



A sweet sight on a beautifully maintained course is this tightly trapped green at Orinda C. C.

## Looking Ahead on Drainage, Sod and Weeds Pays

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**T**HE SOIL at Orinda Country Club is a heavy adobe, and in view of the trouble we have had with our clay tile lines, clogging up with roots, I have come to the conclusion that vegetation must go very deep in this vicinity for water. At any rate we recently had a drain on one of our long fairways dug up because it had not been functioning well and found that many of the tile were effectively clogged with solid masses of roots. The line has been down for about four years and consists of four-inch clay tile about two feet deep.

Something had to be done at once to correct this condition and we proceeded by removing the tile and substituting perforated corrugated pipe, installed according to manufacturer's specifications with a rock basin beneath the pipe and backfilling the trench to within six inches of

the surface with rock. The perforations in the pipe were placed on the down side.

Cost, not including the price of the pipe, for a ditch 32 in. deep, removing and replacing sod, hauling away removed earth, backfilling with rock, 41 cents a foot, based on a charge of 56 cents an hour for labor. Also the crushed rock that we purchased had to be hauled a distance of 12 miles and on trucks that could only be loaded to about a three-yard capacity, so you will note from this that our cost for filling material was high.

### Believes Pipe's Final Cost Is Less

The reason for the selection of the perforated pipe was the service given by an installation made about 1925 at Orinda of this same type of material which replaced a tile drain at that time. The tile drain was not properly installed and did not function, hence the replacement dur-

ing the construction of the course. The particular perforated pipe that has given such good service was 8 inches in diameter and only about 125 feet in length. During the winter season it carried as much as fifteen thousand gallons a day, and, dropping down in the late spring, was probably delivering from five to seven thousand gallons per day. (Measurement was taken with a five-gallon coal oil can, so these figures are not absolutely accurate.)

At present we have purchased and installed a little over a thousand feet of this perforated pipe, and the results have been such that we feel the additional cost was a wise investment. We feel that with the continued use of perforated pipe our first cost will practically be our last cost. Some of our tile drains have been removed as many as three times, cleaned out, and re-laid. The early pipe installed in 1925 has been functioning satisfactorily since installation without any maintenance whatever.

I feel that this material will justify the increased expense as compared with tile, as the increased play and pleasure to our members over our course is worth the expenditure.

### Favors Seaside Bent Greens

During the past two years I have changed over some of our poorer greens, which were mixtures of Chewings fescue, redtop and Colonial bent, to seaside bent. Our aim ultimately is to have all eighteen of our greens in seaside bent. Four of these greens were sodded from a nursery while one was seeded. We have found sodded greens to be very satisfactory due to the fact that they can be put into play in two weeks, although of course they are more expensive than the seed jobs. Costs on growing sod have averaged five cents per square foot, that is, growing sod to an age of three months when it is ready to lay. The cost on cutting, laying, rolling, etc., averages two and eight-tenths cents per square foot.

Our method of cutting sod is to cut along a 1x12 straightedge, cutting 12 rows in one direction and then 12 rows at right angles. Thus we have our sods all exactly the same size, when we lay them in a box and trim to a uniform depth of one and one-half inches, using old bed-knives with welded handles for knives. The resulting sod is practically fool-proof in laying and goes down very fast.

Greens are topdressed monthly with a mixture of sharp sand, topsoil and well-rotted manure. I keep a year's supply of manure ahead and by frequent turning it is kept in good shape. I use one of the complete fertilizers in the spring and fall, and ammonia sulphate in between.

Our watering system is the expensive but satisfactory hose system. Fairways are kept in excellent shape all during the dry season, all the fairway watering being done at night. Green and tees are watered every day and mounds about every other day. Our green and tees are watered during the day time and cut by hand, each of our greensmen having their own greens of which they have full care and responsibility. Fairways are cut twice a week. Mounds and traps are cut with a small power machine.

### Fighting Fairway Weeds

Our worst fairway weed pests are mouse-ear, dandelions and Bermuda grass. Arsenate of lead has proven to be a sure means of combating mouse-ear. We cleaned out our twelfth fairway, which had a bad infestation of this weed, with one application of arsenate of lead mixed with sand, securing a 90 per cent kill with no effects whatsoever on the grass. For this method we can thank Leach, whose articles in GOLFDOM are always of interest and value. We plan to try the iron sulphate method on dandelions as was suggested in one of the articles in GOLFDOM. On the Bermuda grass the only system we have found effective is to dig it out and dig deep, hand-picking the underlying soil for runners, then sod the spot. It is a matter of conjecture with us where the pest came from, as there has never been any seeded here and none of our near neighbors use it.

We have had only three days this winter when it rained hard enough to interfere with play on the course. Since the course was built, six years this fall, it has never been closed, a record we are proud of.

Mr. Claude T. Faw, my green chairman, is a great pleasure to work for. He understands the problems of maintenance and is ever on the alert to help me by providing labor-saving machinery, modern and effective equipment and that great item of sympathy and cooperation. This spirit smoothes many of the spots of the often rough road of course operation.