

President's Message "GET WITH IT"



By Bill Roberts

It is far too easy, and yet somehow, I suppose, understandable, to view our golf course operations in terms of "I". How many times in the course of simple conversation on the telephone or at a WGCSA meeting or in the hall outside of an auditorium at a regional seminar do we hear statements such as "I aerified my fairways last fall" or "I am mowing fairways at 5/8" or "I applied x material to my greens at x rate and I got great results."

The Golf Course Superintendent is accountable, there is little doubt about that. The position is entrusted with responsibility for the management of some very valuable property. We oversee the allocation of thousands of dollars in order to insure the appropriate utilization of such property. We initiate action. We plan, direct, follow-up and evaluate. We get results. We get things done. We. . . .

We actually have staff to implement our direction. Employees carry out the assignments for which we are responsible. People, who with the proper amount of training and motivation, receive instruction, go out onto the golf course and accomplish and who take a great deal of pride in the finished product. We may initiate but how many of us really "aerified those fairways" or "set the mowers at 5/8," "adjusted the reels, transported to and mowed those fairways" or "filled the sprayer, calibrated the equipment, applied the material and cleaned up and stored the equipment?" How many of us do all of those things all by ourselves? Not many of us, at least not all the time.

It is a fundamental assumption with me anymore that my success, my ability to accomplish, depends upon the people who work for, no,

better yet, the people who work with me. When the goal of "the best golf course possible" becomes a mutual pursuit of both management and staff, the goal becomes attainable and the process of attaining that goal becomes enjoyable and rewarding. It is in our very best interest to have staff pointing toward "our" goals.

I would support, at this point, that one way to aid that success, one way to enhance pride in that finished product, one way to consolidate the goal is to encourage participation in the Wisconsin Golf Course Superintendents Association for key staff members.

The immediate and tangible benefits to the individual are many and have been listed in this space many times before. For \$50.00 a year, one can gain access to an increasing number of technical-educational opportunities through speakers at monthly meetings. The information disseminated through our award-winning newsletter is invaluable for new insights and for reference material. The opportunity to view other golf course operations and their programs and procedures while enjoying WGCSA monthly golf outings can stimulate interest in, encourage questions about and enhance support for your own operation.

But aside from these obvious benefits, by supporting staff membership in WGCSA, we, as managers, can accomplish a couple of other things as we remove exclusively from our objectives and move toward a mutual trend.

First of all, we are telling our staff, that we are willing to invest some time and money in their role as a contributor to the "finished product." We are recognizing that

their support is crucial to a clean, efficient and professional operation. And we are "putting our money where our mouth is."

Secondly, we are giving them an opportunity to arrive at a vested interest in our profession. Staff members can become a "part of the business" and not just "the crew putting in their time." Participation allows for identification with the goals of good golf course management at all levels. A sense of camaraderie begins to evolve or is enhanced. A flow of information begins on an informal basis and interest is stimulated. Interest will always stimulate increased productivity and increased productivity means better overall results for your operation.

A third point, although not directly related to enhanced staff performance, is the Golf Course Superintendents obligation to support his profession. The Wisconsin Golf Course Superintendents Association cannot operate in a vacuum and we (all of us) are dependent on new sources of information, new personalities and new perspectives if we are to continue to gain professionally. What better focal point at which to assemble these new sources of growth than the Wisconsin GCSA. If we are to mature individually, we must grow collectively.

If you are currently supporting your employees professional development by sponsoring membership in our association, congratulations. If you have yet to make such a commitment, I would suggest, as they say, you "get with it." It's important to your staff, to your association, to your golf course and, ultimately, it is important for you.

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BUNKERS: A GOLFER'S POINT OF VIEW

By Dr. David U. Cookson



I have often noted that a surprisingly accurate appraisal of a particular golf course's general maintenance can be determined by checking the bunkers. The careful superintendent who understands the needs of his golfing membership will put the same degree of attention to bunker maintenance as he does to the rest of the course, while the less diligent superintendent will often leave bunker care at the bottom of his priority list. Certainly nobody will seriously argue that bunkers are as important as greens or fairways, but proper golf course maintenance includes the whole course, and paying attention to bunkers does enhance the player's golf experience while bunker neglect detracts significantly from the employment of those unfortunate enough to find themselves confronting this situation.

