GCSA Convention Speeches

summer stems from either too much water or lack of it. We have 15 greens that have never given us any serious trouble from disease or wilt. These greens have good surface drainage. However, we do have three greens that gave us trouble last summer when there was 16 inches of rainfall within two months accompanied by 90-95 temperatures and humidity of 95 to 100.

These three greens drained to a flat fairway or shoulder and excess water tended to build up and back onto the green. Good surface drainage is not enough unless excess water can continue to drain away from the green. These greens were hit by pythium, by the way.

We think the worst enemy of bent is too much water. Next is lack of water when temperatures are high with a steady wind blowing. This will bring on wilt. A little water, enough to wet the leaves of the grass, will stop and control wilt. At Richland we are set up to water our greens fast. We have, depending on the size of the green, from four to eight quick coupling valves spaced 35 feet apart. We use quick coupling sprinklers. We insert the sprinklers in valves, turn on water at the main valve and the job is done in a matter of minutes. Early morning watering probably is better than night watering. There is less chance of afternoon wilt and dew is washed in.

Fertilization Practices

We apply 30 lbs. of 8-6-4 to each 1,000 ft. in the fall and early spring. Throughout the spring, summer and fall months we use 100 lbs. of Milorganite mixed with 5 lbs. of muriate of potash. We apply this mixture each week at the rate of 5 lbs. to each 1,000 ft. with a Cyclone seeder. Each week we alternate directions across the greens to avoid streaking.

If soil tests show need for lime, we use magnesium limestone, applied early

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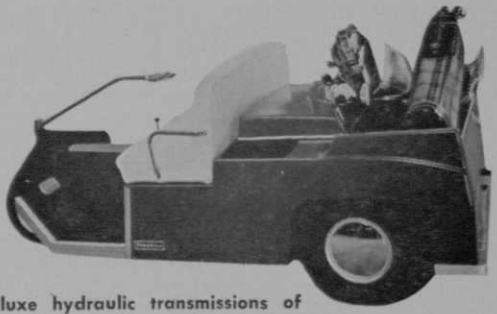

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in the spring. To correct iron chlorosis, we apply 2 ozs. of ferrous sulphate to each 1,000 ft. in 5 gals. of water. Greens quickly respond and regain color in a few hours.

We mow most of the year at ¼ in. except during June, July and Aug. Then we raise the mowers to 5/16 in. We mow on Mon., Wed., Fri., and Sat. except during the winter when we mow as needed or as weather permits.

Disease Control

We start our preventative spray program around May 1 and stop around Sept. 15. We spray each week with 3-ozs. Thiram plus 1-oz. phenyl mercury for the first six weeks. Phenyl mercury helps keep crabgrass out of greens. For the balance of the summer we mix 1-oz. mercury choloride with 3-ozs. of Thiram. When we run into hot, humid weather, we spray twice weekly. The worst disease we have had has been pythium on our three poorly drained greens.

Weed Control

By adding 1 oz. of phenyl mercury to our regular fungicide sprays, we keep crab out of greens. As for crowfoot, we are still experimenting in our nursery. We have to remove crowfoot with a knife. Poa annua is plentiful around the course. It hasn't gotten into our greens.

Soil sterilization probably accounts for the absence of poa. However, last year we started applying arsenate of lead to be safe.

Insect Control

We have to fight mostly grubs, sod web worms and cut worms and have depended on chlordane for control.

We aerify in early spring and late fall. We gather up plugs and use them to expand or repair the nursery. We use the verticut only in early spring when bent is growing well. This is to thin it out before going into the hot summer months. We have a mechanical spiker and plan to use this tool often in the summer.

At first, we had the problem of keeping Bermuda from creeping into greens. Three years ago we purchased an edger. As soon as Bermuda starts in the spring, we run the edger around the greens. This makes a cut 1½ ins. deep and ⅜ in. wide. Bermuda will creep across the cut but by running the edger around the greens every week, we cut off its tips before the node has a chance to make soil contact. We sweep the cut tips off the green.

Troubled With Wilt? Check Pumping System

By DON LIKES
Supt., Hyde Park CC, Cincinnati

Last summer I was having trouble with wilt again. Charlie Wilson of Milwaukee Sewerage flew in from Arizona and came out to the course. He told me about these high day time 118 deg. temperatures in Arizona. He said that when you put your hand down on the Seaside bent there the turf was cool, and it looked good, too. Our temperature was about 90 but the greens were hot. Apparently there was some kind of a cooling system that was working in Arizona that wasn't working in Cincinnati.

