



L to R: Holman M. Griffin, Mrs. Allison Choate, Dr. Ralph E. Engel, John P. English

interfere temporarily with play but it means that later on the green will have a healthier root system. This and many of the other mechanics of greenkeeping may seem to cause the green to fall far short of perfection from the golfer's standpoint, but these mechanics are necessary for the superintendent to insure that the grass is as nearly perfect as possible all through the season."

CONSTRUCTION OF PUTTING GREENS — PANEL DISCUSSION

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Construction techniques and practices profoundly affect the playing qualities of a putting green. The soil mixture should be one that will support a good stand of grass, will be resilient enough to hold a well-played shot, and will be firm enough to resist pitting from the impact of balls landing from a high trajectory shot. Water should drain from the surface rapidly enough to permit play within a reasonable period of time following a rain.

Some contours are desirable from the standpoints of interest and surface drainage. However, the sharp undulations that make putts unfair and

The search for perfection continues and each new development brings us nearer to the goal which we can never achieve. To borrow a thought from the pamphlet describing the Green Section's purpose and work, "The whole record of man is a story of the search for the ultimate. Although it is never attained on this earth, man is never permanently frustrated. The search goes on."

which seriously limit cup space should be avoided.

Construction is equally influential in its effect upon subsequent maintenance—fertilization, irrigation, disease control, mowing, etc.—and will be affected by the type of soil which goes into the green, the drainage system and the surface contours.

The USGA Green Section has prescribed certain construction procedures which, if followed, will preclude many maintenance difficulties. It is believed that playing qualities also will be enhanced by use of a highly permeable soil mixture, an abrupt interface marking the trans-

ition between relatively fine and relatively coarse soil particles (thereby creating a suspended water table) and a gravel layer and tile drainage system. The correct soil mixture is extremely important. It must be resistant to compaction and quite permeable to water even after compactive forces have been applied. The mixture must be used in conjunction with a layer which will produce a suspended water table; otherwise it will be droughty. Finally, the mixture must support a good stand of turf.

Examples of greens that have been

built according to the specifications outlined in the Green Section publication were reviewed. It was determined that in every case where the greens have failed to behave properly, there has been a failure to follow directions exactly. The omission of one step can cause failure.

It was again pointed out that each step in the process has been designed to fit with the remainder of the procedure. Unless one intends to follow directions exactly, he should not begin to build greens by this method.

PUTTING GREEN GRASSES AND THEIR MANAGEMENT — PANEL DISCUSSION

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Many golfers believe that all grasses are alike, and that if the greens at one course are better than those at another, it is because the one superintendent is more capable than the other. Of course, there are differences in the maintenance capabilities of men, but there are also great differences in the habits and qualities of putting green grasses. They respond differently to conditions of climate, exposure, water supply, nutrient supply, mowing practice, traffic and all the other factors which are imposed in varying degrees on golf course turf.

This discussion concerns the grasses used on putting greens and some of the management practices required. Many of the first bentgrass greens were planted to South German mixed bent. They presented a blotched and patchy appearance because of many different types of grass, but the putting qualities were quite good.

Bentgrasses which are used for putting greens to an appreciable extent include two strains, Seaside and Penncross, which may be planted from seed. In addition, about 10 strains which must be established

vegetatively are used. Some of the attributes of the various strains are listed.

Seaside is perhaps the most widely distributed grass used for putting greens in the United States. Until the last few years, Seaside was the only creeping bentgrass of which seed was available. Seaside bent is a mixture of many creeping bent types. Because of this heterogeneity, some of the plants in the population derived from a Seaside planting will be adapted to almost any set of geographic, climatic, and management conditions that may be imposed. The individual plants which are best adapted are the ones which persist. An older planting of Seaside will take on a mottled appearance because of the development of individual plants.

Penncross creeping bent is the only other creeping bent presently available from seed. Penncross is a synthetic variety created by a plant breeding technique known as polycross. Three plant selections were made from a Seaside bentgrass population. These three plants were grown vegetatively until a sufficient quantity of material was available to produce the necessary