Bunker design is not a primary green superintendent responsibility, but often bunkers do need remodeling or refurbishing, and design may then become a part of that process. First, they should be properly positioned; not so far away from the putting surface that they are out of play, and nearer the entrance to the green than further back since most shots to greens are too short rather than long. I assume of course that we will agree that bunkers are to be placed strategically, so that the good shot is rewarded while the almost good shot is relatively penalized. The bunkers should ideally be visible from the area of the fairway where the approach is generally made, and shaped to be esthetically pleasing as well as to enhance the beauty of the target area. Green side bunkers should have depth, and a definite lip on the green side so that one cannot putt out of them. Some courses ring the bunker, at least on the outer sides, with long grass, which often does enhance beauty and playability, but if not in character with other areas of the course may

look gimmicky and even take away from the esthetic appearance. Placing bunkers where trees may physically interfere with swinging from within the bunker should also be avoided.

The nature of the sand is certainly the green superintendent's responsibility, and too often not recognized for its importance. Mason sand is preferred, and no gravel please! Particle size should be between $\frac{1}{4}$ and $\frac{1}{2}$ millimeter in diameter; heavy enough so that it is not easily blown out by wind, and obviously devoid of clay or silt. This sand provides as well the best kind of sand to hit out of; there must be firmness, yet not so much that the club cannot easily penetrate the surface. The sand must not be so soft that all balls plug, ideally at least half the ball should remain above the sand surface. Some of the silica sands have this too soft characteristic, making a precise shot from such a surface exceedingly difficult and taking away the advantage of having learned to produce an exacting bunker shot. Again, sand should be deeper in the middle of the bunker than on the sloping edge, so a ball will not likely plug unfairly on the steeper lies near the edges of the bunkers. Sand too firm is equally bad, (where all balls sit on a "hard pan" surface), this also taking the differential skill out of executing the shot.

Most important are the specific maintenance practices that the green superintendent directs his crew to perform. Insofar as raking is concerned, I don't think it matters if the raking is done by hand or by machine, as long as care is taken not to leave ridges or furrows after the machine has finished. This occurrence means the operator should smooth out the machine mistakes by hand; time consuming, but the mark of good maintenance practice. Bunkers should be raked often, usually daily; and just because it is spring

or fall doesn't mean that the task should be put off (as is done too frequently, even at very private clubs). One should not neglect bunker edging, and grass adjacent to bunkers, whether cut short or left long, should not appear disorderly. Obviously weeds should be removed immediately from sand surfaces, and poor drainage should be corrected. The green superintendent should keep in mind that playing from wet sand should be avoided, and if green watering encoaches on adjacent bunkers the greens should be watered at a time which allows the sand to dry out before play occurs on the course. Frequently greens are watered soon after dawn, leaving nearly all the players during the day having to deal with wet sand unnecessarily. New sand should never be placed just prior to an important event; balls always plug in new sand, and players in a competition should not have to confront this problem. New sand is always best placed in fall, allowing some compaction over the winter before players need to play from it.

The pertinent message I have wanted to present here is that bunkers influence playability of the course for the golfer more than I think many green superintendents realize. They are important esthetically and in influencing playing strategy, but proper maintenance with the golfer in mind is a significant contribution of the thoughtful and competent superintendent who presents his membership with a first rate playing ground.

A handwritten signature in black ink that reads "David U. Cookson". The signature is written in a cursive, flowing style.

Editor's Note: Be sure to read Dr. Cookson's excellent article on "The Great Golf Course" in the Winter/Spring issue of the Wisconsin Amateur Golfer's Newsletter. It is on page 15 and is complementary to Rod Johnson's article in the last issue of THE GRASSROOTS.



