

Some Work That Solved Course Drainage Problems Permanently

By DALE PERRILL

DRAINS can cause a lot of grief—each spring this fact is brought home as the havoc wrought by a winter is viewed in early spring play over any course. Two illustrations show two typical examples noted recently. The drain in the sand trap was installed new last year. The heaving action of the frost thrust the

a better drained course in the Chicago district, and I've played most of the better ones. But, boy, it certainly takes lots of work. We are digging up and replacing drains all the time."

"Aye, there's the rub," said my Scotch friend at the Butterfield Country club to whom I related the boast. I had been telling him of my observations on drains and waterholes where there shouldn't be water. "Once we were always digging and digging, but our last installation is in to stay. We are putting in corrugated iron pipe, and it doesn't crack."

According to one of Chicago's leading



They put two drain-tiles, one inside the other, in this installation; but it didn't handle the strain.

drain up through the sand. The photograph shows what one winter of freezing and thawing has done to the tile itself.

The other view is across a fairway. This drain is being dug out preparatory to a new installation—the third in six years. The installation shown is number two, and it is interesting to note that in an effort to prevent the recurrence of the first failure this time two pipes have been used, one inside the other, to get double strength.

The other day a club member was bragging about the drainage of his course. "I can only remember," he said, "of one time that we had water on our fairways, and that was after a cloudburst about two years ago. No, sir, I don't believe there's

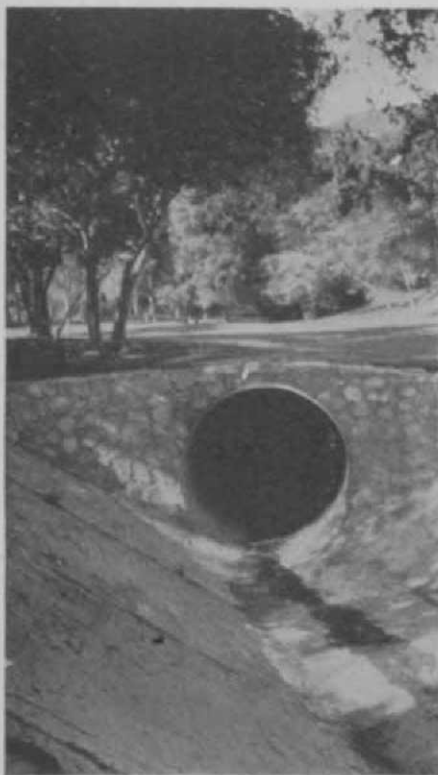


This trap drain lasted only a year. One winter of freezing and thawing wrecked it.

golf architects, the crux of the permanent drainage problem is one of correct installation of the type of drain pipe used. He cites a rigid pipe sand trap drain system designed by him four years ago. This pipe was placed in solid soil at a depth not less than four feet—well below the frost line. To provide for a quick run off

of water from the sand trap, cinders were used for the fill under the sand. All of the drains emptied into a main sewer which, in turn, emptied into a lake. Thus the whole system was protected against pressure from freezing water, and a cover of four feet of earth where the pipe ran under fairways assured safety against breakage due to impact of tractors or trucks.

However, he points out that a drainage system of this kind is not always desirable.



This was a fill where it was hard to get a fairway until adequate drainage was installed.

In fact, this particular system only took care of twenty-four traps out of nearly a hundred on the course. These traps were located near the water hole, otherwise the cost of such a system would have been almost prohibitive.

Tile Carries a Load

Drainage for the other traps was provided by a surface drain with the water usually out onto an open space in a nearby piece of rough. Such drains often have only enough soil above them to support

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turf. They must withstand the full impact of trucks or rollers, and, of even greater importance in the northern districts, destructive frost action. In such instances, this architect recommends use of the corrugated pipe type as it ends completely damage from both frost and impact.

Incorrect estimates on costs probably have a great deal to do with installation of drains, either the wrong type or under conditions where they cannot possibly stand up. For instance, in the case of the fairway drain shown in one photograph, three installations have been made in six years. Comparing the cost of pipe only, this rigid type installation might still show



A brook at an inconvenient place was carried under a fairway into a lagoon.

a saving as compared with the more expensive pipe. Comparative costs on this particular diameter of pipe in the Chicago district are about 15 cents per foot for rigid type as compared with 95 cents per foot for the corrugated type. But the pipe must be installed, a cost that is paid by the club regardless of whether the work is done by a contractor or by hired employers. This cost will run from 60 cents to 75 cents per foot for the first installation. Thus the comparative initial cost would be 75 to 90 cents per foot for rigid pipe and \$1.55 to \$1.70 for corrugated pipe installed.

Reinstallation Costs More

An important point in figuring the cost of a short-lived drain on a golf course is that the installation made when the course is under construction is by far the lowest

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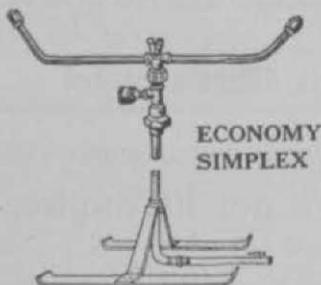
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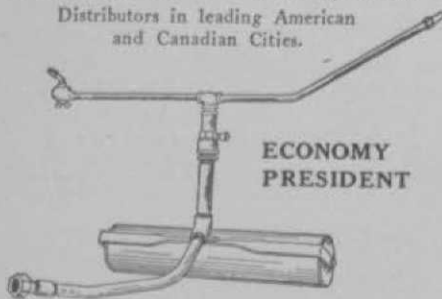
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cost. In a second installation added expense is incurred in removing and replacing sod. Extra maintenance work is also needed to bring this replaced sod back into first-class playing condition. In the case of this particular drain, the repair work to the fairway made necessary by damage from flooding will probably cost as much as the work of installation.

Thus it will be seen that wherever a second installation of rigid type pipe can be avoided by use of corrugated pipe there is an economy in favor of the corrugated type.

We have purposely neglected up to this point to consider the value of a course kept in playable condition. If the drain break floods the course there will be a reduction in ground fees, and that is an important point to most private as well as fee clubs. The loss due to "ground under repair" is more difficult to estimate. But we are of the opinion that most experts and officials will rate it as the highest priced of them all as no club can afford dissatisfied players. For that reason clubs which are still "digging and digging" will welcome the advent of this new drain pipe that takes only one installation regardless of trucks, rollers, tractors and frost.

MACOMBER BUILDING AIRPORTS

Chicago, Ill.—A new department for the design, engineering and construction of airports has been formed by Leonard Macomber, Inc., 664 N. Michigan Ave., one of the oldest and best-known golf architectural firms in the central states.

Capt. Harold H. Ambler, whose airport building experience extends back to the early stages of the World War when he built Orly Field, the largest airport developed by the American Service in France, has been made vice-president of the company and will have charge of the airport branch of the business. Assisting him will be Morrow Krum, second vice-president and widely known in American aviation circles.

SPORT TRADE DIRECTORY OUT

St. Louis, Mo.—Charles C. Spink & Son have issued the 1929 edition of the Sporting Goods Dealers' Trade Directory. This volume, the 23d annual edition of this reference work, gives the source of supply of virtually every item manufactured in the sporting goods industry. It also contains a list of sporting goods jobbers, wholesalers and semi-jobbers, classified by states; trade marks and trade names; list of manufacturers' representatives; and exporters and importers, with lines carried by each.