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Concepts in Golf Course Design

by Dr. Michael J. Hurdzan, President
American Society of Golf Course Architects

Every talk on golf course design should begin with a reading of the following passage:

GOLF

Golf is a science, the study of a lifetime, in which you may exhaust yourself but never your subject. It is a contest, a duel, or a melee, calling for courage, skill, strategy and self-control. It is a test of temper, a trial of honour, a revealer of character. It affords a chance to play the man and act the gentleman. It means going into God's out-of-doors, getting close to nature, fresh air, exercise, a sweeping away of mental cobwebs, genuine recreation of tired tissues. It is a cure for care, and antidote to worry. It includes companionship with friends, social intercourse, opportunities for courtesy, kindness and generosity to an opponent. It promotes not only physical health but moral force.

D. R. Forgan

Notice that this was written by D. R. Forgan of the Forgan family who were famous club makers in Scotland since the middle 1800's. In fact this passage on "Golf" was written about the turn of the century - 80 or 90 years ago. Much has changed in golf since 1900 including golf equipment, the golf swing, the golf course, and certainly standards of maintenance; but Forgan's description of this great game is as valid today as it was when he wrote it. The point is that the **SPIRIT** of golf is the same, it has not changed, and under close inspection the spirit of golf course design has not really changed either. Some have tragically abused it, but this is more out of ignorance about the true concepts, then it is a premeditated maliciousness. So the purpose of this paper is to discuss golf course design concepts in the time parameters of yesterday, today, and tomorrow; and to give you some ideas that might apply to your golf course. But before I begin this discussion we should restate some obvious facts for they are important and should be kept in mind.

First it must be stressed that maintenance is more important to the golfer than is design. Given a choice between a well designed but poorly maintained golf course, or a poorly designed but well maintained one, the golfer will nearly always choose the best maintained. Secondly, it should be remembered that maintenance has a greater influence on the difficulty and speed of play of a course than does design. When greens are kept fast, fairways lush, roughs long, and sand bunkers soft, you can bet the golf course will play difficult and slow. And lastly it is the subtleties or nuances of a golf course, such as flowers, shrubs, selected tree plantings, tee accessories, etc., that make a golf course memorable and enjoyable. Then in summary this means that the golf course superintendent exercises far greater impact on the golf course and the golfer than does the designer. Hence he should be aware of his power and responsibility and likewise he should be given full credit for making a round of golf an enjoyable experience. (By the way, these influences of the golf course superintendent are also 100 or more years old for in researching old magazines for a history book on golf architecture I am writing, I continually find references made to the great condition of this or that course with only occasional mention of the design.)

The place to start to examine golf course design is perhaps

the oldest and, in my opinion, the greatest golf course in the world, the Old Course at St. Andrews, Scotland. This course is a product of 600 or 700 years of golfers trudging those sandy links, and so rather being designed, it evolved with the game itself and hence it is the touchstone for design principles. At the Old Course, the basic rule is that the hazards for the drive are on the right side of each hole, and the hazards at the green are on the left or middle left. This means that if you risk the hazards on a drive down the right side, then you are rewarded by an easier approach to the green than the left side driver. Although this may be a bit too simple, it does illustrate that what makes St. Andrews so great a challenge is a complex system of risks and rewards. This is the key element in all golf course design - a finely tuned balance of **RISKS AND REWARDS**. In addition the penalty should match the crime while always recognizing the average golfer's margin of error with each particular golf shot.

So the **spirit** of St. Andrews "Old" Course is a system of risks and rewards that demands strategic planning of your golf shots. You must think ahead and not just hit the ball down the middle all of the time.

"Well, how does all of this apply today?" you may ask. The answer is that the most enjoyable golf courses to play demand the golfer be able to apply a precise balance of **skill, strength, and strategy**. So all golf course design must provide the opportunities for this to occur by producing a system of hazards and safe areas that can be managed by all golfers.

This process begins by analyzing the green or green site, determining what are the margins of error permitted around this green, selecting a fair distance to approach the green then working backwards to determine where a fair approach shot must be played from, and then defend or improve it. In short it means laying a golf hole out from the green back to the tee, which was how the first golf course architects did it.

Since the golf green is the key element in this process, that is where this discussion should now focus. But here is where we must also remember those obvious facts I mentioned earlier, you remember -

- 1) conditioning is more important than design.
- 2) the superintendent controls conditions.
- 3) the superintendent should get the credit or blame.

