Designing Golf Challenges for Economy and Maintenance

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THE GOLF COURSE architect faces an extremely difficult task in the 1980s. He must strive to design challenging, beautiful, and fun-to-play golf courses while at the same time he must ensure that the facilities can be built and maintained at a reasonable cost. He must also ensure that slow play or difficult playing conditions will not drive golfers away. The golf course superintendent has indeed found himself in the same quandary. If we cannot find ways to reduce these costs and wastes of our resources, the game of golf and, therefore, our livelihood will be threatened.

We are all aware that the game as we know it today originated in Scotland and that the golfers of that time played on golf courses that were created by nature, not by men or machines. Roughs and hazards were truly serious trouble, while maintenance was negligible.

Once golf took root in America in the late 1800s, we began to change the game. Our golf is played on a manicured park, whereas the Scottish game is still played on natural links sites. I am not saying that our brand of golf is wrong or that we should revert to the Scottish brand of golf overnight, but let's examine some factors which may *force* us to reverse our thinking toward the Scottish style of golf.

The American Society of Golf Course Architects has been very much concerned about the soaring costs of golf, the stagnation in growth of the game, the slow play, and the real threat that the energy crisis now poses. I would like to stimulate your thinking, not to advocate a sudden reversal in your design and maintenance procedures, but to discuss a few ideas.

To begin with, let's look at basic design. Course shapes, lengths and strategies have changed over the years. Fairway layouts of Scottish courses, when reduced to drawings, offer multiple landing targets separated by devastating rough areas and hazards. We, however, have slowly modified this fairway so that it now is shaped like a banana. Some efforts have been made recently to alter the banana image and give it more of an aesthetic and strategic appeal — but not enough. Golfers have resisted changes to a more reasonable style of design and level of maintenance. Administrators have looked purely at the bottom line, and, for the most part, only the architect and the superintendent have wished for a return to a game of skill and daring as well as a chance to grow a tough, healthy breed of grass that has a reasonable chance to take care of itself.

All of us are aware of the gasoline shortage, and from all reports it appears that the situation is becoming worse. How are we to afford the fuel to maintain our golf courses in the future? Spraying, mowing, and fertilizing — all machines require gas engines of one size or another. Perhaps we should follow architect Pete Dye's example on the PGA Tour's Players Club, in Florida, and use goats to keep the grass from growing wild.

Water scarcity and priority of use is an experience that easterners seldom face, but at least half of the country is experiencing water shortages that could threaten the future of existing and proposed golf courses. We no longer can afford to continue to irrigate as recklessly as we do now. The time is already here in many parts of the country when the first priority for water is for human consumption, with agriculture and industry as second and third priorities. The use of potable water for recreational purposes now is far down the priority list. Without effluent water for irrigation, golf courses would not exist in some parts of the country. We are currently in a western drought again which will undoubtedly have serious consequences to hundreds of golf courses.

COLOR HAS BEEN the biggest threat to golf, and it will be a big threat in the years to come. Al Radko, National Director of the USGA Green Section, wrote an article in the August, 1977, issue of GOLF JOURNAL entitled, "Green Is Not Great." I hope all golf superintendents had the opportunity to read that article, and, more important, that the administrators, boards, managers, golfers and club professionals also read it. If we were to go on a concerted public education program pursuing that article's theme, I feel we could make substantial improvements in turf health and quality for golf. In addition, thousands of dollars in maintenance costs and precious water and fuel would be saved. The article pointed out that a lush, soft green grass is not a healthy condition. Turf maintained that way is highly susceptible to damage from diseases, insects and climatic extremes. Stop and consider how much easier your job would be if you weren't forced into early spring "green-up" through overwatering. Excess irrigation greatly influences problems with *Poa annua*, mowing, pesticide handling and application, which evokes adverse comment from every armchair expert at your club. Sure, it is going to take an enormous public relations campaign and there are some die-hards who may never go along with it, but we must find answers. Now is the time to begin looking.

Courses in Scotland favor native plants for off-fairway cover. Gorse in flower.

We must also develop new grasses and ground covers for our golf courses and parks through natural selection and breeding. We have been deluged with dozens of patented bluegrasses, perennial ryes and other grasses over the past 10 to 15 years. This is excellent; however, I'm concerned that more research needs to be done in the area of drought and heat resistance. Presently, ads extoll grasses for "dark green coloration," or "resists discoloration with early frost," rather than "has excellent texture and hardiness under minimum irrigation," or "produces a dense cover with minimal fertilization," or "dwarf variety needs less mowing."

People in the field, as well as educators and researchers, *must* take the time to search for natural "ground covers" growing on your golf courses and around your communities that can take the place of the exotic grasses. Stan Metsker, past superintendent at the Boulder Country Club, in Boulder, Colorado, was responsible for bringing a high-quality alkali-grass into commercial production after he observed it doing well on his golf course. He took the time to harvest and produce turf from the seed, reaffirmed its turf qualities and then passed it on to turfgrass researchers at Colorado State University. There *must* be superior natural clones of buffalograss, common bermuda, zoysia, ryegrass and other ground covers out there somewhere awaiting discovery.

