



A gallery follows Byron Nelson and "Jug" McSpaden during exhibition at the mile-high, all grass course of the Butte, (Mont.) CC. Purchase of land adjoining the old course with its hard surface sandy soil fairways and sand greens provided two stream beds and reservoir sites that made the first all grass course possible.

# How Butte, Montana Re-built and Maintains Its Course

By WM. A. O'KELLY

Chairman, Green Committee, Butte Country Club

This article was sent to GOLFDOM with the thought that some valuable information may be gained by its readers. The author has enjoyed reading GOLFDOM for several years and has benefited from its well edited pages. If anyone with similar problems is able to use the information, this article will have been justified.

The old Butte CC course was the first in Montana, and for 35 years had been used by the members without complaint. Fairways were hard surface sandy soil with little or no grass anywhere. Greens were oiled sand with sweeps for smoothing each putt. One golfer had said, "You have to know how many grains of sand to take with each iron shot." It wasn't quite that bad, but many times a mouthful of dust was the reward of a good sand divot.

Butte is situated in the Rocky Mountains practically on top of the Continental Divide, at an elevation of 5700 feet. The climate is dry and has extreme minus temperatures in winter. Even summer nights are cold and the growing season is short.

There is little soil in the upland valley, except near a few streams. The topography is most recent geologically, and the vegetation had been scarce for many years because of smelter fumes, up until about 1910. Most of the rocks of surrounding mountains are granite, with only small spots of limestone. Therefore the soil is acid and contains little humus.

## Moves to Water Site

Near the Country Club area are two stream beds and in one of them two artificial lakes were maintained over a long period.

In 1940 the Club bought 125 acres of land embracing these two creek beds and lake or reservoir sites, with the purpose of constructing its first all-grass course. Some of the old timers said it couldn't be done with the funds available, some \$28,000.

Everybody put shoulders to the wheel and with some help from political units and business men and some very efficient machine earth movers and plows, the fairways were fashioned and small greens

built up. The sandy, clayless soil obviated green tiling or special drainage and therefore the greens cost about \$100 apiece.

The object was to get away from the sand course with an 18-hole all grass course at the earliest possible time. The job was started in June 1940 and we played on the course in July 1941, at a cost of \$28,000.

A series of closed-circuit three-inch water lines were laid over the course with six and eight-inch feeders from the regular city water supply at 110 pounds pressure. We purchased 28 sets of 75 foot, one inch hose and Johnson sprinklers and our water-bill has averaged less than \$2,000 per year ever since.

In 1946 it became apparent that with most of the course paid for we must begin to improve, lengthen and beautify the layout. Three new greens (8, 9 and 10) were constructed of a mixture of 1/3 washed sand, 1/3 peat moss and 1/3 fine loamy soil. The length of the course was thereby extended from 5,730 yards to 6,160. New tees were being constructed and the 5th and 18th greens were re-constructed on top of 6 inches of washed sand and crushed rock.

#### Drainage

Portions of the course lying in low areas needed drainage, since even sandy soil if saturated makes a poor host for grass roots. 4,000 feet of four to six-inch tile was laid in the springy areas and the excess water drained off into the creek. The water-table was dropped down

to three feet below the surface in the worst areas, and except for very wet seasons the grass roots are above the water. Sloping greens, high in the back, were best adapted to our needs and grass proved to be much better on well drained, sloping greens.

14,000 feet of four-foot ditch was excavated around the edges of the lake or reservoir sites to discover spring water and drain it off. Most of these ditches have been since filled or leveled off.

#### Sand

Washed quartz sand has been found most effective in our new greens and on hillsides. Grass seed will not wash off if covered with coarse sand. Quartz sand will not change or alter to clay and makes a most suitable constituent of seed bed soil. Equal portions of this sand, peat moss and loamy soil have been found very satisfactory for dressing as well as seed bed. Greens so constructed and maintained are consistently good greens.