Charlie said he thought that our wilt problem was due to the grass getting too hot and not because it had insufficient moisture. He added (and this puzzled me) that the pump was not working. Wilson said the blades were full of water but that it was evaporating. That was why it wilted.

80 Degrees in a Hurry

I didn't grasp what he meant. After he left, I got one of my books out and read about the effects of warm temperatures on bent. I was surprised to learn that a grass plant in the hot sun will absorb enough radiant heat to raise its leaf temperature 80 degs. every two minutes. But normally, a healthy grass plant has a cooling system that dissipates most of that heat. It is like your automobile. The roots are the water pump. They pump water into the blades. It is converted to water vapor which is pushed out through the pores in the blade. This gives a tremendous cooling effect. But if the pump isn't working, the whole cooling system runs down and the plant gets too hot. Then you have wilt on your hands.

For years everyone has been showering off greens in the afternoon to cool them. But that is getting harder and harder to do because everyone has so much play that you just can't get on that green.

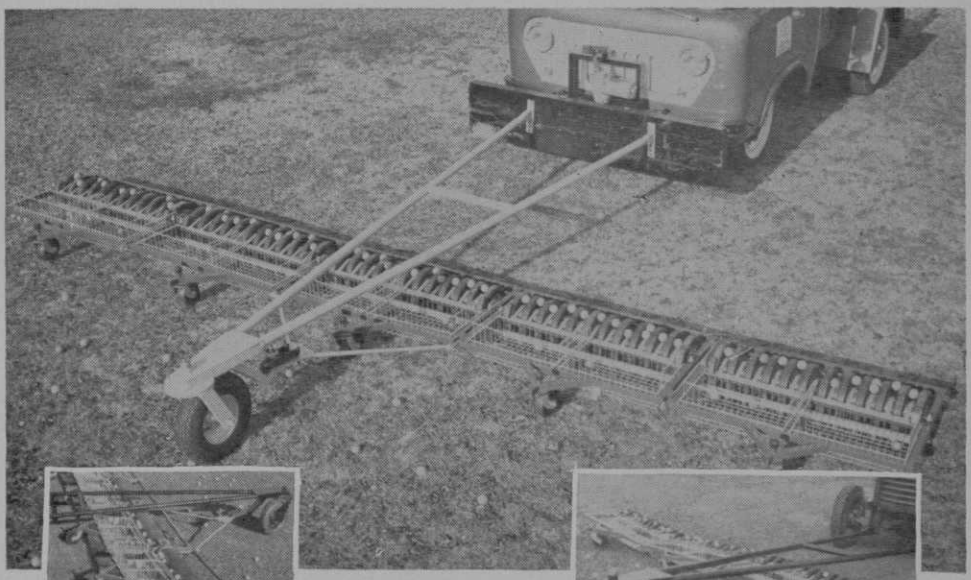
I think it is time we had some kind of an automatic showering device, or some kind of chemical to spray on greens in the morning to keep them cool during those hot, miserable afternoons.

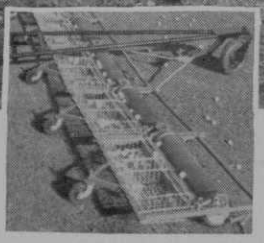
How to Speed Up Play on Public Courses

By GARRETT RENN
Supt., Juniata Public GC, Philadelphia

Courses that are getting the heaviest play today are ones similar in length and construction to the course that James Braid, over 50 years ago, planned in theory and set down in type, hole by hole, the yardage he thought desirable. It measured 6,240 yds.

	Length (Yds.)	Description
1	360	Fairly long; not too difficult. To get the players away quickly.





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2	390	Slightly more difficult than No. No. 1. Two good shots.
3	380	Should be difficult and green well guarded.
4	190	Full shot for a good player. May be increased to 210 or 220 yds.
5	320	Iron play. Very difficult near green.
6	500	Test of wood clubs.
7	120	Test of delicacy, accuracy.
8	400	Two good two-shot holes to finish outward half. Length to turn, 3,080 yds.
9	420	
10	340	Within two shots. Difficult, with a trying second shot.
11	410	Two fine shots. Three needed to get on in case of slightest mistake.
12	130	Difficult mashie or iron.
13	370	Two good shots.
14	520	Long hole in. Counterpart of 6th. Difficult near green.
15	180	A severely testing one-shot hole.
16	390	Hard finish. Seconds to be difficult. Total length in — 3,160
17	420	
18	400	yards.