Research must also continue on growth retardants and their use. We need to know more about application techniques and why minor discoloration seems to be slowing their use. We need to know more so that we can use them more and more efficiently.

Two articles on mowing patterns that I recommend to you appeared in the October, 1980, issue of *Golf Course Management* and in the May, 1980, issue of *Urban Land*. The former is my article and the latter was written by Joe Finger, who is also a golf course architect. Each of these articles provides ideas and illustrations of mowing patterns which could help alleviate some of the cost of maintenance.

VARIED FAIRWAY patterns, rather than mowing constantly to the so-called "banana" shapes, can add tremendously to the challenge and beauty of your golf course. The average golf course now boasts of wall-to-wall green color and the golfer not only can't differentiate targets or differences in hazard, but he is hardly penalized no matter where he hits the ball — *THERE IS NO CHALLENGE.* On the other hand, select areas maintained as fairways sharpen the senses and skills of the golfer. He can *see* his intended target; therefore, he can plan his club selection according to his skill and the reward for having accomplished the shot precisely as planned is that much greater. In short, give golfers fairways that have aesthetic as well as strategic appeal. Select target fairway areas that will require skill, shot placement and daring, and mow them to reflect it.

The rough should be maintained at a reduced pace in terms of mowing, irrigation and fertilization. It should not be a wasteland of rock and knee-high weeds, but it should be "rough." This is

where *native* grasses, ground covers and other minimal maintenance natural plants are critical to budget. Too often in new construction, we, as architects, have been guilty of tearing up the entire site, thereby destroying all native cover. Then we try to reestablish a rough that is foreign to the site, and it either fails or it takes forever to establish. Such rough is costly to maintain.

In my view, as much as 35 percent of your maintenance costs can be saved by reducing your total area of fairway turf. By allowing the roughs to slowly revert back to select native grasses over a period of several seasons, we can still provide reasonable conditions for golf while we add revived interest and challenge at considerable savings.

A common tendency for administrators and club professionals is to think that the only way to improve the profit picture is to increase revenue by means of more golfers and faster play. They feel the best way to encourage faster play is to make it easy to find the ball, have no hazards and generally turn the golf course into "pasture pool" by growing fairway turf over all the golf course. This approach seems logical, on the surface, but it doesn't take into consideration the labor, equipment, fertilizer, fuel, chemical and mowing costs involved. The fact is that capital and maintenance costs equal or exceed the added revenue realized.

Tees can be much more than the aircraft landing strips and boxes that were the rage in the 1950s and 1960s. A tee area should be natural and flowing. Their shapes, the various angles and distances from the tee to the landing zones, and their elevations can and should be varied and made more interesting. Even if you have a rectangular teeing area, you can add interest by modifying the mowing pattern on it.

A time-consuming practice in old-style tees was the need to stop and back-up constantly during the mowing operation. You can increase the tee area and maintain it for equal or less money if you study the problem. If the mower continuously moves forward in a smooth line, you can save time and gasoline. You also save wear and tear on

(Above) Evergreens and rock formations create a spectacular natural setting for golf. Perry Park Country Club, Colorado.

(Left) Unique mowing patterns further enhance this beautiful landscape. Eagle Vail Golf Club, Colorado.

hydraulic systems, gear boxes, and brakes by not constantly raising and lowering reels. The slopes of tees should be allowed to grow taller, since they are not in play. These are also excellent areas on which to use growth inhibitors, even if they slightly discolor or weaken the turf.

DESIGN AND maintenance procedures have already changed to a great extent and will change somewhat more in the 1980s. We have seen much more use of power rakes over the past several years. However, if fuel costs increase, as they are projected to do, the mechanical sand rakes may become too expensive to purchase and maintain. The smooth, rounded edges of bunkers utilized in the designs of recent years will revert back to bunkers of smaller size that can be hand raked efficiently. Currently, we are able to design large, flowing sand bunkers that are aesthetically pleasing so long as they allow for adequate turning radius and stability of the maintenance equipment on bunker faces.

There is nothing to prevent usage of more mounding and grass bunkering in place of sand bunkers. These areas should be maintained as rough and lend themselves to maintenance primarily with growth retardants.

If we must live with our current bunkers, there are ways to cut costs. The principal philosophy is to consider bunker areas as an integral part of the rough — not fairway. Edges then would be mowed less often, growth inhibitors could be used and native grasses could be planted around them. Exploded sand then would be less a problem, since it would not come to rest on manicured turf. All mounds, whether around sand bunkers or standing alone, should be studied to see if a higher cut could be allowed on them. Mounds generally are droughty and are difficult to maintain. Higher cut grasses help shade the soil and reduce maintenance requirements.

To conclude, the pressure is on us to find ways and means to reduce maintenance costs; otherwise, in my opinion, we will all be out of jobs within the next 20 years. Perhaps you don't agree with me. I'm sure you have other ideas that will work just as well. Please pass them on to me and I will do my best to get the word out to our organization.