

Maintenance of Water Hazards; Natural and Artificial

By G. A. FARLEY

(Excerpt from "Golf Course
Common Sense")

The sixteenth hole on
Olympia Fields' fourth
course. Note the stone
facing to prevent erosion
of the creek banks.



SO-CALLED "water holes," both natural and artificial in character are nearly always the feature holes on the course. The preservation and utilization of natural creeks and ponds in a layout are given every consideration by the modern golf course architect. They are enjoyed by every playing member, even those who daily contribute to their depths the golf balls they intended to land beyond.

Before discussing the maintenance of natural water hazards in the line of play, the question of whether or not artificial water holes are justified presents itself. The creation of an artificial pond to add a note of interest to a golf hole involves how to get the water, and also how to prevent stagnation.

The diversion of a natural stream of water across the rough or fairway to join the same stream around a bend, or to be led into another flowing body of water is occasionally done, but the resulting water hazard cannot be regarded as wholly artificial, and there are only natural possibilities of stagnation, if the diverted stream bed has been properly graded down to its outlet. Such hazards may be regarded as entirely natural water holes insofar as maintenance is concerned.

Water hazards which are the outcroppings from pipe or tile lines led from a flowing stream or lake to the point of hazard, and taken away to empty into another stream by either lines or diverted stream beds may also be treated as natural water holes from a point of maintenance in line of play.

Artificial water hazards which are wholly artificial, fed by pipe line from the source of golf course water supply, for which no outlet into a flowing stream or natural lake is possible, are very rarely justified on any golf layout. Water standing stagnant for weeks at a time in such hazards is a probability, and not a possibility. An overflow must be provided, and also a series of drains similar to a septic tank system, expensive to install and not often fully effective.

Sometimes flowing springs, which first appear as not much more than wet spots, show up within easy reach of a first class position for a coveted water hazard. Wherever such springs can be utilized, and the water run off by an artificial stream bed to an outlet into a nearby stream, they may provide a water hole at no great cost. Like all sources diverted by an artificial stream bed, such hazards may be regarded

as natural creeks and so maintained.

Locating Semi-Artificial Hazards

In the laying out of what may be called semi-artificial water hazards, such placements are usually agreed upon by the green-committee in consultation with a golf course architect, although in some cases the suggestions of the membership are carried out by the chairman of the green-committee and the greenkeeper.

The length and type of the golf hole determine where the hazard may be placed; the source of supply and distance to an outlet are the factors which show whether or not such a hazard is feasible, and contour of ground and character of subsoil largely decide the question of successful maintenance after the work of installing the hazard has been done. On land consisting of sandy loam, gravel and stone, washouts inevitably cause severe "gullyng out" of the beds of the natural streams on the course, and as a rule still greater damage to the artificial stream beds which have been dug to carry away water diverted from its natural course.

On heavy clay soils, stream beds excavated to accommodate diverted creeks are often "puddled" to hold the water and reduce the cost of putting in the hazard. If the soil is light in character, about the surest way of holding the water in the line of play is to face the bottom of the ditch with three or four inches of concrete.

Guarding Against High Water

Banks that overhang, and upon which there is a natural growth of bushes, need particular attention in the direct line of play. High banks, although they are a defense against floods, should be leveled off to a reasonable height, the slopes turfed, and the stream bed deepened or widened if necessary to take care of the high waters caused by spring rains. Weeds and water grasses, rushes and bushes should be kept trimmed, and there should be few if any along the fairway edges of the stream, or around a water hazard in front of a tee. Heavy growths in addition to the water waiting to swallow golf balls constitute a water hole that is an undue penalty for the golfer.

Stagnant water sometimes stands in a natural water hazard, as this trouble is by no means exclusive to those essentially artificial. Periods of dry weather result in pools of water lying in low areas of a stream bed, and sometimes scum collects on these surfaces. If in direct line

of play, the scum should be raked off, so that golf balls that land in such pools may be seen and retrieved. Basket retrievers on poles are kept at the edge of deep pools, with which the caddie "fishes" out balls that are driven into such hazards.

Occasionally a single creek winds so crookedly through the course lay-out that it may cross the same fairway twice, and in its windings may furnish several water hazards on eighteen holes. As a rule, natural creeks of this kind hold flood waters well, and are a great deal less trouble to maintain than small rivers and brooks or rushing water that carry along with them quantities of debris that is loosened by severe storms and spring freshets. Once in a while such a stream runs along the edge of a fairway, which if not well shored up with logs or concrete, carries away enough soil to lessen materially the width of the fairway from year to year. One of the best retaining walls along such streams is a planting of the common willow, which instead of needing to be rebuilt at some points every year, becomes more efficient with rapid root and sucker growth as time goes on.

Fast Flowing Streams

Where rapid waters border or cross a golf course property, it is seldom that they hold to their banks and leave the greenkeeper in peace when the water is running high. Tremendous losses of greens and fairways are often the result of what has formerly appeared to be a minor obstruction in such a stream bed.

Sometimes a rock, around which the water has swirled for many a year, and gone by and over without diverting the flow, becomes in an hour the point upon which is hung floating trees, roots and other loot of a bad storm, and the river is divided to the destruction of everything that lies on lower ground on each side.

Obstructions in a stream bed that cause trouble for the greenkeeper are not confined to the larger bodies of fast flowing water. Sometimes considerable damage is done by a rock or wedged piece of timber in a creek or brook that crosses a fairway or rough.

At times when the water is low, such streams should be inspected carefully, and precautions taken to prevent as much as possible the damage they cause during the natural periods of high water. Rocks that are removed from the middle of streams may find a use in shoring up a weak bank, and if such bank borders on



This hole at Walpole, Mass., illustrates proper use of a lake for a water hazard. The tee, in the left background, is 152 yards from the green. The water carry extends 120 yards of this distance.

or near a playing surface situated on lower ground, sometimes it is necessary to build into the bank a retaining wall of concrete and stone.

