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Rock Island Argus photos by Sam Bjorkman.

Credit Island's 12th tee is down there somewhere, but Butch Miller, who is inspecting the damage, won't be driving off it even though he is getting lined up to go through the motions.

When Courses Are Flooded What's A Little Thing Like Pythium?

Davenport's Credit Island and Rock Island's Arsenal GC will be either knocked out or slow in coming back as a result of the damage caused by the rampaging Mississippi

By M. E. DEYO

Not all the victims of the "Great Flood of '65" were people and their property. Two golf courses suffered extensive damage, as well. They are Credit Island GC and Rock Island Arsenal GC, both laid out on islands in the Mississippi River between Davenport, Ia. and Rock Island, Ill.

Can you revive a golf course completely engulfed by Mississippi flood waters for nearly five weeks? How can it be done? How long will it take?

These questions have confronted the Davenport park board, the director of

parks and recreation, Emil Plambeck, and the public links head pro, Bob Fry, and his assistants, Bob Peeples, who is in charge at Emeis, and Dean Johnson of Duck Creek, ever since the causeway to Credit Island GC and Park flooded out at the 12-foot stage on April 11.

Plenty of Warning

There was plenty of warning that the flood would be a bad one, of course. River towns the length of the upper Mississippi were watching the stages at St. Paul and Minneapolis, and the Army Corps of Engineers' predictions anxiously.

But that it would be the worst flood in 100 years in the Quint-City area could hardly have been foreseen as the river hit the 15-foot flood stage on April 16. (The Quint-Cities are Davenport and Bettendorf, Ia. and Rock Island, Moline and East Moline, Ill.)

Who would have thought then that the flood would top the '51 crest of 18.3 and the '52 crest of 18.6 by four feet and hit a staggering 22.44 feet on C-Day, April 28? Or that

The flood stage would last 28 days from April 15 to May 12. . . .

The Quint-Cities would sustain over \$9,000,000 in property damage and flood protection costs. . . .

That more than 11,000 persons would be forced from their homes in the two counties (Rock Island and Scott) in which the Quint-Cities are located?

Flood Timetable

Credit Island had its own flood timetable and record. Park director, Emil Plambeck, logged it this way:

April 11—causeway to the island under water;

April 19—water on course;

April 20—course completely covered;

May 10—workmen back on island to begin cleanup and road rebuilding operations;

May 20—some water still left in low-lying spots—course muddy yet;

May 24—probable date course com-



Ol' Man River keeps rolling here. Sandbags on the "low" 9 at Rock Island Arsenal delayed onset of the flood, but eventually they weren't enough, and the course was severely damaged.

pletely water-free.

And what has nearly five weeks under water done? The flood of 1952 showed that 17 days of flooding was almost sure death to the grass. Now it seems to be



This lonesome little patch of turf is Credit Island's 10th green — the last spot on the 5,800 yard course that isn't under water. Photo was taken from a helicopter.

smothered by the combined water, silt and sand. No blades were showing when a preliminary inspection was made in early May. It didn't look as though the greens would come back at all. (Tennis courts, picnic grounds and ball fields in the park areas on the Island are similarly affected.)

There are bad washes in the causeway and roadways. Approximately 200 yards were completely washed out — reduced from 30 to 15 feet in width.

Mud and silt have been deposited across the roads and on the course in a sandbar effect where the water eddied.

Clubhouse, Pro Shop Hard Hit

The main floor of the clubhouse has been severely damaged. (It was sand-bagged, but this emergency protection did not hold very well.) There is about five feet of water in the pro shop, concession and restroom areas.

From their experience with the '52 flood, golf and maintenance personnel knew what to do beforehand. And, with ample warning from the Rock Island Engineers and weather forecasts, they knew they had about a week to do the work. Says Bob Fry: "We took all the equipment out of the clubhouse we could, and put the rest upstairs." Thus, all movable equipment and merchandise was saved.

Three trucks and a tractor used in the final stages of preparing for the flood were blocked up in front of Credit Island Inn (the clubhouse which houses the pro shop) to "ride out" the flood.

"We thought we had the equipment out of the water, but it got a little higher than expected," says Emil Plambeck. A little higher, indeed! On May 12, 15 days after the crest, the vehicles were still half submerged.

Not to be Abandoned

Will the Credit Island course and park (Davenport's largest playland) be abandoned for another site less susceptible to flooding? No, say members of the Davenport park board. They not only plan to rehabilitate the course but remodel to place both first and tenth tees near the clubhouse.

