

Revives RUN-DOWN COURSE by Drainage

By EDWARD STROUD

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IT is not an infrequent experience for a greenkeeper to be called into a situation where the course is in rundown shape. The reputation and earning power of the new man is put to an exceedingly severe test, for the members of the club expect the newcomer to wave the magic wand and, presto! the course is tip-top.

Any explanations on the greenkeeper's part that it will take time to correct the prevailing unsatisfactory condition, usually are futile. He is put on the job and told to produce, quick, or else—.

It has been my observation that faulty drainage lies at the bottom of a great many of these cases where the turf is in bad condition.

When I came to Laurence Brook the course was run down in spite of it being only three years old, due to the fact that it never had a greenkeeper. There were only six traps on the course. The first six months I was there I put in 18 traps, the next season 24 more and built five tees. I also filled in ten deep washouts running the full width of the fairways on which they were located. I also had to drain three fairways, all of them with bad cases of hillside seepage. This work I had to do with seven men, so brother greenkeepers and green-chairmen who have been through the mill will realize that I have adopted the protective motto of the mining-camp piano-player, "Don't shoot the professor; he is doing the best he can."

After my first season on the course, the membership jumped well over 50%, and that is one of those cheering thoughts that the greenkeeper, doing his work behind the scenes, so to speak, delights in most as his inspiration and reward.

Tile Drainage Principles

Believing that my experience in draining will be of help to other greenkeepers who have to buck the same sort of a situation that confronted me I am setting down certain simple and essential principles to be kept in mind in considering a tile drain-

age problem. The main line which acts as an outlet for the laterals should follow the line of natural drainage as near as possible. All drains should be laid as straight as possible and in the direction of the greatest slope, an exception being where tile are used to intercept seepage water. Always avoid abrupt turns and short laterals.

As most greenkeepers know that seepy spots on hillsides are due to the surface soil being overlaid with a tight heavy clay which outcrops somewhere down the slope, the excess water in the soil as it pours downward reaches this layer of dense soil and follows it to the surface. This seepage water will often ruin parts of the fairway and make it absolutely unplayable or sometimes impossible to run any machinery over it. I had very many bad seepage spots on the slopes of our first, ninth and tenth fairways. I laid tile on the upper side of the wet outcrop and deep enough to intercept the water flowing along the tight soil. I always start excavation at the outlet or lower end of the drain, being careful to see that the first spading is thrown on one side of the ditch and the bottom thrown on the other side. The ditching must be carefully done. I test each part of the ditch with a gauge rod to see that the ditch is to grade at all points. All lines should be thoroughly checked. I came across quicksand on some of the parts that I was ditching. At the bottom of these spots I placed tarred boards to lay the tile on, preventing sinking of tile at these points. I covered these joints with burlap bags or hay to prevent the sand from entering the joints. After I have all the tile laid and am positive that it is to grade at all points I throw some of the bottom spading all along the tile to a depth of about two inches to hold tile in place, I then put about one foot of slag over the tile and then cover with soil, leaving a ridge about 6 inches high to allow for settling. The balance of the soil I use elsewhere for washouts, etc. I think the

following table may be useful to anyone considering drainage.

Size of Tile

The size of tile for mains can be obtained by referring to the accompanying table. This table is worked out on a basis of the main tile removing one-fourth inch of water from the area in 24 hours. To use this table it is necessary to know the

acreage to be drained as well as fall per 100 feet. For example, to drain 150 acres with a fall of three-eighths inch to each 100 feet, it would require an 18-inch tile, while a 9-inch tile would drain the same area with a fall of 10¼ inches per 100 feet. To be safe in selecting proper sized mains, it is well to increase the area by 50 per cent before using the table.

Number of Acres Drained by Tile Removing ¼ Inch Rainfall in 24 Hours Inside

Dia. Inches	3/8	1 1/4	1 1/2	Fall per 100 Ft., in Inches										
				3	4 3/4	6	8 3/4	10 3/4	12	1'6"	2'0"	4'0"	7'6"	10'0"
4.....	4	7	8	12	14	16	19	21	22	28	31	44	60	69
5.....	7	12	14	19	25	28	32	37	39	47	55	77	105	122
6.....	10	19	21	30	39	43	51	58	61	74	86	122	166	194
7.....	15	28	32	45	56	63	75	85	90	109	126	179	244	282
8.....	22	40	44	62	78	88	104	118	124	152	177	250	340	394
9.....	29	53	59	83	106	118	140	158	167	204	236	334		
10.....	38	69	77	109	137	154	181	206	217	267	308			
12.....	59	109	121	171	217	244	287	326	342	418				
14.....	92	159	176	251	318									
15.....	104	190	212	300										
16.....	121	222	248											
18.....	164	298	325											
20.....	213	389												
21.....	241													
22.....	270													
24.....	336													

"Hot Stove" Conclave Pounces on Beck's Brown-Patch Ideas

WHEN a greenkeeper, or a chairman who is especially interested in the technical aspects of greenkeeping, has a little spare time on his hands during the off season he delights to put forth his theories of brown-patch and its treatment.

To stir up things in the "hot stove" conclaves, GOLFDOM printed in December the notions of brown-patch held by Dr. W. Frank Beck, a physician who is owner of a daily fee course in Pennsylvania. Our editorial comment to the effect that remarks on this sort of a story would be appreciated met with an enthusiastic response.

Promptly at the start of each letter commenting on the Beck article did the writers pounce upon Dr. Beck's spider theory of brown-patch. They cite that this is probably one of the oldest of the hunches on brown-patch origin and was knocked out of bounds early in the research work of Green-Section turf specialists. Some of the greenkeepers in writing took a bit of fiendish delight in Beck falling for this by noting that even for one trained according to scientific lines of thought grass has enough complexities to call for highly specialized expert work. Those commenting on the

Beck article agree with its author that "those in charge of maintenance are too liable to call anything that is brown, or looks brown, brown-patch," but they cannot see where a change of name to "grass blight" would correct the too general tendency toward mistaken identity of brown-patch.

It is very evident that reports of the work of John Monteith, jr., and other grass research specialists of the Green Section are slated to continue as several of the "six best sellers" in turf business literature for the many and diverse ideas of brown-patch cause entertained in the greenkeeping field are keeping the possessors of these theories busy checking up with what the Green Section bulletins have had to say about these tenderly nursed pet hunches.

In the letters GOLFDOM received on the Beck article it was plain to see that among the working greenkeepers there were strenuous champions of a number of widely varying brown-patch origin theories. Among those who went to greatest lengths to tell their cases was the man who maintained that inability of both sides of a grass blade to get sunlight caused the disease, and the one who wrote about his belief of brown-patch cause being close cutting and the bruising of the tender "bleeding" grass blades by heavy traffic.