THE RULES NEED CHANGING

By Monroe S. Miller

I left Cleveland, Ohio early in the morning on the second day of my trip home from the Massachusetts Turf Conference in March. It's a lonely drive, believe me, and my car radio was the sum total of my company. I tuned in to America's favorite and best radio station — WGN in Chicago — and, despite a separation of some 350 miles, their 50,000 watts of clear channel power came through perfectly. Max Armstrong, the station assistant farm director, held the microphone at this early hour and was conducting an interview with a gal who was the FMC Agricultural Chemicals Division director of pyrethrin insecticides. It was a wide ranging and very interesting discussion of pesticides, much of which I related to directly. My interest really soared, however, when she addressed a serious problem that all agricultural chemical manufacturers are facing. That problem has to do with the short life of a new product patent. It is a problem that can, if it hasn't already, affect the golf course management business.

The current law gives inventors and researchers a 17 year life on any patent granted by the government. The catch is that the Feds begin the countdown on those 17 years as soon as a company is given a patent; in the case of an agricultural pesticide, it is normally and usually for a new chemical formula. Holding the patent is one thing. Governmental approval for its use is entirely something different. According to the National Agricultural Chemicals Association, it typically takes the government bureaucracy 5 to 7 years to review, test and approve the new product that results from the patented chemical formula. That leaves the manufacturers a meager 10 to 12 years to recover his R & D investment, costs that

average \$25 million or more per product.

When the 17 years of the patent end, a competitor, who never put a cent toward the product development, can begin manufacturing and selling the product, usually at a price below that price the pioneering firm is able to sell the same product. This situation is simply unfair.

Three years ago Congress passed legislation that gave back to pharmaceutical patent holders some of the time they were losing through the long and burdensome governmental regulatory process. Legislators recognized the unfairness of this time forfeiture and corrected it. The law did not relax drug product testing nor reduce the time of that testing. It merely gave researchers more time to recover their investment and earn a profit for their work.

I feel we have seen in our golf course industry some of these same ramifications. The short patent life effectively limits in-

novation and sets the stage for a low level of incentive for competition and creativity, both of which are critical to us in pest management. The law affecting the pharmaceutical business extended patent life by 7 years. There is similar legislation — The Agricultural Chemical Patent Restoration Act — pending and we have an obligation to forcefully put our support behind it.

Denial by a vocal segment of our society doesn't change the fact that agricultural chemicals play an important role in food production, pest control and disease spread reduction. As Dr. Houston Couch pointed out during a presentation at the Massachusetts Turf Conference, there are some exciting new products on the horizon. There are some that may allow us to make only two fungicide applications per year for effective disease control, and they are products that are environmentally cleaner than those we've used in the past. Let's give the agricultural chemicals business a chance to develop and prosper from pesticide introductions that will be safer, more cost effective and more efficient. New breakthroughs are important to our business of maintaining quality turf. The legislation before Congress will give researchers the motive and the means to continue pioneering work. Anything less will be to our detriment.

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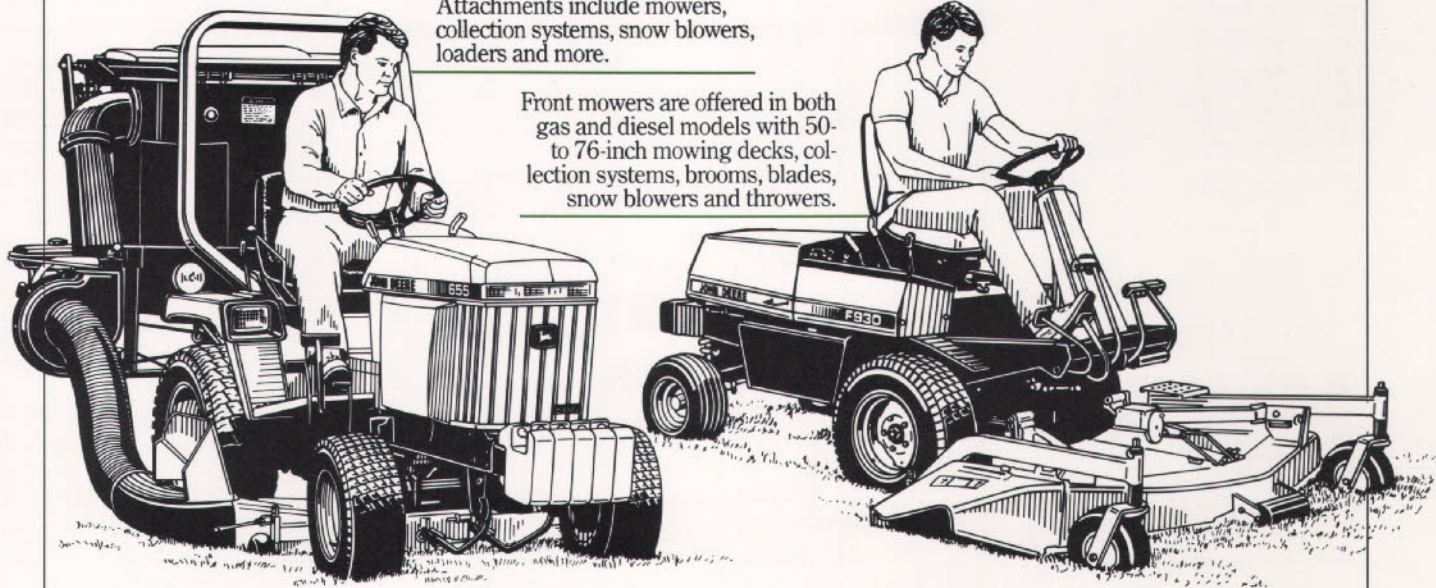
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Updating Diseases — Problems in '85