It is a dismal job, bringing back into playing condition surfaces that have been gullied and washed away, or buried under tons of debris. Rocks, sand and silt deposited with old tree roots and branches on a fairway; an expensive bridge carried from its moorings and suspended where it is least wanted; cribbing timbers loosened and floated away on the tide; any of these and like tragedies are apt to happen where the greenkeeper has taken precautions against ordinary high water seasons. They are almost sure to happen at some time or other on courses bordered or crossed by rapid streams, where too much faith has been placed on old Mother Nature. Golf courses mean nothing to her when she decides to run wild for a while.

It pays to keep a constant check on the water courses around a golf course, clearing and deepening, or widening fast flowing streams wherever such changes will serve to protect surrounding areas.

A few dollars' worth of prevention in the shape of intelligent inspection and precautionary work before natural periods of high water sometimes saves thousands of dollars spent to cure the troubles caused by flood waters.

Ditches in and around the rough should not be overlooked in making such inspections, and the outlets of the course drainage system should be made clear and

ready to do their part in removing excess water.

Greenkeeper Should Play Golf

The average greenkeeper could play many a game of golf in the time he is sometimes forced to spend in listening to complaints as to why this hazard and that hazard does not penalize enough, or penalizes too much.

It is admitted that the putting qualities of the greens are always argued about, but the "dub" golfer, the player whose game is rather less than fairly good, represents by far the largest number in a golf club membership. Such golfers are struggling for the privilege of spending as much time on the greens as they do in the traps and in the rough. A bad hazard to a good golfer is often not so bad. To a high-score player they are all bad, and most of them worse.

It is interesting to note that greenkeepers known for their expert care of the course play golf whenever they can find the time. They are the greenkeepers who *know* just about how fair to play each hazard is, for they cannot by reason of their duties play a lot of golf, therefore for the most part they are in a playing class with the greater number of the members.

Playing greenkeepers can not only check the putting qualities of their greens, but they see just how each green responds to a pitch shot, or a chip shot, or any other kind of a shot. They know from

actual experience how springy the surface is in play, whether or not an undulation should be modified, and how fast or slow the green really is.

It is quite true that there are seasons during which the greenkeeper is too busy to play eighteen holes of golf, or even nine. It is just as true that he should know from the actual playing of the game against the par of his course whether playing is enjoyable, owing to good conditions, or generally irritating, because he has a lot more to learn about greenkeeping.

There should be less argument about the "putting" quality of golf greens, and more about the fairness or unfairness of the hazards on the course and the response of the greens to driven shots, when the question comes up as to whether or not the greenkeeper should play golf.

The standard rules of golf as approved by the U. S. G. A. are as much as possible in favor of the man who is keeping the course. They are just enough in favor of the golfer to make him work to lower his score.

The greenkeeper should have as good knowledge of the rules of golf as the average golfer, and a better knowledge if possible. He should also be entirely familiar with the local rulings of his club, why they were made, and how they work out in play.

So-called "local rules" are those that apply to certain playing angles that are found on one course and not on another. Such rules are almost invariably necessary, as no golf course is standard as to either lay-out, contour, or special features and equipment. Therefore general rules must usually be augmented by specific local mandates, individual with each club.

There are many times when special work is being done on the course, such as drainage ditches half finished, greens being topdressed, fairways being cut, re-turfing in progress, and sometimes jobs of reconstruction on the way. Piles of sand or topdressing, golf course machinery and tools, to say nothing of extra workmen, are in evidence and to some degree retard the game for the players during these periods. At such times, the greenkeeper realizes that he should know his exact rights as a greenkeeper, and also the rights of playing members of the club. What constitutes his privilege to the placing of signs reading "Ground Under Repair" in relation to the rules of the game, is a matter that for his own protection he should know all about. In order to understand why it is

well to let some of the work wait while hurrying another job along; in order to distinguish the difference between necessary and unnecessary nuisances from both a playing and a greenkeeping viewpoint; for these reasons, and others that space refuses a place to enumerate, the greenkeeper should know how to play golf, and play a few holes straight "through the green" every once in a while.

Some greenkeepers know when a hazard looks well. Others know whether or not it looks well, play the course once or twice a month, or as often as they can, and judge the hazard by both its appearance and its features of play. When a greenkeeper can talk intelligently about the various features of his course, and the course speaks for itself as to its expert management; when there is an atmosphere among the membership that is ruffled only occasionally by adverse criticism, *that greenkeeper plays golf.*

There are some greenkeepers who carry telescopes to keep a check on distant workers. That's a good idea. It is also a good idea for him to lay down the telescope once every week or ten days and pick up a golf bag. He will find that by doing so he can more intelligently direct the work of the men he views through his telescope.

REDUCED PRICES ON HOFMANN FERTILIZER DISTRIBUTOR

Salem, O.—Price reductions on the Hofmann All-Purpose fertilizer distributors are announced by the maker, The Salem Tool Co. This price reduction, amounting in some cases to as much as 33 $\frac{1}{3}$ %, has been made possible through increased and simplified production. Design and construction have been greatly improved and a broad range of sizes been made available.

A special new feature of the Hofmann, on which application for patents has already been made, is a feed control arrangement which automatically stops the machine from feeding when the man stops pushing, thus eliminating any piling up of fertilizer in one spot.

AMHERST CONFERENCE AND EXHIBIT

MASSACHUSETTS Agricultural College annual course conference and maintenance exhibit will be held March 13, 14, and 15. This finale of the winter school will feature speakers of national prominence, motion pictures, question box and demonstrations.

This event is open to all interested in golf course maintenance and a record attendance is expected.