

# Great Golf Courses of America

## — Their Bunkers

**Panel Members:** Edwin B. Seay, President, Americal Society of Golf Course Architects, Ponte Vedra Beach, Fla.

Bobby McGee, Superintendent, Atlanta Athletic Club, Duluth, Ga.

**Moderator:** Carl Schwartzkopf, Mid-Continent Director, USGA Green Section

**Schwartzkopf:** Gentlemen, I'm looking forward to your individual discussions of bunkers on the golf course. As both a golf course worker and golfer, I have spent more time than I care to recall in bunkers. Ed Seay, would you present your paper first?

**Seay:** Bunkers alone not only influence, but can completely dominate the mood, playability and overall interest of a given golf course.

I am often asked, "What size, shape, depth and kind of bunker do I prefer?" My answer is simply that any given course should have as many different kinds of bunkers as possible. If all were the same, the monotonous effect on play would be no less than if every green on the course was of the same design.

Bunker design is strictly the option of its creator. The free form and irregular shapes of today's bunkers may appear to have no reason why they meander and finish up where they do. But in actual fact, it is quite the contrary. Sensitive golf course architects are very much aware of the effect on the player of a single errant wing or finger of a bunker.

I prefer to see a course that has very large to very small bunkers and all sizes in between. I prefer loose and natural shapes to the modern free form shapes. Actually, there is very little difference in their construction. To me, however, there is a tremendous and fantastic difference in their finished appearance. (See Sketch A).

I also prefer varying depths of bunkers throughout a course. For example, a player whose shot barely misses the ideal spot in the fairway and just rolls into a bunker, should have a much easier recovery shot than the player whose shot is more errantly off line and lands well within the bunker.

Another question frequently asked is "How many bunkers should be designed into a course?" There is no rule of thumb on this point, nor should there be. Nevertheless, the importance of incorporating bunkers into the design of a golf course deserves very high priority. Their number should

depend strictly on their intended purpose and need from both a strategic as well as aesthetic point of view.

### Bunker Placement

The reason a bunker is placed where it is on a particular hole can generally be explained in one of the following ways:

Preventive— Protective— Directional—  
Definitive— Aesthetical—

All of these reasons are important and should be considered in bunker design throughout the golf course. The placement of bunkers alone can specifically design the type of hole confronting the player. Bunker placement can set up a hole as penal, strategic or heroic. (See Sketch B).

Today's courses are generally designed with the varying skills of all players in mind. The golf course architect gives a tremendous amount of time and consideration in determining the proper location of bunkers so that all players will be equally challenged. Many of the earlier constructed courses have fairway bunkers which are hazardous only to the high handicapper, the shorter hitters or the ladies. They offer no challenge to the better golfer.

### Bunker Sand

Four million articles have been written, 10 million laboratory tests have been made and there are some 7,000 sand quarries in the United States. Unfortunately, the standards of grading sand and the methods of testing sand are not the same in any one of these tests, so the qualities you get in one area will not conform with that you may find in another.

In 1972, the USGA Green Section adopted and published a standardized classification for sand. They further adopted the range from medium to coarse sand for use in bunkers. No larger than 1.0 mm and no smaller than .25 mm was suggested.

(A copy of Sands for Golf Courses is available from any Green Section office listed inside the

### Bunker Construction

Golf course architects have a number of options available when constructing bunkers. They may be:

- 1-Formed on existing natural terrain.
- 2-Formed into constructed earth features (mounds, slopes).
- 3-Depressed (cut) into existing slopes.
- 4-On grade—low profile with low face and lip.
- 5-Elevated—high profile, high face and lip.

Regardless of how well the architect satisfies his intended purpose for a bunker (whether strategic or aesthetic), the bunker must function mechanically. By that I mean it must have good surface and subsurface drainage. Its sand should not wash off the face in a storm or after irrigation, and the lip should remain stable. The sand should not wash out or be blown from the bunker.

Poorly constructed bunkers frequently have a breakdown of the lip and almost always require constant maintenance in trying to keep the sand from washing off the steeper faces. By cutting the face of a bunker in a concave manner and packing the sand in depths of eight to 12 inches beneath the lip, lip breakdown is prevented and, in most cases, the washing away of the sand from the face is eliminated. (See Sketch C).