The Butte course is free from clay soil and it is because of that fact that it has required so little money for construction or maintenance.

#### Weeds

Dandelion, plantain and several creeping weeds have been successfully killed with 2-4D. Chickweed is beginning to show in the fairways and an effort will be made to eliminate this by digging it out. As yet, we cannot see any effect on it by 2-4D. Chickweed is ruining many of the western fairways and we hope the



The laying of 4000 feet of tile and digging 14,000 feet of four-foot ditch has made possible the excellent green shown here in the low lying area on the new Butte course.

research experts will give us the answer.

#### **Fairway and Greens Seeding**

For this altitude and latitude we have found Kentucky blue grass ideal for fairways. It is a hardy grass in this climate and will resist weed growth if properly fertilized and watered. Cut short it makes a good surface for real golf shots. 30% red top was planted with the blue grass in the beginning.

For greens we have found, so far, that a mixture of Chewings Fescue and Colonial bent in equal amounts by weight gives a good tooth for putting surfaces and is especially good for sloping greens, where flatter, smoother creeping bents fail to hold the ball. Although neither grass is accustomed to our rigorous climate, both have shown unusual hardy qualities if properly cared for.

#### **Snow Mold**

The only serious damage to our greens has come from snow mold. The dry cold climate prevents the formation of many of the fungus growths that afflict other golf courses and until the greens had become packed down and hardened from traffic there was little serious damage from anything. Dressing late in the fall was found beneficial.

Preventing the greens from thawing or drying out in the January thaw was found beneficial. However, we now have a West Point aerifier and from some spiking experience we are satisfied that our snow mold problem has been solved.

In addition to reducing nitrogen fertilizer in the fall and aerifying, we are dressing late and applying Tersan as an added precaution. My opinion is that the late dressing is the most valuable asset next to aerifying.

If possible, snow should be kept on all greens through the January or February thaw, otherwise winter kill is experienced.

#### **Fertilizers**

From the beginning of the course we have used 10-20 Anaconda Phosphate fertilizer for greens and poor spots on fairways. It has been a wonderful stimulant to both grasses, but seems better suited to blue grass where cuttings are not removed.

All of the greens and fairways have been sampled and tested at Montana State college and application of lime and potash has been made where needed.

Milorganite is being used in the fall now and the greens are going into the

winter in a toughened condition. Phosphate nitrogen is not applied after the growing season.

Rotted cow manure is used on sandy hillsides and in greens dressing to some extent.

A thin layer of fine quartz sand has been used to good advantage on top of the greens dressing. It stops discoloration of the grass by wet dressings and provides some drainage value. It also has a value in retarding the impacting of greens by traffic.

#### **Hazards**

The two streams through the course have provided 14 water holes with six actual crossings where hazards are marked. In addition, one dry creek crosses the 5th fairway and furnishes a marked hazard near the green. Trees and willows line most of the fairways and provide sufficient additional trouble to the slicer or hooker. Therefore no sand traps have been constructed and only a few grass bunkers have been built to guard the greens. These facts indicate low maintenance costs.

#### **Clean-up Days**

One of the constructive activities of the club has been the annual Clean-up Day in the spring when 75 or more men report after work hours and do a fine job of beautifying the course. In one instance they actually constructed three new greens without much cost to the club. Men who will work like that appreciate the facilities and use them afterward, and there isn't so much criticism of the grounds superintendent and crew.

#### **Tree Planting**

Several hundred conifer and waxleaf willow trees have been planted on the course. They will provide additional beauty as the years go by. It is hoped that the Canadian poplar which now surrounds many of the fairways will be supplanted by other type trees in time. Both the roots and leaves of the poplar give trouble.

Our policy is to improve each year. The projects contemplated are larger grass tees and less areas where balls are lost. And always to improve the condition of the greens if possible, not, by making larger greens, but by making them more attractive and with improved putting surfaces.

J. D. Murphy, our club president, has always given generous support to our program.