Faster Green Play

To handle large traffic there should be more usable cup space and easier maintenance of greens. To speed up play we need the opposite of Marion Luke's fast grass. Height of cut should be maintained at 4/16 or 5/16. Larger cup sizes for public courses should be considered. For weekend play, pins should be placed in center. Two hole cups on greens, with players alternating the pin, have speeded up play on Philadelphia public courses.

Traps are often placed to speed up play by preventing balls from going out of bounds, rolling down steep hills or into water hazards.

Hazards in moderation, if skillfully placed and visible, are worth extra maintenance as a factor in making golf an intriguing and fascinating game. If it is necessary on Par 3 holes to speed up play, sod traps but maintain the contours.

Blend With Tees

Fairways should blend with tees, eliminating the rough between as this only penalizes poor players and slows up play. Where possible, to compensate for slicing, fairways should be built on a right diagonal from tees. Plenty of width should be given the fairways.

Roughs should be cut to a height so that the ball will be visible and easily found. Trees should be pruned and underbrush eliminated. Searching for lost balls should be kept to a minimum. Evergreen trees should be planted to eliminate the leaf problem.

Tees should be constructed to drain slightly from right to left and from front to the back. Tees should be 5,000 to 10,000 sq. ft. in area and constructed to be maintained with gang units. We suggest that markers be placed at the back of the tee on Monday and moved progressively to front by Sunday.

Other Speed-Up Measures

Public courses should be fenced in, spectators barred from course.

Fees on Saturdays, Sundays, holidays for 18-holes only.

Map of course should be printed on back of score card.

Beginners are to register with starter. They should be sent off in twosomes or threesomes, not foursomes.

Winter rules should be played all season.

Have direction flags for fairways and direction signs at each green for carts.

Thin flag poles, that will allow ball to enter cup without moving pin, should be used.

Practice putts are to be prohibited after holing out.

Have ranger with car and loud speaker.

Use retriever caddies at water holes.

Work With Nature In Designing Course

By DAVID GILL
GC Architect, St. Charles, Ill.

Probably the best book ever written on course architecture is a little volume about one-half inch thick by H. S. Colt, and called; "Some Essays on Golf Course Architecture." If there is a bible on course architecture, then that is it. It takes about 40 minutes to read it.

Speaking of greens, this is what Colt said:

"They should be located on sites which providence intended mortals to put them on." He then adds: "I have noticed during recent years that mortals have taken very divergent views as to the intentions of providence in this matter."

Now, out of the 72 strokes on the 18-hole course, 36 are allotted to the green.

The tees, by number of strokes, take second, since you will have 18. They will be divided by the driver (14) and an iron or higher wood.

Fairways and rough account for all the remaining 18 strokes. This is the chance given for the use of each club remaining in the bag.

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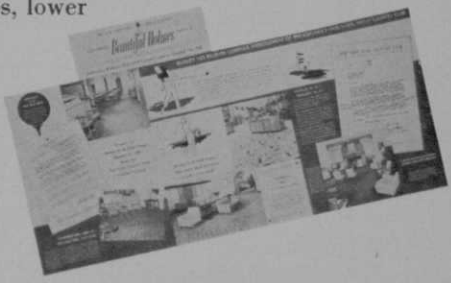

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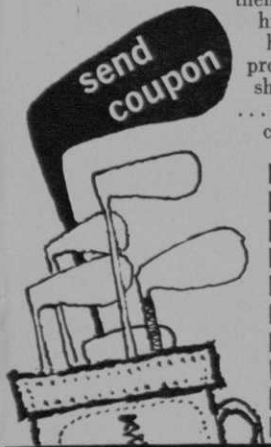

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1. Soil types and climatic conditions.
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4. Available water supply.

These mechanical component parts directly govern local type of architecture. Seaside courses should be at seaside; prairie courses, prairie; mountain, desert and island courses should fit their environments.

Too often, in our feeble attempts to improve on nature, we try to place one of these component parts in a setting that does not fit the locality, making for tough maintenance, unnatural settings and near disastrous results.

Some of the important principles of architecture are the size, shape and contour of the green, and this includes, as stated before, the approach, collar and apron. These are governed by the nature of strokes played onto them and the wear and tear they will undergo. There are few things more irritating to a player than to play the approach well and have the ball leave the green.

Dave Gill has pointed out that Golfdom misinterpreted his GCSA convention remarks (Feb., p. 66). It read: "He questioned whether an architect, unfamiliar with a particular region, can come in and do better than an average job of layout because of soil and climatic factors with which he is not familiar." This should have been added: ". . . if he is not willing to follow the dictates of nature."