Thus if condition is so important, the golf green must be designed with maintenance in mind, which means good surface and subsurface drainage, a compaction resisting soil mix, sufficient cupset space, enough collar area to accommodate maintenance equipment, maintainable slopes outside the green, and a design and placement of bunkers so they fairly protect the green but far enough away to reduce accumulations of blasted sand, confining of foot traffic, and eliminate drying out of putting surfaces through super-heated bunker faces.

Having been trained and worked as a golf course superintendent, we know these factors well and believe that a green can be designed which will meet all of these criteria. The general guidelines are as follows:

1. at least 4,200 sq. ft. of **usable** cupset area with a total green size of around 6,000 ft.²
2. a free-form design of the green with 75%-80% of it not seriously defended by hazards but 25%-30% of it is strongly defended.
3. surface drain the green in 3 or 4 different directions with interior slopes of 2%-4%.

4. tile drain entire putting surface on 15'-18' centers and build with a high infiltration rate material (at least 8"/hour).

5. mounds should "bleed" out into the putting surface and bunkers should be no closer than 12 feet to putting surface.

These are only general guidelines that can be occasionally modified. But where the skill of the golf course architect comes in is in knowing what is a fair target area within a green, how to defend it, and how to present it to all golfers of all skills. This topic can not be explained in a paper and some golf course designers work an entire lifetime without ever understanding it. It is not magic either, but rather it is a process that requires knowing how all golfers react to a given shot, knowing their probability of hitting various targets with various clubs under varying conditions, and then adjusting risks and rewards in an artistic framework. This ability rests more on experience than on intellect.

This does not mean that the golf course superintendent can ignore these intrinsic factors but rather it **requires** that the superintendent try to understand the design intent, and adjust maintenance to enhance it. This means understanding speed and slope relationships within the putting surface and keeping putting a skillful pursuit; instead of just mowing as short as possible and making it a test of luck. The same can be said of the width of fairway landing areas, the length of rough and collar grasses, and the softness of bunker sand, etc. The goal of maintenance should be to make the game more fun not more difficult.

In the future I believe that golfers will place more emphasis on having a total outdoor environment rather than just a place to play golf. They will expect to see mini-landscapes integrated

into the golf course such as flower beds, rocks, waterfalls, wooden walls, ornamental trees and shrubs, etc. In America we have normalized the golf car and golf car paths, so much that the naturalness found in linksland would be foreign. This situation may be either good or bad depending on your point of view. It may be good in that it allows the superintendent to be artistically expressive through the location of these landscapes and the materials he uses. It will force us to learn more about all plant materials and not just turf and trees so we become more multi-dimensional professionals. On the negative side it requires more work, study, and money to meet these expectations. If you believe this trend is inevitable, as I do, you should begin now using and learning about these materials.

A basic rule that I follow is to use formal plants and devices in formal settings such as around tees, walks, signs, ball washers, structures or bridges, etc.; and informal plants out on the golf course proper. Formal plants and devices are such things as flower beds, steps, garden or hybrid flowers, landscape shrubs, and any kind of planting you commonly see around homes. Informal plants and devices refer to ornamental grasses, wildflowers, meadow grasses such as hard and sheep fescues, prairie grasses, such as blue gramma, buffalo grass, and wheat grasses. Properly used these items can make your golf course distinctive and easier to care for.

In summary I would emphasize:

1. condition is more important than design.
2. make the golf course fun not difficult.
3. be fair to all skill levels of golfers.
4. make the golf course a visual experience through landscape techniques.



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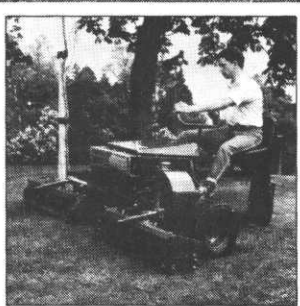
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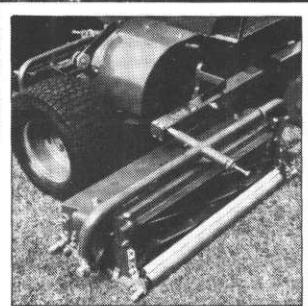
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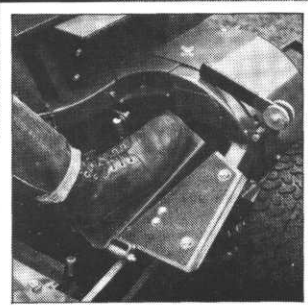
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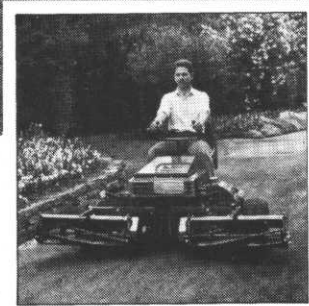
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