By Dr. Gayle L. Worf
Department of Plant Pathology
University of Wisconsin—Madison



Each year carries with it some significant observations and experiences. This report will make no attempt to be all inclusive of what happened with turf diseases in 1985, but will focus on four diseases that have traditionally been of comparatively little importance, but whose pattern of activity have increased, or continued to increase recently, to the point that they deserve broader consideration. These four are *Ascochyta* foliage blight, Yellow Tuft, Red Thread, and Bacterial wilt.

We will also discuss one turf management problem that focuses upon a matter of increasing concern, that is, the matter of continued emergence of strains of pathogenic fungi that have become resistant to previously effective fungicides.

Ascochyta leaf blight. One of two general distribution patterns are encountered. The first is a general blighting of large areas, perhaps most of the lawn. Leaf tips turn white or yellow, assuming a rather bleached appearance. Often there are healthy blades of grass interspersed with diseased ones. This condition resembles general bleaching that can follow drying conditions right after mowing, frost damage, or other physical problems. Or, the spots may be much smaller, roughly circular in pattern, and ranging from a few inches to a few feet in diameter. These spots can resemble superficial fertilizer damage or some localized physical injury to the turf. Some leaves may show "hour-glass"-shaped white or yellow lesions. The disease is confirmed by the presence of the tiny black pycnidial fruiting structures that are barely visible to the unaided eye in the dead tissue. These should be confirmed in the laboratory, at least initially, because many other organisms

produce similar-appearing structures superficially.

There are several species of this fungus. It has been associated with cool wet seasons previously, although this relationship was not so evident in 1985. No turf was apparently permanently damaged by *Ascochyta*, but it was a major cause of questions for lawn care maintenance and other turf professionals in 1985.

Yellow tuft disease. Now properly called "downy mildew," and caused by the fungus *Sclerophthora macrospora*, this cool weather disease has increased in many areas of the country in recent years. Primarily a problem that causes blemishes and possible putting unevenness on golf greens, it has also been reported affecting bluegrass in low growing areas and St. Augustine grass in Texas. We have observed some increase in Wisconsin over the last several years, but it reached its greatest severity this past fall.

For many years the cause of this peculiar malady that is sometimes damaging—but more often is not—was undetermined. It is now known that a fungus which affects a very wide range of grass plants can invade the foliage and cause the damage during periods of wet weather. On tall grasses it can often be diagnosed by the dainty, downy growth of mold over the leaf surface. But this does not occur on closely mowed turf. Diagnosis depends upon examining individual plants occurring in these small yellow tufts for evidence of extensively tillered, yellow shoots with few roots. The diseased plants sometimes occur in drainage patterns on golf greens.

Diseased plants eventually disappear. Pythium-controlling fungicides may help control downy mildew, especially if applied before serious infestation, and

with several applications. Single applications of Subdue, which is registered for this purpose, was ineffective when applied on Wisconsin golf greens this year.