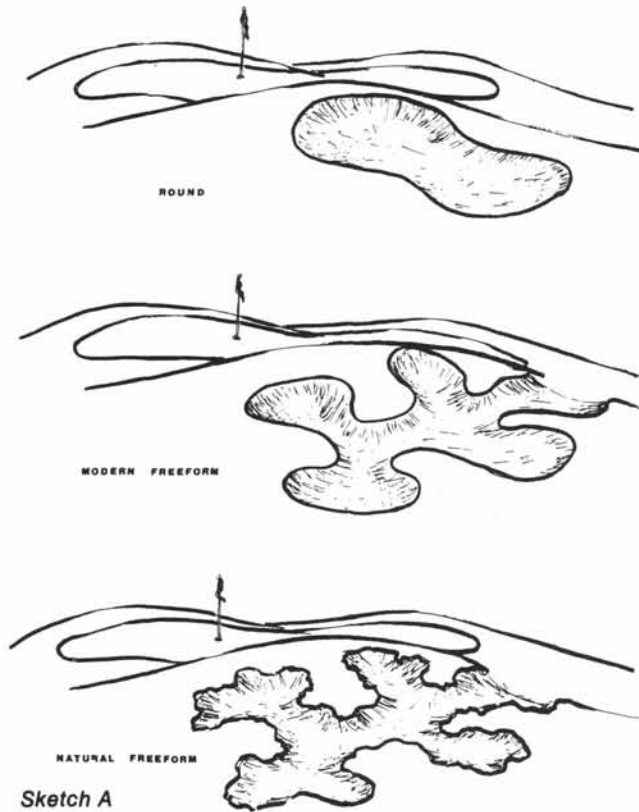
A lot of criticism that bunkers receive relating to their high maintenance costs is sometimes due to the errors and oversights in their design and construction: base grade (bed), slopes too severe, convex or straight faces, no subsurface or surface drainage, etc. More and more attention is being given to bunker design and construction and hopefully we are learning not to make the same mistakes twice.

Without question, good maintenance of a bunker plays a major role on any golf course. The mechanical sand trap rake has been a tremendous aid. The architect can do his best in proper design, depth, size, perfect placement, the proper sand and proper construction. However, if the crew does not sensitively take care of the bunker and understand why it is there and why it is that deep and in that shape, we lose much of the effect. Very few players enjoy a course where the bunkers are wet, trashy and the sand has blown out.

In conclusion, even with all the adverse and negative comments concerning the maintenance of bunkers, they continue strongly to defend themselves (with the superintendent's help) and remain a feature in golf course design that will never be replaced. Nor should they be.

**Schwartzkopf:** And now to a superintendent's view of bunkers and Bobby McGee of the Atlanta Athletic Club.

**McGee:** I've always wanted to follow an architect in a discussion of bunkers. Now I have my chance.



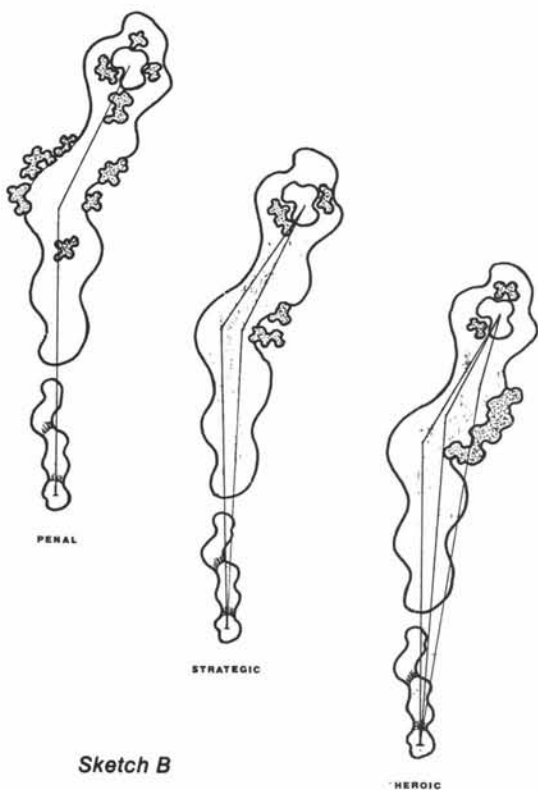
Sketch A

When speaking of bunker maintenance, the basics are somewhat simple and yet, when we carry them out—i.e., the raking of sand, proper edging, whether it be to establish a lip or to keep the grass from growing into the bunker, or just keeping bunkers free of weeds—these tasks can sometimes become quite complex. We have various tools to do these jobs, including the motorized bunker rake. Remember, the motorized rake will save us money and will save us time. In many cases, unfortunately, it must remain in the maintenance building. I have experienced this on the new bunkers on our Highland Course at the Atlanta Athletic Club. Their design simply will not accommodate the mechanical rake!

