We originated the Hoseless System of golf course irrigation, installed by the best courses of the country.

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Green Section Books Turf Plot Sessions

THE United States Golf Association Green Section has scheduled six meetings on golf courses during the period June 30 to July 14. Excellent opportunities will be furnished at these meetings to discuss golf turf problems on the ground. The success which has attended the Green Section's summer meetings in the past has called for a widening of the scope of these meetings, and it is fortunate that the six meetings arranged for can be held under representative conditions within so short a period during the summer of this year. On all of these demonstration turf gardens opportunity will be afforded to compare different strains of grasses, different fertilizer tests, and the results of a number of different turf prac-

tices. The meetings are open to anyone interested in such problems whether or not he may be affiliated with a club supporting the work of the Green Section. The series of meetings opened at Detroit Golf Club, Detroit, Mich., on June 30 and will continue through July as follows:

July 1, 2 p. m., Sleigh Municipal Course, Grand Rapids, Mich.

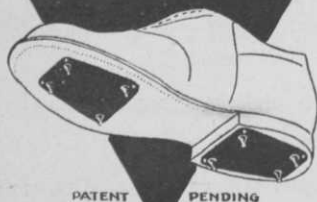
July 2, 2 p. m., Niagara Falls Municipal Course, Niagara Falls, N. Y.

July 8, 11 a. m., Mill Road Farm Course, Lake Forest, Ill.

July 9, 2 p. m., Interlachen Club, Minneapolis, Minn.

July 14, 11 a. m., Allegheny Country Club, Sewickley, Pa. This meeting will be held at the time of the Pennsylvania Golf association's amateur and open championship tournaments.

The meeting on July 9 at the Interlachen



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They cost you 60c, a clear profit of 40c on every sale—and almost every golfer wants them. Remit with your order.

Absolutely Guaranteed. ACT NOW!

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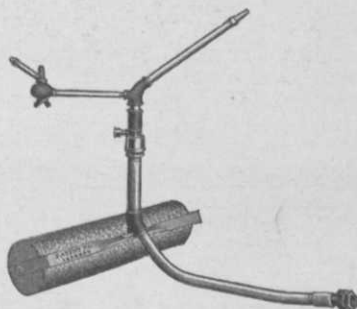
Club will be held just before the National Open. This is the first time in several years that a Green Section meeting and the National open tournament have been held jointly, and it should accordingly prove of special interest, affording visiting turf enthusiasts an opportunity to follow the matches and become familiar with interesting features of the course while at the same time joining in the study of turf problems at the meeting held at the demonstration turf garden. Under the liberal support of cooperating local golf courses the demonstration garden at Interlachen has become a real asset to the greenkeepers in the Minneapolis district. The garden is reported to be in excellent condition. In the evening there will be a dinner and a short program of talks on turf problems. The local greenkeeper's association and green-committees are cooperating in the plans for this meeting.

CRANK-CASE oil, thinned with kerosene until it can be sprayed, is an efficient weapon against poison-ivy. Two sprayings will generally kill the plants.

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The Economy Husky—a new sprinkler that throws a full stream of water, breaking it up for proper distribution. Demand has produced this new type and used with the April Shower nozzle, it is already indispensable to hundreds of greenkeepers.



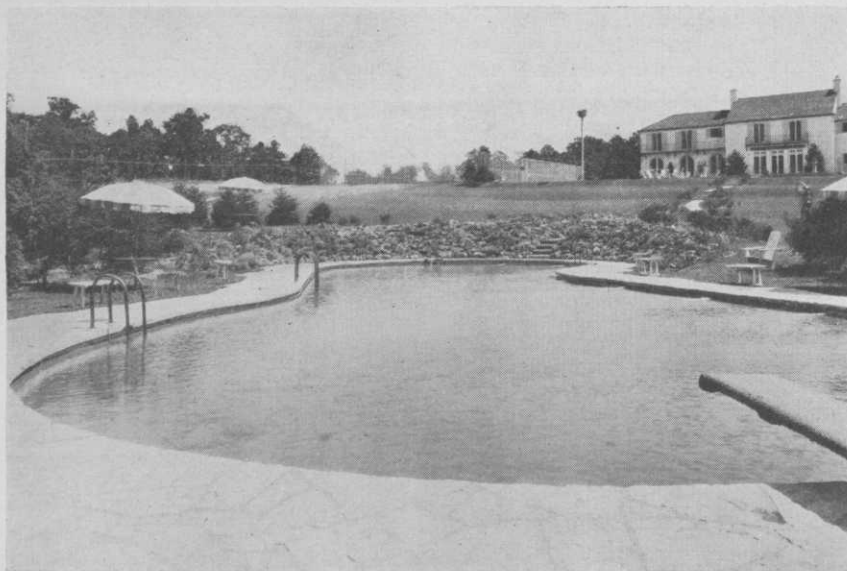
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Bridlespur Club, Kirkwood, Mo., finds irregular shape of pool fits scenic scheme.

Swimming Pool Has Major Value to Live Clubs

By H. D. MACKEY

SEVERAL of the foremost country clubs have recently installed swimming pools on their properties adjacent to the clubhouse itself, where the locker rooms are used both by bathers and golfers. The plan is proving highly satisfactory and is resulting in a marked increase in the club attendance.