Red thread is one of the oldest of turf diseases. Known since 1863, it has been of little consequence in most areas until recently. For some reason many states are reporting a substantial upsurge in its activity, prompting research on the disease. Formerly thought to be caused by the fungus *Corticium fuciforme*, it is now known to be caused by the fungus *Laetisaria fuciformis*, and a second, but closely resembling disease has been identified as **pink patch**, and caused by another fungus, *Limonomyces roseipellis*. To my knowledge, red thread is the only problem of the two in the midwest.

Control measures historically have emphasized increasing the fertility and watering the turf when concerns justified it, because the disease occurred primarily on red fescue lawns that were poorly maintained during dry summers. These treatments are still recommended, but the disease is occurring more frequently on perennial ryegrass, which is considered quite susceptible, as well as on more bluegrass lawns. The present disease shows no temperature restraints. It occurs in the fall or spring, and has even been reported as a snow mold in New York! New Jersey research has emphasized dormant fall fertilizer applications. In their studies, urea formaldehyde was superior to several other nitrogen sources. Two pounds of nitrogen also greatly improved the control they obtained with fungicide treatments.

Fungicide responses have varied among regions. For instance, they reported good control with sterol inhibitors, and some with dicarboximides, and none with Daconil. Wisconsin results have been poor with all of these chemicals, especially Daconil, but we have had good success with Actidione (cycloheximide), which incidentally, is not registered. Results vary among state reports. Like many other diseases, control may have to be tailored to meet local conditions.

Bacterial wilt. Prior to 1981, no

turf disease of any consequence was known to be caused by a bacterium! That changed when Michigan researchers demonstrated the cause of 'C-15' or 'Toronto' decline in the greater Chicago area to be caused by a bacterium, now called *Xanthomonas campestris* pv *graminis*. The turf world remained relatively unconcerned, with the belief that the bacterium was confined to that vegetatively-propagated turf variety. That story is changing. Nimisilia and Seaside bentgrass from Ohio, and annual bluegrass from both Michigan and Ohio have been affected recently, as well as bermuda grass from Hawaii. Several crops are known to be susceptible with a different strain in Europe. Apparently, the bacterium contains several strains that are quite specific to given hosts. This may help reduce its propensity for rapid spread, but the fact that new problems with the bacterium are surfacing is disturbing. Control is difficult.

Fungicide Resistance. Most turf managers are aware of the fact that a number of turf pathogens formerly controllable by the use of certain fungicides are no longer sensitive to these products. Fungicide resistance, as it is frequently called, has rendered a number of previously valuable chemicals useless for most turf purposes. Unfortunately, this pattern is continuing, and with the introduction of the "site-specific" systemic fungicides, particularly, some action should be taken to safeguard their future use.

Some examples where fungicide resistance has been reported include the following:

Dollar spot—cadmium, Dyrene, benzimidazoles, iprodione (Chipco 26019)

Powdery mildew—benzimidazoles (Cleary's 3336, Fungo 50, Tersan 1991, etc.)

Fusarium (pink) patch—iprodione

Pythium—metalaxyl (Subdue)
Ergosterol biosynthesis inhibitors, commonly called "sterol inhibitors," and including Bayleton, Rubigan, and a number of highly potential candidate fungicides, have only been subjected to laboratory situations of fungicide resistance, until recently, when resistance to the apple scab

fungus has been found in an orchard that was sprayed for three years with the product. That's a signal that turf people should listen to—it's probably only a matter of time that turf diseases will be responding similarly.

The report in Pennsylvania that Pythium is no longer controlled on a golf course that used the product for three years is also alarming. In experimental work, Pennsylvania researchers have shown recently that a population initially containing only 0.1% of Subdue-resistant fungal propagules could completely overwhelm the Subdue-sensitive population within just five generation cyclings! Rotations with mancozeb (such as Fore) nor pamocarb (Banol) did little to prevent loss of Subdue effectiveness. However, one-half rate mixtures of Subdue with either mancozeb or Banol effectively protected the effectiveness of Subdue. Whether rotating chemicals in a treatment program or blending compatible products is the most effective way of protecting fungicide efficacy will continue to be argued, but these data speak in favor of blends!