The problems of bunker maintenance really begin when construction begins. A lot of thought should go into bunker construction. I think they deserve as much thought, as any other part of the golf course; in some cases they deserve more thought.

Drainage, as an example, is absolutely necessary in our part of the country if you are to have a playable bunker and maintain it economically. The Georgia red clay at the Atlanta Athletic Club holds water like a bathtub. Therefore, drainage must be the most important part of both exterior and interior bunker construction. Any bunker constructed so that water may run into it from the surrounding area is a total disaster.

The drainage of many bunkers is based upon the old sump idea. You go to the lowest part of the



Sketch B

bunker, dig a hole, and from there you install a tile line leading off to a lower area somewhere in the rough. That's it! Quite frankly, this does not do the job. It may work for a while, but over the long haul there must be good drainage inside each bunker. Of course the size of the bunker has something to do with it. If it is small, you might get away with the sump idea. If it is quite large, you will need a thorough drainage system.

In talking about bunker construction, one tends to wonder why we say all these things are necessary in building bunkers. After all, architects are trained in the work. Golf course builders have experience in installation and drainage. Superintendents know what the problems are and how they can be corrected or avoided. What happens when things go wrong and mistakes are made? One of the main problems certainly is a lack of communication with all parties concerned; the owners, the architect, builder and superintendent. We must all work together to achieve the desired result. If we do, we will have a bunker that is properly built, that can be maintained in an economical manner, and above all one that can be kept playable at all times for the membership. When we fail, we point to the other fellow.

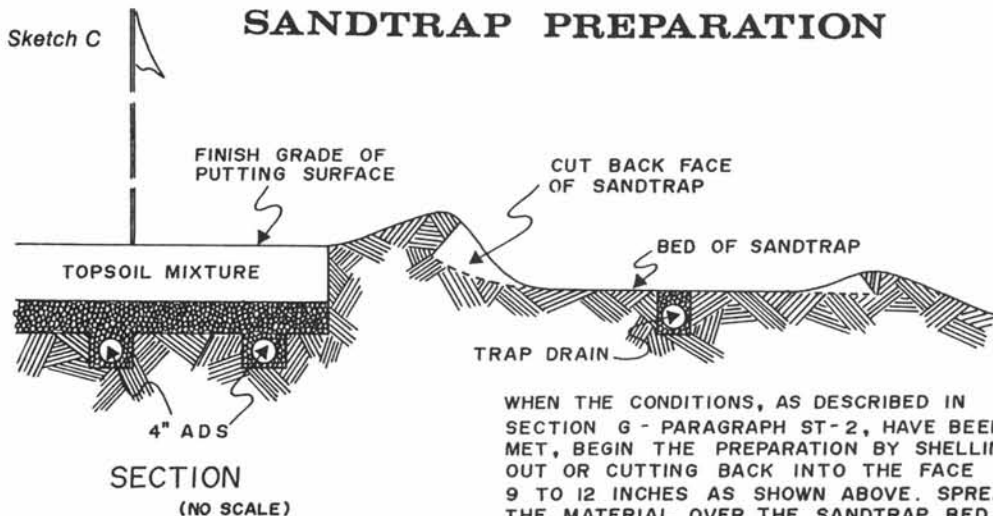
A few nights ago while talking with some golfing friends, I was asked about my participation in this USGA Meeting. "What are you going to tell them?" they asked.

"I'll be talking about bunkers", was my reply. With that one of them just laughed.

"What can you say about a hole in the ground with sand in it?"

"Not much really, except that's not a bunker."

There are a lot of bunkers around this country and, indeed, all over the world that are just that—"a hole in the ground with sand in it." In fact, I have checked with many superintendents recently, and not surprisingly, many of the great courses have undergone severe bunker renovation and improvement and no longer have just holes in the ground. They have accomplished many of the tasks we have discussed in this panel. They have brought the level of their sand bunker maintenance up to the standards of the rest of their course. That's probably one of the reasons why they are great golf courses.



WHEN THE CONDITIONS, AS DESCRIBED IN SECTION G - PARAGRAPH ST-2, HAVE BEEN MET, BEGIN THE PREPARATION BY SHELLING OUT OR CUTTING BACK INTO THE FACE 9 TO 12 INCHES AS SHOWN ABOVE. SPREAD THE MATERIAL OVER THE SANDTRAP BED.

PACK WHITE SAND INTO FACE TO A MINIMUM DEPTH OF 8 INCHES AND OVER THE TRAP BED 4 INCHES.