No, says Mayor Ray O'Brien. "Credit Island makes enough money to pay for an occasional flood," he commented during an inspection tour of the island with



Fairways at Credit Island are distinctly outlined by combination of high water and trees. That's the clubhouse roof sticking out at top left of the photo.

other city officials on May 14. (The course grossed approximately \$50,000 for almost 42,000 rounds of golf in 1964.)

Rehabilitation Plan

Plans for rehabilitation have been made. Plambeck has outlined the general sequence in this way:

1. Get roadways under repair. (About 1000 cubic yards of rock have already been used to fill in the washouts and bring the road surface up to the correct height.)
2. Remove debris—trees, logs, planks, etc.
3. Remove mud and silt "sandbars" with end-loaders. (Plambeck commented dryly, "We may end up with elevated sand traps.")
4. Get the water off the island. (It has been draining through four outlets as the river lowers.)
5. Let the land dry out.
6. Do a complete re-seeding and partial remodeling simultaneously (The board

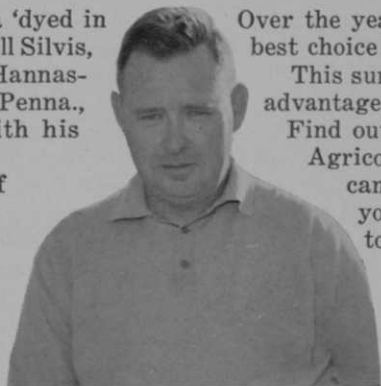
(Continued on page 76)



**“Performance,
that’s what made me decide
Agrico would be a good partner.”**

“I guess you might say I’m a ‘dyed in the wool’ Agrico user,” says Bill Silvis, Pro-Superintendent of the Hannastown Golf Club, Greensburg, Penna., shown checking a green with his assistant, John Tutich.

“I liked the performance of Agrico when I worked with it before coming here,” he continued. “I made a decision then, that when I had a golf course responsibility of my own, Agrico would be a good partner.



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COMPACTION

Golfers are blamed for causing it but how much is due to poor maintenance practices?

By ROWLAND B. ARMACOST

Several years ago, in April, I visited a Massachusetts course that was considering reconstruction of a green. The chairman accompanied me to the green site where we immediately noticed deep footprints indelibly marked in spongy turf. An unthinking golfer apparently assumed no damage would be done if he played on the soggy green or, if there was any damage, nature or the supt. would be able to repair it. What he didn't realize that nothing short of total renovation could have put the green back in shape.

There is no soil mix that I know of that resists marking when the ground is thawing, or is soggy or soft. Soil particles under these conditions slide into pockets formerly occupied by air and moisture. When the ground eventually dries, the soil structure is found to be solid, incapable of drainage and, for that matter, breathing.

Supts. are prone to blame the golfers when their greens become marked and compacted. But are only the golfers to blame?

Let's take a look at ourselves, our courses, our maintenance crewmen and the circumstances in which we work. Do we begin mowing immediately after watering the greens? . . . or water them while play is heavy? Do we work on our greens in the early spring and late fall when thawing and freezing are at their heights? In short, aren't we as guilty as the players

at our clubs for the bumpy and compacted condition of the putting surfaces?

Supt. Has To Repair It

Whether our guilt is as great as that of the players is something that can be argued interminably. Regardless of what the decision may be, we have to find the solutions to the compaction problem. How do we go about it?

First, we have to develop the best possible soil mix, do everything we can to improve drainage and, most important of all, devise a mechanical management program that can, in some way, cope with the compaction problem.

We need to develop better communications with our maintenance crews — to be explicit, tell our employees when they absolutely can't work on greens that may be damaged by even the lightest traffic.

How Much Manual Handling?

As an example of how a better management program can be set up, consider the irrigation system at your course. How much manual handling of hoses on and off the greens is required? Do you use sprinklers with bases that can be pulled off the greens without the maintenance workers stepping on them? Would pop-up valves around the greens alleviate the situation?

If you don't have the proper thunderstorm and lightening regulations at your club, it would be to your advantage to study those suggested by the USGA and have your club adopt them.

You should have the cooperation of the pro in preventing access to the course when weather and ground conditions aren't favorable for play. And, finally, you should ask your green chairman to take a firm stand against golfers going out on the course when there is a chance of damage from thawing and freezing.

Rowland B. Armacost retired less than a year ago after serving for many years as the supt. at Wahconah CC in Dalton, Mass. This article is condensed from a speech he made at a recent turf conference held at the University of Massachusetts.