But will this work with sterol inhibitors? And if so, what combinations should be used? Here are some points to ponder as we enter into this important question:

1. Fungicide compatibility. In addition to traditional concerns of compatibility, the two products should have the same length of effectiveness to protect against

"resistant fungus leakage."

2. Economics. Sterol inhibitors have provided long residuals in many instances. What combinations—and rates—can be found to effectively utilize this long residual?
3. Compatible modes of chemical action. Chemicals that behave similarly in the way they stop fungus development cannot be used together satisfactorily for this purpose.
4. Their use as growth regulators. These products have growth regulator effects in many instances, and are being variously considered and used for such purposes as Poa suppression (Rubigan and Cutlass). Will the choice on each golf course ultimately have to be made regarding their management purpose?
5. Other factors. There are many. What diseases should they be used for, eg, should they be "reserved," say, for dollar spot control at the expense of their use during other seasons, for snow mold or leaf spot control, for example?

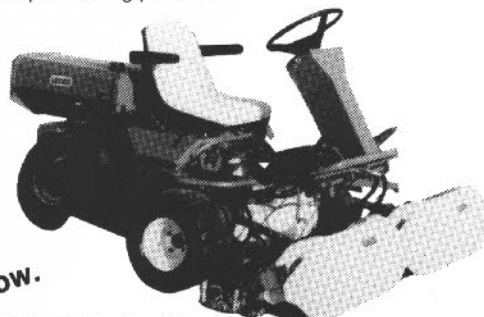
No experienced turf manager expects disease problems to remain static, nor for control measures to become simple and guaranteed. The 1985 season certainly proved the principle. But then, if it weren't for challenges, there wouldn't be any call for turf professionals to manage our golf courses, would there?!



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BUNKERS WITH STYLE

By Bob Lohmann

One of golf's greatest attractions is that it is played on natural terrain, or failing that, on terrain that has been molded so it has the aspect and feel of natural terrain. It is generally agreed that the best land for golf resembles the gently rolling terrain of the British linksland on which the game slowly developed and reached its first stage of maturity.

At St. Andrews, historians say the layout is completely natural and untouched by man, transformed by evolution into its present state.

The bunkers at St. Andrews, as well as all the linkland courses, became an integral part of golf. As architect Geoff Cornish put it, "It is not surprising that a bunkerless course is seldom if ever a true test. It is comparable to playing tennis with the net set too low."

The old course's influence on generations of golf architects has been immense. It served as a model for early architects who in their days did little more than site eighteen teeing grounds and greens on the splendid golfing ground that was put at their disposal.

Nature's handiwork started the sandy depressions, which were probably enlarged by sheep sheltering from the wind. St. Andrews became and still is one long fairway with nine holes out to a distant point and nine holes back.

When golf spread inland, natural hazards did not occur with the same frequency as they did on links courses. After the routing plan for a new course was decided upon, the placing of bunkers became the next consideration. Bunkers are used for a variety of reasons. As a hazard, they are incorporated into the hole design for the purpose of penalizing a misdirected shot and for establishing strategy and shot values. Bunkers are popular hazards because they provide a reasonable chance for escape.



With water, a penalty stroke must be taken. Heavy woods or deep thick grasses force the golfer to either play laterally or to take an unplayable lie which is also a one-stroke penalty. A golfer playing from a sand bunker has a chance to recover without losing a stroke, depending upon his skill.

Bunkers are placed at the turning point of a fairway where no natural defense occurs. This forces the golfer to play the hole honestly. The closer he skirts the edge of the bunker with his tee shot while still remaining in the

fairway, the better his advantage for the next shot. Golf shots played safely away from the bunkers demand a longer second shot often needed to be played over hazards adjacent to the green or second target area.

Sand bunkers are used to provide direction and definition of the target area, be it a fairway or a green. Bunkers placed on the far side of the fairway visually turn the fairway at the target area and provide a direction line for the golfer off the tee. Placing sand bunkers around the putting surface defines and highlights the target.



Bunkers are often used to catch errant shots from going out of bounds or into an unplayable situation. Using bunkers in this way will aid the golfer as well as speed up his play.