Among the more interesting of these installations the swimming pool of the Bridlespur Hunt Club of Kirkwood, Mo. This pool is irregular in shape, and the surrounding area is beautifully landscaped. The deck around the pool is of flagstone, affording a non-slip surface for bathers. It is located just a short dis-

TREKS

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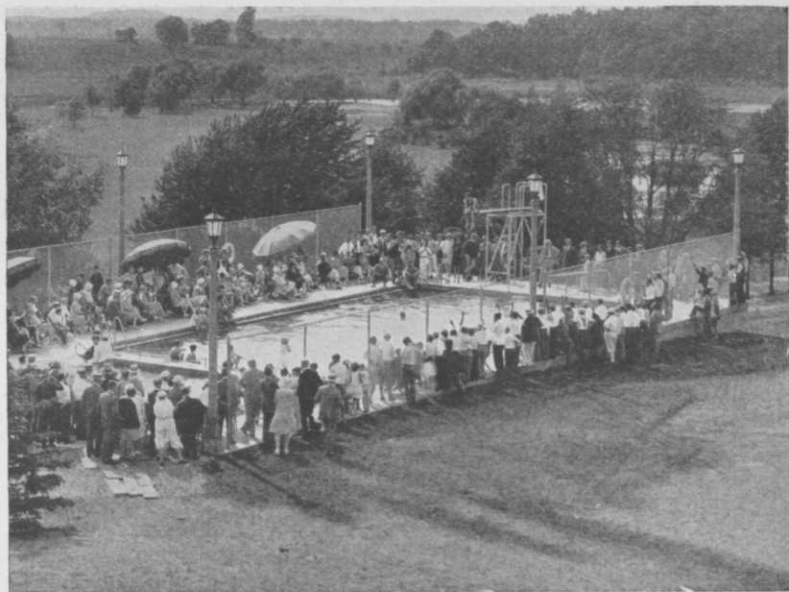
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South Bend's Country Club's pool is fine example of modern golf club installation.

tance from the clubhouse. Numerous benches are provided for the comfort of swimmers and spectators and large, colorful sunshades enliven the scene. A photograph of this unique pool is shown herewith. Notice the convenient placing of the four ladders, so that one is easily accessible from any part of the pool despite the unusual shoreline.

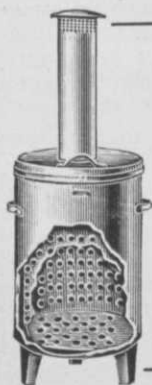
Another attractive pool is that of the South Bend C. C., at South Bend, Ind. This pool, opened August 25, 1929, is highly attractive, though of more conventional design than the Bridlespur pool. Located in a rolling country and naturally landscaped, it has an artistic setting. It is correctly proportioned to accommodate official swimming contests, being 30 ft. wide, 60 ft. long and 9 ft. 6 in. deep at the

deepest point. The photograph reproduced herewith shows this pool on the day of opening.

Other clubs recently including swimming in their available sports are the Hyperion C. C. of Des Moines, Ia., the Onwentsia club of Lake Forest, Ill., the North Shore C. C. of Menasha, Wis., the Winter Club of Lake Forest and the Springfield C. C. of Springfield, O. This last mentioned club has its pool in process of completion, to be opened soon.

Watch Sanitation.

Of major importance to country clubs and others considering the installation of swimming pools is the matter of sanitation. The water entering the pool must be free from all contaminating influences, and must remain so. This necessitates an



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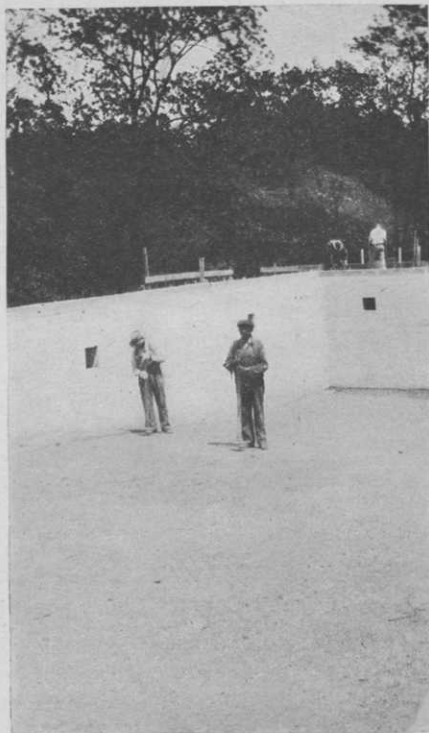
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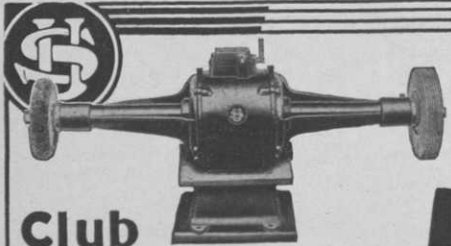
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Springfield C. C. tank under construction, showing openings for installation of underground lights.



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efficient filtration plant, and the introduction of an active germicide in the water, to render harmless any exudations from swimmers' bodies. In practically every modern installation, also, the equipment includes the necessary recirculation system for effecting a complete turnover of the pool water every so often. The usual period of turnover is from four to twenty-four hours, but between seven and eight hours is the recommended period. The usual equipment also includes a suction cleaner, which enables the operator to remove the sediment from the bottom of the pool without draining the water.

Chlorine and ozone are the two most popular active germicides, ozone being a more recent development. An electric chlorinator has recently been perfected, and an electric ozonator is now in process of completion, by one of the country's leading swimming pool equipment manufacturers, which, in addition to accuracy of distribution is practically automatic in control.