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"IT'S TOUGH! No flexure breaks at all — even though Certain-tee pipe was installed amid coral rocks!" says Wallace Martin. The group includes (l. to r.) Donald Martin, Assistant Engineer; Joe Pool, Chief Engineer; Boise Miller; Wallace Martin; and Robert W. Holden, Vice President and General Manager of the Grand Bahama Hotel.



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Test Green Soil

If you're not sure of the quality of your putting green soil, it can be simply tested. That is by taking a sample, saturating it, balling it up tightly and letting it dry thoroughly. If it readily crumbles, the texture is good. If it has to be thrown against the side of a building or hit with a hammer to break it up, you have compaction.

It does no good to make a soil test if the ingredients are dry. There must be a normal degree of moisture and a normal degree of compaction because these simulate the field conditions with which you are concerned.

Drainage Test

There is a second test for soil drainage that is somewhat more complex, but you may want to try it to find out how quickly the soil on your greens is carrying off excess moisture. It requires the following apparatus:

1. A tin can with the top cut out;
2. A second can, same size, with both ends cut out;
3. A square of sash screen larger than the bottom of the can;
4. A rounded piece of sash screen, just large enough to fit in the can;
5. A beaker or coke bottle;
6. A pedestal to hold the beaker when it's upside down;
7. A funnel that is slightly larger at the mouth than the bottom of the can;

Place the tin can that has both ends out on the square of screen, with the screen resting on a table. Fill the can with the soil mix to be tested (the mix should have average moisture content).

Simulate Compaction

Then press the mix down with the thumbs until there is what should be a normal degree of compaction. Place the insert screen on top of this mixture (to prevent eroding the soil as the water pours in). Then place the can, with both screens held in place, on top of the funnel. Next place the funnel on the tumbler, with everything secured in an upright position.

Place the beaker upside down on the pedestal (holding the water in with the thumb) and allow the water to flow out slowly until the level of the water is at the beaker mouth.

Time the accumulation of water into

Growing Turf The Hard Way



By Tom Mascaro

Geographical Area: New York State

Problem: Raising tractor into truck to be hauled to junk yard. Equipment building had burned to the ground, destroying many thousands of dollars worth of equipment and supplies.

Solution: Keep constant check on electrical wiring and fuel storage. Remove oil soaked rags and other combustible materials. Initiate a thorough clean-up program and keep it up.

the tumbler when the flow starts, first at a one-inch level, and at a two-inch level, if desired. This will give you a good idea of the hydraulic conductivity of the saturated mixture, and, of course, tell you approximately how fast your greens dry.

Standards of Drainage

The USGA green section has suggested standards of drainage. There are testing stations that will make very accurate tests of your soil mixtures. If you avail yourself of these, you can determine with a great degree of certainty just how dense or how porous your green soil mixture should be.

My reason for suggesting tests and experiments is because that I feel we are
(Continued on page 64)

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Ernie Schneider and his Bellerive (St. Louis) crew inspect back portion of a tee after reclaiming parts of it that were damaged by winterkill. They were happy with results.



Here is a newly planted fairway area. It came back in a hurry.

Restoring Life to Winter-Killed Bermuda Turf

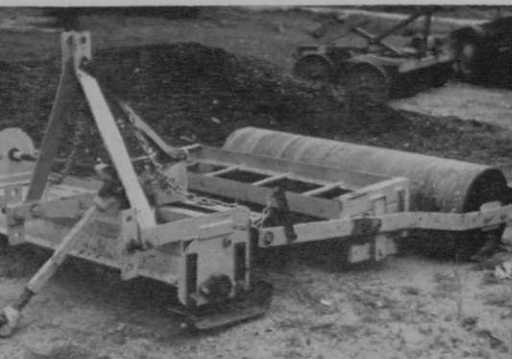
Quick cover is obtained by sprigging, although some supts. prefer to use hulled seed that is pre-germinated

By O. J. NOER

In the belt from Washington across to Kansas City, some winter kill of Bermuda fairways is a possibility. Loss may be confined to localized spots.

Some supts. resort to the use of pre-germinated hulled Bermuda seed. The best method is to fertilize generously first, mix the seed with moist vermiculite and keep the mixture that way for four to six days. Further bulking with vermiculite or dried activated sludge absorbs some of the moisture so uniform distribution occurs. With good weather cover is obtained in four to six weeks.

When some of the U-3 Bermuda winter-



Side view of the sprig planter.