It was not Dave's intention to infer, in any way, that an architect can only work in his back yard. A capable one can work anywhere.

Entrance to Green

The entrance to the green, whether large or small, rolling or flat, should be constructed so a player can accurately judge behavior of the ball after it lands. This is not the putting surface itself — this is the area in front of the green. Quite often it is a forgotten place.

In connection with the tees, there have been many odd-ball designs and shapes given them. This may be forgiven, however, providing the tee is of sufficient size, is smooth, blends into the landscape and is properly oriented to fairway or green and wind and the sun.

The fairway is architecturally the most difficult to design. Thus, it usually receives the least thought. Too much consideration is given to the whole length and rotation.

Put Nature to Work

The important thing to do is to turn the job over to Mother Nature. She can, in most cases, handle the fairways. Make minor adjustments in her topography and give her a little more nutrition and moisture than she usually provides. That is the way in which you can help her.

In connection with the rough and nature of the hazards, the characteristic requirements of a hazard are:

1. It should be difficult but not impossible to play out of.
2. It should not be a cause of lost balls.
3. Strokes played out should be calculable as regards to strength and direction.
4. The strokes should depend, for their success, on skill and not brute force.

Element of Risk

The object of traps, actually, is to introduce an element of risk and to tempt the player to either play through or skirt them. The penalties and playing should be in direct proportion to one another. The penalty should not serve essentially as something to scare the golfer away.

Now then, a word about landscape. The appreciation of pleasant surroundings is often subconscious. Many golfers are no doubt under the impression that while they are playing, they are entirely engrossed in the game. They do enjoy, however, having something to look at.

A golf course should be regarded not merely as an area for a contest but a property which should be improved in every way. But economy shouldn't be forgotten.

Microorganisms and Nitrogen Release

By WILLIAM MARTIN
University of Minnesota

Microorganisms work over nitrogen and effect various changes. Eventually soil microorganisms make nitrogen available to plants.

We have many general purpose soil microorganisms which release nitrogen in ammonia form. This will occur whether soils are good or poor. There are, however, a very few specialized bacteria which release or transform ammonia into nitrate nitrogen. The pH values have to be near neutral and slightly acid. In the soil root

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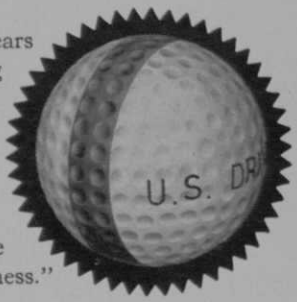

United States Rubber

Rockefeller Center, New York 20, N.Y.

we have clay particles with ammonia nitrogen attached very closely to the particles. By exchange, this may then be released and taken up by the plant.

Ammonia iron in high concentration can be toxic to plants. Nitrate nitrogen, on the other hand, is not attached to soil particles. It can also be taken up by the plants. The point is that the form of nitrogen is extremely significant in any nitrogen laws.

We are concerned with the organic nitrogen compounds, such as might be represented by a crop residue. These are decomposed in the soil by microorganisms.

The nitrogen with which we are concerned may be released, may be taken up directly by the plant or may go into a humus coating. This will be organic to the nitrogen supply in the soil.

Competition Occurs

In the case of low nitrogen residue, competition occurs. Nitrogen must be used by microorganisms. Taken away from the plant, the microorganisms feed at the first table. We can define this need in terms of a so-called nitrogen factor. This factor is the amount of nitrogen which is immobilized by the microorganisms, in effect, in decomposition of organic materials. We can give this in terms of a ratio of carbon to nitrogen of 20 to 1.

Another form of loss that sometimes occurs under good conditions of variation, but is particularly poor where nitrogen is added or compaction exists, is by what we call denitrification. Microorganisms under restricted drainage will actually reduce nitrate nitrogen to gaseous forms of nitrogen. This may occur in the cell, in the manure pile or in the soil. This is a form of loss that is very critical.

According to our findings nitrogen content of most soils decreases regardless of how much is added. This is mentioned because it was thought that one could add nitrogen to a low nitrogen residue and actually build up the organic matters in content. However, what happens in this connection is that the net result is general loss of organic matter.

A large proportion of the nitrogen, not recovered in crops, is found in the leachate. Substantial and unaccounted for losses occur in most experiments.

There has been quite a bit of discussion about the use of organics. Some very interesting work has been done in the South under conditions of high moisture — warm soil conditions — on the rate at which nitrogen may be realized from a group of organic materials from high to low grade

(*Continued on page* 92)