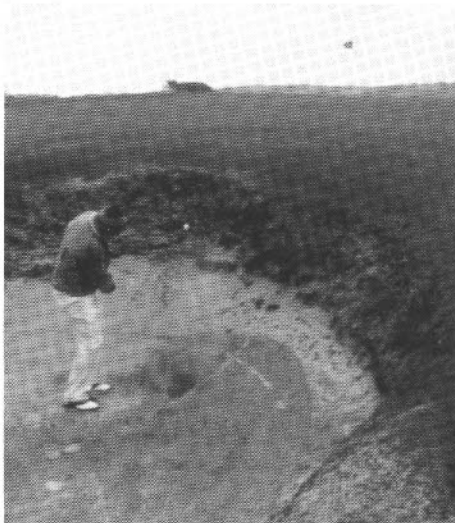
Regardless of design, bunkers are needed for aesthetics. The contrast of sand against grass and water, or the shadows provided by a deep grass bunker, add to the beauty of a golf course. The beauty of a well-maintained series of sand bunkers are remembered and talked about by the golfer. These conversations between golfers are a form of free advertising for the golf course. A course entirely devoid of bunkers lacks the visual definition which is important in developing the character of a golf course.

Bunker design and construction have many variations. Pot bunkers, pit bunkers, cross bunkers, grass-faced bunkers, and flash bunkers are some of the terms used by architects and builders today.

Pot and pit bunkers are small, rather round, deep bunkers with



grass on the banks, and either sand or grass on the bottom. It is difficult to advance a shot from these types of bunkers and they should only be placed adjacent to or close to the greens. From this distance, the golfer can use a lofted iron to escape the hazard.



When using grass bunkers, thought should be given to where the golf shot is intended to land. A deep grass bunker adjacent to a narrow green with water on the far side will practically force the golfer to play laterally. Whereas sand in this same bunker would allow most golfers to control the golf shot and give them the opportunity to aim for the pin. Size of the green, topography and adjacent hazards must be considered when deciding upon the use of either sand or grass.

Cross bunkers are slender long bunkers placed across the line of play either in a fairway or in front of a green. These bunkers demand a heroic type golf shot to obtain the preferred position in the fairway or on the putting surface. At the same time, a safe and longer route is available for the conservative golfer.

The grass-faced bunkers which are common on the older courses have steep grass slopes with sand placed at the base. The steep slopes present on these bunkers were the result of minimal grading operations and inefficient equipment available at the time of their construction.

A commonly used sand bunker is the cape and bay bunker, where sand is placed on constructed mounds and grass is placed on

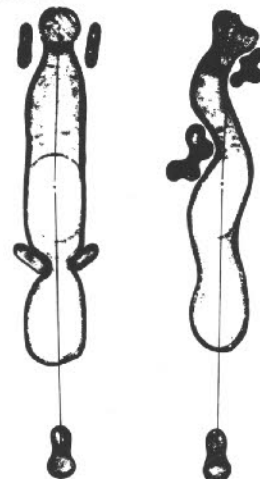
capex between and below the mounds. By varying the outline of the sand and modifying the heights and widths of both the sand and grass capes, the overall bunker becomes attractive. Some courses have expanded their bunkers and made the curving outlines less pronounced to allow for machine maintenance. As long as the sand is inexpensive, these bunkers are economical to maintain and still are attractive if the other features of the golf course are designed and built in the same size relationship. These bunkers are built slightly into the ground with the adjacent mounds blend-



ing into the existing topography. The fairway bunker is built to allow the golfer to exit using a mid or long iron while the bunkers on the green approach area are somewhat deeper, demanding a more lofted iron to be used.

Many of the older golf courses have some bunkers that are obsolete by today's standards, but possess character and distinction.

Generally, many of the bunkers penalize the shorter hitter while not affecting the big hitter. The landing area for the tee shot of the average golfer is between 175 and 225 yards. When renovating a golf course, the bunkers short of this area should be removed and replaced with bunkers in the area just beyond a good drive of the short hitter.



The relocation of the fairway bunkers provide an interesting, challenging test for the better golfers and a fairer test for the average players. The location of the bunkers should test the ability of all golfers, the use of the draw and fade, the chance to carry a bunker for better position, or to play short to avoid a hazard and still have an open shot to the green.

The design and construction of any new bunkers on an existing course should resemble the character, if any, of the present bunkers. Character can be

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